AN ERGONOMIC STUDY BRIDGING NORTH CYPRUS INDUSTRIAL DISTRICT WORK PLACES AND DOMESTIC HAZARDS

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by

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Approval of the Graduate School of Natural and Applied Sciences, Atılım University.

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This is to certify that we have read the thesis "AN ERGONOMIC STUDY BRIDGING NORTH CYPRUS INDUSTRIAL DISTRICT WORK PLACES AND DOMESTIC HAZARDS" submitted by "BARQ RAAD KHASHEI" and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

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ABSTRACT

AN ERGONOMIC STUDY BRIDGING NORTH CYPRUS INDUSTRIAL DISTRICT WORK PLACES AND DOMESTIC HAZARDS

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This research work seek to present a research undertaken in North Cyprus (Lefkosa Industrial zone) as regards health and safety issues – using the knowledge and practice acquired from workplace to solve domestic hazards. Seven research questions were put up and 3 hypothesis were constructed to be tested in this research work in which this research work provided answers to. In the findings of this research work, it was discovered that health and safety trainings that the respondents were exposed to were useful and applicable to solving health and safety issues in homes but it did not simply meant that the homes were totally safe from domestic hazards. This research work is a case study and it is pregnant with its own limitations in which time, small sample size and a specific location were the restraint.

Keywords: Health and safety, Hazards, Domestic appliance, North Cyprus and Training

ÖZ

KUZEY KIBRIS ENDÜSTRİYEL BÖLGESİ İŞ YERLERİ VE EV İÇİ KAZALARI BİRLEŞTİREN ERGONOMİK BİR ÇALIŞMA

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Bu çalışma Kuzey Kıbrıs Lefkoşa Sanayi Bölgesinde hayata geçirilen ve iş sağlığı ve iş güvenliği alanında çalışma ortamında meydana gelebilecek risklerin çözümünde kullanılmakta olan bilgi ve uygulamaların araştırılmasının sonuçlarını sunmaktadır. Bu araştırmada 3 hipotez, yedi soru ile test edilmiş ve yanıtlanmıştır. Araştırmanın bulgular bölümünde, iş yerlerinde verilmekte olan iş sağlığı ve iş güvenliği eğitimleri çalışanların ev hayatlarında da uygulanabilir ve yararlıdır, buna rağmen evlerin risklerden uzak ve tamamen güvenli olduğu anlamına gelmemektedir. Bu araştırma bir örnek çalışmadır; süre, küçük ölçekli bir örneklem ve belirli bir coğrafi alanda çalışmak gibi kendine özgü kısıtları ile sınırlanmıştır.

Anahtar Kelimeler: Sağlık ve Güvenlik, Risk, İçsel Araçlar, Kuzey Kıbrıs, Eğitim

DEDICATION

TO THE CANDLE THAT HIGHLIGHTED MY WAY, MY GREAT … FATHER

TO THE SPRING OF KINDNESS, MY DEAREST … MOTHER

TO MY SISTER AND BOROTHER, WITH LOVE AND GRATITUDE

TO THE JASMINE FLOWER…. MY WIFE

AND FOR EVERY PERSON WHOSE HEART THROBBED FOR ME

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TABLE OF CONTENTS

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 Background of Study

Presently, without mincing words, workplace hazards have received numerous attentions by scholars and notable researchers all over the globe. However, little have been penned down on domestic hazards making it suffer academic neglects. Most reasons for domestic hazards can be traced to social economic and cultural factors (Sirohi*et al.,* 2015). In as much as there are many factors connected to the domestic hazards manifestations, one thing can be used or applied to save this situation which is the application of the health and safety ideas acquired at workplace to homes. In other words, nothing in life is free of risk and no one is an island of knowledge: hence to make a home safe from hazards, safety measures are needed which one of its sources can be from workplace.

On an average home, children are the most susceptible being in a household to domestic hazards from both electric and non-electric domestic appliances. They are assumed to be innocent, and not knowing much about safety which means they are to be protected at all times to make them free from hazards within and around their homes. Unfortunately, they are exposed to many injuries and death (Alper, 2003). This is because when house chores are on-going such as laundry and cooking, these children are confined in the living room or kitchen making them susceptible to hazards (Rowntree, 1998). The adults are not exempted from being victims of domestic hazards. Since most adults who are old also constitute part of an average members of a household, one most common thing is either they have impaired vision, slow movement, osteoporosis, and osteoarthritis (Shawon*et al.,* 2012) which makes them highly likely to be a victim of domestic hazard. Inclusively, women, especially the expectant mothers, hypertensive ones, and stressed in a household can be easily electrocuted, burned, get suffocated and having cuts which are as a result of domestic hazards in homes (Shawon*et al.*, 2012).

In a household, the most frequent area where accidents are rampart are the bedrooms and living rooms while when it comes to the kitchen or staircase, adults are seen to suffer the most serious accidents in the household (Gilhooly*et al.,* 2007). The reason why bedrooms, living room and kitchen are top on the list can be traced to its space, number of electrical wirings and gadgets, and the tendencies to be occupied at all time during the day and night. According to the National Safety Council, falls, poisoning, choking, drowning, fires, flames and smoke are the leading causes of hazards causing domestic accidents at homes.

In North Cyprus, there have been so many cases of fire outbreak in homes, gas poisoning, children who drowned in pools and so on. In a report released on the 22nd June 2008, in Morphou District, a fire incidence occurred where a toddler faced death (Famagusta Gazette, 2008). In the full report of the incident, the toddler who was two-year-old was home alone when a short-circuiting ceiling fan caught fire and consumed the whole house (Famagusta Gazette, 2008). Also, in news about water hazards, a Bristol girl, two-year-old was found dead when she got drowned in her grandparents' villa in North Cyprus (Child Accident Prevention Trust, 2010). In another report where British couples were both confirmed dead, it was confirmed that the reason for this was as a result of a faulty gas heater in their apartment in Nicosia which caused gas poisoning (mail online, 2016). In a fire outbreak which occurred on the 17th of January 2017in the kitchen of a house, it was known to be due to gas leak where two elderly Turkish Cypriot escaped the scene by the help of social service (In-Cyprus, 2017). One of the dry-washing appliances known as tumble-dryer killed a RAF corporal and his two young children making their mother a widow overnight. According to report, this family except the wife got wiped out in a timber-made house as a result of an overheating of the electrical socket (Daily Mail, 2009). These types of incidence are known to occur yearly as in the case of Cyprus.

Even though Turkish Cypriots are known for farming, working with the government, private companies or self-employed (country-data, 1991), just like in any State, citizens can be into farming, mechanic, carpentry, technicians, and operative makers. Some work with the government in hospital, security, fire service, police, schools,

and judiciary and so on. While some are working with private organizations like telecommunications, media, and food processing companies and so on. One thing seems to be common among all of these classes of workforce. They must have adequate skills in their job. Another thing that is very common to find in workplace also is health and safety practice of each department or section of an organization or workplace.

To ensure that workers are exposed to a safe and healthy workplace, many governments and private institutions have invested huge money on this issue. Workers are exposed to training, some are well kitted in case of accidents, so many facilities are put in place to curtail any hazard that are likely to erupt as the case may be. When assessing, precisely, the ultimate goals for this safety and health training, it was found to be useful in removing hazards entirely as regards to the best solution for preventing hazardous workplace exposures (Weinstock &Slatin, 2012). Also, just as it is believed that a work place is a hazard prone environment, so also are homes. If training is an essential means of refining workers' comprehension of workplace hazards and the health and safety risks they pose, then what is the vehicle for understanding household hazards and preventing health and safety risk they could pose to home users? Hence, ability and potency to identify and engaging in truncating hazardous work conditions and exposures that leads to injuries or death should not be for workplace alone, homes as well need this ability and potency.

1.2 Statement of Problem

Statistics have shown that in UK alone, in a year, 6000 deaths are recorded as a result of home accidents (RoSPA, 2017). In Northern Ireland, it was discovered that accidents that happened inside the home (41.4%) is more than at work (15.2%) coupled with on the roads (19.5%) put together (Injury observation, 2004). In Singapore, it has been established that most accidents are avertable, and in a situation when they are not avertable, the injuries that result from them often are dangerous (Khoon, 2002).

Consequently, most households in North Cyprus have at least one person living in the household is employed. Most employees in all organizations in North Cyprus do care about health and safety practices of their organization be it government or private organizations. Even though they expose their workers to health and safety practices, domestic accident have claimed more lives than road accidents in general.

The use of both electric domestic appliances (such as fridge, microwave, iron, blender, washing machine, electric stove, electric kettle, electric heater and so on) and non-electric domestic appliance (such as gas cooker, gas heater, lamp, stoves and so on) have led so many damage to lives and properties in households. There are so many reasons to this and it includes design problem, ignorance, misuse of the appliance, inexperience, lack of attention and heavy drinking.

Design problems in appliances have caused a lot of hazards in homes in so many ways. Improperly or poorly fitted non-electric domestic appliances can cause leaking of fuels such as gas which ignites and causes fire outbreak when there is a source of heat or fire around. Ignorance on health and safety on how to manage situations like this can cause serious fire disaster in homes.

Most households in North Cyprus use gas sold in cylinders of different sizes to power their stove and heater. Electricity is mostly used in this region to light up the home, watching of TV, ironing clothes and so on. Some prefer to use electricity to power the air conditional while most people prefer to power their heaters with gas because of the fact that it is of lower cost compared to charges by the electric distribution body. Unfortunately, users of gas are not adequately informed on health and safety tips on the use of gas at the point of purchase. Even there are no warning labels on most cylinders or the package for the cylinders. It is assumed that everyone knows how to use gas in their various homes.

Most electric domestic appliances have their instructions manual but most users do not take their time to study these manuals. It is always assumed that they know how to operate the appliances. Most manuals have safety instructions, but since the

manuals are not studied, the possibility of understanding how to manage any accident from appliances in questions can even cause more hazard to the lives around it.

1.3 Research Objectives

1.3.1 Main Objectives

This study aims to access the useful transfer of safety knowledge and practice at workplace to homes in North Cyprus and thereby it is aimed to solve hazards realted to domestic appliances

1.3.2 Sub Objectives

1. Evaluating the safety practices of workers at their workplaces;
2. Measuring how safe a home can be if a family member is adequately aware of workplace health and safety practice;
3. It measures the useful transfer of the acquired knowledge to homes;
4. Measuring how safe an average home in North Cyprus can be.

1.4 Research Questions

The rationale behind the research questions of this study revolves round the possibilities and importance of applying workplace health and safety knowledge and practice to homes for solving home hazards. The research questions for this study are as follows:

1. Are there health and safety practices for the workers at their workplaces?
2. How safe a home can be if a family member is adequately aware of workplace health and safety practice?
3. Are these health and safety knowledge exclusively for workplace only?
4. Are the knowledge and practices of health and safety at workplace well understood by workers?
5. Is this knowledge applicable to solving hazards related to domestic appliance?

6. Are they usefully applied at homes?
7. What are the effects of the application of health and safety practice in households?

1.5 Structure of the Study

The subsequent chapters of this study include the Review of Literature (Chapter Two), Research Methodology (Chapter three), Data Analysis and Interpretation (Chapter Four) and Conclusion (Chapter Five).

In the review of literature, related works on Ergonomics, health and safety, hazard and risk are combed. It includes academic work on training in workplace and transfer of knowledge. The research methodology, basically, it deals with the research design, approach and sampling method. Also contained within are the ethical issues and the statistical analysis. The chapter for data analysis and interpretations is a product of the workings on the collected questionnaire from the survey field while the last chapter was the concluding chapter which encapsulates the findings, discussion, recommendation for further studies and conclusion.

1.6 Justification of the Study

Since there are little or no much academic writings on making workers to understand that the workplace knowledge can be used to solve domestic hazards, all these justifies the motivation behind studying how the workplace health and safety practices which in the work place can be used to solve hazards from electric and non-electric domestic appliances. Also, with respect to the present occurrences of domestic hazards as a result of gas leaks, fire outbreaks from naked wires and faulty appliances, electric shocks, poor lightening of stairs and passage, unreasonable connections and fixtures of switches and plugs and so on, common safety and practices taking serious in workplaces can easily avert avoidable domestic hazards from domestic appliances at home. Hence the correlation between workplace health and safety knowledge and home safety explains how an average household can become safe and healthy for both the young and the old.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

To achieve a significant and genuine conclusion on the data and findings from this research, importantly, it is necessary that a wholly look at past literature is presenting issues that surround ergonomics, safety, and health with reference to hazards, risks and domestic appliance so as to lay simple how connection exist between workplace activities and solving household hazards. In sequel to this, this chapter intends to give a review to a number of literatures deemed relevant to this research work.

2.2 Ergonomics in Brief

Ergonomics, by scholars in the academia, has to do with the relations between humans and systems that directly or indirectly applies to aspects such as equipment design, machine, system, task, product, environment and effectiveness of individual function (Rozlina, Awaluddin, Norhayati& Hamid, 2012). Ergonomics as a word itself was coined in 1950 from 'ergon' (work) and 'nomos' (the natural law) by some scientist who were researching on man in relations to machine (Kelkar, 1976). It is mainly towards making the workplace as efficient, safe and comfortable as possible (Garbie, 2014). Work Safe Australia gave a description of ergonomics to be aimed at "promoting the well-being, safety and efficiency of the worker by the study of his or her capabilities and limitations in relation to the work system, machine or task and in relation to the physical, psychological and social environment in which he or she works" (Work Safe Australia, 1989a).

As adopted by IEA in the year 2000, ergonomics was defined as a scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance (Ergonomics Society of Australia, 2001; Hendrick, 2000; Dul, Bruder, Buckle, Carayon, Falzon, Marras& van der Doelen, 2012). It is further known that

ergonomics concerns itself with performance and well-being. Performance here includes productivity, efficiency, effectiveness, quality, innovativeness, flexibility, (systems) safety and security, reliability, sustainability while well-being encompasses health and safety, satisfaction, pleasure, learning, personal development (Dul*et al.* 2012).

2.2.1 Ergonomics principles to be applied at workplace

Based on the work of Fernandez and Goodman (1995), the principles of interest to be applied at workplace includes the following below:

i. Circumventing tasks where movement is difficult since such creates a situation fatigue sets in;
ii. Aligning work height surface with positioning of the employee and nature of the job to be executed;
iii. Not stressing the muscles of the worker and not stretching him/her beyond a certain extent;
iv. Both primary and secondary controls and working devices should be closely placed at the reach of the worker so as to decrease the tendencies of fatigue;
v. Ensuring all useful machineries do not harm the skeletal systems;
vi. Both the left and right hands must be constantly active;
vii. Symmetrical and opposite movement of the hands should be consistent at work;
viii. Both the feet and the hands must be active;
ix. Fingers should not be overloaded ;
x. Gravitational laws should be applied to products or objects that cannot be easily broken;
xi. Postures must be at all-time normal while performing a task;
xii. While on a seat, postures must also proper;
xiii. To reduce weight and forces of an instrument, counter-balancing is encouraged;

xiv. For workers who are plump, provisions for space should be made for them to make them perform their tasks;
xv. For storing and retrieving tools, bins with lips should be used at an inclining position;
xvi. Adequate training must be giving to worker as regards using a workspace, tools, and instruments properly (Fernandez & Goodman, 1995).

The proper application of ergonomic principles in the workplace are important and below are the outcomes of its right application:

i. Improved safety and health of workers;
ii. Increased productivity;
iii. Lower workers' compensation claims;
iv. Compliance with government regulations such as Occupational Safety and Health Administration (OSHA) standards;
v. Improved job satisfaction;
vi. Increased work quality;
vii. Lower worker turnover;
viii. Lower lost time at work;
ix. Improved morale of workers;
x. Decreased absenteeism rate (Fernandez & Goodman, 1995).

The right application of the ergonomic principles have always be known to give birth to an improved safety and health of workers. This study shall look deeply into safety and health concurrently.

2.3 Safety and Health

Right now, workers expect their employers to make provision for a healthy environment where tasks can be executed safely. Although, before now, a lot of workers perceived hazards and diseases as an inevitable aftermath of work. Even though this mind-set is still existing in a lot of industrial workers minds in undeveloped nations, the case has changed shape in developed nations. Preventive

measure and control measures are now in vogue to reduce or eradicate risk in workplaces.

2.3.1 Safety

According to Podstawskiet al., (2015), safety is coined from a Frenchword “sauf” and this is *the state of being safe, the condition of being protected against physical, social, spiritual, financial, political, emotional, occupational, psychological, educational or other types or consequences of failure, damage, error, accidents, harm or any other event which could be considered non-desirable.* It is the state of abstaining from creating or feeling hurt, injury or misfortune. A case of such an importance would resemble "I am not at risk and I am safe here", implying that a man feels like he or she is abstaining from feeling hurt or getting harmed when someone else is being available, who gives that sentiment insurance.

Safety can be utilized to name an article whose entire reason for existing is to avert operation of a perilous weapon or machine without unequivocal aim to do as such.Safe and Safety are a piece of the main 2,000 most basic words in English language. These words are a piece of the General Service List (otherwise called GSL), which is fundamentally an arrangement of 2,000 words that are most basic for learners of English language, regardless of in the event that you speak Chinese or Indian locally (West and West, 1953).

An attention on safety and health puts individuals first and that is the best thing to do. However, it additionally bodes well on the grounds that a decent safety record diminishes risk and expenses. It improves profitability. When we watch over individuals, it is reflected in the outcome studying the workplace with respect to their equipment, and each part of their employments.

2.3.1.1 Industrial safety

The importance of industrial safety was realized because of the fact that every year millions occupational/ industrial accidents occur which result in loss of production time equivalent to millions of man hours, machine hours etc (Chand, 2015). With

regards to word related safety and health, it alludes to the administration of all operations inside an industry, for securing its employees and resources by minimizing hazards, risks, and disasters. The applicable laws, consistence and best practices in the industry have the vast majority of the issues tended to for the most ideal security. By definition, it is the law and protections put in place to reduce risks and hazard to people and processes that could cause injury for example, OSHA's policies (Moraru, Babut&Popescu-Stelea, 2014).Employers are to ensure that these are entirely held fast to have greatest safety (Asfahl&Rieske, 2010).

Industrial safety covers various issues and subjects influencing safety of personnel and equipment in a specific industry. The following points are generally talked about:

i. General Safety - General parts of safety which are basic to all;
ii. Occupational Safety and Health - Particularly connected with the occupation;
iii. Process and Production Safety - Safety in the process and production and so forth;
iv. Material Safety - Safety of the materials utilized as a part of the production;
v. Workplace Safety - Safety issues straightforwardly identified with the workplace;
vi. Fire Safety - Fire safety, specifically the risks related to the industry;
vii. Electrical Safety - In general and specifically, emerging from the equipment utilized;
viii. Building and Structural Safety - Safety in general including establishments according to existing building code;
ix. Environmental Safety - Issues of ecological safety (immediate or circuitous effect of the industry) (Asfahl&Rieske, 2010: Quick &Tetrick, 2003).

2.3.1.2 Increasing Safety in Workplace

a. Leadership and Personal Commitment

It is vital to build up clear parts, responsibilities and accountabilities for individuals and groups at all levels of the organization. Those in leadership parts have a unique commitment to show others how it is done. They should be good examples for organization's center values and should proactively convey the significance of safety and health all through the organization (Vredenburgh, 2002). What leaders quality and how they carry on determine the safety society. Leaders must make a move to make and advance a protected workplace. Leaders must urge and engage workers to talk openly and offer proposals. They can best accomplish this through unmistakable felt leadership, being dynamic and obvious in the field, associating emphatically with employees to mentor them and energize great safety practices. Accomplishing safety vision requires gutsy leadership and personal commitment from everybody (Barrick, n.d.; Clarke & Cooper, 2004;Martínez-Córcoles et al., 2011).

b. *Preparing and Competency*

The company or organization is in charge of giving workers a protected and healthy work environment and for guaranteeing they have what it takes and information, including learning of pertinent enactment, to work in a sheltered and solid way. This implies giving chances to learning, or training, and also strengthening and checking the utilization of intellectualcapacities and information at work (O'Neill, Cheung and Holley,2014)

Compelling utilization of risk assessment instruments applies at all levels of the organization, whether it is a project wide risk evaluation, formal risk appraisal at the general site level, or a field level risk evaluation for a particular assignment. Company must endeavour to impart the risk evaluation approach over the organization as a component of the safety society (Alfieri, 2005).

The company's offices, outlines and plans from investigation to conclusion are liable to nonstop change. While important for business achievement, changes can likewise

present new risks that influence individuals, environment, processes and equipment. Through its administration of progress process, Company should likewise guarantee operational changes that are properly distinguished, evaluated, and controlled to stay away from unintended outcomes.

