

UNIVERSITY OF CAPE COAST

**OCCUPATIONAL HEALTH AND SAFETY PRACTICES OF
UNIVERSITY OF CAPE COAST**

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UNIVERSITY OF CAPE COAST

OCCUPATIONAL HEALTH AND SAFETY PRACTICES OF UNIVERSITY
OF CAPE COAST

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:..... Date:.....

Name: Elizabeth Obese

Supervisor's Declaration

I hereby declare that the preparation and presentation of this dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature:..... Date:.....

Name: Mr. Joseph C. Sefenu

ABSTRACT

This dissertation focuses on the Occupational Health and Safety (OHS) practices in the University of Cape Coast. The aim is to examine the OHS practices and to determine, the extent to which, the University had adhered to requirements of legislation governing occupational health and safety, assess the level of employee awareness of hazardous conditions associated with their work and make recommendations based on the findings to improve occupational health and safety practices.

The study was conducted using a cross-sectional design. The sample involved 346 participants drawn from the senior members, senior staff and junior staff categories. Data were collected using questionnaire, semi-structured interview and observation. They were analysed using the Statistical Product for Service Solutions Software (SPSS Release 12.0 Windows). The study found that training in occupational health and safety was limited within the university. The university hardly notified staff on health and safety hazards at the workplace. The workers were also not encouraged to report workplace health hazards and it did not provide adequate orientation on health and safety legislation. Workers were also not provided with copies of OHS policy document.

Based on the findings, it is recommended that the Human Resource Division of the University should include health and safety training in its staff orientation and in-service training programmes. This will ensure that all staff gain in-depth understanding of issues related to OHS in the University.

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DEDICATION

To my dear son, Ernest, my lovely daughters, Vida, Bernice, Evelyn, and the memory of my late mother Madam Alice Yaa Ampemaa.

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LIST OF ACRONYMNS

ABS	-	Australian Bureau of Statistics
FUSSAG	-	Federation of University Senior Staff Association
GAUA	-	Ghana Association of University Administrators
ILO	-	International Labour Organisation
LTIFR	-	Loss Time Injury Frequency Rate
MOH	-	Ministry of Health
OHS	-	Occupational Health and Safety
PPE	-	Personal Protective Equipment
TEWU	-	Teachers' and Educational Workers Union
UCC	-	University of Cape Coast
UTAG	-	University Teachers Association of Ghana
USA	-	United States of America
WHO	-	World Health Organisation

CHAPTER ONE

INTRODUCTION

Background to the study

Work place safety continues to attract attention for several reasons attributable to the current global technological development, which is constantly introducing chemicals as well as other innovations whose potential hazards may not be fully appreciated for years. Another reason could be the effects engendered by the use of plant and equipment. Milkovich and Boudreau (1991) point out that safety hazards are those aspects of the work environment, which have the potential for immediate and sometimes violent harm to an employee. Examples are loss of hearing or eyesight, cuts, sprains, bruises and broken bones, burns and electric shocks. Health hazards are those aspects of work environment that slowly and cumulatively lead to deterioration of an employee's health. Typical causes include physical and biological hazards, toxic and cancer-causing dusts and chemicals, and stressful working conditions.

Occupational Health and Safety (OHS) has a broad scope. In its broadest sense, it covers the:

- Promotion and maintenance of the highest degree of physical, mental and social well-being of workers in occupations;

- Prevention among workers of adverse effects on health caused by their working conditions;
- Protection of workers in their employment from risks resulting from factors adverse to health;
- Placing and maintenance of workers in an occupational environment adapted to physical and mental needs;
- Adaptation of work to humans.

In other words, occupational health and safety encompasses the social, mental and physical well-being of workers. Occupational Health and Safety (OHS) practices are primarily aimed at protecting workers from work-related hazards and the elimination of work-related injuries, ill-health, diseases, accidents and their associated costs (Jeanne, 1998).

The advent of the industrial revolution in the nineteenth century created a need for legislation designed to reduce the increasing risk of injury and ill health resulting from the introduction of new machines and processes. The task of OHS has customarily been carried out with legislation and regulations. At the international level, the International Labour Organisation (ILO) Occupational Safety and Health Convention 1981 No. 155 provides a point of reference for the establishment of both national and enterprise-based (OHS) systems. At the national level, the Convention outlines the principles that should govern OHS systems, which in this case, include policy setting; regulation and regulations control; promotion and support; education and training. At the industry and institutional level, the importance of OHS is less prominent. This is often

illustrated by the delegation of OHS as an additional responsibility to overburdened professionals specialised in other disciplines, rather than making OHS a composite of an organisation's policies and creating full-time positions for OHS practitioners to implement such a policy (ILO, 2001).

