

**KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING
PERSONAL PROTECTIVE EQUIPMENT AMONGST STEVENS
LUMBER MILLS EMPLOYEES IN THE CAPRICORN DISTRICT OF
LIMPOPO PROVINCE, SOUTH AFRICA.**

FLORA MADINANE MAGORO

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by

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A mini dissertation submitted in partial fulfillment of the requirements for the degree of **MASTER OF PUBLIC HEALTH**, in the school of Health Science, Faculty of Health Science, University of Limpopo.

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DECLARATION

“I declare that the mini-dissertation hereby submitted to the University of Limpopo, for the degree of Master of Public Health, **Knowledge, Attitude and Practice with regard to Personal Protective Equipment amongst Stevens Lumber Mills employees in the Capricorn District of the Limpopo Province**, has not previously been submitted by me for a degree at this university or any other university, that it is my work in design and in execution, and that all the material contained herein has been duly acknowledged.”

FM MAGORO



Date

DEDICATION

This dissertation is dedicated to my mother, Esther, sister, Mary and my children, Katlego and Itumeleng for their support and encouragement during the period of my study.

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation and gratitude to the following:

- My supervisor, Dr RN Malema, for her encouragement, advice and assistance;
- My co-supervisor, Mr Percy Kekana, for his guidance and advice;
- The Stevens Lumber Mills management for granting me permission to conduct the study at their company;
- The employees of Stevens Lumber Mills who participated in the study;
- The Department of Health and Social Development for the permission to conduct the study;
- Mrs Rita Olwage for assisting in the development of the questionnaire and for analysing the data; and
- Above all, I would like to thank God the Almighty for giving me strength and wisdom to achieve this goal.

ABSTRACT

The purpose of this study was to establish whether PPE were used effectively, and to determine the knowledge about, attitude towards and practices of PPE by SLM employees.

A quantitative research study was conducted using a questionnaire to gather data from employees who were working in a production area and who were exposed to possible occupational injuries and diseases. Two hundred and six employees responded to the questionnaire.

The findings revealed that employees demonstrated inadequate knowledge about PPE and compliance while using PPE was not satisfactory.

Conclusion

There was an inappropriate response to the majority of the questions which indicated that the respondents had little understanding of PPE. They also demonstrated a negative attitude, and non-use of PPE.

Key words: knowledge, attitude, practice, personal protective equipment

DEFINITION OF TERMS

Personal Protective Equipment

Personal Protective Equipment or PPE is designed to protect employees from serious workplace injuries or illnesses resulting from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal Protective Equipment includes face shields, safety glasses, hard hats, safety shoes, coveralls, gloves, ear protection, vests and respirators. (OSHA Fact Sheet, 2009:online,17/11/2010) .

Employee

An employee means a person who has entered into or work under a contract of service, apprenticeship or learnership with an employer; whether the contract is expressed or implied, oral or in writing and whether the remuneration is calculated by time or by work done. (Compensation on Injuries and Disease Act (COIDA), 130 of 1993).

For this study, an employee is a person who is working in an operational area of Stevens Lumber Mills.

Employer

Employer refers to any person, including the state, who employs an employee; including any person controlling the business of an employer. (COIDA, 130 of 1993).

For the purposes of this study, the employer refers to Stevens Lumber Mills.

Compliance

Compliance refers to the behaviour of someone who is willing to do what other people want or who is willing to accept the opinion of other people (Macmillan

English Dictionary, 2007:299). In this study, compliance refers to an employee who is willing to do what he is asked to do, like wearing and using PPE.

Knowledge

Knowledge refers to information and understanding that is used in everyday life; it enables people to cope effectively with daily tasks. Knowledge is acquired through learning, experience and self-reflection (Mouton, 1997:8).

Attitude

Attitude is more or less a permanent state of mental organisation which is a highly emotive feeling reflecting a person's state of mind towards a value such as a fear of something (Pearsall, 1999:410).

Practice

Practice, in this study, refers to emphasising a concern; by both thought and action; that is directed towards achieving some aim. It is dependent on the resources of time, skills and material goods (Lesser, Fontaine & Slusher, 2000:144).

LIST OF ABBREVIATIONS

The following abbreviations were used in this study:

CCOHSR	Canadian Centre for Occupational Health and Safety Resources
COIDA	Compensation on Injuries and Disease Act
EMT	Emergency Medical Technicians
IMAS	International Mine Action Standard
KAP	Knowledge Attitude Practice
OSHA	The Occupational Safety and Health Administration
OHSC	Occupational Health and Safety Council
OHSA	Occupational Health and Safety Act
PPE	Personal Protective Equipment
PPEWR	Personal Protective Equipment at Work Regulation
SLM	Stevens Lumber Mills
SPSS	Statistical Product for Service Solutions
SARS	Severe Acute Respiratory Syndrome

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CHAPTER ONE

1.1 INTRODUCTION AND BACKGROUND

Work-related injuries cost the South Africa economy a staggering R 121 billion every year, according to the report of trade union Solidarity (Hannel, 2010:on-line). Therefore, personal protective equipment (PPE) ought to be high on the agenda of any industrial employer. One of the challenges is to persuade companies with employees who are working in dangerous environment to recognise the benefits of procuring and using certified PPE, and to create awareness that the risk of employee injury could potentially be the single largest cost to the company in terms of due compensation (Hannel, 2010:on-line).

The use of personal protective equipment requires behavioural changes from the worker. It is the main weakness, since behavioural changes are difficult to achieve (University of Cape Town Personal Protective Equipment Programme, 2009:on-line). To maximise such changes, new workers should undergo induction training to inculcate good work habits and more experienced workers ought to receive regular refresher training to eliminate bad habits that might have developed (University of Cape Town Personal Protective Equipment Programme, 2009:on-line).

If any occupational health risks cannot be eliminated or controlled at the production plant, workers ought to be protected by enveloping them in an area with uncontaminated air, by using shields or enclosures, and by providing PPE. The organs of the human body that are most vulnerable to be affected by external sources are eyes, ears, skin and the respiratory system. The barriers or attenuation devices should be worn over these organs for protection (Guild, Ehrlich, Johnston & Ross, 2001:423).

A knowledge, attitude and practice (KAP) study is usually conducted to measure the knowledge, attitude and practices of the community. It tells the researcher what

people know about certain things, how they feel and also how they behave. Knowledge refers to the understanding of people about a given topic. Attitude refers to their feelings, which is based on their subjective perception, towards that subject. Practice refers to the way in which they demonstrate their knowledge and attitude during their actions (Kaliyaperumal, 2004:on-line).

Attitudes are interwoven with a person's knowledge, beliefs and values, and oscillate between positive or negative. There is also a direct relationship between knowledge and behaviour, since knowledge is one factor that influences practice. (Launiala, 2009:on-line).

KAP surveys are widely used to gather information with the purpose of planning health programmes and awareness. Understanding the level of knowledge, attitude and practice will enable a more efficient process of awareness creation and a programme could be tailored more appropriately to the needs of the community (Launiala, 2008:on-line).

Hattingh (2003:107) indicated that an accident prevention programme depended on safe work habits and practices by employees. The attitude and emotions play an important role in the general practices of a person, and also influence his or her way of thinking about safety. The habit of using PPE develops in the context of positive or negative attitudes, and bad habits are not easily changed. Personal Protective Equipment should only be used as a last resort when engineering and administrative controls are insufficient for controlling the hazards. Personal Protective Equipment should not be relied on to be the primary defence but should be used in conjunction with engineering control and work practices to provide high levels of protection (Hatting, 2003:107).

There are many dangers to health and safety in an industrial working environment which could be minimised or eliminated by wearing protective clothing. The excuses usually given by workers for not wearing protective clothing are that it is uncomfortable, interfere with the performance of their tasks, and putting it on and taking it off is too cumbersome (Kotze, 2002:77).

Section 42 of the Occupational Health and Safety Act (OHSA) 85 of 1993 authorises the Minister of Labour to issue regulations concerning safety equipment and other facilities that the employer ought to provide. It is to the responsibility of the employer to assess the hazards, to select proper equipment and to train employees to use equipment correctly.