As a feature of capable mining rationality, company must trust that sound safety in respect to blasting or detonating and word related health administration practices are to the greatest advantage of it business, employees, shareholders, and the groups in which it works (Rajaram et al., 2005). Company must be resolved to follow all licenses, laws, and directions, and respects its consensuses with groups. Poor execution in these areas builds risk, brings about rise in cost in the long haul, and can imperil a company's permit to work.

c. Operational Controls and Procedures

In view of the discoveries of the risk evaluation, operational controls and methodology are intended to guarantee work exercises and can be performed securely. Controls shield individuals and resources from injury. A coalmine, similar to any industrial workplace, has a large group of control measures and systems in place to alleviate or relieve risk. A couple of basic illustrations include:

i. Standards that give a framework to safe operation;
ii. Written techniques that disclose how to execute a task securely;
iii. Inspections to recognize and revise dangerous conditions;
iv. Controls, for example, alerts, wheel chocks, banners on vehicles to enhance perceivability, berms and hindrances, and so forth;
v. Personal defensive equipment, for example, hard caps, safety boots, high perceivability shirts, safety glasses, hazardous materials suits, gloves, and respirators, and so on;
vi. Fall safetyloads, extraordinary equipment and techniques;
vii. Access control frameworks;
viii. Lockout/tag out to recognize apparatus under repair that ought not be utilized;

ix. Isolation necessities for force supplies;

x. Pre-start-up assessments on portable equipment;

xi. Site speed breaking points, signage and in-vehicle coaching frameworks (Kumar and Zhao, 1999)

A few measures are required by enactment, and consistence is vital. Extra measures are ordered by a company as the base standard required for every one of its areas around the world. Sometimes, encouraging measures might be included based on particular site necessities; for instance, some company's locations requires that long clothes are put on to avoid being sting or beaten by mosquitoes causing them to have different kinds of fever.

An intensive risk evaluation process recognizes the required control measures as well as considers how those controls may come up short so that safety or extra controls can be actualized.

d. ***Health related contract controls and Wellness***

A healthy work environment is basic for the accomplishment of company's safety vision of "each individual going home safe and healthy consistently." Company's goal is to streamline employee health and prosperity. A healthy workforce is more beneficial and has less turnover, so that word related health and wellbeing exercises straightforwardly support the accomplishment of business destinations (Paloutzian et al., 2003).

Health control is a deliberate way to deal with envisioning, distinguishing, assessing, controlling, and checking workplace health hazards and exposures to secure individuals (Ashford, 2007). Health hazards must be evaluated and observed at a recurrence that is indicated by controls or through an evaluation process to determine the risks (Institution of Civil Engineers, 2010; Stave et al., 2003).

e. Safety and Health approach

Healthy ways to deal with safety include:

i. Pre-livelihood process to guarantee employees are fit for obligation;
ii. Compliance with all health laws and controls;
iii. Diligent checking and control of hazards;
iv. Promoting chances to enhance personal health practices;
v. Health issues in the more extensive group that will affect the workforce and business destinations (Panisello&Quantick, 2001).

It is essential that powerful administration frameworks are in place to guarantee the safety and health of all workers. Safety and health execution is an essential thought for contractual worker determination. All temporary workers are required to give and keep up a protected and healthy work environment and are capable, as a base, for performing work to company's safety and health models (Heinrich et al., 1980).

f. General obligations, responsibilities and duties of competent authority

The competent authority should formulate, implement and periodically review a coherent national policy on safety in the use of machinery, taking into account national conditions and practice and in consultation with the most representative organizations of employers and workers concerned (International Labour Organization, 2003; 2013).Such a policy should take due account of relevant international regulations, standards and systems, including the guidance contained in this code of practice (International Labour Organization, 2003; 2013).The competent authority should establish and from time to time review laws, regulations and standards for safety in the use of machinery, in consultation with the most representative organizations of employers and workers concerned, and relevant professional bodies (International Labour Organization, 2003; 2013).

The competent authority should establish mechanisms to ensure compliance with national laws and regulations. These should include an adequate and appropriate system of risk-based inspection.The system of enforcement should provide for

corrective measures and adequate penalties for violations of national laws and regulations concerning the policy.

However, the competent authority may place some embargo and restrictions to ensure safety and hazard control. Some of this may include:

i. prohibit or restrict the use of hazardous machinery;
ii. specify qualifications of workers who, for reasons of safety and health, are allowed to use specific machinery, or are allowed to use them but only under conditions prescribed in accordance with national laws and regulations;
iii. The competent authority should establish, apply, and periodically review a system for the recording and notification by employers of occupational accidents, occupational diseases and dangerous occurrences caused by machinery (International Labour Organization, 2003).

g. Designation of machinery

When designing machinery, the manufacturer should carry out an iterative process of risk assessment and risk reduction as part of the design process (International Labour Organization, 2003).Manufacturers should ensure that machinery they produce for the workplace complies with the requirements set out in the relevant sections or other corresponding international or national standards and recommendations, taking into account the state of the art (International Labour Organization, 2013). Manufacturers should ensure that machinery is designed and constructed in such a way that it fits the purpose for which it is intended and it should be operated, adjusted and maintained without putting persons at risk during its operation under foreseeable conditions, but also taking into account any reasonably foreseeable misuse (International Labour Organization, 2013).

2.3.2 Health

Being a concept, it has a number of scopes that is measurable and defined in various ways. The most widely recognised definition of health is "a state of complete physical, mental and societal well-being, and not merely the absence of disease or infirmity (WHO, 1948). This definition has suffered a much notable reproach due to its inability to fully meet up to the letters. Three main concepts of health were recognized by Medin and Alexanderson which are:

i. Health as the absence of ailment;
ii. Health as a resource and a power; and
iii. Health as the state of being in balance (Medin& Alexanderson, 2000).

Fundamentally, health has a direct connection with the concept of ability and that unhealthy or disease is, likewise, connected with the concept of disability (Nordenfelt, 1986). In other words, performance or ability differentiates a healthy and unhealthy person but judging in relations to goals is vital here (Nordenfelt, 1986). Hence, the existence of health is dimensional which makes it difficult to singularly conclude that one is healthy or unhealthy.

Still on the work of Nordenfelt, the existence of health in different degrees can hold water. A worker with a psychologically balanced health but coupled with a poor physical function may have the ability to perform well at workplace just in the same way someone with good physical function, subject to the goals and this opens up the twofold form of health dimensions and they are:

i. Clinical judgement of health: ill or healthy;
ii. Self-assessed health: good or bad health view (Eriksson, 1984; Rydqvist&Winroth, 2002).

The dimensions, when married together gives birth to different states of health where worker can be healthy and have a good health perception or be healthy physically but with bad health perception. This shows that health is dynamic and workers can fluctuate around this states.

2.4 Hazard and Risk

2.4.1 Hazard

There are many definitions for hazard but the more common definition when talking about workplace health and safety is any source of potential damage, harm or adverse health effects on something or someone under certain conditions at work. More specific, a hazard is a potentially damaging physical event, phenomenon or human activity, which may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation (Makoka& Kaplan, 2005). The International Labour Organisation defined hazard as the intrinsic potential to cause harm or damage to people's well-being (International Labour Organisation, 2013).A very operational definitional is given by the Standards Australia/Standards New Zealand (SA/SNZ) which states that hazard is a source or a condition with high possibility of being a cause for harm in respect to human injury or ill-well-being, mutilation to property or a particular environment or the two together ” (Standards Australia, 2001). Similarly, it is also seen as a condition with the potential of causing an injury to personnel, damages of equipment and structures, loss of material, or lessening of the ability to perform a prescribed function (Hassam &Mahamad, 2012). Hazard means a situation or thing that has the potential to harm a person which may include (at work may): noisy machinery, a moving forklift, chemicals, electricity, working at heights, a repetitive job, bullying and violence at the workplace coupled with poor management system (Safetywork Australia, 2010). Sometimes a hazard is referred to as being the actual harm or the health effect it caused rather than the hazard. For example, the disease tuberculosis (TB) might be called a hazard by some but in general the TB-causing bacteria would be considered the "hazard" or "hazardous biological agent".

2.4.1.1 Example of Work Place Common Hazard

Workplace hazards can come from a wide range of sources. General examples (as extracted from Australian Code of Practice) of hazards may include the following the table 1 below:

Hazard	Potential Harm
i. Manual task	Overexertion or repetitive movement can cause muscular strain
ii. Gravity	Falling objects, falls, slips and trips of people can cause fractures, bruises, lacerations, dislocations, concussion, permanent injuries or death.
iii. Electricity	Potential ignition source; Exposure to live electrical wires can cause shock burns or death from electrocution
iv. Machinery and equipment	Being hit by moving vehicles, or being caught by moving parts of machinery can cause fractures, bruises, lacerations, dislocations, permanent injuries or death
v. Hazardous chemicals	Chemicals (such as acids, hydrocarbons, heavy metals) and dusts (such as asbestos and silica) can cause respiratory illnesses, cancers or dermatitis
vi. Extreme temperatures	Heat can cause burns, heat stroke or fatigue Cold can cause hypothermia or frost bite
vii. Noise	Exposure to loud noise can cause permanent hearing damage
viii. Radiation	Ultra violet, welding arc flashes, micro waves and lasers can cause

	burns, cancer or blindness
ix. Biological	Micro-organisms can cause hepatitis, legionnaires' disease, Q fever, HIV/AIDS or allergies
x. Psychosocial hazards	Effects of work-related stress, bullying, violence and work-related fatigue

Source: Safe Work Australia (2010).

2.4.1.2 Strategies of Hazard Controls

In the work of Haddon (1973), the strategies which were 10 that was introduced by him was on a model of energy transfer. It was after some time he furthered his studies beyond this. These strategies he proposed were to encapsulate a number of injury prevention, alleviating its damage, repairing damaged object or putting on the road to recovery injured person. His strategies proposed for the:

i. Preventing the conception of hazard in the first place;
ii. Putting to reduction the quantity of hazard that is created
iii. Cease the releasing of hazard already in existence;
iv. Adjusting the level of spatial distribution of the hazard from its source;
v. Allowing separation either in space or time the released hazard;
vi. Ensuring separation of the hazard and other things that needs protection through interposition of a material barrier;
vii. Modification of vital wherewithal of the hazard;
viii. Making sure that there is more resistance by the protected to damage from hazard;
ix. Detection, evaluation and countering of the effect of the damage done to the environment;
x. Stabilizing, repairing and rehabilitating functionally the object of the damages (Haddon, 1973).

Some renowned scholars stated some other strategies. The author of '*The Management Oversight And Risk Tree',* Johnson W. G. gave his own list but was similar to what Haddon proposed which is based on energy transfer model and it includes:

i. Limiting the energy;
ii. Substituting a safer form of energy;
iii. Preventing the build-up;
iv. Preventing the release;
v. Providing for slow release;
vi. Channelling the release away;
vii. Having barriers on the energy source;
viii. Having barriers between energy source and men or objects that need protection;
ix. Having barriers on man or objects;
x. Raising the injury or damage threshold;
xi. Treat or repair;
xii. Rehabilitate (Johnson, 1975)

According to Manuele (2003), these strategies were examined where more focus was on safety in the area of design systems. This strategies include:

i. Sidestepping introduction to the hazard;
ii. Limiting the amount of hazardous substances;
iii. Substitute by employing the hazardous;
iv. Prevention of unwanted hazardous material build-up;
v. Prevention of unwanted hazardous material release;
vi. Delaying the release of hazardous material;
vii. Separating in space or time or both the release of hazardous materials from objects or humans that needs protection;
viii. Interposing of barriers to put humans, property or environment to protection from getting exposed to unwanted release of hazardous material;

ix. Modification of the shock intense surfaces (Manuele, 2003)

However, provided that a specific hazard is uninvolved, the particular risk connected to the hazard of concern remains with the risk. Unless a particular hazard is removed, the risk associated with such a hazard can never be completely eliminated. The very generally known approach employed in hazard control is known as 'hierarchy of controls' and it makes provision for primacy order where hazard and risk controls are importantly considered and more importance is on:

i. Elimination: in-which hazard is got ride off permanently in the place of work and it can be seen as an control measure (that is classed effective) to be done prior before work begins;
ii. Substitution: where hazard is subjected to replacement or substitution provided elimination was not successful;
iii. Engineering controls: upon the inability to achieve either of the first two controls above, employing tools or equipment is done to reduce imminent risks;
iv. Administrative (procedural) controls: where most control are proving difficult to use, this control is applied with the application of orientation programme by using permit systems;

Personal protective equipment (PPE): a last resort to ensuring effective orientation and supervision that would lead not to the control of the hazard but effective decrease in consequences of hazard (International Labour Organisation, 2013).

2.4.2 Risk

Since various characteristics are attached to different definitions, three conditions must be fulfilled to satisfy the existence of risk and they are:

i. There must be a potential for loss;
ii. There must be absence of doubt in regards to the inevitable aftermath;
iii. There must be presence of choice or decision needed to tackle the doubt and potential for loss (Alberts&Dorofee, 2010).

From the above conditions, risk could mean the possibility of suffering loss and better defined, it is a function of the probability (chance, likelihood) of an adverse or unwanted event, and the severity or magnitude of the consequences of that event (Sjöberg, Moen &Rundmo, 2004; Berg, 2010; Kermisch, 2012). In technical terms, risk is often seen as the statistical *expectation value* of unwanted events which may or may notoccur (Hansson, 2004). For example, in the report of European Commission, risk was viewed as a function of the probability and severity of an adverse effect/event occurring to man or the environment following exposure, under defined condition, to hazard (EU Scientific Steering Committee, 2000; European Commission, 2000; Kermisch, 2012). Another way to understand risk is the combined answer to three questions that consider

i. what can go wrong;
ii. how likely it is; and
iii. what its consequences might be occur (Kermisch, 2009)

2.4.2.1 Factors That Influence The Degree Of Risk Include:

i. The number of exposure times of the individual to a hazardous thing or condition;
ii. The medium of exposure (e.g., breathing in a vapour, skin contact); and
iii. The severity of effect of the exposure with respect to the two conditions above (Canadian Centre for Occupational Health & Safety, 2016).

2.4.2.2 Risk assessment

The carrying out of evaluation on the health and safety risk of employee during working time-frame which could arise from the circumstances of the hazardous event at the place of work (European Commission, 2000; Health & Safety Authority, 2016;Canadian Centre for Occupational Health & Safety, 2016). The basic aim of assessing risk is to open up a medium where proper comprehension of the nitty-gritty surrounding hazard cum risk in regards to the employees that operate a functioning machinery in each stage of its life-cycle (International LabourOrganisation, 2013).

Risk assessments arerepetitivepractise with a chain of identification of hazards related with a process with the knowledge of who are susceptible to being exposed to the hazard; and its procedure are as follow.

i. collecting the appropriate information and determining the limits of the machinery, such as use, speed, time, environmental and interface limits
ii. identifying and documenting the hazards associated with the tasks to be performed for the use and maintenance of machinery in the workplace
iii. assessing risks arising from hazards by estimating the likelihood and severity of consequences and deciding whether the risks are adequately controlled
iv. planning actions to eliminate or reduce risk
v. Documenting risk assessment results (McNeil,Frey &Embrechts, 2015).

2.5 Training at workplace and transfer of knowledge

The core reason why employees are trained or subjected to training programmes has to do with the informing or equipping the employees with knowledge to be transferred to their place of work. Even though, there are limited or no literature that clearly defines knowledge transfer in regards to between workplace to home inclinations, but exclusively within the context that Machles illuminated, he defined knowledge transfer as "the process of successfully moving knowledge, skills, or attitudes from class room to workplace – which is the ultimate goal of training" (Machles, 2002). This definition incorporates the situations in which the behaviours will be observed, the effect or impact of the attended training on employee in respect to his action(s). Hence, it can be easily put that transferring of knowledge take account of accepted activities and preferred constructive behaviour which is the effect of attending training programmes.

First and foremost, in the context of this research, one needs to understand what safety and health knowledge is being acquired at workplace and if it is going to be of use in the handling of domestic appliance to avoid hazards at homes. Before delving into this, it is important to state that as the nature of safety and health issues changes,

employees are gradually required to develop a comprehensive, variable skills that are needed to the solving of hazards in workplace. Yet a number of employees retain the educational competency, personal skills and technical expertise required for these changes. In the work of Baldwin and Ford (1988), knowledge is acknowledged as a function of three factors and they are:

a. Trainee characteristics which involves ability, personality and motivation;
b. Training design, including transfer design and content; and
c. Work environment characteristics, including support and opportunity to use learned material (Baldwin & Ford, 1988).

Employees in workplace under a training programme acquire knowledge for a number of reasons which has to do with the refreshing of their knowledge to solve problems and or enhance their performance at workplace. Still on knowledge transfer with respect to safety and health, these centres on the way employees apply their knowledge and skills in workplace after adequate training program. Training here means activities focused at the gaining of knowledge, skills and attitudes that attracts an instant or near-term application (Kraiger, 2003). Thus, the gaining of vital knowledge and the ability to transfer the knowledge by an employee to his/her immediate environment can be linked to the effective training undergone by the employee at workplace.

There are five stages as regards to the process of increasing knowledge transfer and it includes:

a. Creation;
b. Sharing;
c. Evaluation;
d. Dissemination; and
e. Adoption (Levine & Gilbert, 1999).

These processescenters on the ways ideas are shared in a workplace and how the motivation needed for effective transfer of knowledge can be enhanced. Also, to

spread knowledge of safety in workplace, the following strategies below are notable and they are:

a. Sharing best practices: employees trained on safety and health issues share practices that best solve hazard emanating from their workplace;
b. Storytelling: creating a scenario where presentations are made in regards to the safety and health issues training program cum the knowledge acquired;
c. Job Aids: with the use of checklists, flow diagrams, reference tables, decision tree diagrams and so on, employees can be supported to solving hazard in their area of job at workplace;
d. Job rotation: by making sure one employee experience change of task within the workplace so as to have all-round knowledge of safety and health issues in the workplace as a whole;
e. Assessment of knowledge capacity: here, the industry evaluates it knowledge capacity to know what safety knowledge is needed and available to its employees (Zemke&Gunker, 1985; Friel, 2005; Tyler, 2008).

2.6 Connecting Literature to Research Question

There is a link between knowledge acquired in workplace that can be transferred to households in tackling and solving hazards emanating from domestic appliances. In fact, safety and health knowledge acquired from workplace becomes valueless if it cannot be transmitted from one angle to another (Zhang, Zheng, Li, Nie, Huo& Shi, 2008). If researches have revealed that the transfer (or exchange) of knowledge between employees in a workplace has notable consequences for a plethora of organizational processes and outcomes, such as the spread of best safety and health practices (Szulanski, 2000), then it can be easily said that these safety and health practices can be extended to homes to solve hazards (*Research Question*). It will be important here to give more light to what is domestic appliance, hazards associated to it and the possibilities of workplace knowledge solving hazard from domestic appliance

2.6.1 Domestic appliance

It is important to define separately ‘domestic’ and ‘appliances’ according to the existing definitions. As an adjective, domestic means relating to a household or a family while appliances means, as a noun, means a machine (such as a stove, microwave, or dishwasher) that is powered by electricity and that is used in people's houses to perform a particular job (Merriam-Webster's Learner's Dictionary, 2016). Domestic appliances (household appliances)can be simply put to mean tools or equipment power-driven by electrical current or natural gas and used in the home which includes washing machines, gas cooker, freezers, fruit blender, iron, computer, electronic kettles, television, dishwashers, fans, gas heater etc. Different kinds of domestic appliances are used in households and these devices are mostly controlled with the human hand with manual switches (Koster-j, 2006).

Basically, there is always an energy convert to another form of energy when an appliance is at work. By electrical current or natural gas, appliance can be functional via either of these sources of energy. Appliances that use electrical current are electrical tools and instrument that are used in household, factory etc which utilizes power from electricity to become operational while appliances that use natural gas are domestic or industrial devices that is powered by gas.