Health, safety and welfare are important to both employers and employees. Employers are required by law to ensure safety, health and welfare of their employees. In addition, they are interested in reducing the number of working days lost, due to accidents and in reducing employees' personal problems that can affect their quality of work to decrease productivity. From the perspective of employees, it is their lives and future that are at stake. As safety cannot be imposed on them, they also have the responsibility to facilitate the creation of a safe and healthy work environment (Frenkel, Priest and Ashford, 1980).

The ILO Constitution sets forth the principle that workers should be protected from illness and injury arising from their employment. Yet, for millions of workers, the reality is different. Hundreds of millions of people throughout the world are working today under circumstances that foster ill health. An estimated 160 million people suffer from work-related diseases and there is an estimated 270 million fatal and non-fatal work-related accidents per year. The ILO has published a report entitled "Decent Work - Safe Work" within the framework of the XVIIth World Congress on Safety and Health at Work, which took place from September 18-22, 2005, in Orlando, USA (ILO 2005). According to the report, there are about 2.2 million work-related deaths each year, occurring largely in three economic sectors namely:

- Agriculture/fishing/forestry: these sectors remain the major employment segment. Many of the workers employed in these sectors are injured or killed in workplace accidents as a result of their exposure to more hazardous and dangerous substances such as agro-chemicals, electricity, unsafe machines and equipments;
- Manufacturing industries and construction: the most common workplace illnesses in these industries are cancers from exposure to hazardous substances, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases and communicable diseases caused by exposure to pathogens. Globally, asbestos alone is responsible for 100,000 occupational deaths per year; and
- Service industries: the major causes of work related deaths in the service sector are cardiovascular illnesses, trips and falls, manual handling, poorly designed chairs and stools and exposure to chemical hazards from office machines such as photocopiers.

In the World Health Report for 2002, the World Health Organisation concluded that workplace hazards are responsible globally for 37 percent of back pain, 16 percent of hearing loss, 13 percent of Chronic Obstructive Pulmonary Disease (COPD), 11 percent of asthma, 10 percent of injuries, 10 percent of lung cancer and 3 percent of leukaemia. The same report indicates that 1.5 percent of the global burden in terms of Disability- Adjusted Life Years (DALY) result from only a selected subset of occupational risks (WHO, 2002).

Owing to poorly developed comprehensive and harmonised data collection systems in developing countries, information concerning occupational diseases and injuries in countries like Ghana is difficult to obtain. At best, some records of accidents that occur in industries can be obtained from the Factories Inspectorate Division of the Ministry of Manpower Development. Work-related diseases are treated like any other disease at the general hospitals without any suspected link to workplace causative factors. Records from the Factories Inspectorate Division between 1987 and 1996 show that many accidents occur in factories that go unnoticed by the general public. Such catastrophes are not even reported in the media. Available statistics indicate that about 734 persons sustained various kinds of injury with 55 fatalities in 1997 at workplaces in Ghana. Another 898 work-related injuries and 54 deaths were recorded in 1998. In 1999 alone, 57 fatalities occurred with 1,190 injuries (Micah & Aikins, 2002).

Although Ghana does not have a national policy on Occupational Health and Safety, the Ghana Labour Act, 2003 (Act 651) has made provision for Occupational Health and Safety. Provisions made under Part XV Section 118 of the Act include placing a responsibility on employers to ensure a safe and healthy working environment and obligation on employees to use safety appliances provided by the employer in compliance of the employer's instructions.

The Factories, Offices and Shops Act 1970 (Act 328) applies to all employers in Ghana. The main provisions of the Act are intended to bring it in line with internationally accepted standards on safety, health and welfare of employees. The occupational safety and health activities stated under the Act

include creating safe work and work environment and promoting the safety, health and welfare of employees in order to ensure effective utilisation of human capabilities thereby promoting increased productivity.