The human body can function effectively, since a human being could be exposed to dust, gases and fumes, thermal conditions and noise without any significant danger to his or her health. However, if such level of exposure should exceed the homeostatic capacity of the body, damage would undoubtedly occur and, therefore, the human being ought to be protected from it by, inter alia, the use of suitable protective devices (Schoeman & Schroder, 2002:358).

During the past decade, the health care industry has provided many technical innovations, safety device equipment and supplies, and research related to health risks and PPE. However, two questions remain:

- Are the employers achieving compliance or encountering resistance to the use of PPE?
- Are the factors in the work environment that influence compliance taken into account?

Among health workers, one of the most universal perceptions about exposure is that the risk is part and parcel of the nature of business. The individual knows PPE is available but under the circumstances avoids its use and provides an excuse, while avoiding protection (Huggin, 2001:on-line).

The worker can be protected in a hazardous environment by means of PPE which may be classified into two categories:

- Personal Protective Equipment that is required for specific occupations, regardless of environmental control measures, e.g. helmets; and
- PPE that is used to protect workers from hazards which can be efficiently controlled, e.g. ear protection.

Furthermore, Parmeggiani (1985:544) suggested that workers utilising PPE should be adequately trained, educated and motivated.

In order to make sure that the right type of PPE is chosen, careful and due consideration should be given to different hazards in the workplace. It will make it easier to assess which type of PPE is suitable to protect workers from hazards while they are performing their occupational duties. PPE ought to satisfy certain basic safety requirements and should have been tested and certified by an independent body (Personal Protective Equipment at Work Regulation, 1992:on-line).

In the mining industry, the results in terms of injuries and death had shown that PPE offered no significant protection. The demines felt most vulnerable while using a probe, prodder, scraper, pick axe or any other hand tool. In such circumstances, they were willing to accept the need to use protective equipment. The only obligatory application of PPE is frontal body protection, which includes the use of a visor (International Mine Action Standard and PPE 2008:on-line).

1.2 STATEMENT OF THE PROBLEM

Employers strive to procure and provide PPE as required by legislation for employees, but there are indications that the equipment is not used effectively. It may be due to lack of information about PPE, a negative attitude towards using it, or lack of encouragement by management. Workers might have knowledge about PPE but do not deem the use of it necessary. As a result, the number of serious injuries and occupational diseases may increase.

According to the Personal Protective Equipment at Work Regulations (1992:on-line, 03/02/2009), the employer shall ensure that the employee is provided with appropriate PPE information, instruction and training.

1.3 PURPOSE OF THE STUDY

The purpose of this study was to determine the knowledge of, attitude towards, and practices of PPE by Stevens Lumber Mills (SLM) employees.

1.4 RESEARCH QUESTIONS

- What levels of knowledge of, attitude towards and practices of PPE are prevalent among SLM workers in the Capricorn District of the Limpopo Province, South Africa?
- What are the reasons for non-compliance of PPE by the SLM workers in the Capricorn District of the Limpopo Province, South Africa?

1.5 SPECIFIC OBJECTIVES OF THE STUDY

The objectives of this study were to:

- Assess the knowledge about PPE of SLM workers in the Capricorn District of the Limpopo Province, South Africa.
- Determine the attitude about PPE of SLM workers in the Capricorn District of the Limpopo Province, South Africa.
- Explain the practices of PPE by SLM workers in the Capricorn District of the Limpopo Province, South Africa.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

When a researcher embark on a study, it is very important to determine what work has been done in that field (Brink, Van der Walt & Van Rensburg, 2006:67). The review of existing literature is necessary to understand how other researchers have investigated the problem and concluded their studies.

A review of literature aims at contributing towards a clearer understanding of the nature and meaning of the problem that has been identified. It also reveals the research journey and how the current project is linked to prior research (De Vos, Strydom, Fouché & Delport, 2006:123).

In this chapter, the views of authors and findings of other researches are presented.

2.2 SAFETY ACTS, STANDARDS AND REGULATIONS

Staff training is an essential part of establishing and maintaining safe working conditions and habits. All employees must, in accordance with the Occupational Health and Safety Act 85 of 1993(2009:on-line), be informed about the hazards in their working environment and the proper procedures the employer has adopted to eliminate and minimise the risks. In addition, every individual employee ought to be aware of the broad range of hazardous materials that may cause occupational diseases over a long period and possible physical and psychological harm or injury (Hatting & Acutt, 2003:107).

The general PPE requirements mandate that employers should conduct a hazard

assessment of their workplaces to determine what hazards, that require the use of PPE, are present. The use of PPE is often essential, but it is generally the last source of protection when engineering controls, work practices and administrative controls are not effectively mitigating a safe work environment This concept is supported by the Occupational Safety and Health Administration (OSHA) Fact Sheet (2009:online).

Personal Protective Equipment is designed to protect employees from serious workplace injuries or illnesses that are resulting from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal Protective Equipment includes a variety of devices and garments such as face shields, safety glasses, hard hats, safety shoes, coveralls, gloves, earplugs and respirators (OSHA Fact Sheet, 2009:online).

The International Mine Action Standard (IMAS), (2009:online) indicated that it was the responsibility of the employer and employee to ensure that PPE programme was effective. The employer should provide PPE for each activity undertaken that meet, or exceed the minimum requirements. Personal Protective Equipment should be provided to employees and be appropriate to the risk, local operational procedure, and environmental conditions. The employee should use PPE in accordance with the requirement specified by the employer and manufacturer (International Mine Action Standard (IMAS), (2009:online).

When the hazard could not be removed or controlled adequately, PPE ought to be used if the work process was to continue. Personal Protective Equipment was being used to reduce or minimise the exposure or contacts to physical, chemical or biological agents (Canadian Center for Occupational Health and Safety Resource (CCOHSR), (2007:online).

Personal Protective Equipment is designed to prevent occupational exposure to hazards. The employees should have access to PPE at no cost; including correct sizes and type that take allergic conditions into consideration. Personal Protective Equipment can only be an effective control strategy if appropriate and reliable

equipment is provided and if employees consistently use it (Rodgers, 2003:453).

It is expected of an employee to:

- cooperate with the employer in the interest of health and safety;
- carry out any lawful order given to him; and
- obey the safety rules developed by the employer or any other authority, in accordance with the OHS Act and regulations.

Every employee is responsible for his own safety and the safety of anyone else who may be affected by the work he does (Kotze, 2002:382).

2.3 KNOWLEDGE ABOUT PPE

The concepts knowledge, attitude and practice are related to each other, and it is not easy to separate them. If an individual has knowledge about something, he or she will develop either a positive or negative attitude towards that thing. Good practice or acceptable practice is usually the result of appropriately acquired knowledge.

The primary aim of an occupational health and safety programme is the prevention of accidents and illness, which employs knowledge as the principal tool. Only accurate knowledge of the risks and adequate training in handling them can enable the worker to adopt appropriate behaviour in a hazardous working environment. A successful accident prevention programme depends on leadership by the employer and safe work habits and practices by the employees (Hatting, 2003:105).

- **Knowledge of mineworkers about PPE**

A descriptive cross-sectional study was conducted at a coal and gold mine in South Africa to assess workers' knowledge about footwear and foot hygiene. Generally, the mineworkers demonstrated good knowledge about the importance of protective footwear. However, the associated complaints about being hot and causing foot problems outweighed the benefits of protective footwear for many (Schutte, Dias, Chunderdoojh & Franz, 2005:on-line).

- **Knowledge amongst industry workers about PPE**

In 2008, a cross-sectional analytic study to assess the level of knowledge, attitude and practice of PPE use was conducted amongst rattan craftsmen in Vietnam. Four hundred and three participants consented and completed the research questionnaire. The results showed that 78.2% had low knowledge about PPE, 18% had moderate knowledge while only 3.7% had a high knowledge. Four per cent had a positive attitude towards PPE, 69% had a neutral attitude and 26.8% had a negative attitude. The majority of participants indicated a fair level of practice of PPE as opposed to a more than a good level of practice (Truong, Siriwong & Robson, 2009:online).