2.6.1.1 Hazards Emanating From Domestic Appliances

For long, over the years, the use of simple domestic appliances such as iron, television, stoves and lamps has resulted in inestimable injury to persons and loss of property which is largely a result of faulty design; improper use of the device; ignorance; inexperience; or carelessness (Peck, Kruger, Van Der Merwe, Godakumbura& Ahuja, 2008). The following below are the major hazards associated to household use of appliances:

a. **Electric shock**: this is one of the leading safety hazards associated with domestic appliances. It is defined as a sudden violent response to electric current flow through any part of a person's body (Fish & Geddes, 2009). This

is due to the electric power usage in every household. As a matter of fact, the resistance of the skin and the body play a major role in the hazard of electric circuits. The amount of the current passing through the body, the interval of the shock and the path of the current are the three main factor that determine the severity of the electric shock (El-Sharkawi, 2013). In the example given by El-SHarkawi (2013), there is a direct proportionality between the body mass and tolerance to current; which means the smaller the body mass, the less the current tolerated. This electric current moving through the body can bring about unpredictable effects which includes injuries or even death with respect to the amount of the current (Dalziel, 1972). The injury could be primary which is tissue damage produced directly by electrical current or voltage or secondary which includes falls (Fish & Geddes, 2009). Hence, having contact with electrical appliance with moist hands and feet is unsafe. A part of the house where one is prone to being exposed to electrical shock is the bathroom and the kitchen due to the fact that one gets wet easily there (Prasad, Sharma & Sharma, 2010) and there are always electrical appliances present there such as switch, power points, water heater switch, element, microwave etc.

b. **Radiation**: according to the World Health Organisation, radiation is the propagation of energy away from some sources (WHO, 2008). The American Cancer Society (2016) defined as the emission of energy from any source. It is the process through which energy travels in the form of waves or particles through space or some other medium (International Agency for Research on Cancer, 2013). According to some recent studies, radiation produced by various household appliances has become another source of indoor environment pollutions in addition to air pollution, radioactive pollution and noise pollution (Fu, Chen, Han & Qin, 2012). These domestic appliances only create electromagnetic radiation while in use (Zamanian&Hardinman, 2005) and researchers have put forward that electromagnetic radiation may cause health problems to humans (Fu *et al*, 2012).Sources of electromagnetic radiation includes lamps, fluorescent light fixtures, video display systems, telephones, television, extension cords and unused electric wires inside walls

which makes every human in the house to be exposed to mixtures of electric and magnetic radiation. (Ibrahim, Ozovehe&Hamdallah, 2013). Kitchen is one part of the house where one can be exposed to magnetic radiation through elements in a stove, food processors and other equipment that contain an electrical motor (Vistnes, 2001). This means if someone cooks in kitchen for an hour, such a person will be exposed to EMF of 5-10 milli gauss; so also is such person cooking for two to four hours, its own exposure will crossed the suggested maximum daily EMF exposure of 20 milligauss (Radha&Gurupranesh, 2007). It has been confirmed that exposures to electromagnetic fields from electrical appliances and gadgets are linked to increased risk for cancers including breast cancer, leukemia and brain tumors; plus neurological diseases like Alzheimer's disease and amyotrophic lateral sclerosis (ALS, also known as Lou Gehrig's disease) (sage, 2007).

c. **Burns**:Electrical burns can occur when someone has contact with electrical wiring, equipment or appliance that is used or maintained improperly making it one of the most serious injuries that can happen to someone (Roy, Vijayakumar& Nair, 2015). It is known that there is a direct proportionality between the nature and severity of electrical burn injury and the current strengths, resistance and duration of the current flow (Cooper & Price, 2015). Electrical burns at household is recorded to total above 2000 cases in a year (Koumbourlis, 2002)

d. **Explosion**: explosion that happens at households bringing about injury is around 35% which could be traced to the lighting the pilot lights of ovens,warmings by heaters using wood, coal or other fuel in the house (Iskrant, 1967). Also, the accumulation of gas in the air-space of a household via leakages in a high temperature atmosphere can trigger explosion when a match is lit (Iskrant, 1967). In addition, when there is limited air ventilation in a household with gas leakage increasing, flames from cigarette butts, match or other sources can cause serious explosions. Faulty cooking ovens, the inadequate operation of household appliances, negligence or carelessness are usually the main causes of explosions in households (Iskrant, 1967).

2.6.2 Usefulness of Work Place Safety and Health Knowledge cum Households

Most electrical appliance in workplace or household operates with similar principles and guidelines. They present safety and health hazards which users must be adequately cognisant of so as to avoid injuries or accidents at workplace or household. In workplaces especially, every worker is responsible for his or her own safety and other people safety. But most times, a lot of household experience accidents due to absent mindedness, carelessness, ignorance, forgetfulness or overlooking of the known safety practices that requires common sense.

i. Kitchen:

In most household, the most busiest and dangerous place is the kitchen. There are a lot of hazards in this place and they include shocks, burns, explosion and so on. The hazards from kitchen appliances can be prevented to ensure a safe and healthy homes if workplaces safety and healthy measure can be usefully applied such as being aware of these hazards, keeping in mind and applying the safety procedures and so on. Two very important practice in workplace is 'keeping one's mind on a task and observation of rules for the operation of appliances'. When mind is off a task due to individual problems, distraction from the environment or lack of interest, the appliance applicable for the task can cause a serious hazard as mind wanders about. In as much as the manual or instruction guide of an appliance is not well observed, likelihood of hazards may erupt. Whenever electrical appliances are powered, hands should be kept dry always when operating them. Also, to any appliance in the kitchen that comes with a manual, the manual should not be ignored as said earlier, it is important to read them and digest the working principle of the appliance.The following below is a list of workplace like industrial kitchen precaution that could be useful for domestic appliances:

a. Understanding of the right operational processes and safety precautions prior before powering an appliance;
b. Making sure that all guards are set up and performing well prior before an appliance is powered;

c. Reporting of faulty or unsafe appliance to a professional to avoid serious injuries;
d. Avoiding distractions with the equipment operator;
e. All wires connected to the appliance are not exposed (BC Cook Articulation Committee, 2016).

ii. House cleaning:

Every household are known to maintain a clean, safe and sanitary environment as much as possible. Most household use either the primitive means or modern way to keep their house clean. The modern way includes the use of electronic cleaning machines, for example, for the floor there is vacuum cleaners and rotary buffers. However, industries, firms or businesses also do maintain a clean environment for the safety and health of their workers and clients which make them a known user of industrial cleaning equipment. Safety instinct at work is high as wearing of the safety goggles to protect the eyes, putting on the protective gears, wearing protective gloves are always done in the workplaces. In addition, ear plugs are worn while the machines are in operation due to the noise produced; also, the effect of these working machines is a clean and slippery floor surfaces which can cause falling when friction occurs between the foot wears with non-slip soles and the floor. Even the person operating the machine needs to avoid falling and injured due to the performance of the machine by wearing safety belts.

Mainly, in workplaces, sources of electrical hazards such as defective electrical tools and equipment, appliances, wiring, switch panels and electrical outlets or transformers are always avoided by maintaining of functioning equipment, conducting of Annual Electrical Portable Appliance Testing (PAT), quick visual check of electrical cables before use prior to use (Brun, 2009).

All these measures that are applied at work places are also useful at households to ensure safety and healthy house cleaning. As it was said earlier, absent mindedness, carelessness, ignorance, forgetfulness or overlooking of the known safety and health practices in households have cause domestic appliances users to be struck and

injured by loose part of working appliances, shock, burns and scald from parts of appliances with hot temperature or exposed wirings. Even unreliable and faulty appliances or a quack use of appliance can keep a household unsafe and less healthy. Hence,

iii. Bathroom:

In most households, the bathroom is an area where contact with appliance with wet body is highly predictable bringing about shock and similar hazards (Prasad, Sharma, & Sharma, 2010). This still boils down to the fact that to avoid similar hazards of wet body contact with appliances likely to be found in the bathroom, dry hands should be maintained always when touching switches, electric clippers and some other electrical gadgets that could be used therein. This idea is similar to workplace where their electrical appliance can cause shock when hands are wet. So keeping hands dried is the key here.

Conclusively, a safe and healthy household can be maintained when there is total compliance to keeping domestic appliances at constant safe and healthy mode. This applies to the user and the entire household. A way to make this happen, with reference to this review of literature, is the application of workplace safety and health issues embraced and learned in workplace. However, the subsequent chapters of this study will be directed towards the understanding of safety and health issues and how it has helped in keeping hazards off household by the virtue of operation of domestic appliances.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This third chapter reveals and clarifies the study strategies which were used to successfully complete this research. It illustrates how the expected research aims were achieved and accomplished in the course of this research. It touches the research and sampling design, the sample population, data collection process, data analysis techniques

3.2 Research design

This is an aspect in any researching process in which connexions are formed to tie together the problems of the theoretical study with the applicable empirical study. It reveals what data is needed, what methods are to be applied for collection and analysis of data, and how it will open a doorway to solving the research questions (van Wyk, 2012). It is the main and central aspect of carrying out a study (Murray & Overton, 2003). According to Kothari (2004), it ensures and fine-tunes a study to be highly well-organized with eventual loads of information. As a guide, it defines the most ideal approach to getting a research realistic, and it gives the rubrics or particular procedures that must be embraced in order to get authentic results in connection to the inquiries of the research (London *et al.*, 2007).

3.3 Research Approach

This research reasonably used a quantitative approach to successfully drive the focus of this study to getting results to the research problems. No other reason can be said to have been the focal reason for the use of this method, except for the fact that it suites the realities unfolded in this study. According to Creswell (1994) as cited by Sukamolson (2010), a quantitative research method was said to be a means to explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics).

Since this approach is a complete one, according to Creswell (1994), it is a clarifying activity that arises in a usual location which allows a researcher to come up with a quantity of information from his or her field experience. In the words of Leedy and Ormrod (2001), it springs up new theories. Qualitative research method builds its premises on inductive, rather than deductive reasoning and it is from the observational elements that pose questions that the researcher attempts to explain (Williams, 2011).

3.4 Sampling Methods

A sample ought to be representative reason being that each sampled unit will represent the characteristics of a known number of units in the population (Latham, 2007). For an effective sampling, the respondents used for this research were selected by the use of what is known as 'Purposive Sampling Technique' (Tongco, 2007). It is also known as judgment sampling, and it is the deliberate choice of an informant due to the qualities the informant possesses (Tongco, 2007). Additionally, this method is suitable if a researcher wants to study a small subsection of a larger population in which many members of the subsection are without difficulty identified but the details of all is nearly impossible (Latham, 2007).

Besides, this technique was divided into two stages in this study. The first stage has to do with the selection of the city in which this study was to be carried out. The major reasons for this has to do with the financial implication of going round the whole North Cyprus and picking just a city that is industrial and well-populated tailors this reasons. In respect to this, Lefkosa (Nicosia) was purposefully selected because it has a number of industrial activities that employs the use of high tech machines and equipment. It is the most populated, residential and majorly, it is the capital city of the region of North Cyprus.

The second stage of this technique was administrated with respondents to be used for this research. In a way, the area called 'Sanayii' was the focus of the researcher. This 'Sanayii' is the industrial zone of Lefkosa (Nicosia). The targeted audience in this 'industrial zone' are those who are working in metal cutting factories, car painting

facilities, Saw mill, Aluminium factories, Solar thermal facilities and other places where there are active personnel who are resourceful and eligible to give valid and reliable information that will help this study. However, the whole 'industrial zone' was not touched but the respondents interviewed were purposively selected. Some young adults and senior citizens assisted in helping to select some factories and speak to some selected people to grant the researcher audience.

3.5 Data collection

The group of people represented the respondents of this study were men (young adults and older adults). The main reason for this is because most women seen in the environment were administrative workers and to have a picture of how and what safety and health knowledge acquired from work can be transferred home to solve domestic hazards. After applying the sample size determination with 5% margin of error, 85% confidence level and with population size of 600, so the required sample size was 150. Further 150 were administered questionnaires to (in Turkish language) since most of them are locals and Turkish Cypriots. Hardly did the researcher found someone who could read and write English language in the area of sample.

3.6 Ethical Issues

The respondents were adequately informed about the reason behind the study and the importance of their response to the study. Also, a copy of student letter of the author was shown to the head of the places the questionnaires were administered. All respondents who received the questionnaires were assuring a high level of confidentialities. For easy understanding of the questionnaires, the content were made available in Turkish language and the author was available to give more explanation to any question found difficult to understand.

3.7 Statistical Analysis

This thesis employed two methods for analysis of collected data which are factor analysis and chi-square test. The factor analysis is employed to ensure that the proposed construct can be acceptable coupled with preventing the misrepresentation of variables as against what they are meant to measure. Afterwards, Chi-Square test is employed to test the formulated hypothesis. Chi-square test is useful for the verification of relationships existing between variables (Verzani, 2002).

CHAPTER FOUR

QUANTITATIVE ANALYSIS

4.1 Introduction

This chapter presents the empirical evidence as regards solution to hazards that can emanate from domestic appliance by applying the health and safety practice and knowledge acquired in workplace. This study focused on the workers in Lefkosa "industrial zone" as the sample size. However, this chapter majorly focused on the pilot study and the main quantitative analysis of the data collected from the field survey. The pilot study was used to find the reliability of the survey questionnaire for this study. Also, the analyses in this chapter are in tandem with the research questions of the study. Finally, the later section of this chapter presents the hypotheses test results through the use of SPSS.

4.2 Pilot study

A pilot study was done so as to purify the measurement scales of the questionnaire. In the first three weeks of March, 2017, the constructed questionnaire was administered randomly to 10 people who work in industrial zone in Girne, another City in North Cyprus. The questionnaire was administered in Turkish version only as all the respondents are Turkish speakers. Turkish is the official language of the North Cypriot. The ten respondents are foremen, directors, and others and they fit in into the target population for the survey study. Before they were administered the questionnaires, the researcher had a discussion with them to know their views and privacy on the questions. After this moment, they personally got these questionnaires and they answered all the questions in less than 20 minutes.

Through this pilot study, the returned questionnaires were analysed by the use of Statistical Package for Social Sciences (SPSS) version 20.0 for Windows. All the questions in the questionnaire were coded appropriately in the statistical programme for easy use. For the scrutiny of the framing of the words in the questions, array, design, knowing the understanding of the respondents, rate of response, time to

complete the questionnaire and other analysis procedure, purification of the questionnaire was done (Sekaran, 2010). Through this pilot study, the reliability test was done to understand the internal consistency of the items. Prior before the questionnaires were administered, the supervisor of the researcher carried out an expert examination of the questions to remove and add some questions before they were translated to Turkish version.

Ten questionnaires were administered for the pilot study and there was a 100% response rate. This was a success on the part of the research due to the close relations and monitoring of the questionnaires up till the questionnaires were returned to the researcher. This success can be ascribed to the control and smallness of the sample size (n = 10). The least time spent on the questionnaire was 12 minutes and the maximum time spent was 20 minutes. On an average, a participant spent 12 minutes on a questionnaire filling.

The demographic information of the respondents who were part of this pilot study (Table 4.1) shows that 90% were male and 10% were female. The age range was between 20 years to 49 years. Those who were between 20 years old – 29 years old are 20%, 30 years old – 39 years old are 30% while 40 years old – 49 years old are 50%. 70% of them are married while 30% of them are single. In all the respondents, 30% work in mechanic shops, 10% work in tire repair shops, 20% work in painting shop, 10% in Bakery, while 30% were part of those who did not want to indicate where they work. All of the respondents indicated that they don't have more than nine personnel in their workplace. As for the respondents with 1 – 4 years of experience, they are 20%, 40% of the respondents have 5 – 9 years of working experience. The respondents with 10 – 14 years of experience are 10% and those with 15 years and above are 30%. 80% of the respondents are on full time while 20% of the respondents are part time workers.

Table 4.1 Demographic Information of Respondents for Pilot Study (n=10)

Demographic	Category	Frequency	Percentage (%)
Age	20 – 29 years old	2	2
	30 – 39 years old	3	3
	40 – 49 years old	5	5
	50 years old and above	0	0
Gender	Male	9	9
	Female	1	1
Marital Status	Married	7	7
	Single	3	3
Working Place	Mechanic	3	3
	Tire Repairing Shop	1	1
	Painting Shop	2	2
	Bakery	1	1
	Other	3	3
Number of Workers in Respondents Workplace	1 – 9 personnel	10	10
Duty in the Company	Foreman	2	20
	Director	3	30
	Others	5	50
Number of Working Years	1 – 4 years	2	20
	5 – 9 years	4	40
	10 – 14 years	1	10
	15 years and above	3	30
Working Status	Part Time	2	20
	Full Time	8	80

4.2.1 Validity report

Validity is an essential criterion for evaluating the quality and acceptability of research (Zohrabi, 2013). The questions in the survey questionnaires were extracted from two main sources which are the works of Elgood, Gilby, and Pearson (2004) and Maher (2009). To validate these questions in the questionnaire, face validity was done by the researcher, and the supervisor. Face validity usually measures the understanding and acceptance of questionnaire items by investigators and respondents (Saffi *et al.*, 2013; Bolarinwa, 2015)

4.2.2 Reliability Test

The reliability of a measure shows the level at which it is not bias coupled with indemnifying of consistent measurement cross time and across the various items in a given instrument (Bajpai *et al*, 2014). It is also a function of the number of items in the scale (Diamantopoulos *et al.*, 2012). It is very important to measure the internal consistencies in multi-scale items. In fact, internal consistency describes the extent to which all the items in a test, measure the same concept or construct and it is related to inter-relatedness of the items within the test (Tavakol & Dennick, 2011). It was noted that before test can be used for research or examination purpose, internal consistency should be known (Tavakol & Dennick, 2011). To have established information about the reliability of items to be used for a research, Cronbach Alpha is mostly used.

In this study, the SPSS result showed that the total value for the Cronbach Alpha is is 0.751 and according to Tavakol and Dennick (2011), Cronbach Alpha value between 0.70 and 0.95 are reliable and acceptable.

Table 4.2 Reliability Statistics for Overall Items

Reliability Statistics	
Cronbach's Alpha	Number of Items
0.751	52

Furthermore, the researcher calculated the Cronbach Alpha for separate groups of items as shown in table 4.3. As regards each Cronbach alpha values of each item considered in this pilot study, the reliability score of each scale ranks from 0.612 to 0.944 as shown in table 4.3. This is an indication that there was an internal consistency between each of the item and an indication as well that the questionnaire has an internal consistency level that is high.

Table 4.3 Revised Cronbach Alpha values for pilot study

Items Names	Items	Correlated Item Total Correlation	Cronbach's Alpha if item deleted	Cronbach's Alpha
Meaning of Health and Safety to the respondents	Q9a	.428	.859	0.862
	Q9b	.614	.847	
	Q9c	.672	.843	
	Q9d	.357	.864	
	Q9e	.551	.851	
	Q9f	.607	.847	
	Q9g	.862	.830	
	Q9h	.551	.851	
	Q9i	.251	.870	
	Q9j	.607	.847	
	Q9k	.551	.851	
	Q9m	.480	.856	
Health and safety risk faced at workplace	Q17b	.306	.899	0.896
	Q17i	.137	.907	
	Q17k	.595	.889	
	Q17l	.765	.881	
	Q17m	.346	.900	
	Q17n	.732	.883	
	Q17o	.319	.899	
	Q17p	.394	.897	
	Q17q	.745	.882	
	Q17r	.867	.876	
	Q17s	.955	.872	
	Q17t	.825	.877	
	Q17u	.918	.875	
	Q17w	.276	.904	
Electrical appliance	Q18f	.477	.873	0.870
	Q18g	.755	.836	
	Q18h	.728	.840	
	Q18i	.733	.839	
	Q18j	.763	.837	
	Q18k	.527	.869	
	Q18m	.615	.859	
Fire precaution	Q19a	.427	.263	0.421
	Q19b	.277	.517	
Lighting	Q20a	.896	.	0.944
	Q20b	.896	.	
General cleaning of the house environment	Q21a	.577	.867	0.853
	Q21b	.815	.759	
	Q21c	.614	.849	
	Q21e	.812	.759	

Items Names	Items	Correlated Item Total Correlation	Cronbach's Alpha if item deleted	Cronbach's Alpha
Chemical precautions	Q22b	.480	.863	0.843
	Q22e	.730	.789	
	Q22f	.595	.826	
	Q22g	.817	.760	
	Q22h	.730	.789	
Domestic precautions	Q23b	.453	.	0.612
	Q23c	.453	.	
Safety of Children	Q24a	.471	.714	0.481
	Q24b	.657	.626	
	Q24d	.531	.683	
	Q24e	.292	.761	

Note: All Coded Items are found in Appendix B

4.3 Main study Findings

In sequel to the collected data from the field survey, tabulations and compilations were done. And in this section, results or output of SPSS were analysed accordingly.

4.3.1 Basic Sample Information

The survey questionnaires were administered to 150 workers in industrial zone in Lefkosa. After collection, the total collected questionnaires were 119 which show an approximate 79% response rate. 17 copies of the filled questionnaires were unusable due to the fact that the respondents only answered 10% of the questions in the questionnaires. The scale measurement used for this questionnaire survey is Likert Scale. However, in general, the response rate is an indication that the respondents took interest in the survey exercise.

4.3.1.1 Demographic information of Respondents Age

According to the age distribution of the sample which is shown in figure 4.1, 20 - 29 years old respondents are 10.8%, 30 – 39 years old workers are 36.3%, 40 – 49 years old respondents are 40.2%, and respondents who are 50 years and above are 12.7%. There is a clear understanding here that most of the workers are within the age bracket of 30 – 39 years old and 40 – 49 years old.