The University of Cape Coast is one of the public Universities in Ghana and one of the rare sea front universities in the world. It was established in October, 1962 as a University College and placed in a special relationship with the University of Ghana. On October 1, 1971, the College attained the status of a full and independent University, with the authority to confer its own degrees, diplomas and certificates by an Act of Parliament – The University of Cape Coast Act, 1971 (Act 390) and subsequently the University of Cape Coast Law, 1992 (PNDC Law 278).

The University was established out of the dire need for highly qualified and skilled manpower in education to provide leadership and enlightenment. Its original mandate was, therefore, to train graduate professional teachers for Ghana's second cycle institutions and the Ministry of Education, in order to meet the manpower needs of the country's accelerated education programme at the time. Today, with the expansion of some of its faculties and the diversification of programmes, the University has the capacity to meet the manpower needs of other ministries and industries in the country, besides that of the Ministry of Education (University of Cape Coast Desk Diary, 2007).

As part of its OHS practices, the University of Cape Coast has put in place measures to ensure that offices, lecture theatres and the environment is kept clean. Suitable sanitary conveniences have been provided separately for males

and females. Employees whose jobs are considered to be hazardous are provided with personal protective equipment and a percentage of their basic salary is paid as risk allowance to them. Compensation benefits are also paid to staff in cases of injuries on the job.

Statement of the problem

The University of Cape Coast (UCC) as a public university in Ghana has, as at the time of the study (October 2007), a workforce of about 3,493 (UCC, 2007). As an employer in the education sector of the economy, the importance of Occupational Health and Safety (OHS) practices in the University of Cape Coast cannot be overemphasised.

Preliminary information received by the researcher from the University Hospital, prior to the conduct of the study, opines that work-related illness in the university were caused by the nature of work and work environment leading to the loss of hundreds of working days a year. Stressful conditions, eye injuries, muscular disorders including back pain and repetitive strain injury and acute respiratory infections such as chest pains were listed as some of the most commonly complained illnesses (Appendix E). In spite of this widely held assumption by the hospital, there has not been any empirical study, first to support the opinion and second to determine the extent to which the University is implementing the occupational health and safety provisions made in the Factories, Offices and Shops Act, 1970 (Act 328), Workman's Compensation Law, 1987 and the Labour Act, 2003 (Act 651) as enshrined in Articles 21 & 22 of the

Unified Conditions of Service for Unionised Staff of Public Universities in Ghana, 2006. It is these gaps that the study attempted to address.

Objectives of the study

The general objective of the study was to examine occupational health and safety practices in the University of Cape Coast. Specifically, the study sought to:

- Examine OHS policy and practices of the University of Cape Coast and its compatibility with best practices;
- Determine the extent to which the University has adhered to all the requirements of legislation governing occupational health and safety;
- Evaluate employee awareness of hazardous conditions associated their work; and
- Make recommendations based on the findings to improve occupational health and safety practices.

Research questions

The following research questions guided the study:

- In what ways do OHS policy and practices in the University of Cape Coast conform to prescribed “best practice”?
- To what extent has the University of Cape Coast complied with legislations on occupational health and safety?
- Are employees of University of Cape Coast aware of hazardous conditions at the workplace?

Significance of the study

Issues of health and safety within organisations are critical in the accomplishment of tasks. A major significance of this study therefore lies in its ability to document, for the first time in the history of the University of Cape Coast, the status of occupational health and safety practices that prevail in the university. It is anticipated that extracts of the dissertation, which will be distributed to the management of the university will inform them about aspects of OHS practices which they may have taken for granted; thereby influencing OHS policy making in the university. It will also serve as reference point for people who may want to carry out similar studies in other universities.

Limitations

A major limitation of the study was with the questionnaire administration. Difficulty in getting respondents to respond promptly to the questionnaire necessitated that the questionnaire were left with them for collection at a different day. It was therefore difficult for the researcher to ensure that there was no consultation among the respondents during the process of answering the questions. If consultations were made the genuineness of responses could be biased; hence conclusions drawn may not be valid. To address this fear however personal interviews were conducted with the hope of confirming or contrasting responses.

Delimitations

Although a study of this nature would have been academically challenging if it were a comparative study involving two or more universities, constraints such as time and finances could not allow the researcher to do so. The study was limited to the University of Cape Coast.