Another study of the knowledge, attitude and practice about the use of PPE was carried out amongst steelworkers in India during 2002 – 2003. Seventy five to ninety seven per cent of the employees responded positively with regard to knowledge and attitude. About the practice of using PPE, 80% responded positively. The positive response to the KAP survey was an indication of the employee having the highest degree of awareness about PPE (Ziauddin, Swathi, Maruthi & Lakshman Rao, 2006:online).

In a study conducted at Al-Khobar to assess the knowledge and practice of workers in a small industry with regard to preventive measures of occupational hazards, Taha (2000:online) found that only 12% used protective clothing all the time and 60% did not use any PPE. The study concluded that knowledge of workers about occupational hazards and the use of preventive measures were inadequate.

- **Knowledge of Emergency Medical Technicians about PPE**

In 2003, a cross-sectional study was conducted amongst Emergency Medical Technicians (EMT) to assess PPE knowledge, attitude and prevalence of use during the outbreak of Severe Acute Respiratory Syndrome and one year post Severe Acute

Respiratory Syndrome. The frequency of PPE use was measured using a 5-point scale, from always to never. The response rate was 67.2%, while the majority (73%)

of the respondents said they had always used most of the items available, except for the open face hood. The results demonstrated that PPE was not consistently employed as it was supposed to be used. These paramedics were acutely affected by the Severe Acute Respiratory Syndrome outbreak of 2003 (Visetin, Bondy, Scwartz & Morrison, 2009:on-line).

2.4 ATTITUDES TOWARDS PPE

The findings of study of community football players' attitude towards PPE in Australia, conducted by Braham, Finch, Mc Intosh and Mc Croy (2004:on-line, 13/04/2010), revealed that 73.6% reported wearing mouth guards during the previous playing sessions (2000) as compared to only 2.1% who were wearing headgear. The common reasons supplied for not wearing PPE were:

- it was too uncomfortable; and
- they did not like it.

The high use of mouth guards reflected a favourable attitude towards the use of PPE by the players. The low use of headgear reflected a low acceptance of this form of protection in sports.

2.5 PRACTICES WITH REGARD TO PPE

- **Practices amongst welders with regard to PPE**

Sithole, Oduntan and Oriowo, (2009:on-line) found that a large percentage of the welders (89%) reported wearing protective devices when welding in a study conducted in the Capricorn District, Limpopo Province of South Africa during 2009. The research questionnaire about eye protection practices and symptoms of eye problems amongst welders was completed by 150 welders. The most common devices used were helmets (57%), goggles (22%), face shield (15%)

and eyewear (6%).

The results of another study, conducted in the Capricorn District of Limpopo Province about safety practices and systemic effects of welding amongst welders, demonstrated that 95% of the female participants had knowledge about PPE (goggles, mask, gloves), while 91% of the female participants had knowledge about aprons and boots. Ninety per cent of the male participants had knowledge about goggles, 72% about masks, 78% about gloves, 66% about aprons and 84% about boots (Mokaba, 2007:40).

- **Practices amongst chemical handlers with regard to PPE**

It had been established that pregnant women performing the most dangerous jobs, often did so without using protective clothing in a study to determine the use of PPE amongst 230 greenhouse workers in Italy. The use of gloves was absent in 50% of pregnant women who prepared and mixed pesticides (Giannandrea, Settini & Talamanca, 2007:online).

A cross-sectional survey of 1 102 farmers in Australia indicated that the Victorian grain farmers were frequent users of a variety of pesticides but the use of protective clothing while handling pesticides was poor, while many individual farmers did not use PPE at all. Personal Protective Equipment use across all pesticides classes was poor, indicating the possibility of clinically significant pesticides exposure in many farmers. The results showed that non-use of PPE was frequently reported by up to 10 – 40% of farmers (Mc Farlane, Chapman, Benke, Meaklin & Mc Neil, 2007:online).

In the Orchard Fungicide Exposure Study in 2002 – 2003, information was obtained about chemical mixing, application, personal protection and hygiene practices. Air blast and hand spray application methods were used. Rubber gloves were the most frequently worn protective equipment (68%), followed by respirators (45%), outerwear (36%), rubber boots (35%) and eye protection (35%). Glove use during

mixing was more prevalent among younger workers, while wearing long sleeve outerwear was more prevalent among older workers (Hines, Deddens, Coble & Alavanja, 2007: on-line, 17/02/2010).

Gomez, Lloyd and Revitt (1999: on-line, 11/10/2009), in a study about farmers handling pesticides in the United Kingdom, indicated that protective clothing was worn by a minority of workers. The protective gloves were worn by 35%, work coveralls by 36% and scarfs to cover the mouth and nose by 39%.

A case study was conducted in the KwaZulu-Natal Province, South Africa about the availability and standard of PPE use in the teams that handled herbicides from purchase to container disposal. Four projects were evaluated and the results showed that all herbicide applicators were wearing rubber gloves, overalls, safety boots, protective eye wear, while in one project no dust masks and safety helmets were worn (Kleyn, 2009: on-line).

- **Practices amongst mineworkers with regard to PPE**

Smith, in Zahachewsky (2000: on-line), conducted a study from September 1998 to June 1999 about deminer injuries and their causes. Information was gathered from Afghanistan, Angola, Bosnia, Cambodia, Lagos, Mozambique and Zimbabwe. Most common injuries were to lower parts of the body, heads and arms. The study drew several conclusions that can be implemented to reduce injuries by the wearing of head and eye protection, and effective footwear. Personal Protective Equipment should be considered as an integral part of the toolbox of a deminer; not just as a nice to have accessory.

An international study of mine accidents and incidents, conducted by Smith in Mc Aslan (2000: on-line) on behalf of the U.S. Department of Defence, revealed that in a vast majority of cases, victims either failed to wear PPE or were engaged in activities which contravened safety operating procedures. The frequency at which the deminers failed to wear PPE suggested that the use of equipment and clothing were inappropriate.

- **Practices with regard to PPE in other industries**

A retrospective descriptive cross-sectional study conducted in 2001 – 2002 about occupational injuries incurred by workers in the cleaning section of a chemical industry in Bulawayo, reported that 62 out of 153 workers sustained injuries, including one that was fatal. Of these injuries, 40% involved workers who sustained cuts and 16% sustained sprained ankles and wrists. The hazards identified during the walkthrough survey included contact with chemical material, and poor use of PPE. Although there were no records of causes of injuries, appropriate intervention could have been instituted to prevent injuries like proper use of PPE (Gonese, Matchaba-Hove, Chirimumba, Hwalima, Chirenda & Tshimanga, 2006:online)

In an observational study on the use of different protective equipment by 877 in-line skaters at four sites, it was found that the use of protective equipment was: 25% wrist guards, 13% helmets, 14% elbow pads and 10% kneepads. About 38% of the skaters did not use any PPE. The study concluded that, despite the availability of inexpensive protective equipment, in-line skaters did not protect themselves (Beirness, Foss & Desmond, 2001:online).

The findings in a survey of PPE use and safety behaviour amongst 593 adolescent high school students on Kentucky USA farms indicated that hearing and respiratory protection was used minimally and sporadically. Of the students who operated farm tractors, half of them operated tractors with safety bars and seat belts. Sixty per cent of the students reported using equipment with damaged or missing safety shields (Reed, Browning, Westneat & Kidd, 2006:online).

- **Reasons for not complying with PPE use**

The use of PPE by the farmers was found to be very low in a cross-sectional study of Gambian agriculture. A significant number of farmers were observed inhaling smoke and dust during regular work processes. When asked why gloves, masks and respirators were not used, many farmers cited the main reasons of high costs,

unavailability, improper fit and unsuitable to weather (Kuye, Donham, Marquez, Sadeson, Fourtes, Jones & Culp, 2007:online).