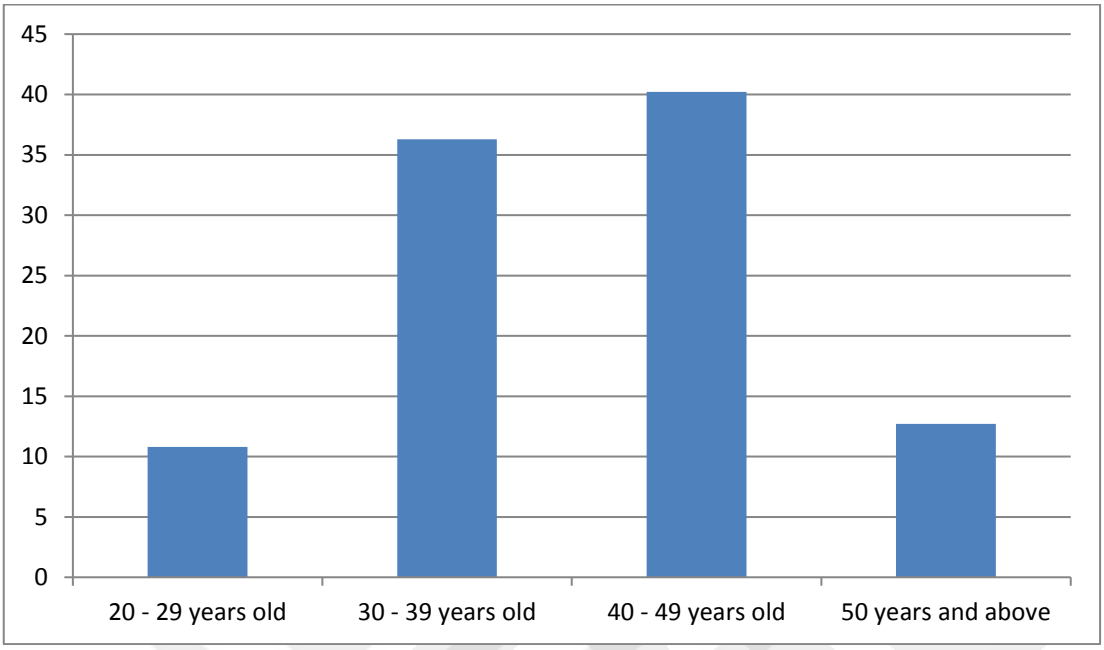


Figure 4.1 Age of Respondents

4.3.1.2 Demographic information of Respondents Gender

As regard to the gender of the respondents, it is more of males that responded due to the fact that Sanayi is an industrial zone and most workers here are male except for the administrative areas. Figure 4.2 shows that 99% of the respondents are male while just 1% is females. This is an indication that industrial zone with more of masculine nature of job in the study area.

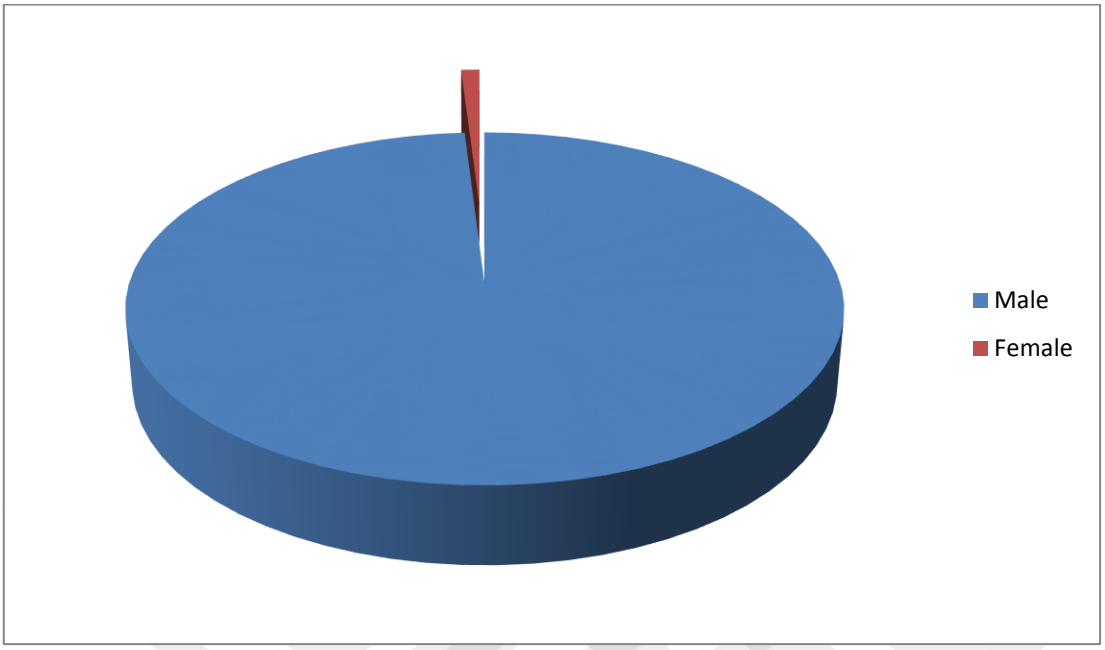


Figure 4.2 Gender of Respondents

4.3.1.3 Demographic information of Respondents Marital Status

Interestingly, figure 4.3 presents the marital status of the respondents. 86% are married while 16% are singles.

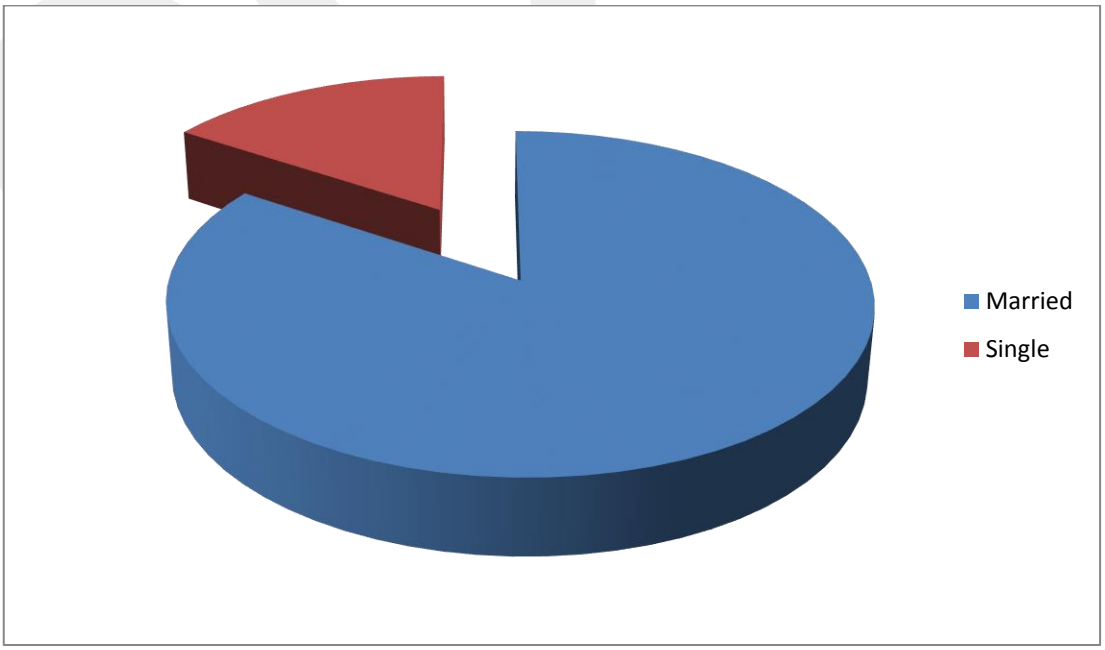


Figure 4.3 Marital Status of Respondents

In figure 4.4, the sample size captured 9 workplaces. The workplace that had the highest respondents was mechanic shop which has 29.4% respondents. Others include warehouse (11.8% respondents), tire repairing shop (8.8% respondents), painting shop (17.6% respondents), furniture shop (4.9% respondents), metal welding shop (10.8% respondents), saw mill (2.9% respondents), bakery (4.9% respondents) and others include 8.8% respondents.

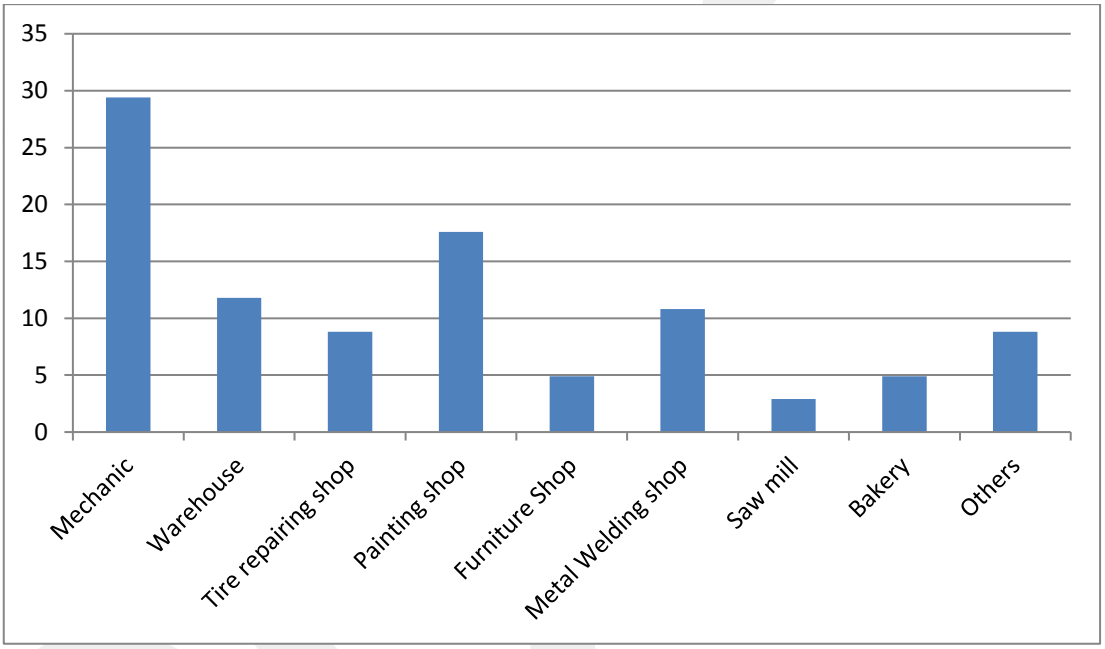


Figure 4.4 Working Place of Respondents

4.3.1.4 Demographic information of Respondents Workplace Personnel Number

In figure 4.5, the respondents were asked about the number of staff they have in their workplace and the respondents claim to have more than one respondent in their workplace. 62.7% respondents indicated that they have 1 – 9 personnel in their workplace. It means on an average, the hands at work in a normal workplace in the industrial zone can be within this range which is acceptable except for larger ones. 16.7% respondents indicated that they have 10 – 19 personnel in their workplace, while respondents who have above 20 personnel are 20.6%.

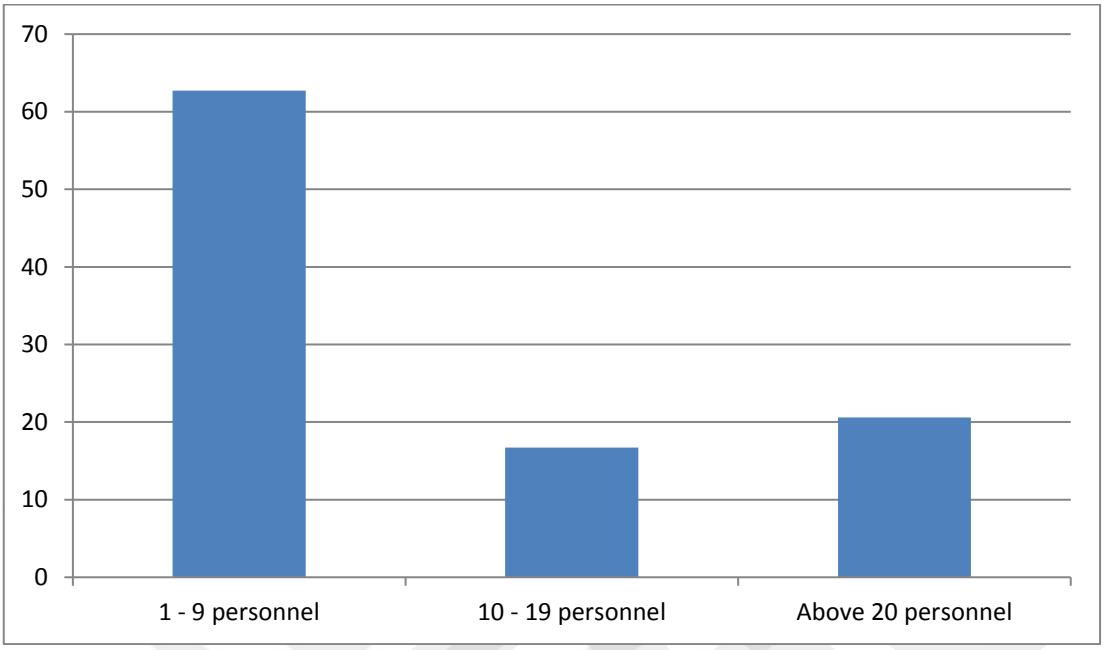


Figure 4.5 Personnel numbers in respondents' workplace

In figure 4.6, more of the respondents were the foremen, directors and technicians. The figure 4.6 shows that 13.7% of the respondents are foremen, 30.4% of the respondents are directors, and 22.5% of the respondents are technicians. This is so because these set of people were the targets of the research and they percentage response from them indicated that they gave a positive response to the researcher. Others include respondents who are cleaners (1.0%), accountant (5.9%), delivery men (3.9%), truck drivers (5.9%) and others (16.7%). The others include respondents who did not want to specify their duty at their workplace and those who have no defined duty.

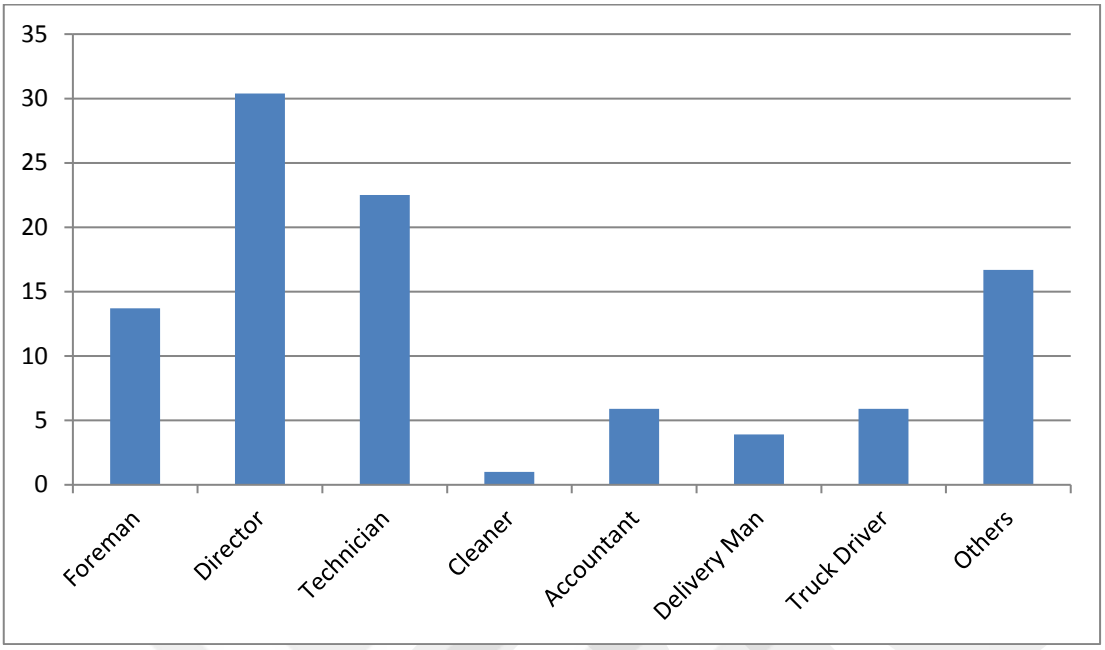


Figure 4.6 Duty/Role of respondents in workplace

In figure 4.7, the years of working experience are presented here. Most of the respondents had 5 – 9 working years of experience which totals 46.1%. Those respondents with 1 – 4 years working years are 18.6%. Respondents with 10 – 14 workers years are 20.6% while those with 15 years and above are 14.7%.

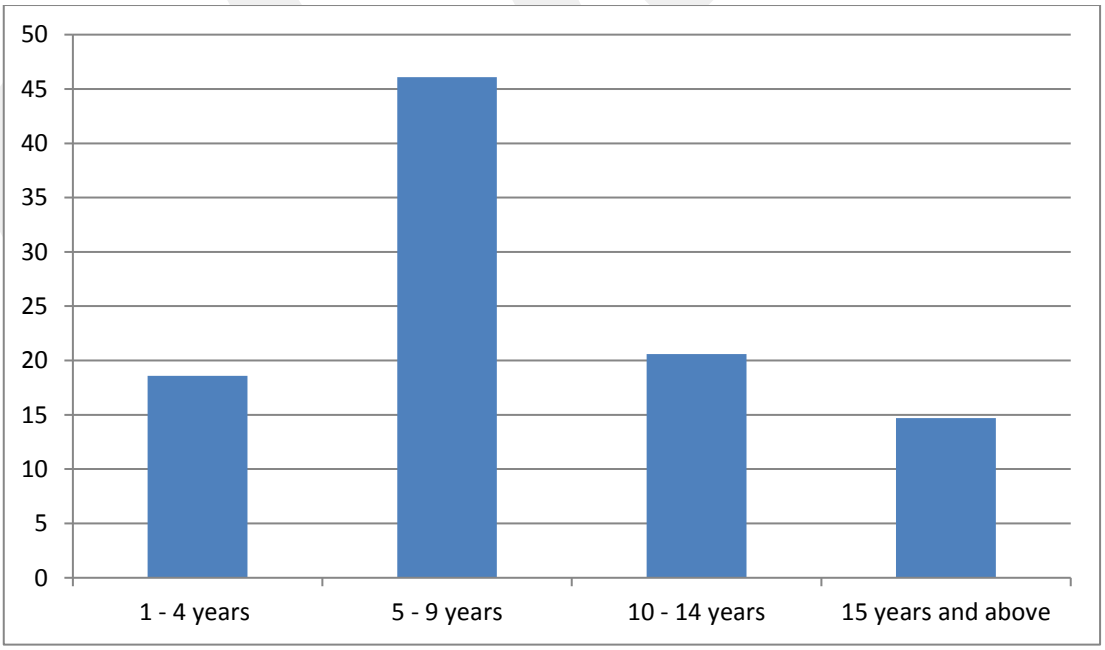


Figure 4.7 Respondents' working years

This survey captures mostly the full time workers in the industrial zone. 6.9% of the respondents are working on part time basis while 93.1% of the respondents are on a full time at their workplace and figure 4.8 presents this.

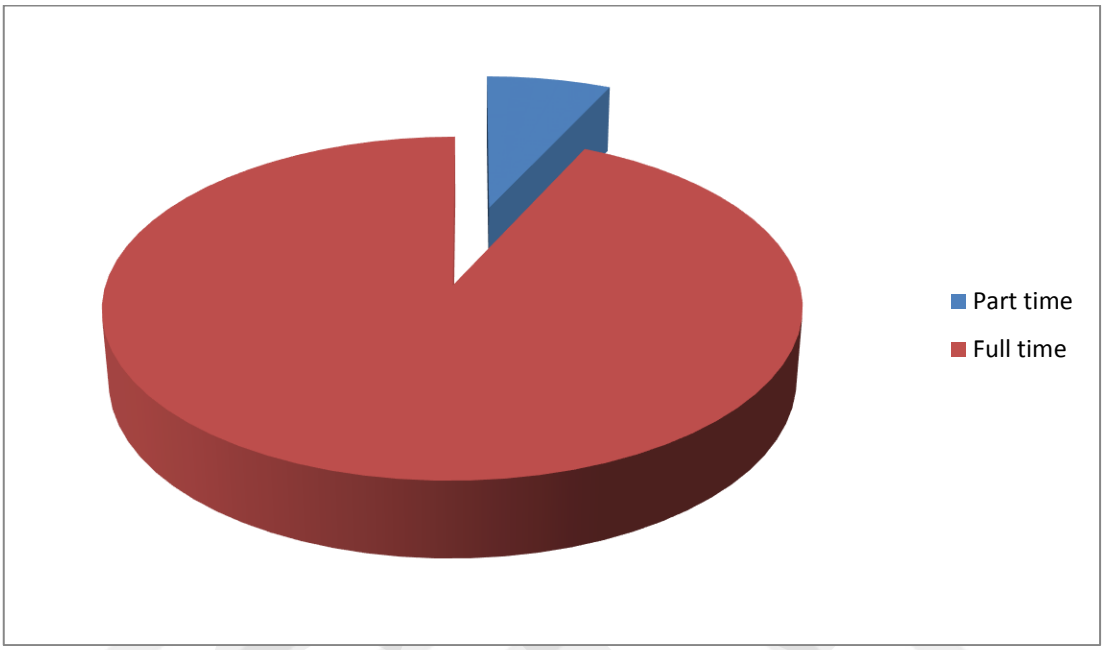


Figure 4.8 Respondents' working status

4.3.2 Descriptive Statistics for Health and Safety Issues at workplace

This part deals with the descriptive statistics as regards to what health and safety means to the respondents, what are risks faced by the respondents at workplace, how safe they are, how their employers take health and safety as serious issue and how they acquire, impact and practice their knowledge about safety in workplace. These statistics will be presented in their frequencies and percentages.