Organisation of the study

The dissertation is organized into five chapters. Chapter one contains a brief overview of the background to the study, statement of the problem, the objectives, significance of the study, limitations, delimitations and the organisation of the study. Chapter two deals with the review of literature related to the research topic. It focuses on issues such as theoretical framework, the origin of health and safety management, integration of health and safety management systems into broader workplace management systems, age and health, conceptualisation of related terms and empirical survey on occupational health and safety. Chapter three deals with the study organisation, population and sample for the study, sampling procedures, instruments for gathering data, procedure for collecting the data and how the data was analysed and presented, while chapter four presents the results and discussion. The fifth chapter comprises the summary, conclusions and recommendations of the report.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter deals with the review of literature related to the research topic: Occupational Health and Safety Practices at the University of Cape Coast.

The review is organised under the following:

- Theoretical framework
- The origin of health and safety management
- Integration of health and safety management into broader workplace management systems
- Age and health
- Conceptualisation of related terms
- Empirical survey on occupational health and safety

Theoretical framework

Occupational health and safety, like other disciplines, have its theoretical framework. This theoretical base is a body of knowledge that enables scholars and practitioners of OHS to generalise rather than to remain in the detail of specific instances. A number of theories have been propounded on occupational health and safety among these, are the behavioural, legislated-engineering, voluntarist and

systems approaches. The study however concentrated on the behavioural approach.

Behavioural approach

Heinrich (1959) developed basic theories from industrial accident data that have shaped much of the subsequent industrial engineering work of accidents and injuries. The author was among the first to point out that the conditions that lead to accidents and injuries are in fact those that lead to excessive costs in production and poor quality. Though many industrial engineering models of occupational accidents and injury have been proposed over the years, Heinrich's "domino model" has been most widely discussed and applied since the 1930's. The domino model proposes that any injury consists of a sequence of factors:

- Ancestry and social environment;
- Fault of person;
- Unsafe act and/or mechanical or physical hazards;
- Accident; and
- Injury.

According to Micah & Aikins (2002), Heinrich domino theory developed in 1931 stipulates that an incident is one factor in a sequence that may result in an "injury". The theory states that: - 1) A potential injury (the final domino) occurs as a result of an incident. 2) An incident occurs only as a result of a personal (unsafe act or mechanical/physical hazard). 3) Personal or mechanical hazards exist only because of the faults of people. 4) Faults of people are inherited or

acquired as a result of their social environment in which they were born, bred or educated. The converse of these statements is not true, and for an injury or damage to property, all four factors are involved. It therefore follows that if one of the factors in the sequence leading to an accident can be removed, then the loss can be prevented. Attention should be focused most on the factor preceding the accident. Heinrich claims that the unsafe acts of person constitute a dominant source of accidents. Control of individual employees was therefore the key.

Heinrich (1959) studied 75,000 industrial accidents, and concluded that 88 percent of accidents results from “unsafe acts” and 10 percent judged from “unsafe conditions”, making a total of 98 percent judged to be preventable, with the remaining 2 percent as unpreventable. Heinrich advocated a multi-disciplinary approach to safety, focused upon engineering psychology and management. The emphasis of psychology supported his theory that accidents were caused primarily by the “unsafe acts” of employees.

The techniques for health and safety advocated by Heinrich in 1959 are evident today in health and safety programmes and systems. Techniques for safety management proposed by Heinrich include close supervision, safety rules, employee education through training, posters and films, hazards identification through analysis of past experience, survey and inspection, accident investigation, production of accident analysis sheets, establishment of safety committees and first aid. Heinrich’s dichotomy of “unsafe acts” and “unsafe conditions” has persisted in health and safety textbooks (examples being those of Anton, 1979:13, DeReamer, 1980:63; Denton, 1982:36; Petersen, 1988:15;) as the concept of the

ratio between them. Anton (1979:265) for example, states that almost 90 percent of all work-related accidents are due to negligence on the part of the injured employee. The weakness of Heinrich's theory is his conception of the limited role of the "unsafe condition" in accident causation relative to the "unsafe acts."

Bird, a one-time President of the International Loss Control Institute and adjunct Professor at Georgia State University, USA developed Heinrich's theory further. Bird's theory is a more modern and scientific approach based mainly on managerial control. In a study of 1,753,498 industrial accidents reported by 297 companies, he concluded that for every major injury reported, 9.8(10) minor injuries were reported, with 30.2(30) property damage incidents, and 600 near-miss incidents, i.e. no visible injury or damage. Bird's Loss Causation Model intimates that incidental loss is the result of multiple causes, and demands multiple opportunities for control. Basic causes are personal and job factors. Behind these basic causes are the root causes, which are expressed as the lack of management control factors (Micah & Aikins, 2002).