A quantitative study was conducted at Foskor Mine in the Limpopo Province, South Africa to establish which problems were encountered during the use of personal protective equipment. The findings revealed that workers were using protective equipment but still encountered injuries and occupational diseases. The reported problems included too heavy, very hot or cold, wrong size, unavailable and unsuitable. A total of 98% of the respondents confirmed that they were supplied with PPE and they were using them. Of the majority of respondents (82%) who knew about the importance of PPE, 46% stated that there was no monitoring of PPE use during working hours (Pilusa & Mogotlane, 2008:online).

A survey of safety professionals conducted during 2006 and 2007 found that non-compliance with PPE protocols continued to be an issue at the workplace. Eighty seven per cent of respondents said they observed workers failing to wear PPE when they should have, according to a survey of the attendees at National Safety Council (NSC) Congress in 2006, conducted by Kimberly Clarke. In 2007, 85% of respondents in another study also observed workers failing to wear PPE. The reasons why workers did not comply with PPE protocols were mainly uncomfortable, not necessary, too hot, fits poorly and unattractive looking (Raylesburg, 2008:online).

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the methodology which includes research design, study site, population, sampling, data collection, reliability, validity, data analysis and ethical considerations.

3.2 RESEARCH DESIGN

3.2.1 Quantitative research approach

The quantitative descriptive research design was used in this study to assess the knowledge, attitude and practices with regard to PPE amongst Stevens Lumber Mills (SLM) employees. Quantitative research approach assembles required information from a greater number of respondents, while explaining the prevalence, extent and the nature of issues and attitudes (Kumar, 2005:18). In this study, a quantitative method was used to measure how many people know, feel or act in a particular way.

The cross-sectional descriptive design attempts to describe a situation, a problem or provide information about the living conditions of people or attitude towards an issue systematically (Kumar, 2005:10). This study is descriptive in the sense that the researcher gathered information about the knowledge, attitude and practice of employees in relation to PPE.

The main use of descriptive studies is to give service providers and planners information that will assist them to design services and allocate resources efficiently (Katzenellenbogen, Joubert & Abdool Karim, 1997:66). This study is based on positivist social science, broadly defined as the approach of natural science.

Positivism sees social science as an organised method of combining deductive logic with precise empirical observation of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity (Neuman, 2000:66).

3.3 STUDY SITE

The study has been conducted at Stevens Lumber Mills, which is situated in the Capricorn District, approximately 49 kilometres east of Polokwane in the Limpopo Province. Stevens Lumber Mills (SLM) is a sawmilling and forestry company and is operating for the past 26 years. The mill has a plantation, dry and wet mill, maintenance section, mechanical workshop, saw shop, building and construction and dispatch sections. The common occupational hazards include dust, noise, gases and fumes, and falling objects. There are 560 employees working as directors, administrators, managers, health and safety officers and other general workers in the production area.

SLM was established in 1984 and currently is one of the biggest sawmills in the Limpopo Province.

3.4 POPULATION

A research population refers to a specifically defined community from which a sample was taken (Welman, Kruger & Mitchell, 2005:53). The population in this study comprised 530 SLM day and night shift workers. They were between 20 – 59 years old and were working as operators, packers, stackers, cleaners, stick carriers, sorters, receivers, feeders, artisans, supervisors and general workers. All workers in areas where PPE were expected to be used for preventing or minimising injuries and occupational diseases were included in the population from which the sample was taken.

3.5 SAMPLING

Sampling refers to the taking of a representative portion of the population or universe as representative of that population or universe (Strydom, Fouché & Delpont, 2002:198). A sample comprises the elements of the population considered for actual inclusion in the study or it can be viewed as a subset of measurement from a population in which the researcher is interested (Strydom, et al., 2002:199). Since all the workers of the available population in this study could not be included in the study, a sample was selected.

The study used probability sampling to select the sample. When probability sampling is applied, each and every person, who is part of a population, has an equal chance of being included in the sample that will be participating in the study. The sampling table of Morgan and Krejcie (2009:online) recommended a sample size of 226 for a population of 530 possible respondents. Simple random sampling was used to select the participating respondents. A table of random numbers was generated from the clocking registers of employees. The first respondent was chosen blindly from the table. Thereafter, the other participating respondents were chosen from the table by randomly moving upwards, downwards and across until the desired sample size was reached.

3.6 INCLUSION CRITERIA

To ensure inclusion in the sample, the respondents met the following criteria:

- male and female respondents aged 20 – 59 years working in the operational areas at SLM where PPE needed to be used; and
- day and night shift workers.

3.7 DATA COLLECTION

The researcher developed a questionnaire for collecting data with the assistance of a statistician and the supervisor of the research project. The questionnaire consisted

of open and closed ended questions.

A questionnaire was preferred in this study because of its suitability for gathering information from a large number of respondents. It was also less expensive and less intrusive; especially for those respondents who could read and write. The questionnaire was distributed to the respondents and those who could not read or write were assisted by the researcher in completing the questionnaire.

The questionnaires consisted of four sections, namely:

- Section 1: Demographic Information.
- Section 2: Questions related to knowledge about PPE.
- Section 3: Questions related to attitude towards PPE.
- Section 4: Questions related to practices with regard to PPE.

The purpose of the questionnaire was to assess the knowledge, to determine the attitude and to explain the practice amongst workers in relation to PPE. Questionnaires were supplied to the respondents who fitted the inclusion criteria. The purpose of the study was explained to the respondents before they completed the questionnaire. All respondents had to sign a consent form before they took part in the study.

3.8 DATA ANALYSIS

Data analysis involves the breaking down of data into representative constituents in order to find answers to the research questions (Strydom, et al., 2002:121). The data were analysed by the statistician using the SPSS (Statistical Package for Social Sciences) Version 17.0 computer software. The results were reported in the form of

frequency tables and graphs.

3.9 RELIABILITY

Reliability refers to the fact that if different research participants were asked to complete the same questionnaire at different times, it should confirm the initial responses to the instrument (Terre Blanche & Durrheim, 2004:88). If anyone else has to repeat the research, he should be able to obtain the same results when compared to the originally obtained results. A pre-test study was conducted with 20 participants from SLM to check appropriateness of the questionnaire and to identify unclearly formulated items. Those workers who participated in the pre-test study were not included in the research project.

As a result of conducting the pre-test study, the following items of the questionnaire were corrected:

- The response of “neutral” was changed to “do not know”.
- The number of years an employee was working was added.
- The reason why employees did not attend PPE training was included.
- Facial mask was included as one of the PPE used in the working area.

3.10 VALIDITY

Validity represents how well a research tool measures what it is supposed to measure and it is considered as being more important because the objectives of the study must be representative of what the researcher is investigating (Welman, et al., 2005:142).

The data collection instrument was assessed by the research supervisor and co-supervisor for content validity and tested against the research objectives. The questionnaire was developed by the researcher from her own work experience, literature review and consultation with other experts in the field of occupational health

and safety. To ensure criterion-related validity, the questionnaire was compared with other valid instruments and found to be congruent with them (Welman, et al., 2005:161).

3.11 ETHICAL CONSIDERATIONS

Katzenellenbogen et al. (1997:221) indicated that ethical issues usually were more complex in occupational epidemiology than in general epidemiology. Therefore, the question of confidentiality should be addressed adequately before conducting a study, since there was a higher possibility of victimisation of workers or discrimination against those respondents participating in the survey.

- **Permission to conduct the study**

Ethical clearance was obtained from the University of Limpopo Ethics Committee, (Appendix 3) and permission to conduct the study was also obtained from the Limpopo Department of Health and Social Development (Appendix 4) and SLM Management (Appendix 5).

- **Informed Consent**

The research participants were told about the nature of the study to be conducted and given the choice of either participating or not participating. They were also informed that they will not be punished or victimised for refusing to participate in the study. The purpose and objectives of the study were explained to them and they were informed that they had the right to withdraw at any time if they wished to do so. The participants were informed verbally that participation is voluntary. All the respondents who agreed to participate in the study signed a consent form.

- **Confidentiality and Anonymity**

Confidentiality means that no information provided by a person should be divulged or made available to other people (De Vos, Strydom, Fouché & Delpont, 2006:61).