The figure 4.9 presents the responses of the respondents as regard to what Health and Safety means to them. The highest responses agreed to the statement that 'Taking responsibility to safeguard yourself and others around you'. Respondents that agreed to this are 88.2% while 11.8% disagreed to this statement. 86.3% and 13.7% respondents agreed and disagreed respectively that health and safety means 'Prevention of illness/disease'. In this survey, 85.3% and 14.7% respondents agreed and disagreed that health and safety means 'Making sure everything is done to ensure a safe/hygienic environment'. Also, it can be seen in the figure 4.9 that

‘rules/regulations to ensure our general wellbeing/personal Safety’ was agreed and disagreed upon by 85.3% and 14.7% respondents respectively to mean health and safety. The statement ‘Making sure machinery/equipment/appliances are safe/hazard free, had 84.3% and 15.7% respondents agreeing and disagreeing to it. 84.3% and 15.7% respondents agreed and disagreed that ‘Minimizing Risk/Injury/Accidents’ is about health and safety. As regards ‘Safety in the home’, 82.4% and 17.6% respondents agreed and disagreed to this statement respectively. Clearly, ‘rules/Regulations relation to safety in work place’ was agreed and disagreed on by 79.4% and 20.6% respondents respectively to mean health and safety. ‘Fire precaution’ got 73.5% and 26.5% respondents agreeing and disagreeing to this statement respectively. Conclusively, 65.7% and 34.3% respondents agreed and disagreed about ‘safety protection of children’ to mean health and safety; 43.1% and 56.9% respondents agreed and disagreed that health and safety means ‘food safety practice’ and 36.3% and 63.7% respondents agreed and disagreed consecutively that ‘safety/protection of elderly people’ means health and safety.

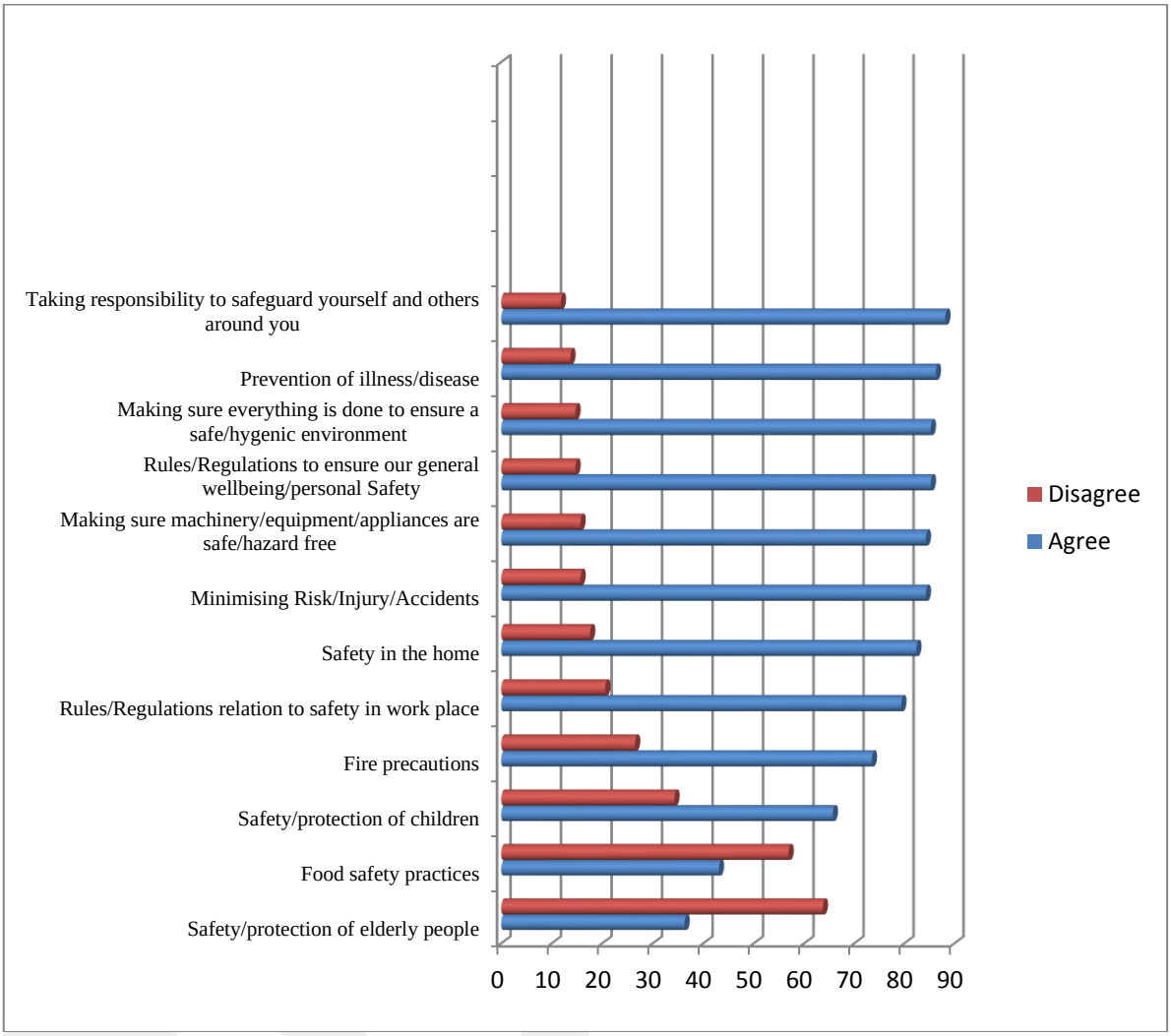


Figure 4.9 Respondents' meaning of health and safety

Figure 4.10 reveals explains the health and safety risks the respondents face at the workplace. According to this figure, it is shown that stress is the major risk faced by the respondents. The 80.4% of the respondents reported that they are 'always' stressed at work. 71.6% of the respondents admitted that accidents/injuries are the second most important risk they 'always' faced in their workplace. While the third placed risk respondents 'always' face in workplace is burns/scalds which got 59.8% respondents attesting to it. Accordingly, others that choose 'always' as their response to the risk faced at workplace include noise pollution (54.9% respondents), Air conditioning/ventilation (52.9% respondents), cuts/grazes (52.0% respondents), fire hazard (37.3% respondents), sharp equipment (36.3% respondents), radiation (23.5%

respondents), wet/slippery floor (22.5% respondents), nothing (16.7% respondents), negligence (16.7% respondents), misuse of instrument (15.7% respondents), and food safety (14.7% respondents). It is easy to deduce from these responses that most respondents have an understanding of health and safety at workplace but their response about safety/protection of children and elderly people got a low response and this will be an area to look into in subsequent figures in this study.

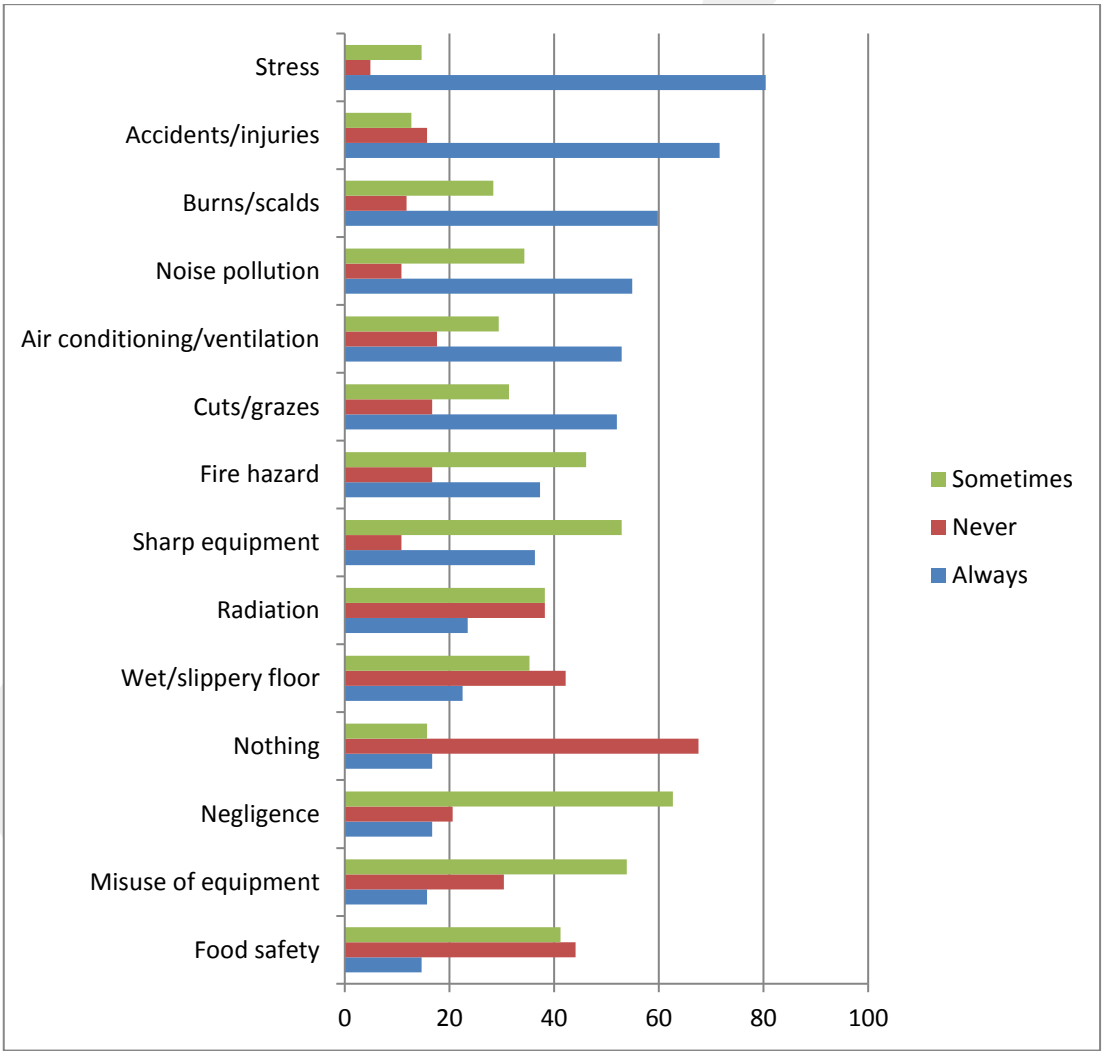


Figure 4.10 Health and Safety risked faced by respondents at workplace

In figure 4.11, presents information about the perceptions of the respondents on how safe they are in their workplace.

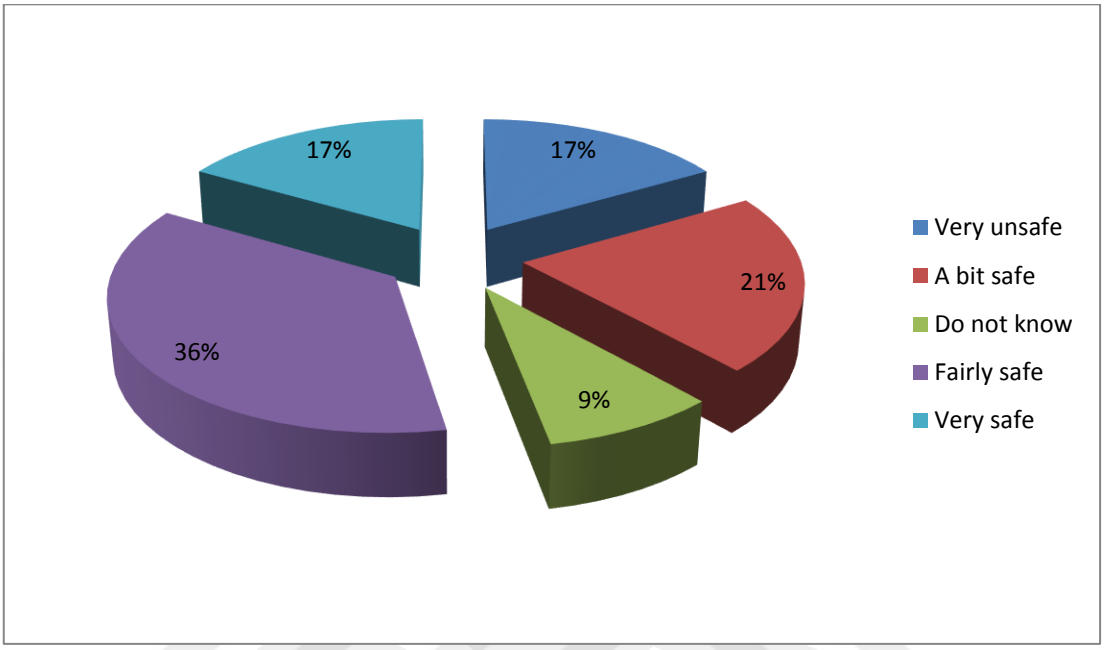


Figure 4.11 Respondents' perception on their safety in workplace

To further understand the perceptions of the respondents on their responses and who responded, table 4.4 shows the cross tabulation between duty of respondents and how safe they feel in their workplace. In the figure 4.11, 17% of the respondents gave a perception that they are very unsafe. In table 4.4, the 17% (17 respondents) are 3 respondents who are foremen, 8 directors, 1 technician, and other 5 respondents and they feel very unsafe in their workplace. In figure 4.11, 21% (21 respondents) feel a bit safe. The table 4.4 presents the breakdown of these 21% respondents as 1 foreman, 6 directors, 1 technician, 2 truck drivers and 12 others. Also, 9% (9 respondents) do not know their safety position. Table 4.4 reveals that 1 director, 5 technicians, 1 delivery man and 2 truck drivers do not know their safety level. For the 36% (36 respondents) who feel fairly safe, 9 are foreman, 9 are directors, 15 are technicians, 1 is cleaner, 2 is delivery man, and 1 is truck driver. Finally, in figure 4.11, 17% (17 respondents) feel very safe. In the table 4.4, the 17% consist of 1 foreman, 7 directors, 1 technician, 6 accountants, 1 delivery man, and 1 truck driver.

This illustrates that more of the respondents are safe in their workplace which shows a good sign towards their health and safety scale in general.

Table 4.4 Duty in the company * How safe do you feel in your workplace? Cross tabulation

			How safe do you feel in your workplace?					Total
			Very unsafe	A bit safe	Do not know	Fairly safe	Very safe	
	Foreman	Count	3	1	0	9	1	14
		% within How safe do you feel in your workplace?	17.6%	4.5%	0.0%	24.3%	5.9%	13.7%
	Director	Count	8	6	1	9	7	31
		% within How safe do you feel in your workplace?	47.1%	27.3%	11.1%	24.3%	41.2%	30.4%
	Technician	Count	1	1	5	15	1	23
		% within How safe do you feel in your workplace?	5.9%	4.5%	55.6%	40.5%	5.9%	22.5%
	Cleaner	Count	0	0	0	1	0	1
		% within How safe do you feel in your workplace?	0.0%	0.0%	0.0%	2.7%	0.0%	1.0%
	Accountant	Count	0	0	0	0	6	6
		% within How safe do you feel in your workplace?	0.0%	0.0%	0.0%	0.0%	35.3%	5.9%
	Delivery Man	Count	0	0	1	2	1	4
		% within How safe do you feel in your workplace?	0.0%	0.0%	11.1%	5.4%	5.9%	3.9%
	Truck Driver	Count	0	2	2	1	1	6
		% within How safe do you feel in your workplace?	0.0%	9.1%	22.2%	2.7%	5.9%	5.9%
	Others	Count	5	12	0	0	0	17
		% within How safe do you feel in your workplace?	29.4%	54.5%	0.0%	0.0%	0.0%	16.7%
Total		Count	17	22	9	37	17	102
		% within How safe do you feel in your workplace?	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

To further understand the health and safety level in the sample size, table 4.5 presents the perceptions of the workers about how serious their employers take health and safety in their workplaces. According to this table, most employers in the sample size took health and safety very serious. In the breakdown, 31% and 34% respondents believed that their employers took health and safety very serious and fairly serious. 3 respondents do not know about this but 13% and 21% indicated that their employers are very unserious and fairly unserious about health and safety issues.

Table 4.5 How does your employer take Health and Safety issues?

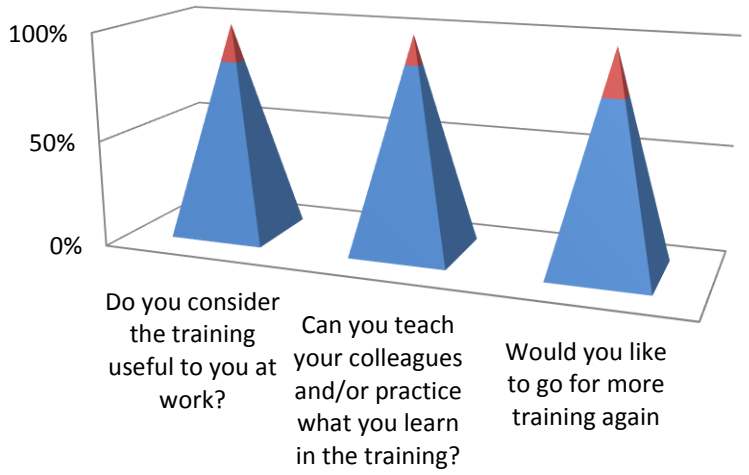
	Frequency	Percent
Very unserious	13	12.7
Fairly unserious	21	20.6
Do not know	3	2.9
Fairly serious	34	33.3
Very serious	31	30.4
Total	102	100.0

As regards the medium of acquiring knowledge of health and safety by the respondents, questions were put to them about health and safety training. Figure 4.12 shows their responses to be interesting. 66.7% of the respondents indicated that they have gone for health and safety training before, while 33.3% respondents indicated that they have never gone for one before.

Figure 4.12 Perceptions of respondents on training attendance

For the 66.7% (68 respondents) that have gone for training one time or the other, figure 4.13 explains the usefulness of the training to these respondents, if they can impact knowledge on other colleagues at their workplace and if they would like to attend more training.

In this figure, 88.6% (62 respondents) considered the trainings to be useful to them at their workplace while 18.8% (6 respondents) did not see the trainings useful to them at their workplace. Also, out of the 66.7% (68 respondents) that have gone for health and safety training before, 87.7% (64 respondents) are able to teach others in the workplace what they have learnt and also practiced it, while 13.8% (4 respondents) indicated that they were not able to teach or practice what they have learnt about health and safety issues in workplace. Finally, in the 66.7% (68 respondents), 84.7% (61 respondents) would want to go for more training on health and safety issues while 23.3% (7 respondents) are not interested in going back for trainings on health and safety. In general, it can be seen that more the respondents are open to learning health and safety issues, and can impact and practice the knowledge they have acquired in where they work or on their tasks.



	Do you consider the training useful to you at work?	Can you teach your colleagues and/or practice what you learn in the training?	Would you like to go for more training again
No	18.8	13.8	23.3
Yes	88.6	87.7	84.7

Figure 4.13 The perceptions of respondents on training, teaching, practicing and future trainings

4.3.3 Descriptive Statistics for Health and Safety knowledge application to homes cum domestic hazard preventions

This part will unravel the perceptions of the respondents to prevention of hazards at homes due to the use of domestic appliances. Frequencies and percentages of SPSS outputs on all the (102) respondents' application of workplace health and safety knowledge will be presented here and analysed. The main aim of this thesis is to know if the domestic hazards in homes can be prevented by the health and safety knowledge acquired in the workplace and to know this, it is important to see the perception of the respondents to some basic questions as regards their relationship with household health and safety issues.