Later theories included the Structure of Accidents Model. It identifies immediate causes and contributing causes of accidents. The former involves unsafe acts and unsafe conditions while the latter includes safety management performance and the mental/physical condition of the worker. The importance of systems management is acknowledged. However, this is overshadowed by a strong emphasis on the operator as the primary instigator of accidents (Jeanne, 1998).

There are a number of other models focusing on human characteristics, including the human factors in Accidents Model. This model suggests that the interaction of individuals with the work environment, equipment and other contributing factors leads to adverse effects on work systems, which in turn, trigger a sequence of events ending in an accident. Worker error causes equipment design limitations and poor maintenance practices exacerbate these faults, with the combination resulting in an accident. This model encourages firms to invest in safety training to develop worker skills and safety consciousness. A significant weakness, however, is that it attributes all system faults to human error (Miner, 1992).

The origin of health and safety management systems

Health and safety management systems emerged as a key prevention strategy in the mid-1980s. Although the concept of a system approach had been evident since the 1960s (Less, 1980), the Bhopal disaster is credited as the catalyst for attention to management systems in process industries (Sweeney, 1992). An estimated 2500 people were killed and ten times as many injured by leaking methyl isocyanate at Bhopal in December 1984. Issues identified as contributing to the disaster include inadequate attention to design of plant and process, maintenance and testing of plant and protective equipment, training and emergency planning, and a lack of attention to the broader planning issues associated with the location of hazardous plants in residential areas (Kletz, 1985). Following the Bhopal disaster, many enterprises in the high risk process industries

extended the focus of health and safety activity beyond the traditional emphasis on process technology and technical safeguards towards management practices, procedures and methods, while attention was directed at industry level to models for system development and performance measurement (Sweeney, 1992).

The mid-1980s also saw the appearance of health and safety management systems beyond the process industries. In Australia, manuals on health and safety management systems were published by consultancy companies, employer organisations and governments (Chisholm 1987). Indeed, Petersen (1988) refers to the 1950s and 1960s as the “safety management era,” characterised by the incorporation of concepts and techniques from a number of other disciplines. Ergonomics or human factors engineering was also incorporated into the role of the health and safety profession, alongside new responsibilities relating to fleet safety, property damage control and off-the-job safety. Occupational hygiene duties had already filtered into the role of the health and safety professional following changes in workers compensation law defining compensable industrial diseases (Petersen, 1988). The United States literature places the formative period for health and safety management programmes as the 1950s and the 1960s. At this time the concept of health and safety was presented as being much a part of the discipline of management as of engineering (Smith and Larson, 1991).

Integration of health and safety management into broader workplace management systems

Integration activity is proposed as critical to the mainstreaming of health and safety as part of normal business practice. There has been little analysis of the concept of integration in the health and safety literature, which emphasise health and safety as a central aspect of management placed at par with other functions. Some authors emphasise the integration of health and safety policies and practices into broader organisational structures and functions.

The concept of health and safety integration

Heinrich (1959) argued that safety should be managed like other business function, and drew parallels between the control of safety and control of quality, cost and quantity of production. Safety, efficiency and productivity he portrayed as interlinked. Heinrich mapped out a role for senior management, albeit with a focus more on the enforcement of safety rules than over-sighting an integrated health and safety system. However, the senior management role was more symbolic than real, as the status of 'key man' was given to the supervisor, the position judged most able to influence employee behaviour (Heinrich (1959:47). Petersen has also argued in favour of an integrated approach, as reflected in his comment that "we do not want production and a safety program, or production and safety, or production with safety – but rather, we want "safe production" (Petersen, 1978:27). Bridge (1979) examines the interaction between occupational hygiene and the range of production, engineering, legal, environmental, human

resources and other functions and depicts these interactions at the stages of hazard identification, risk assessment and control. Indeed it has been suggested that the long term failure of organisations to effectively integrate health and safety into their broader systems had much to do with Heinrich's domino theory and its focus on safety as a technician's job far removed from consideration in management strategy (Weaver, 1980).