Neuman (2000:506) refers to confidentiality as the ethical protection of the subject by holding research data in confidence or keeping them secret from the public. In this research project, the participants had the right to remain anonymous. Confidentiality and anonymity were ensured by not using the names or clock numbers of employees.

- **Protection from harm**

The research participants were not exposed to any physical or psychological harm and victimisation by management.

- **Right to privacy**

The researcher ensured that all the completed questionnaires were kept in a locked cabinet in the health department of SLM. In this study, the participants were given a questionnaire to complete during their leisure time. Those participants who could not read and write were assisted in private rooms. The research report was presented in a way that nobody will be aware of responses to the questions of a particular participant (Leedy & Ormrod, 2005:103).

CHAPTER FOUR

PRESENTATION OF DATA

4.1 INTRODUCTION

Data were analysed with the assistance of Mrs Olwagen, a statistician at the University of Limpopo. The SPSS version 17.0 computer software was used to analyse the data. A total of 206 respondents participated in the study. Twenty respondents did not return the questionnaires. In this chapter, the data are presented in the form of tables and graphs. The presentation comprises:

Section 1 – demographic profile of the respondents,

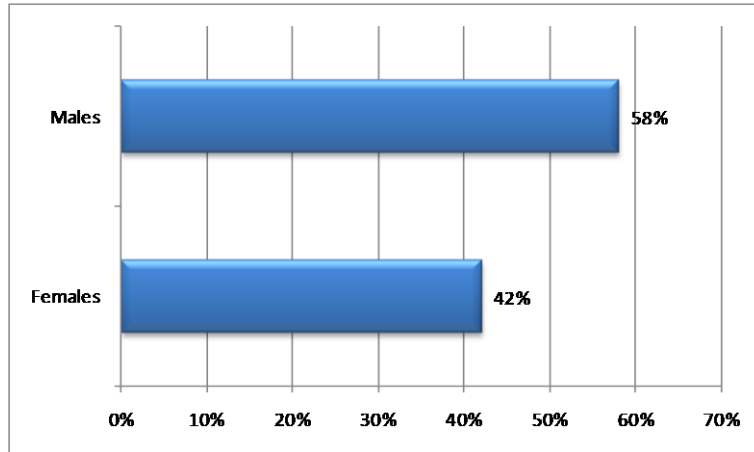
Section 2 – knowledge, attitude and practices of the respondents with regard to PPE

Section 3 – the association between PPE and different variables

Section 4 – T-test.

4.2 SECTION 1: DEMOGRAPHIC PROFILE OF THE RESPONDENTS

The demographic profile focused on age, gender, marital status, education, occupation, years of service in the company and particular sections where the respondents were working.



n = 206

Figure 4.1: Gender of respondents

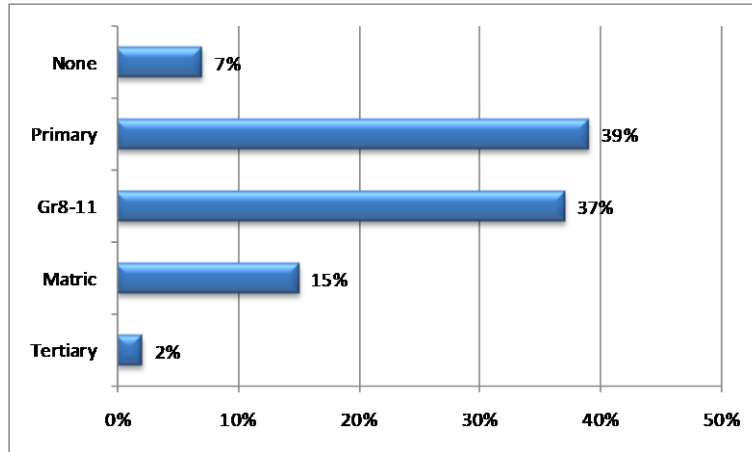
Figure 4.1 revealed that there were 120 male respondents (58%) compared to 86 female respondents (42%) who participated in the study. In most cases, men usually accounted for hard labour when compared to female workers.

Table 4.1: Marital Status and gender of respondents

Table 4.1 below revealed that 57 (66%) female respondents were single compared to 54 (44%) single men.

Marital Status	Gender				Total
	Males		Females		
	Count	%	Count	%	Count
Single	54	45	57	66	111
Married	63	52	26	30	89
Widowed	3	3	2	3	5
Divorced	0	0	1	1	1
TOTAL	120	100	86	100	206

n = 206



n=206

Figure 4.2: Educational level of respondents

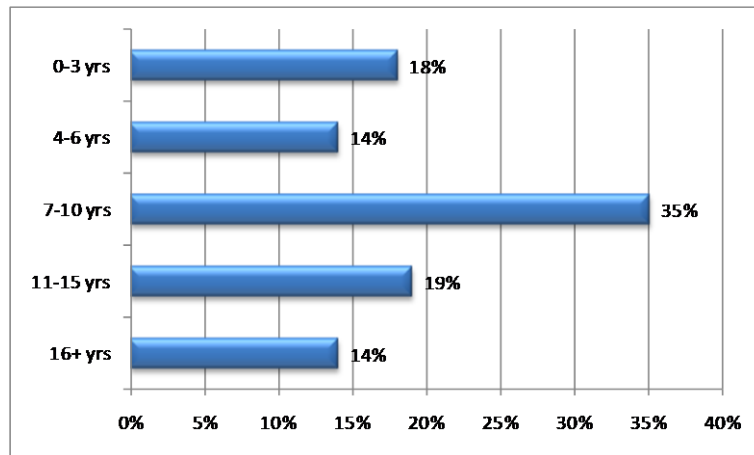
There were 80 (39%) respondents with primary education and 77 (37%) with grade 8 – 11. Those respondents without education were 15 (7%).

Table 4.2: Occupation and gender of respondents

Table 4.2 below revealed that there were more male operators 31 (26%) than female operators 2 (2%). There were no male stick carriers and sorters.

Occupation	Respondents			
	Males		Females	
	Count	%	Count	%
Operator	31	26	2	2
Packer	9	7	13	15
Receiver	5	4	7	8
Artisan	6	5	2	2
Cleaner	2	2	13	15
Stick Carrier	0	0	1	1
Sorter	0	0	5	6
Stacker	23	19	10	12
Feeder	8	7	2	2
Supervisor	5	4	1	1
General worker	31	26	30	35
TOTAL	120	100	86	100

n = 206



n = 206

Figure 4.3: Years of service by respondents at the company

The total number of employees who worked for 7 – 10 years were 35%, (n = 71), while those employees who worked for 11 – 15 years were 19%, (n = 40).

Table 4.3: Section representation at the plant

There were more 80 (39%) employees were worked in the wet mill section as compared to 61 (30%) who worked in the plantation, followed by 39 (19%) employees who worked in the the dry mill section and saw shop had the least workers 2 (2%).

Section in the plant	Respondents	
	Count	%
Plantation	61	30
Wet Mill	80	39
Dry Mill	39	19
Maintenance	7	3
Saw Shop	2	1
Workshop	5	3
Dispatch	3	1
Building	3	1
Ceiling Plant	6	3
TOTAL	206	100

n = 206

4.3 SECTION 2: KNOWLEDGE, ATTITUDE AND PRACTICES OF THE RESPONDENTS WITH REGARD TO PPE

Table 4.4: Knowledge of the respondents about PPE

The table below showed 109 (53%) of the respondents had no knowledge about PPE and only 97 (47%) were knowledgeable about PPE.

Knowledge about PPE		
	Frequency	Per cent
No knowledge	109	53
Knowledgeable	97	47
TOTAL	206	100

Table 4.5: Attitude of the respondents towards PPE

Over 50% of the respondents had a negative attitude towards PPE and 41% had a positive attitude towards PPE.

Attitude towards PPE		
	Frequency	Per cent
Negative attitude	121	59
Positive attitude	85	41
TOTAL	206	100

Table 4.6: The use of PPE by the respondents

Table 4.6 below showed that 127 (62%) of the respondents were not using PPE compared to 79 (38%) who were using PPE.