Some subheadings are created in this part which will deal with how the respondents relate electrical domestic appliances, how they maintain proper hygiene, their precaution towards fire and chemicals, and general domestic precautions and how they relate with people (children and adults) in their homes in respect to keeping them safe and transferring knowledge acquired at work to them on how to keep, at lowest level, domestic hazards

4.3.3.1 Respondents approach to domestic appliances

Figure 4.14 shows a group of questions answered by the respondents on how they handled electrical appliances. All of the respondents did not leave any small appliances plugged when not in use. This is seen by the 70.6% and 29.4% respondents who indicated that always and sometimes in their response. Another question was put to the respondents about ground fault protected electrical circuits, and 92.2% and 1.0% respondents indicated that they always and sometimes use it while 6.9% respondents indicated that they never used it. Also, it can be seen in figure 4.14 that 40.2% and 39.2% respondents always and sometimes do follow instructions of manufacturer on the use and care of appliances while 20.6% never followed those instructions. As regards following of the label instructions for use on both liquid and electrical charcoal starters, 29.4% respondents and 35.3% respondents always and sometimes follow these label instructions while 36.3% do

not follow them. More so, 32.4% and 22.5% respondents always and sometimes remove doors/locks from unused refrigerators/freezers while 45.1% do not do this. In addition, 46.1% respondents do not limit the use of extension cords and number of appliances plugged into outlets to prevent electrical overloading while 17.6% and 36.3% respondents always and sometimes do this. Finally, always and sometimes, 25.5% and 11.8% respondents keep appliance cords from dangling over counter edges while 62.7% respondent never do this. This trend of response shows that some respondents are careful with electrical appliances while some are not too careful with it.

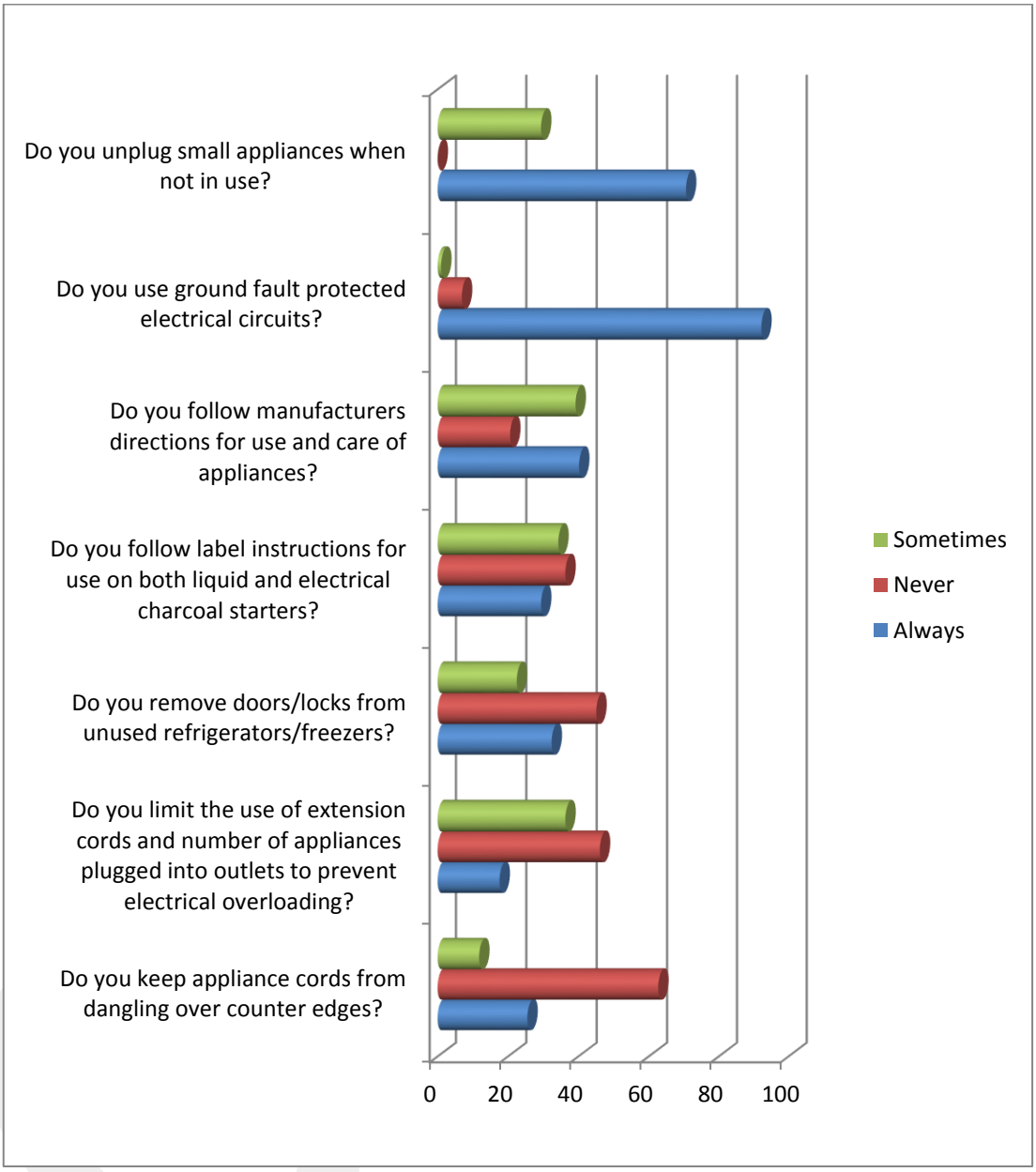


Figure 4.14 respondents' approaches to domestic electrical appliance

4.3.3.2 Respondents maintenance of Hygiene

Maintaining proper hygiene is one very important aspect of health and safety anywhere. The respondents were asked questions as regardt general cleaning of their household environs and the figure 4.15 presents their responses. 26% and 10% of the respondents do always and sometimes keep garden hoses stored when they are not in use while 66% do not do this. This may be either because they do not have garden hose or if they do, they may be careless about it. Also, 41.2% and 29.4% respondents indicated that do always and sometimes maintain pet restraints in good conditions while 29.4% never do this. This may also be because they do not have pets or they are careless about it. Furthermore, question was asked as regards covering of trash containers securely, 79.4% and 15.7% respondents indicated that they always and sometimes do this while 4.9% never do this at all. Lastly, 71% and 24% respondents always and sometimes clean up spills immediately while 7% do not clean up spills immediately.

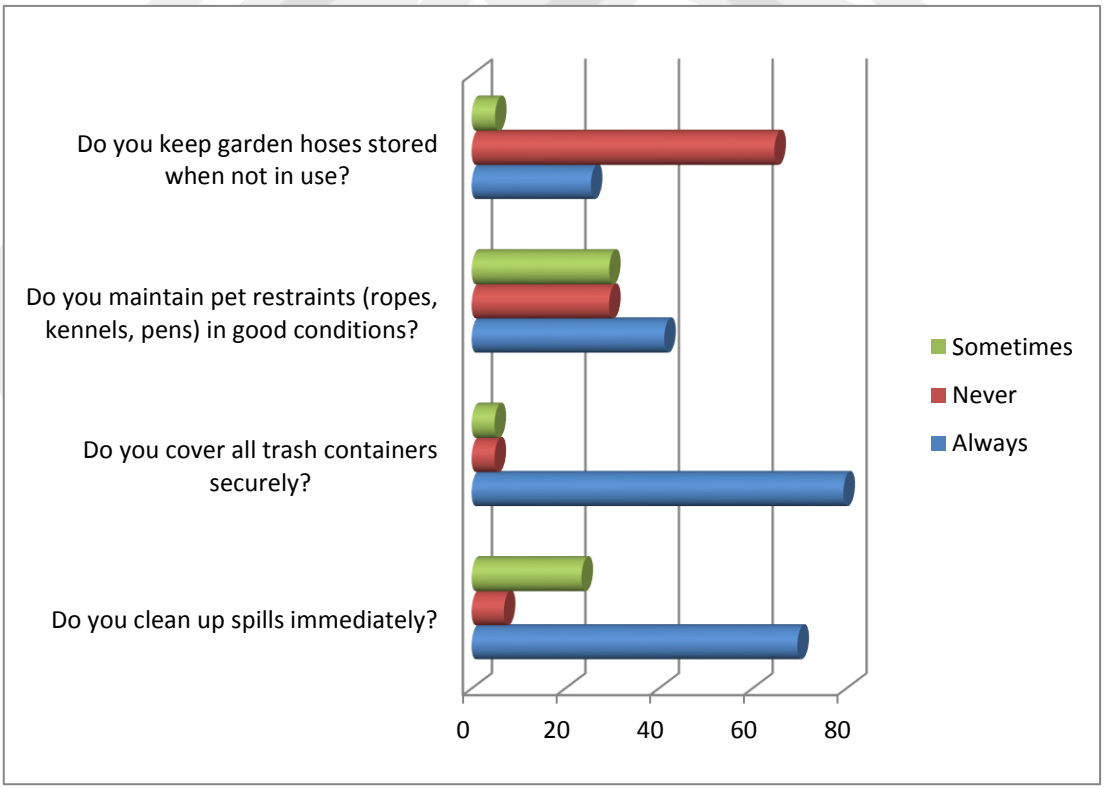


Figure 4.15 Respondents maintenance of Hygiene

4.3.3.3 Respondents Fire Precaution Behaviours

The basic precautionary measures taken to avoid fire outbreaks in the home are asked as questions from the respondents and figure 4.16 presents their responses. Accordingly, 87% and 2% respondents understands the fact that selecting of furnishing fabrics that are flame-resistant, non-allergenic and allow for ventilation while 12.7% do not do this. Also, 67.6% and 27.5% always and sometimes exercise safety precautions when fireplace or woodstove is in use while 4.9% respondents do not do this. These responses is succinctly gives an understand of the respondents that they to a large extent careful towards fire outbreaks.

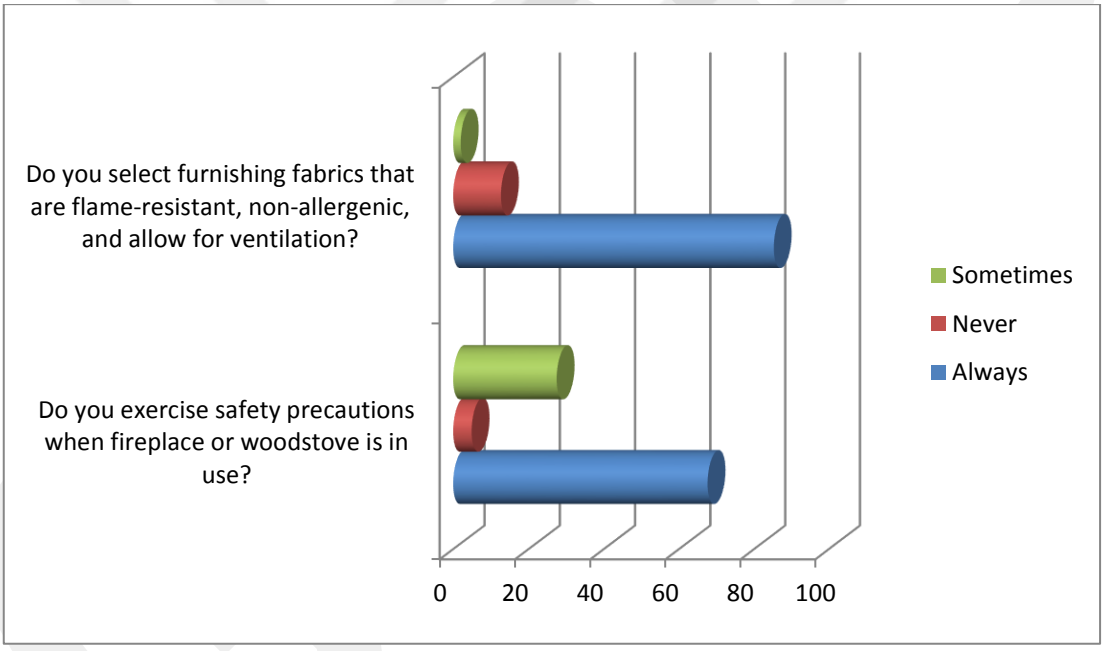


Figure 4.16 Respondents Fire Precaution Behaviours

4.3.3.4 Respondents Precaution towards Chemical

This part shows how careful the respondents are to chemicals in the house. 99% of the respondents in this survey indicated that they store paints, thinners, solvents and flammable liquids in clearly marked, tightly closed containers while just 1% never do this. Besides, 80.4% and 17.6% of the respondents always and sometimes ventilate the environment when they use cleaning products and chemicals in the house but just 2% never do this. Also, 27.5% and 33.3% respondents always and sometimes read warning label on cleaning products and household chemicals before they use them while 39.2% do not read this warning on the labels. Additionally, 58.8% and 15.7% respondents disposed used/empty aerosol containers according to the instructions on the label always and sometimes. Meanwhile, 25.5% respondents never do this. Lastly, 24.5% and 43.1% respondents mix bleach and ammonia for cleaning always and sometimes while 33% of the respondents never mix these cleaning agents. In general, there are mixed precautionary levels on how the respondents avoid chemical hazards. But on a high side, they are careful towards the handling of chemicals.

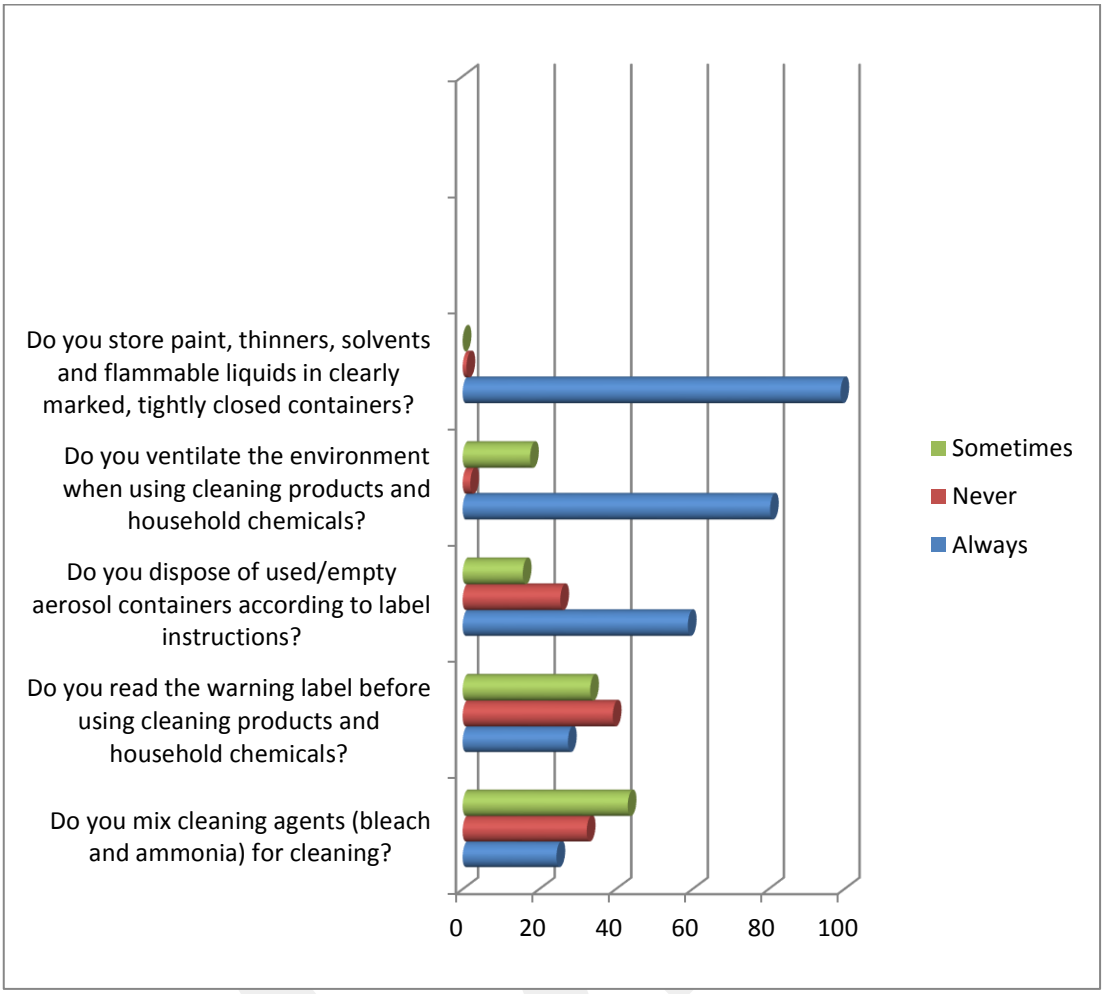


Figure 4.17 Respondents Precaution towards Chemical

4.3.3.5 Respondents Home Lighting

Most houses have experienced so many domestic accidents especially due to poor lighting. The figure 4.18 presents the responses of the respondents to questions on lighting in the house. 77.5% and 17.6% respondents always and sometimes have light switches at each entrance to all rooms in their houses while 4.9% never have such in their houses. Also, 58.8% and 29.4% respondents always and sometimes have three-way switches at each end of stairways for safe, accessible lighting but 11.8% respondents never have this in their house. In general, larger percentages of the respondents have good lighting in their house.

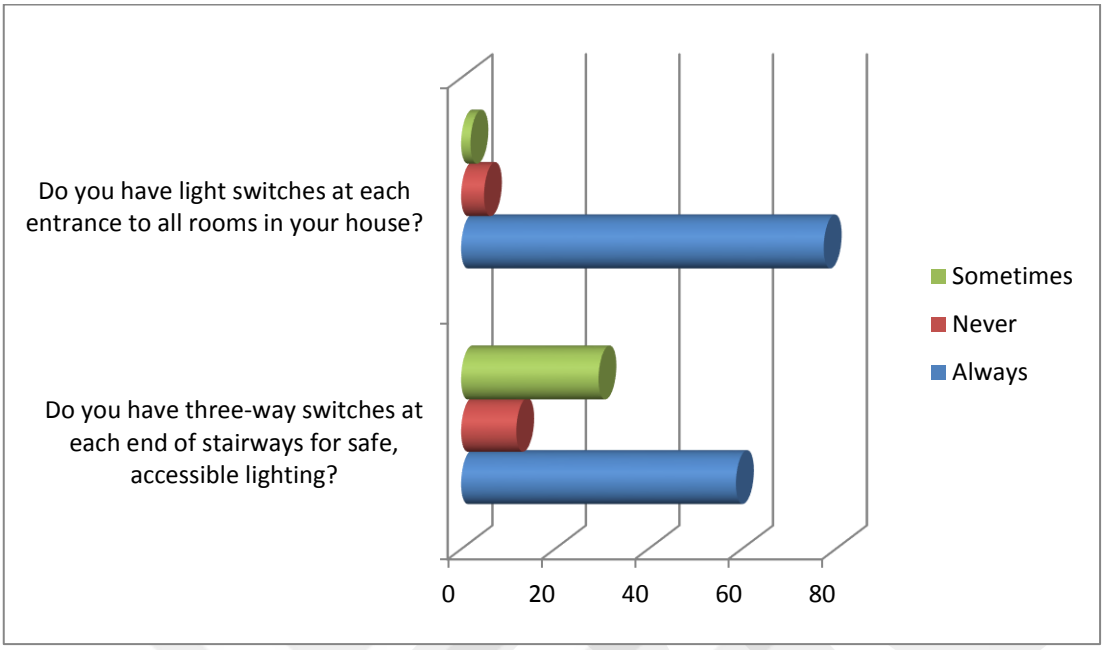


Figure 4.18 Respondents Home Lighting

4.3.3.6 Impact of Respondents health and safety knowledge in their households

As it was observed previously especially in figure 4.10, most respondents have an understanding of health and safety at workplace but their response about safety/protection of children and elderly people got a low response and this will be looked at in this part.

In the figure 4.19, 44.1% respondents never teach others in the house to use dangerous utensils correctly. This is very high but 38.2% respondents always teach others how to use utensils while 17.6% sometimes teach others as well. Respondent with toddlers in their must be high in this survey but in their response on 'do you use gates on stairways to prevent toddlers from falls', there was a very low response on the side of the respondents who never did this, which is 11.8%. 73.5% and 14.7% always and sometimes prevent toddlers from falls by using gates on the stairways. As regards medicine/drug prescription storage, the 66.7%, 16.7% and 16.7% respondents respectively always, sometimes and never store all medicines/prescription drugs securely out of the reach of children. One way or the other, 55.9% and 31.4% of the respondents have indicated that they instruct children

never, in case of fire, to hide under beds or closets, or to lock themselves in a room. This is on a high side as against the 12.7% respondents who never instruct children to do this. This may be because they have no children in their household. Lastly, it can be seen as well that 52.9% of the respondents never teach older children on how to use carpentry, plumbing and electrical equipment safely. Addition of the 26.5% and 20.6% respondents who teach the children on safety use of the above mentioned cannot even match those who declared they do not do this. All the simple carefulness of most of the respondents in this survey can sum up to mean they are unknowingly applying and also ignoring some of their acquired knowledge from workplace health and safety practices.