Phillis (1990) points to the need for integration of health and safety into strategic planning and into everyone's 'normal work.' He suggests that the development of separate safety programmes, standing on a pedestal and managed differently from the rest of the organisation, had been fostered by health and safety professionals to the detriment of health and safety objectives. Quinlan and Bohle (1991:400) has taken a similar position with respect to integration of health and safety management being a central, rather than an 'add-on' organisational objective, and an integral part of the management and production process. From a human resource management perspective, the Health and Safety Executive (1991:6) calls for health and safety policies to be aligned with other human resource policies aimed at securing commitment, involvement and the well-being of employees. For Barnes (1993:532), 'the proven safety and health principles and practices' are not the issue so much as the need for their full integration 'into the management functions of planning, leading and controlling as a routine practice.' Similarly, Rahimi (1995:85) has focused on the integration of health and safety into the organisation's overall mission and objectives and has stressed the need for a closer integration between 'top down' and 'bottom up' management styles.

The renewed emphasis on Quality Assurance and on Total Quality Management has refocused attention on integration. Historically, health and safety practitioners have drawn upon and incorporated developments in management theory and practice. In this particular instance, the exercise of exploring the links between health and safety and Total Quality Management, in itself, draws attention to the concept of integration, given its importance as an organising principle within Total Quality Management and Human Resources Management (Gardner & Palmer, 1992).

There is agreement in the literature that integration is an essential objective. The identified benefits include the opportunity to compete on an equal footing for organisational resources (Phillis, 1990), the potential for health and safety objectives to be accorded equal importance with other business units and the potential for health and safety to be a full-time responsibility for personnel across the organisation, rather than a time-permitting activity (Gregory, 1992).

An examination of the techniques and practices advanced for the integration of health and safety into broader management systems not only supports the claim that integration may be achieved in many ways (Blewett, 1994), but also points to considerable diversity in the practice of integration. Five approaches to integration are identified. The first approach is consistent with a traditional safety engineering approach and focuses on the integration of health and safety into the design of equipment and productive processes, and its inclusion in contractual agreements and quality assurance initiatives (Grimaldi & Simonds, 1989).

Secondly, there are the accounts which focus on specific opportunities for the integration of health and safety into aspects of business operation. These opportunities include Phillis' (1990) proposal that the starting point is integration of health and safety into an organisation's business plan, and may also include the incorporation of health and safety into position descriptions, operational procedures, production meetings, periodic production and quality reports, and so on (Gregory, 1991). A behavioural approach can be identified as a third approach, where integration is focused on infusing health and safety into the corporate culture in order to raise employees' awareness of the risks they face and their responsibility to behave safely (Gregory, 1991). A fourth approach also locates health and safety as an integral organisational objective, but proposes discrete health and safety objectives and strategy plans developed through health and safety committees that are appropriately resourced and located at the heart of organisational decision-making (Quinlan & Bohle, 1991). A final approach is centred upon more innovative integration opportunities such as the holistic approach to the integration of health and safety into quality management systems and recent innovative or best practice management techniques (Rahimi 1995; Blewett & Shaw, 1995a; 1995b).

The study of issues relating to health and safety integration remains at an early stage, as reflected in the diversity of approaches in the literature and limited empirical research. Two key aspects of integration have emerged. First, there is the issue of the appropriate fit with business strategy and second, the incorporation of health and safety into the functions and activities of personnel at

all levels in the organisation. Beyond that, the strategies, forms and practices diverge.

Age and health

Some of the process of ageing may make older workers more vulnerable to some types of occupational injuries, but the nature and extent of their vulnerability depends on the work situation. It is important that employers understand the implications of ageing for employees' performance capacity so that they can, where necessary, implement strategies to reduce the risks in their workplaces.

According to Munk (2002), age-related reductions in muscular strength can reduce people's capacity to perform physically heavy work, however, the declines vary greatly with physical condition and older workers who strive to stay physically fit may be able to out perform more sedentary tasks than younger workers. Age is also associated with reduced elasticity in almost all tissues of the body, leading to a decreased range of movement. These changes have implications for tasks where workplace layout requires work at extremes of posture, although individual differences can be significant and can be enhanced through physical activity (Ilmarinen, 1997).