PPE Use		
	Frequency	Per cent
Use of PPE	79	38
Non-use of PPE	127	62
TOTAL	206	100

4.4 SECTION 3: The association between PPE and different variables

In this section the association between gender and knowledge, gender and attitude, gender and practice, level of education and knowledge, level of education and attitude, level of education and practice, type of work and knowledge, type of work and attitude, type of work and practice are presented.

Table 4.7: The association between gender of the respondents and knowledge about PPE

There was no association between gender of the respondents and knowledge about PPE as indicated in table below. The p value was more than 0.05.

Gender and Knowledge about PPE			
Gender	No knowledge	Knowledgeable	TOTAL
Male	58	62	120
Female	51	35	86
TOTAL	109	97	206
Chi-Square = 2.419 Sig = .120 p > 0.05			

Table 4.8: The association between gender of the respondents and attitude towards PPE

In this study there was an association between gender of the respondents and the attitude towards PPE as indicated in the table below.

Gender and Attitude towards PPE			
Gender	Negative	Positive	TOTAL
Male	62	58	120
Female	59	27	86
TOTAL	121	85	206
Chi-Square = 5.930 Sig = .015 p < 0.05			

Table 4.9: The association between gender of the respondents and practice with regard to PPE

The association between gender and practice in this study was significant. There was an association between gender and practice with regard to PPE.

Gender and Practice with regard to PPE			
Gender	There is practice	There is no practice	TOTAL
Male	38	82	120
Female	41	45	86
TOTAL	79	127	206
Chi-Square = 5.430 Sig = .020 p < 0.05			

Table 4.10: The association between level of education of the respondents and knowledge about PPE

The association between the level of education of the respondents and knowledge about PPE was not statistically significant.

Level of Education and Knowledge about PPE			
Highest level of education	No knowledge	Knowledgeable	TOTAL
No education	8	7	15
Primary	43	37	80
Gr 8-11	37	40	77
Matric	21	10	31
Tertiary	0	3	3
TOTAL	109	97	206
Chi-Square = 6.861 Sig = .143 p < 0.05			

Table 4.11: The association between level of education and the attitude towards PPE

In this study, the association between the level of education of the respondents and the attitude towards PPE was not statistically significant. There was no association between level of education and the attitude towards PPE.

Level of Education and Attitude towards PPE			
Highest level of education	Negative	Positive	TOTAL
No education	10	5	15
Primary	46	34	80
Gr 8-11	45	32	77
Matric	20	11	31
Tertiary	0	3	3
TOTAL	121	85	206
Chi-Square = 5.140 Sig = .273 p > 0.05			

Table 4.12: The association between level of education of the respondents and the practice with regard to PPE

There is no influence of being educated or not being educated and the practice with regard to PPE. It means that there was no association between level of education and practice regarding PPE.

Level of Education and Practice with regard to PPE			
Highest level of education	There is practice	There is no practice	TOTAL
No education	7	5	15
Primary	27	52	80
Gr 8-11	16	50	77
Matric	1	15	31
Tertiary	1	2	3
TOTAL	79	127	206
Chi-Square = 3.508 Sig = .477 p > 0.05			

Table 4.13: The association between type of work of the respondents and knowledge with regard to PPE

The association between type of work of the respondents and knowledge regarding PPE was statistically significant. There was an association between type of work and knowledge as indicated in the table below.

Type of Work and Knowledge about PPE			
Type of work	No knowledge	Knowledgeable	TOTAL
Operator	20	13	33
Packer	11	11	22
Receiver	4	9	13
Artisan	3	5	8
Cleaner	5	10	15
Stick carrier	0	1	1
Sorter	3	2	5
Stacker	15	18	33
Feeder	1	9	10
Supervisor	4	2	6
General worker	43	17	60
TOTAL	109	97	206
Chi-Square = 24.766 Sig = .006 p <n 0.05			

Table 4.14: The association between type of work of the respondents and attitude towards PPE

Since Chi-Square = 29.080, $p < 0.05$, the association between the type of work of the respondents and the attitude towards PPE was statistically significant. As indicated in the table below there was an association between the type of work and attitude towards PPE.

Type of Work and Attitude towards PPE			
Occupation	Negative	Positive	TOTAL
Operator	21	12	33
Packer	16	6	22
Receiver	6	7	13
Artisan	0	8	8
Cleaner	10	5	15
Stick carrier	0	1	1
Sorter	2	3	5
Stacker	18	15	33
Feeder	2	8	10
Supervisor	6	0	6
General worker	40	20	60
TOTAL	121	85	206
Chi-Square = 29.080			
		Sig = .001	$p < 0.05$

Table 4.15: The association between type of work of the respondents and practice with regard to PPE

The association between the occupation of the respondents and the practice with regard to PPE was statistically significant. There was an association between the type of work and practice of PPE.

Type of Work and Practice with regard to PPE			
Occupation	There is practice	There is no practice	TOTAL
Operator	11	22	33
Packer	6	16	22
Receiver	7	6	13
Artisan	2	6	8
Cleaner	6	9	15
Stick carrier	0	1	1
Sorter	1	4	5
Stacker	5	28	33
Feeder	5	5	10
Supervisor	3	3	6
General worker	33	27	60
TOTAL	79	127	206
Chi-Square = 20.233 Sig = .027 p < 0.05			

4.5 SECTION 4: T-test

Table 4.16: The impact of knowledge, attitude and practice towards PPE use

	n	Mean	Std Deviation	Std Error Mean	t	df	sig	Mean difference	95% confidence interval of the difference	
									Lower	Upper
Knowledge Regarding PPE	206	1.47	.500	.035	42.191	205	.000	1.471	1.40	1.54
Attitude Towards PPE	206	1.41	.494	.034	41.084	205	.000	1.413	1.34	1.48
Practices Regarding PPE	206	1.62	.487	.034	47.600	205	.000	1.617	1.55	1.68

The p-value was 0.000, which was less than acceptable p-value of 0.05 (5%) meaning that knowledge, attitude and practice of SLM workers had an impact on the use of PPE.

CHAPTER 5

DISCUSSION OF MAJOR FINDINGS

5.1 INTRODUCTION

This chapter deals with the discussions of the major findings as presented in Chapter 4. The findings were presented in tabular and graph format. Due to these findings, the problem statement, purpose of the study and objectives of the study had been restated.

5.2 RESTATEMENT OF THE PROBLEM

Employers strive to purchase and provide PPE as required by legislation for employees, but there are indications that such equipment is not used effectively. It may be due to lack of information about PPE, negative attitudes towards the use of PPE or lack of encouragement by management. Workers might have knowledge about PPE but do not find it necessary to use it and it may result in increased number of serious injuries and occupational diseases.

According to the Personal Protective Equipment at Work Regulations (1992: on-line, 03/02/2009), the employer shall ensure that the employee is provided with appropriate PPE information, instruction, and training.

5.3 RESTATEMENT OF THE PURPOSE OF THE STUDY

The purpose of this study was to establish whether PPE was being used effectively and to determine the knowledge about, attitude towards and practice of PPE by SLM employees.

5.4 RESTATEMENT OF THE OBJECTIVES OF THE STUDY

The objectives of the study were to:

- Assess the knowledge about PPE of SLM workers in the Capricorn District of the Limpopo Province, South Africa.
- Determine the attitude towards PPE of SLM workers in the Capricorn District of the Limpopo Province, South Africa.
- Explain the practice with regard to PPE of SLM workers in the Capricorn District of the Limpopo Province, South Africa.

5.5 DEMOGRAPHIC INFORMATION

- Table 4.1 revealed that there were 120 (58%) men and 86 (42%) women aged 20 – 59 years. It might be due to men usually performing hard labour. However, SLM is the main employer in this area and for most the only opportunity to support his family. The findings in this study concurred with the findings by (Troung, Siriwong & Robson, 2009: on-line) who also found that the majority of the respondents were men. However, the age of the respondents was 20 – 70 years.
- The majority 66%, (n = 57) of women in this study was single compared to 45%, (n = 54) single men.
- The findings in Figure 4.2 revealed that most employees, 54% (n = 111), had grade 8 to tertiary education and therefore they might have had a better knowledge about PPE and a positive attitude. The workers without education or with low level of education, 7% (n = 15), could have contributed to inadequate knowledge and non-use of PPE. (Taha, 2000:742) mentioned that no or low level of education might form a barrier between effective health education and the training programme.