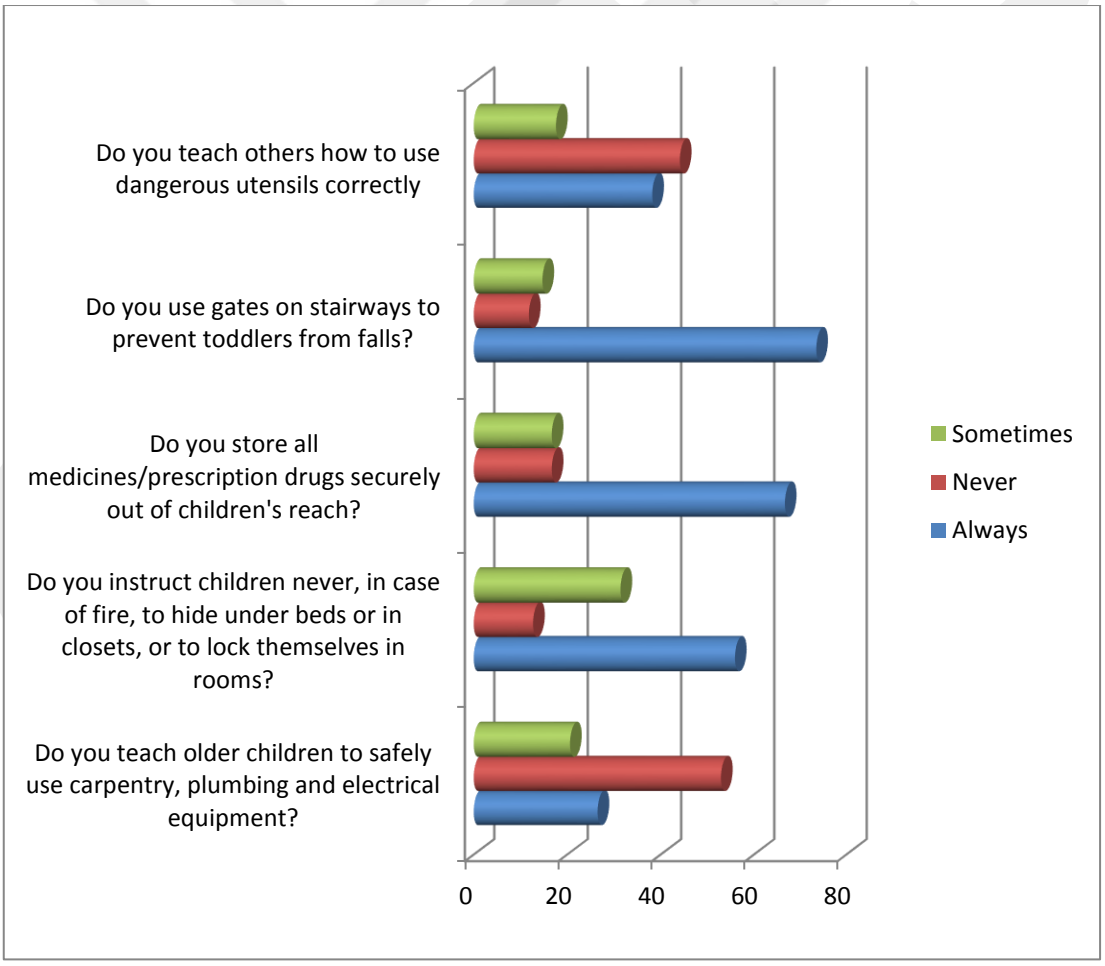


Figure 4.19 Impact of Respondents' health and safety knowledge in their households

4.3.4 Hypothesis Testing

In this chapter, three set of hypotheses were tested with the purpose of accepting or rejecting them and the hypotheses are listed as follows:

H_1: Knowledge and practice of health and safety at workplace are not well understood by workers.

H_2: Health and safety knowledge acquired at workplace are not applicable in homes to solving hazards.

H_3: An average home in North Cyprus is not safe from domestic hazard.

4.3.4.1 Hypothesis One

The first hypothesis '***Knowledge of health and safety at workplace are not well understood by workers'*** is constructed to know if the respondents really acquired the basic knowledge needed to be safe in workplace and its understanding, and evaluate the safety practice of the respondents at their work place. The table 4.6 shows a chi-square test result between the 'number of working years of respondents' and 'taking responsibility to safeguard yourself and others around you'. These two questions were used because the more the years of experience at work, the more a worker is expected to understand and have knowledge about important information in his work. The former questions the independent variable while the latter is the dependent variable.

Table 4.6 Chi-square tests for hypothesis one

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.793[a]	3	.020
Likelihood Ratio	13.608	3	.003
Linear-by-Linear Association	1.902	1	.168
N of Valid Cases	102		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.76.

The value of the test statistics is 9.793, the corresponding p-value is p = 0.020. Conventionally, when p-value is less than the significance level (0.05), the null hypothesis becomes rejected and the alternate hypothesis is accepted. Since p-value is less than 0.05, the null hypothesis is rejected and this means that '***Knowledge of health and safety at workplace are well understood by workers'.***

4.3.4.2 Hypothesis Two

The second hypothesis **'*Health and safety knowledge acquired at workplace are not applicable in homes to solving hazards'*** is constructed to know if the health and safety knowledge acquired at work is exclusively for workplace only. The table 4.7 shows the chi-square test between 'making sure everything is done to endure a safe/hygienic environment' and 'do you store paint, thinners, solvents and flammable liquids in clearly marked, tightly closed containers?'. These two questions were chosen because most workplace in the industrial zone deal with paints, thinners and some mixtures of chemicals, and knowing how to handle them it at home to create a safe and healthy environment can be a reflection the knowledge acquired to use them at workplace. The former is the independent variable while the latter is the dependent variable.

Table 4.7 Chi-Square Tests for hypothesis two

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.857[a]	1	.016		
Continuity Correction[b]	1.003	1	.317		
Likelihood Ratio	3.892	1	.049		
Fisher's Exact Test				.147	.147
Linear-by-Linear Association	5.800	1	.016		
N of Valid Cases	102				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .15.
b. Computed only for a 2x2 table

The value of the test statistics is 5.857, the corresponding p-value is p = 0.016. Conventionally, when p-value is less than the significance level (0.05), the null hypothesis becomes rejected and the alternate hypothesis is accepted. Since p-value is less than 0.05, the null hypothesis is rejected and this means that '***Health and safety knowledge acquired at workplace are applicable in homes to solving hazards'.***

4.3.4.3 Hypothesis Three

The third hypothesis ***'an average home in North Cyprus is not safe from domestic hazard'*** is constructed to know how safe a home can be if a family member is adequately aware of workplace health and safety practice and also to know the effects of the application to health and safety practice in households. The table 4.8 shows the chi-square test between 'safety in the home' and 'do you follow manufacturer's directions for use and care of appliances?' These two questions were chosen because one of the meanings of health and safety which the respondents in this survey gave a high agreement to is the former variable and it is believed that this should be reflected in the ways the respondents handle appliances at home right from the day the appliances were brought home. The former is the independent variable while the latter is the dependent variable.

Table 4.8 Chi-Square Tests for hypothesis three

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.319[a]	2	.852
Likelihood Ratio	.324	2	.850
Linear-by-Linear Association	.280	1	.597
N of Valid Cases	102		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.71.

The value of the test statistics is 0.319, the corresponding p-value is p = 0.852. Conventionally, when p-value is greater than the significance level (0.05), the null hypothesis becomes accepted. Since p-value is greater than 0.05, the null hypothesis is accepted and this means that ***'an average home in North Cyprus is not safe from domestic hazard'***

Table 4.9 Summary of Hypotheses Testing

Research Questions	***Hypotheses***	***Results***
RQ1: Are there health and safety practices for the workers at their workplaces? RQ3: Are the Knowledge and practices of health and safety at workplace well understood by workers?	H_1: Knowledge and practice of health and safety at workplace are not well understood by workers.	***Null Hypothesis Rejected***
RQ4: Are these health and safety knowledge exclusively for workplace only? RQ5: Are these knowledge applicable to solving hazards from domestic appliance? RQ6: Are they usefully applied at homes?	H_2: Health and safety knowledge acquired at workplace are not applicable in homes to solving hazards.	***Null Hypothesis Rejected***
RQ2: How safe a home can be if a family member is adequately aware of workplace health and safety practice? RQ7: What are the effects of the application to health and safety practice in households?	H_3: An average home in North Cyprus is not safe from domestic hazard.	***Null Hypothesis Accepted***

CHAPTER FIVE

DISCUSSION AND CONCLUSION

In the field of human relations nothing is so important as safety, for safety applies with equal force to the individual, to the family, to the employer, to the country. Safety in its widest sense, concerns the happiness, contentment and freedom of everyone. There is no mystery in safety. The important thing is to think a situation through and then apply common sense.

~Bill Jeffers (1945). COBA Magazine

5.1 Introduction

In this chapter, an integrative discussion will be done on the findings of the study which was presented in the fourth chapter of this study. Firstly, a presentation of the synopsis of the research study and summarization of the findings will be done. Secondly, the review of findings of all tested hypotheses will be done and it will be juxtaposed with some past work. The limitation of the study and recommendation for further studies will be laid down coupled with the conclusion.

5.2 Synopsis of the research study and summary of main findings

Health and safety in workplace is seen as one of the most fulfilled obligations off employers in most industrial quarters in most countries. In fact, most employers understand that one way to motivate their workers is by making provision for health and safety matters such that they will see that their lives are not at risk while working. However, as human, any information received somewhere, it does not and it should not end there. Such information can be applied elsewhere especially if it had given the workers more knowledge about the issue the information was gotten about. The main aim of this study is to access the useful transfer of safety knowledge and practice at workplace to homes in North Cyprus and thereby solving hazards from domestic appliances. Within this aim, this study seeks to know the safety practices of workers at their respective workplace, how safe a home can be if there exists a member of the household with adequate workplace health and safety

knowledge, the correct transfer of these knowledge to home safety issues and the safety of North Cyprus homes at large.

In alliance with the research objectives and questions, a quantitative research method was used by the researcher. With explorative activities from the part of the researcher and under the guidance of the supervisor, many literatures on health and safety issues were studied. A pilot study was done for the purification process of the items in the questionnaire coupled with the reliability test. SPSS was used for both the pilot study and the main study.

With respect to the quantitative findings of this study, this study has pressed together important research questions and hypotheses that have sprung up a number of questions about the useful transfer of safety knowledge and practice at workplace to homes in North Cyprus to solving hazards from domestic appliances. The summary of the quantitative findings grouped together is presented in table 5.1. It contains the related research questions, hypothesis, summary of quantitative findings and researcher's observation.

Table 5.1 Quantitative findings and brief observations of researcher

Research Questions (RQ)	***Summaries of Quantitative Findings***	***Researcher's Observations***
RQ1: Are there health and safety practices for the workers at their workplaces? RQ3: Are the Knowledge and practices of health and safety at workplace well understood by workers?	H_1: Knowledge and practice of health and safety at workplace are not well understood by workers. **[Rejected]**	Respondents in this study displayed a remarkable level of knowledge and practice of health and safety in their workplace
RQ4: Are these health and safety knowledge exclusively for workplace only? RQ5: Are these knowledge applicable to solving hazards from domestic appliance? RQ6: Are they usefully applied at homes?	H_2: Health and safety knowledge acquired at workplace are not applicable in homes to solving hazards. **[Rejected]**	Very well, it is understood through the perceptions of the respondents that the knowledge and practice of workplace health and safety acquired at workplace is not limited to workplace alone, it applies to home as well to keep the homes safe and healthy
RQ2: How safe a home can be if a family member is adequately aware of workplace health and safety practice? RQ7: What are the effects of the application to health and safety practice in households?	H_3: An average home in North Cyprus is not safe from domestic hazard. **[Accepted]**	Unfortunately, with all said and done, it seems that, on a general note, North Cyprus homes are not free from domestic hazards upon the acquired knowledge and practice of health and safety in workplace.

5.3 Discussion

First and foremost, this research work is not a duplication or replication of any previous research works, which makes it virtually a little bit impossible to put side by side with findings of this research work with previous research works. Nevertheless, some findings of this research work is in tandem with the findings of Machles (2002), Novick (2006), Brinia & Efstathiou (2012). The discussion of the main findings of this research work will be death in concordance with the respective hypothesis.

Hypothesis 1

Knowledge and practice of health and safety at workplace are not well understood by workers.

This hypothesis is a product of the first and third research questions of this research work. It was constructed to know if there are safety practices for workers at their workplaces and if the Knowledge and practices of health and safety at workplace well understood by workers. One important point to be explained here is that high percentage (88.6%) of the respondents is aware that training is useful to them which is one ultimate source of health and safety knowledge. The result of this study revealed that health and safety training cannot be underestimated in every workplace. It helps workers to increase their residual knowledge about how to do things with highest level of safety to themselves and other workers around them. One thing is to be trained to acquire the required knowledge, another thing is to teach others what is learnt or practice what is learnt. Out of the 66.7% (68) respondents that attend one training or the other on health and safety, 87.7% (64) respondents acquired the knowledge and have the ability to teach others in the workplace what they have learnt and also practiced it. It can be quickly put forward here that the understanding of health and safety knowledge is that vital key to bridging the gap between ignorance, and practicing and maintaining a safe and healthy atmosphere in a workplace. Understanding of safety and health knowledge and practice earns special attention in this research work. Certainly, among the list of agenda of an employer or

health and safety trainer, of course understanding must be placed far above other things. Understanding of health and safety knowledge and practice is made known when trained workers alone make good judgment of and transfer what they have learnt via genuine performance of health and safety measures in the workplace. Health and safety trainers are considered as teachers of understanding, and not just sheer source of knowledge or ability. Accordingly, when a trainee knows something, and can bring it forth upon demand, explains the knowledge or demonstrates the skill, this means understanding (Perkins & Blythe, 1994). In general, it can be seen that more of the respondents are open to learning health and safety issues, and can impact and practice the knowledge they have acquired in where they work or on their tasks. So it is opined that the 87.7% respondents that acquired the health and safety knowledge and practiced them at work place displayed and revealed the reasons why the *null hypothesis one* of this study was rejected.

Hypothesis 2

Health and safety knowledge acquired at workplace are not applicable in homes to solving hazards.

The results of this research work are consistent with the findings of Brinia & Efstathiou (2012). They made it known that abiding by safety rules and regulations which are were learnt in the health and safety trainings they have attended can become a way of life and can encourage them to espouse a safer-living attitude (Brinia & Efstathiou, 2012). They gave an instance in their findings that a worker is required to put on his/her helmet at workplace will possible grow up an attitude to use his/her helmet when riding a bike (Brinia & Efstathiou, 2012). This is a perfect illustration of what this research work intends to answer.

As a point of note, this hypothesis 2 is a product of research questions four, five and six. These three research questions revolve round workplace and home. Most domestic hazards from homes, for example, falls are the major cause of home injuries (Gunatilaka *et al.,* 2005) just as it is also one major cause of workplace injuries; also, older toddlers have a higher potential for injury from home hazards

(Qiu *et al.,* 2014) just as workplace colleagues and so on. Bringing in the knowledge acquired from training here and keying it into this idea here, one can vividly see that the ultimate goal of training is about workers' understanding and the ability to apply knowledge learned in his/her job, it also involves the transferring of training from concept to practice (Machles, 2002). The location of transfer does not have to be workplace alone, it can be also in homes, religious center or public places as well. Fire outbreak from domestic appliances can require the same measures to quench if it also happens in workplace. Suffocation (e.g., saran wrap, peanut or bean, etc.), poisoning (e.g., medicine, pesticide or detergent etc.), sharp instrument injury (e.g., sharp toy, knife etc.), burns (e.g., hot tea, hot kettle etc.), electric shock (e.g., uncovered electric socket lower than 1 meter), and so on have the same effects on individuals whether at workplace or home. Even though it is not so common to have people attending seminar for health and safety at homes, but the understanding of health and safety at workplace can be leveraged upon to ensure all these domestic hazards are prevented and if it happens, the quick approach acquired from workplace to save life can also be used here.

The null hypothesis of this study was rejected on this ground as most of the respondents are well acquainted with health and safety practice at workplace and they still apply them at home

Hypothesis 3

An average home in North Cyprus is not safe from domestic hazard.

This hypothesis was accepted, and fortunately makes this research work more interesting. This hypothesis opens up the salient reasons why the health and safety knowledge and practice acquired at workplace have failed at homes in North Cyprus. Even though, on a high side, the respondents in this study have shown a remarkable understanding of health and safety knowledge and practice, there are still some very important things their responses have revealed to the researcher. One is reading of manual instructions for appliances newly purchased. The work of Novick (2006) is in consonance with this area. In his study, he noted how busy professionals redirected

their time looking for other sources of help than looking at a manual for help. So many people are found wanting in this activity. In this survey, just as it was noted by Spink *et al.*(2014) that not all people do generally read warning labels, so also are the respondents of this study. It can be seen in figure 4.14, as regards following of the label instructions for use on both liquid and electrical charcoal starters, 36.3% respondents never follow these label instructions. These are areas that very much overlooked and not always thought as the problem people singlehandedly cause to cause some domestic hazards in the household. People tend to just believe they can operate a microwave, a fan, electric kettles or air conditional, but little do they know that the manufacturer are not bum

Also, 20.6% never followed instructions of manufacturer on the use and care of appliances. This is just not what safety and health practices will promote at workplace. Of course, giant and sophisticated instrument at workplaces always attract reading or following the manual instructions of use but there is no such display of applying the same in home. More so, 45.1% respondents never remove doors/locks from unused refrigerators/freezers. In addition, 46.1% respondents do not limit the use of extension cords and number of appliances plugged into outlets to prevent electrical overloading. Finally, always and sometimes, 62.7% respondents never keep appliance cords from dangling over counter edges. These percentage figures are high and if the same questions were asked about the workplace, the respondents will show a low response to never. Even the managers at workplace will ensure they take cautions so that their will not be accident in the workplace.

These entire points amount to the fact that, even if all the members of a household are fully knowledgeable, total adherence to health and safety practice should not leave issues mentioned here behind. However, based on the statistical results on this hypothesis, the null hypothesis was accepted.

5.4 Main summaries

The comfortable way to restate this research study topic is by saying that homes in North Cyprus can remain safe and healthy with little or no domestic hazards from appliances. All in this survey are workers in an industrial area of Lefkosa and notably, they are active workers whose safety and health are valued by their employers. Most employers have invested hugely on them to make sure their activities at workplace do not create threat to the environment or to other workers in the workplace. It lies in the heart of this study to know if truly the employees are having the right source of acquiring knowledge on health and safety, are the knowledge useful and do the workers find themselves useful to others (in their households) by helping them through transferring of this knowledge to solve domestic hazards in their various homes. Through teaching younger ones on how to be safe and healthy was seen on the part of the respondents' activities in this survey, allowing healthy practices in homes for children are seen in this study as well. But one of the straws that broke the camel's back, upon the finest attributes of the respondents here, is there disregards for manual guides or instructions for how to use appliances at homes. That simple safety measures in the manual may be simple, and less expensive, but by using innate knowledge to handle appliance may be pose a serious threat to the household. This is one bad health and safety culture in most houses and with these, danger that are avertable remains a threat to all.

5.5 Limitations of the study

This study, without mincing words, has some limitations. The first one is the size of the sample of study. Only 119 respondents from a total of 150 respondents in Lefkosa "industrial zone" forms the considered responses used in this study's final analysis. Even in the 119 responses, 17 respondents' responses were unusable. The very rigorous daily activities of the workers in the industrial zone are one major hurdle that posed itself as a problem to reach out to some other workers. In other words, it would be difficult to make the responses of this sample size to reflect the general perceptions of the total "industrial zone" workers in Lefkosa. The researchers' inability to carry out online survey which would have been a very better

medium to reach out to these respondents but looking at the nature of the jobs of the respondents, they would not have got enough time to answer the questions because most of their hours of the day is spent doing heavy works here and there. In addition, the conclusion of this study has to be approved, with caution, because they represent the observations of workers from an industrial area in a city and it must not be used to understand the perception of the whole public and private North Cyprus workers.