- There were 28% (n = 33) operators (Table 4.2) who were also expected to use PPE since machines emitted high noise and dust. The general workers also assisted in other operational and production areas where personal protective equipment was used.
- Figure 4.3 revealed that more than half 54% (n = 110) of the workers had worked for more than seven years at the company. If an employee had worked for many years, there was a high chance that training was done and knowledge about PPE could have been acquired.
- Most respondents, 39%, (n = 80) (Table 4.3), were from the wet mill section, followed by plantation workers, 30% (n = 61), and dry mill workers, 19% (n = 39). The wet and dry mill areas were more hazardous as far as noise, dust and injuries was concerned. On the other hand, the plantation workers were mostly exposed to physical injuries.

5.6 TO ASSESS THE KNOWLEDGE OF THE RESPONDENTS WITH REGARD TO PPE

The objective of assessing the knowledge of the respondents about PPE was achieved. According to the Chi-square values in this study, the association between gender and knowledge was not significant, $p > 0.05$. Whether a respondent was male or female did not have an impact on being knowledgeable or not. These findings concurred with the study by Troung, Siriwong and Robson (2009:online) and Taha, (2000:online) who also found the same results.

In this study, the level of education did not have an impact on the knowledge about PPE; $p > 0.05$ and. therefore, it could not be considered statistically significant. It did not correspond with the results found by Ziauddin, Swathi, Maruthi and Lakshman Rao, (2006:online, 10/02/2010) when the respondents demonstrated a high level of awareness about PPE. In this study, the reason might be that PPE training and induction were not effective.

Due to the $p < 0.05$ value, the level of comparison between the occupation and knowledge of the respondents was insignificant. The majority of the respondents were found not to be knowledgeable about PPE. These findings did not concur with the findings by Mokaba, (2007:40) when the welders displayed a high level of knowledge about PPE. In the study by Pilusa and Mogotlane (2008:on-line) the majority of mine workers were found to have knowledge about PPE.

5.7 TO DETERMINE THE ATTITUDE OF THE RESPONDENTS TOWARDS PPE

The researcher achieved the objective of determining the attitude of the respondents towards PPE. The significance level was $p < 0.05$, which implied that the gender of the respondents and the attitude towards PPE could influence each other. The majority of men in this study were found to have a negative attitude towards PPE. It was also found by Troung, Siriwong and Robson, (2008:on-line).

The findings by Braham, Finch, Mc Intosh and Mc Crory, (2004:on-line) differed from the findings in this study, since their study observed a favourable attitude by respondents. There was no relationship between the highest level of education and attitude towards PPE; $p > 0.05$. The findings were congruent with the results of the study conducted by Taha (2000:on-line), even though the level of education was not considered.

There was an influence by occupation on the attitude towards PPE; $p < 0.05$. The majority of general workers had a more negative attitude towards PPE than operators, packers, stackers and cleaners. These findings were not in agreement with that of Braham, Finch, Mc Intosh and Mc Crory (2004:on-line), when football players displayed a positive attitude towards PPE.

Kotze (2002:382) mentioned that it was expected of an employee to cooperate with the employer in the interest of health and safety, to carry out any lawful instruction given to him and to obey the defined safety rules. Braham, Finch, Mc Intosh and Mc Crory (2004:on-line) found that a favourable attitude was displayed by football players about using mouth guards.

Personal Protective Equipment Healthy Working Lives (2010:online) indicated that PPE should be suitable, meet the needs of the individual, appropriate for the risk involved, consider the state of health of those people using it and, if more than one PPE were used, they should be compatible with one another.

5. 8 TO EXPLAIN THE PRACTICES OF RESPONDENTS WITH REGARD TO PPE

This objective of explaining the practices of the respondents with regard to PPE was attained by the researcher. The use of PPE usually implied that the worker was expected to operate in a potentially hazardous environment with the protective equipment as one of the key means of preventing exposure (Occupational Safety and Health Council (OSHC), 2000:online).

The significance level of gender and practice in this study was $p < 0.05$. Therefore, the result was significant. The majority of men did not use PPE. It agreed with the findings by Giannandrea, Settimi and Talamanca (2007:online) who reported a 50% absence of PPE use by greenhouse workers. Mc Farlane, Chapman, Benke, Meaklin and Mc Neil (2007:online) found a 10% – 40% non-use of PPE by pesticide users.

Visetin, Bondy, Schwartz and Morrison (2009:online) found that PPE was not used adequately by emergency medical technicians. It agreed with the findings in this study because there was no practice amongst the majority of the respondents. With a significance level of $p > 0.05$, there was no meaningful correlation between the level of education and the practice of using PPE amongst workers in this study.

There was an impact on the practice with regard to PPE related to the occupation of the respondents. The significance level was $p < 0.05$. The majority of general workers practised the use of PPE in comparison with other workers. The findings in this study agreed with the results of a study conducted amongst welders by Sithole, Oduntan and Oriowo (2009:online).

The findings of Gomez, Lloyd and Revitt, (1999:online) also agreed with the results in this study, since they found no practice of PPE amongst farmworkers.

Smith in Mc Aslan, (2000:online) found that mine workers failed to wear PPE as required.

5.9 LIMITATIONS OF THE STUDY

- Some of the participants did not respond to all the questions. It might have influenced the results or limited the possibility of generalising the findings.
- Those respondents who were assisted with filling in the questionnaires might not have responded objectively because of a fear victimisation. The presence of the researcher might have influenced the response of the participants. The research participants tended to respond according to what they perceived the research objectives to be rather than providing the response that were reflective of their lived experience.

5.10 CONCLUSIONS

The purpose of the study was to establish whether PPE was used effectively, and to determine the knowledge about, attitude towards and practice of PPE by SLM employees.

The following conclusions were drawn from the findings:

The respondents demonstrated that they did not have knowledge about PPE. There was an inappropriate response to the majority of the questions in relation to knowledge about PPE. They showed no understanding of what PPE was although the majority were trained in the use of PPE and the training might not have been

effective. The non-use and importance of different types of protective clothing, for example helmets, safety boots, masks, ear protection, goggles and overalls were mentioned by the participants.

The findings revealed that the participants had a negative attitude towards PPE. They had indicated that it was necessary to have PPE where they were working. They were also in favour of punitive measures being instituted for the non-users of the protective equipment. The respondents did not accept the quality of their PPE, which made it unsuitable for their workplace.

A bad practice were demonstrated where 62% of the respondents did not always use PPE. Most of the different types of PPE like overalls, boots, gloves, ear protection and goggles were not used by most of the respondents.

5.11 RECOMMENDATIONS

Based on the findings and conclusions drawn in the study, the researcher recommended the following:

- The PPE training and education ought to be intensified continuously and should include all employees; especially in the production / operational area.
- The management team ought to be involved in the health and safety programme in order to give support where necessary.
- The employees ought to be consulted during the procurement process of recommended types of the protective clothing they are using.
- Health and Safety representatives ought to monitor the use of PPE and encourage the use of PPE amongst the employees.

- All the employees ought to be made aware of the repercussions of not complying with PPE, e.g. that claims for injury on duty or occupational disease might not be paid or entertained by the Compensation Commissioner.
- Prizes can be awarded to the most complying sections or individual employees to encourage the use of PPE.

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APPENDIX 3

PERMISSION LETTER STEVENS LUMBER MILLS

APPENDIX 4

QUESTIONNAIRE

APPENDIX 5

CONSENT FORM

SECTION 1: DEMOGRAPHIC DATA

Respond by marking a tick (x) in the box of your choice.