5.6 Recommendations for Further Study

With respect to the responses of the workers and the research analysis, there are some issues that are worthy of laying down as recommendations in this study. Without setting aside the areas of the research study, the following points below are suggested as recommendations for further studies for health and safety measures to be applied at home via workers acquired knowledge at workplace to solve domestic hazards in homes.

a. This research shows that only workers in the industrial zone were considered in this research; it would be recommendable to consider all other workplaces that will incorporate both the public and private sector workers in North Cyprus.
b. To have extensive and deep rooted findings in research work like this, a quantitative and qualitative research method is recommended such that both administration of questionnaires and semi structured interview will be conducted so as to open up channels for new ideas in the course of this type of research.
c. Women should have also been considered in study like this as they are the main home builder in any society. In fact, a gender balanced study in future study would be recommendable.
d. More questions on health and safety knowledge and practice should be put to the respondents and understand their application of its applications to other areas like road safety.
e. Through the findings of this study, health and safety bodies that organize training should be made to understand that workplace and home safety issues

should be the core of their trainings aims for workers and not skew their trainings to workplace issues alone.

5.7 Conclusions

This research study was done because the there is no much health and safety programmes and activities promoted in North Cyprus to educate people on how to maintain a safe and health home. Everybody sees themselves as a compendium of health and safety ideas with little understanding of what this term really means. This research study's main aim is the solving domestic hazards in North Cyprus homes by the application of workplace health and safety knowledge. In the review of literatures, the knowledge gap seen was the transferring of the health and safety knowledge and practice to homes to solve hazard from domestic appliances. It was seen that this link is possible except the truth will be ignored. This inspired the use of a quantitative research method for this research work through the administration of questionnaires to about 102 (collected questionnaires from) workers in Lefkosa "industrial zone".

The results of this research work contributes to the understanding of workplace as a point to acquire more knowledge to help the society at large, inculcate safety cultures to people through safety programmes and enhancing a better safe and healthy life through transferring of these knowledge to the smallest unit of the society. Trainers of health and safety need to sound it clear to trainees that all what is taught should be used at homes too by the use of a well developed curriculum by the trainers for the trainees. By doing this, of course, negligence, and ignorance towards safety and health issues will be at the lowest levels.

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APPENDIX A

QUESTIONNAIRE ON SAFETY AND HEALTH ISSUE

Dear Respondent,

I am conducting an academic survey regarding the safety and health issues in North Cyprus. Your comments highly important to this academic survey research. Please indicate the answer to each statement according to your real perception. The survey data will be treated with an enmity and confidentiality.Therefore; please feel at ease on the answers to this questionnaire.

Barq Raad khashei

barqalani@hotmail.com

Section A

1. Age
    a. 20 – 29 years old
    b. 30 – 39 years old
    c. 40 – 49 years old
    d. 50 years and above
2. Gender
    a. Male
    b. Female
3. Marital status
    a. Married
    b. Single

    Specify where you work: ……..
4. How many workers do you have in your company: …….
5. What is your duty/role in the company: ……
6. Number of working years
    a. 1 – 4 years
    b. 5 – 9 years
    c. 10 – 14 years
    d. 15 years and above
7. Working status?
    a. Part time b. Full Time

Section B

This section is about general questions on health and Safety in workplace

8. What does Health and Safety means to you? Tick the one appropriate to you.

	Yes	No
Rules/regulations relation to safety in the workplace		
Rules/regulations to ensure our general wellbeing/personal safety		
Minimising risk/accidents/injury		
Making sure machinery/equipment/appliances are safe/hazard free		
Taking responsibility to safeguard yourself and others around you		
Safety in the home		
Making sure everything is done to ensure a safe/hygienic environment		
Prevention of illness/disease		
Fire precautions		
Food safety practices		
Safety/protection of children		
Food safety practices		
Safety/protection of elderly people		
Don't know		
Others		

9. Generally, how safe do you feel in your work place?
    b. Very unsafe
    c. A bit unsafe
    d. Do not know
    e. Fairly safe
    f. Very safe
10. How does your employer take health and safety issues?
    a. Very unserious
    b. Fairly unserious
    c. Do not know
    d. Fairly serious
    e. Very serious
11. Have you ever gone for health and safety training before
    a. Yes
    b. No
12. Do you consider the training useful to you at work
    a. Yes
    b. No
13. Why do you think it is useful? .....
14. Can you teach other workers what you learnt in the training
    a. Yes

b. No

15. Would you like to go for the training again

a. Yes
b. No

16. What are the health and safety risk you face in your work place

	Always	Never	Sometimes
Infection/germs/disease			
Stress			
Physical safety			
Eye strain			
Chemicals			
Falling/tipping			
Lifting/carrying/moving objects			
Use of machinery/electrical equipment			
Accidents/injuries			
Air Pollution			
Wet/slippery floor			
Air conditioning/ventilation			
Fire hazard			
Food safety			
Cuts/grazes			
Burns/scalds			
Noise pollution			
Misuse of equipment			
Sharp equipment			
Radiation			
Negligence			
Others			
Nothing			

Section C

This section is about Health and Safety at home. Please tick the appropriate answer in this table

	Always	Never	Sometimes
Electrical Appliances			
Do you locate portable heaters away from combustible materials and surfaces?			
Do you use electrical outlet caps to protect toddlers?			
Do you have sufficient household wiring for appliances used?			
Do use lower cabinets to store heavy appliances			
Do you use appliances without overloading electrical circuits?			
Do you use ground fault protected electrical circuits?			
Do you remove doors/locks from unused refrigerators/freezers?			
Do you keep appliance cords from dangling over counter edges?			
Do you follow manufacturer's directions for use and care of appliances?			
Do you unplug small appliances when not in use?			
Do you limit the use of extension cords and number of appliances plugged into outlets to prevent electrical overloading?			
Do you keep the basement floor dry to avoid shocks from light fixtures or electrical equipment?			
Do you follow label instructions for use on both liquid and electric charcoal starters?			
Fire Precautions			
Do you have the furnace, heating stoves, chimneys and flues inspected and cleaned at least once a year?			
Do you exercise safety precautions when fireplace or woodstove is in use?			
Do you have, and know how to use, a			

fully charged fire extinguisher?			
Do you select furnishing fabrics that are flame-resistant, non-allergenic, and allow for ventilation?			
Lighting			
Do you have three-way switches at each end of stairways for safe, accessible lighting?			
Do you have light switches at each entrance to all rooms in your house?			
Do you keep your household well lighted?			
General Cleaning of the House environment			
Do you clean up spills immediately			
Do you cover all trash containers securely?			
Do you maintain pet restraints (ropes, kennels, pens) in good conditions?			
Do you keep the yard free of debris, tools and toys?			
Do you keep garden hoses stored when not in use?			
Chemical Precautions			
Do you dispose of sharp, combustible or poisonous trash properly?			
Do you store paint, thinners, solvents, and flammable liquids in clearly marked, tightly closed containers?			
Do you wear eye protection when using power tools and household chemicals?			
Do you keep cleaning products and household chemicals safely out of children's reach or stored securely?			
Do you read the warning label before using cleaning products and household chemicals?			
Do you ventilate the environment when using cleaning products and household chemicals?			
Do you use label guidelines and adequate ventilation with aerosol spray paints, volatile cleaners and chemicals?			

Do you dispose of used/empty aerosol containers according to label instructions?			
Do you mix cleaning agents (Bleach and ammonia) for cleaning?			
Domestic Precautions			
Do you practice lawnmower/snow-blower safety precautions?			
Do you take time to eliminate domestic hazards as you find them?			
Do you take time to teach safe practices to your households			
Do you use sturdy ladder or step stool to reach high cupboards?			
Do you use caution when using and cleaning knives, can openers, and other "sharps" in the kitchen?			
Do you teach others to use dangerous utensils correctly?			
Safety of Children			
Do you instruct children never, in case of fire, to hide under beds or in closets, or to lock themselves in rooms?			
Do you store all medicines/prescription drugs securely out of children's reach?			
Do you use gates on stairways to prevent toddlers from falls?			
Do you teach older children how to use windows for fire escape?			
Do you teach older children to safely use carpentry, plumbing and electrical equipment?			
Do you store dangerous equipment out of reach of young children?			

APPENDIX B

QUESTIONNAIRE ON SAFETY AND HEALTH ISSUE

Değerli katılımcı,

Bu anket Kuzey Kıbrıs'taki iş sağlığı ve güvenliği uygulamları üzerine yapılan bilimsel bir çalışma içindir. Bu akademik çalışma için katkılarınız çok kıymetlidir. Lütfen kendi algınıza gore içtenlikle cevaplandırınız. Anket cevaplarınız ve isimleriniz gizli kalacaktır, o yüzden rahatlıkla cevaplandırınız. Değerli vaktiniz ve katılımınız için teşekkür eder, iyi çalışmalar dilerim.

Barq Raad Khashei

Sorularınız ve görüşleriniz için: barqalani@hotmail.com

Atılım Üniversitesi Yüksek Lisans Öğrencisi

A Bölümü

1. Yaş
    a. 20 – 29 yaş
    b. 30 – 39 yaş
    c. 40 – 49 yaş
    d. 50 yaş üstü
2. Cinsiyet
    a. Erkek
    b. Bayan

3. Medeni Hal
    a. Evli
    b. Bekar

4. Hangi birim yada birimlerde çalıştığınızı belirtiniz:

    ……..

5. İşyerinde kaç kişi çalışıyor (beyaz yaka-mavi yaka): …….
6. İş yerindeki göreviniz nedir? : ……
7. Bu kurumdaki çalışma süreniz
    a. 1 – 4 yıl
    b. 5 – 9 yıl
    c. 10 – 14 yıl
    d. 15 sene ve üstü

8. Çalışma Durumu:
    g. Yarı- zamanlı
    h. Tam-zamanlı

B Bölümü

Bu bölümdeki sorular işyerindeki iş sağlığı ve güvenliği uygulamaları üzerinedir.

İş sağlığı ve güvenliği sizin için ne ifade ediyor? Aşağıdakilerden size uygun olanı (X) işareti ile lütfen işaretleyiniz.

	anlaşmak	katılmıyorum
İşyerine ait güvenlik kurallar/uygulamalar		
Genel sağlığımızı ve güvenliğimizi sağlamak için kurallar/uygulamalar		
Riski/ Kazayı/ Yaralanmayı azaltmak		
Makinelerin/Ekipmanların kullanımında güvenli ve tehlikeye açık olmamasını sağlamak		
Kendinizi ve çevrenizdekileri korumak için sorumluluk almak		
Evde güvenlik tedbirleri		
Güvenli ve hijyen olabilmesi için yapılan tüm uygulamalar		
Hastalık yada rahatsızlıkları önlemek		
Yangın önlemleri		
Gıda güvenliği uygulamaları		
Çocukların korunması ve güvenliği		
Yaşlıların korunması ve güvenliği		
Yukardakilerin hepsi		
Bilmiyorum		
Others		

9. Genellikle iş yerinde kendinizi ne kadar güvenli hissediyorsunuz?
    i. Çok güvensiz
    j. Biraz güvnesiz
    k. Bilmiyorum
    l. Güvenli
    m. Çok güvenli
10. İşvereniniz iş sağlığı ve uygulamalarını ne kadar ciddiye alıyor?
    f. Hiç ciddi değil
    g. Fazla ciddi değil
    h. Bilmiyorum
    i. Ciddi

j. Çok ciddi

11. İş sağlığı ve güvenliği eğitimi aldınız mı hiç?

    c. Evet
    d. Hayır

12. Eğer yukardaki cevabınız EVET ise, bu eğitimin faydalı olduğunu düşünüyormusunuz?

    c. Evet
    d. Hayır

    Neden faydalı yada faydasız oldu sizce ? ……..

13. Eğitimde öğrendiklerinizi diğer çalışma arkadaşlarınıza öğretebilirmisiniz ve/veya uygulamayı bilirmisiniz?

    c. Evet
    d. Hayır

14. Bir daha eğitim almak istermsiniz?

    c. Evet
    d. Hayır

15. İş yerinizde aşağıdaki durumlarla karşılaşma sıklığınıza göre lütfen işaretleyiniz.

	Her zaman	Bazen	Hiç bir zaman
Enfeksiyon/mikrop/Hastalık riski			
Stress			
Fiziki koşullardaki güvenliğin azlığı			
Göz yorulması			
Kimyasalların bulaşma riski			
Düşme yada kayma riski			
Ağır yük taşımak/kaldırmak/oynatma riski			
Elektrikli alet yada makina kullanımındaki risk			
Kaza /Yaralanma riski			
Hava Kirliliği miktarının çok olması			
Islak yada kaygan zemin riskleri			
Klima yada havalandırma yetersizliği			
Yangın tedbirinin olmayışı yada yetersizliği			
Gıda ürünlerinde hijyen ve güvenliğin olmayışı			
Kesik yada sıyrık riski			

Yanık yada haşlanma riski			
Gürültünün fazlalığı			
Ekipmanı yanlış yada hatalı kullanma riski			
Kesici aletlerin riski			
Radyasyon riski			
İhmal riski			
Diğer riskler: Lütfen belirtiniz			
Nothing			

C Bölümü

Evinizde aşağıdaki durumlarla karşılaşma sıklığınıza göre lütfen işaretleyiniz.

	Her zaman	Bazen	Hiç bir zaman
Elektrikli Aletler			
Taşınabilir ısıtıcıları kolay tutuşabilen malzeme ve yüzeylerden uzak tutuyormusunuz?			
Küçükleri korumak için prizlerde koruyucu kapak kullanıyormusunuz?			
Ev içinde aletleriniz için yeteri kablolamalar var mı?			
Ağır aletleri saklamak için alt raflarımı kullanırsınız?			
Elektrikli aletlerinizi devrelerde yükleme yapmadan mı kullanıyorsunuz?			
Topraklanmış elektrik prizlerimi kullanıyorsunuz?			
Kullanmadığınız buzdolabı/dondurucularınızın kapılarını/kilitlerini çıkartırmısınız?			
Elektronik aletlerin kabloları açık ve sarkarark mı bırakıyorsunuz?			
Kullandığınız ürünlerde üreticinin bilgilendirici notlarına gore mi hareket ediyorsunuz?			
Sık kullanılmayan küçük ev aletlerini prizden çekiyormusunuz?			
Aşırı elektrik yüklemesini engellemek için bağlantı kablo sayısını yada prize bağlanmış alet sayısını kısıtlıyormusunuz?			
Kullandığınız zemini elektrikli aletler yada ışıklandırmalardan kaynaklanan kaçak riskleri için devamlı kuru tutuyormusunuz?			
Kullandığınız aletlerin kullanım kılavuzunu çalıştırmadan once okuyormusunuz?			
Yangın tedbirleri			
Ocak, fırın, baca yada hava borularınızı her yıl en az bir kere kontrol ettirip temizletiyormusunuz?			
Şömine ve/veya benzer sıcaklık veren kaynaklarda kullanırken önlem alıyormusunuz?			

Yangın söndürme cihazınız var mı? Yangın söndürme aletini etkin kullanabilirmisiniz?			
Mobilya seçiminde yanıcı ve alerjik olmayan ve rahat hava alan kumaşları tercih ediyormusunuz?			
Işıklandırma			
Merdiven başlarında güvenilir ve erişilebilir ışıklandırma söz konusu mu?			
Her bir evinizin odasının girişinde ışıklandırma düğmesi bulunuyormu?			
Evinizi çok aydınlık tutarmısınız?			
Evin genel temizliği			
Dökülen birşeyi hemen temizlermisiniz?			
Çöp tenekelerinin kapalı olmasına dikkat edermisiniz?			
Evdeki evcil hayvanların yuvalarını, tuvaletlerini düzenli tutarmısınız?			
Evinizde alet ve/veya oyuncakları açıkta bırakırmısınız?			
Bahçeniz varsa, bahçe hortumunu katlı tutarmısınız?			
Kimyasal tedbirler			
Keskin, patlayıcı yada zehirli atıkları tedbir alarak cope atıyormusunuz?			
Yanıcı sıvılar, boyalar, inceltici vb.tehlikeli temizlik ürünlerini kapakları sıkı bir şekilde saklıyormusunuz?			
El atleri yada kimyasallar kullanırken göz koruyucusu kullanıyormusunuz?			
Temizlik ürünleri ve ev kimyasallarını çocukların yada yetkin olmayan kişilerin erişimlerinden uzak tutuyormusunuz?			
Temizlik ürünleri ve ev kimyasalları kullanmadan uyarı yazılarını okurmusunuz?			
Temizlik ürünleri ve ev kimyasalları kullanırken ortamı havalandırırmısınız?			
Bitmiş sprey tüplerini etiketlerinde belirtilen şekilde atıyormusunuz?			
Temizlik için çamaşır suyu ve amonyakı karıştırırmısınız?			
Ev içi önlemler			
Ev içinde karşılaştığınız tehlikelere karşı önlem alıyormusunuz?			
Ev içinde güvenlik tedbirleri konusunda bilgilendirme yapıyormusunuz?			
Yüksek raflara erişmek için tabure yada merdiven			

kullanıyormusunuz?			
Kesici aletler yada bıçak kullanırken ve temizlerken tedbir alıyormusunuz?			
Tehlikeli araç-gereçlerin kullanımını çevrenizdekilere öğretiyormusunuz?			
Çocukların ve yaşlıların güvenliğixxx			
Çocukları yangın anında dolap ve yatak altlarında saklanmamaları ve kendilerini odaya kitlemeleri için uyarıyormusunuz?			
İlaçları ve reçeteli ürünleri coçukların erişiminden uzak yerlerde tutuyormusunuz?			
Zehirli bitkileri çocukların ve evcil hayvanların erişiminden uzak tutuyormusunuz?			
Merdiven başlarında cocukların yada yada yaşlıların düşmemesi için merdiven kapısı kullanıyormusunuz?			
Küçük cocuklara yangın anında pencereleri nasıl kullanmaları gerektiğini gösteriyormusunuz?			
Daha büyük çocuklara doğru alet kullanımını gösteriyormusunuz?			
Tehlikeli ekipmanları çocukların erişiminden uzak tutuyormusunuz?			

APPENDIX C: DESCRIPTION OF ITEMS

Items	Description
Q9a	Rules/Regulations relation to safety in work place
Q9b	Rules/Regulations to ensure our general wellbeing/personal Safety
Q9c	Minimising Risk/Injury/Accidents
Q9d	Making sure machinery/equipment/appliances are safe/hazard free
Q9e	Taking responsibility to safeguard yourself and others around you
Q9f	Safety in the home
Q9g	Making sure everything is done to ensure a safe/hygienic environment
Q9h	Prevention of illness/disease
Q9i	Fire precautions
Q9j	Food safety practices
Q9k	Safety/protection of children
Q9m	Safety/protection of elderly people
Q17b	Stress
Q17i	Accidents/injuries
Q17k	Air pollution
Q17l	Wet/slippery floor
Q17m	Air conditioning/ventilation
Q17n	Fire hazard
Q17o	Food safety
Q17p	Cuts/grazes
Q17q	Burns/scalds
Q17r	Noise pollution
Q17s	Misuse of equipment
Q17t	Sharp equipment
Q17u	Radiation
Q17w	Negligence
Q18f	Do you use ground fault protected electrical circuits?
Q18g	Do you remove doors/locks from unused refrigerators/freezers?
Q18h	Do you keep appliance cords from dangling over counter edges?
Q18i	Do you follow manufacturer's directions for use and care of appliances?
Q18j	Do you unplug small appliances when not in use?
Q18k	Do you limit the use of extension cords and number of appliances plugged into outlets to prevent electrical overloading?
Q18m	Do you follow label instructions for use on both liquid and electrical charcoal starters?
Q19a	Do you select furnishing fabrics that are flame-resistant, non-allergenic, and allow for ventilation?
Q19b	Do you exercise safety precautions when fireplace or woodstove is in use?

Items	Description
Q20a	Do you have three-way switches at each end of stairways for safe, accessible lighting?
Q20b	Do you have light switches at each entrance to all rooms in your house?
Q21a	Do you clean up spills immediately?
Q21b	Do you cover all trash containers securely?
Q21c	Do you maintain pet restraints (ropes, kennels, pens) in good conditions?
Q21e	Do you keep garden hoses stored when not in use?
Q22b	Do you store paint, thinners, solvents and flammable liquids in clearly marked, tightly closed containers?
Q22e	Do you read the warning label before using cleaning products and household
Q22f	chemicals?
Q22g	Do you ventilate the environment when using cleaning products and household
Q22h	chemicals?
	Do you dispose of used/empty aerosol containers according to label instructions?
	Do you mix cleaning agents (bleach and ammonia) for cleaning?
Q23b	Do you take time to teach safe practices to your households?
Q23c	Do you use sturdy ladder or step stool to reach high cupboards?
Q24a	Do you instruct children never, in case of fire, to hide under beds or in closets, or to lock themselves in rooms?
Q24b	Do you store all medicines/prescription drugs securely out of children's reach?
Q24d	Do you use gates on stairways to prevent toddlers from falls?
Q24e	Do you teach older children to safely use carpentry, plumbing and electrical equipment?