1.1. AGE IN YEARS: _____

1.2. GENDER:

1. male	2. female
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1.3. MARITAL STATUS:

1. single	2. married	3. widowed	4. divorced
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1.4. RACE:

1. black	2. white
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1.5. HIGHEST LEVEL OF EDUCATION:

1. no education	2. primary	3. grade 8 – 11	4. matric	5. tertiary
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1.6. OCCUPATION:

1. operator	2. packer	3. receiver	4. artisan	5. cleaner
6. stick carrier	7. sorter	8. stacker	9. feeder	10. supervisor
11. other				

Specify:

1.7. TOTAL NUMBER OF YEARS IN THE COMPANY:

1. 0 – 3 yrs	2. 4 – 6 yrs	3. 7 – 10 yrs	4. 11 – 15 yrs	5. 16 and longer
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1.8. SECTION:

1. plantation	2. wet mill	3. dry mill	4. maintenanc e	
5. saw shop	6. workshop	7. dispatch	8. building	9. ceiling plant

SECTION 2: KNOWLEDGE REGARDING PERSONAL PROTECTIVE EQUIPMENTS (PPE)

Please fill in or tick(X) in the box of your choice

2.1 Have you ever heard about PPE?	1.Yes	2. No			
2.2 What do you understand by PPE?	_____				
2.3 It is necessary to always use PPE?	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.4 Have you ever received any training on PPE?	1.Yes	2. No			
2.4.1 If Yes, when was it?	1.Last 3 months	2.Last 6 months	3. Last year	4. Last 2 years	
2.4.2 If No,why	1.No training done	2.Not interested in training	3.Not allowed to attend		
2.5 Who is supposed to wear PPE?	1. All workers	2. Super-visors	3. SHE Rep	4. Workers in dangerous area	
2.6 Noise damages hearing:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.7 Inhaling dust cause sickness:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.8 My workplace is dangerous:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.9 Safety boots protect against foot injuries:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.10 Respiratory masks protect against lung problems:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
02.11 Ear protective prevents hearing loss:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.12 Overalls at the workplace protect against body injuries:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree

2.13 Helmets protects from head injuries:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.14 Eye protectives protect against eye injuries:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.15 Protective gloves protects one from hand injuries:	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree
2.16 The use of PPE protects one from:	Injuries	1.Yes	2. No		
	Insects	1.Yes	2. No		
	cough	1.Yes	2. No		
	Diseases	1.Yes	2. No		
2.17 PPE are very important at my workplace	1.Strongly agree	2.Agree	3.Don't know	4.Dis-agree	5.Strongly disagree

SECTION 3: ATTITUDES TOWARDS PPE

Please respond by a tick (X) in the box of your choice

3.1 How important is PPE?	1.Very Important	2.Import- tant	3.Don't know	4.Not important	4.Not important at all
3.2 Employees who do not use PPE should be punished:	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree
3.3 It should be compulsory for employees to use PPE:	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree
3.4 Employees must decide themselves to use or not to use PPE:	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree
3.5 I am provided with good PPE for my area of work:	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree
3.6 The use of PPE is absolutely necessary in my workplace:	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree
3.7 PPE bothers me when I am working	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree
3.8 PPE is a waste of money	1.Strongly agree	2.Agree	3.Don't know	4.Dis- agree	5.Strongly disagree

SECTION 4: PRACTICES REGARDING PPE

Respond by a tick (X) in the appropriate box

4.1 How often do you use PPE?	1.Always	2.Most of the time	3.Sometimes	4.Never
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4.1.1 If never why:	1.Uncomfortable	2.Too hot	3.Not available	4.Wrong size	5.Other
---------------------	-----------------	-----------	-----------------	--------------	---------

4.1.1.1 If other, specify:

4.2 Where do you get your PPE?	1. SHE Rep	2.Safety officer	3.Super-visor	4.Nurse
--------------------------------	------------	------------------	---------------	---------

4.3 How often are you supplied with PPE?	1.Never	2.Six monthly	3.Yearly	4.When necessary
--	---------	---------------	----------	------------------

4.4 Do you pay for your PPE?	1. Yes	2. No
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4.5 Which PPE are used in your section	1.Overall	2.Boots	3.Goggles	4.Gloves
	5.Helmet	6.Face shield	7.Ear protective	8.Mask

4.6 Have you ever had an injury on duty?	1.Yes	2.No
--	-------	------

4.6.1 If Yes, were you wearing PPE?	1.Yes	2.No
-------------------------------------	-------	------

4.7 Are you comfortable when using PPE?	1.Yes	2.No
---	-------	------

4.8 What do you do if your PPE is torn/lost?	1.Throw away	2.Collect new one	3.Use even if torn	4.Don't know
--	--------------	-------------------	--------------------	--------------

4.9 Who encourages you to wear/use PPE?	1.Super-visor	2.Safety officer	3.Self	4.Nobody
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UNIVERSITY OF LIMPOPO

PROJECT TITLE: KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING PERSONAL PROTECTIVE EQUIPMENTS AMONGST STEVENS LUMBER MILLS EMPLOYEES IN CAPRICORN DISTRICT, LIMPOPO PROVINCE, SOUTH AFRICA.

RESEARCHER: MF MAGORO

CONSENT FORM

I _____ hereby voluntarily consent to participate in this project.

I realise that:

- 1. The research aim and objectives has been explained to me.**
- 2. Confidentiality and anonymity will be maintained.**
- 3. Participation in this research is voluntary and I can withdraw my participation at any stage.**
- 4. Permission was obtained from Stevens Lumber Mills Management and the project has been approved by Research, Ethics and Publication committee of University of Limpopo.**
- 5. The research process will not interfere with work/production process of my company.**

Signed at _____ this _____ day of _____ 2009.

Statement by the researcher

I provided verbal and written information regarding this project.

I agree to answer any future question concerning the project as best as I am able.

I will adhere to the approved protocol.

Name of Researcher

Signature

Date



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT

ETHICS COMMITTEE
CLEARANCE CERTIFICATE
UNIVERSITY OF LIMPOPO
Polokwane/Mankweng Hospital Complex



PROJECT NUMBER: 099/2009

TITLE: Knowledge, attitude and practices regarding personal protective equipments amongst Stevens Lumber Mills employees in the Capricorn District of Limpopo Province, South Africa

RESEARCHER: M.F. Magoro

ALL PARTICIPANTS:

Department:

Supervisor: Dr R.N. Malema

Co-Supervisor: Mr M.P. Kekana

Date Considered: 03/07/2009

Decision of Committee: **Recommended for Approval**

Date: 06/07/2009

Prof A.J. Mbokazi

Chairman of Pietersburg Mankweng
Hospital Complex Ethics Committee

Note: The budget for research has to be considered separately. Ethics Committee is not providing any funds for projects.



DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT

Enquiries: Ramalivhana NJ/Malomane EL

Ref: 4/2/2

3 August, 2009

M.F.MAGORO

University of Limpopo

Faculty of Health Sciences

Sovenga

Dear M.F.MAGORO

“Knowledge, attitude and practices regarding personal protective equipments amongst Stevens Lumber Mills employees in the Capricorn District of Limpopo Province, South Africa.”

Permission is hereby granted M.F.Magoro to conduct a study as mentioned above in the Capricorn District of Limpopo Province, South Africa

- The Department of Health and Social Development will expect a copy of the completed research for its own resource centre after completion of the study.
- The researcher is expected to avoid disrupting services in the course of his study
- The Researcher/s should be prepared to assist in interpretation and implementation of the recommendations where possible
- The Institution management where the study is being conducted should be made aware of this,
- A copy of the permission letter can be forwarded to Management of the Institutions concerned

HEAD OF DEPARTMENT
HEALTH AND SOCIAL DEVELOPMENT
LIMPOPO PROVINCE



STEVENS LUMBER MILLS

P.O. Box 27 HAENERTSBURG 0730 Tel. (015) 276 6200 Fax. (015) 276 6232

Date: 02 June 2009

To Whom It May Concern.

re : Permission To Do A Research.

This letter serves to confirm that Sister Flora Magoro has been granted permission to do a research for academic purposes at Stevens Lumber Mills (Pty) Ltd.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'J.T. Grobbelaar', is written over a horizontal line.

Dr. J.T. Grobbelaar.

Senior Manager-Human Resources.