Studies suggests that workers who in past years were most exposed to physically demanding work environments typically have more musculoskeletal disorders, poor health, and a much higher rate of permanent disability and associated costs (Ilmarinen, Tuomi & Klockars, 1997). Clearly, working

conditions and work design rather than age are the keys to explaining these findings. When people are employed in badly design work, they “age” at a faster rate, and the longer they spend doing such work, the higher their subsequent rate of injury and disability (IImarinen, et al, 1997).

To further explore the risks associated with an ageing workforce, the Australian Bureau of Statistics (ABS) in September 2000, conducted a work-related injuries survey throughout Australia as a supplement to the Monthly Labour Force Survey. The survey collected information about persons aged 24 years and over who worked at some time in the previous 12 months and who suffered a work-related injury or illness, whether or not they applied for workers’ compensation. The result indicated that the age group with the highest rate of injury or disease was 35-44 years—with a rate of 58 per 1000 (70 per 1000 for males, and 41 per 1000 for females). The next highest rate was for the age group 25-34 years—with a rate of 50 per 1000 (62 per 1000 for males, and 34 for females). The age group with the lowest rate was 65 and over—with a rate of 21 per 1000 (23 per 1000 for males, and 14 per 1000 for females).

Despite evidence that the age-related changes that affect older workers may make them more vulnerable to some types of occupational injuries, the ABS work-related injuries survey does not suggest that injuries and disease increase with increasing age. Several reasons have been proposed to explain this finding:

- First, it may be that older workers are more likely to be aware of safety in the workplace and, therefore, less likely to have an accident (Laflame & Menckel, 1995);

- Secondly, older workers tend to develop their own coping strategies (such as pacing, anticipation, planning and organisation) and these strategies may help them to reduce their injury risk; and
- Thirdly, selection factors may be important. That is, older employees may seek to move out of occupations or industries where their risk of injury or illness would otherwise tend to increase with age and into other forms of employment, phased retirement or early retirement. Older workers may also withdraw from the workforce prematurely and involuntarily due to ill health or disability (IImarinen, 1997).

Conceptualisation of related terms

Occupational health

Occupational Health may be defined as the science of designing, implementing and evaluating comprehensive health and safety programmes that maintain and enhance employee health, improve safety and increase productivity in the workplace (Jorma, 2004). The International Labour Organisation (ILO) and the World Health Organisation (WHO) share a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on Occupational Health at its first session in 1950 and revised at its twelfth session in 1995. The definition reads: “Occupational Health is the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations by preventing departures from health, controlling risks and adaptation of work to people, and people to their jobs” (ILO/WHO, 1950:18).

Occupational health services

The ILO convention on Occupational Services (No. 161) and the ILO Recommendations on Occupational Health Services (No.171) were adopted in 1985. The Convention defines the term ‘occupational health services’ as “services entrusted with essentially preventive functions and responsible for advising the employer, the workers and their representatives in the undertaking, on the requirements for establishing and maintaining a safe and healthy working environment”. There are a number of functions listed in the Convention, and these are summarised as identification and assessment of hazards in the workplace, advising on planning and organization of work and working practices, providing advice, information, training and education on occupational health and safety, contributing to occupational rehabilitation and organising first aid and emergency treatment.

Terminologies used in occupational health and safety (OHS)

Some commonly used terminologies in OHS discourses are hazards, risks and outcomes. In general, a ‘hazard’ may be described as something that can cause harm if not controlled, “outcome” is the harm that results from uncontrolled hazards, while a ‘risk’ connotes a combination of the probability that a particular outcome will occur. Within the context of OHS, “hazards” generally describes the direct or indirect degradation (temporary or permanent) of the physical, mental or social well-being of workers. For example, repetitively carrying out manual

handling of heavy objects is a hazard. The outcome would be a musculoskeletal disorder (MSD). The risk can be expressed numerically, (e.g. a 50/50 chance of the outcome occurring during the year), qualitatively as “high/medium/low” (Jeanne, 1998).

Common workplace hazard groups

Workplace hazards are often grouped into physical hazards, physical agents, chemical agents, biological agents, and psychosocial issues (Jeanne, 1998). Physical hazards include slips and trips, falls from height, dangerous machinery, workplace transport and electricity. Physical agents include noise, vibration and ionising radiation. Chemical agents include solvents and heavy metals. Psychosocial issues include work related stress and bullying which may include emotional, verbal, and sexual harassment. Other issues include biological agents, reproductive hazards and work environment factors such as temperature, humidity and lighting.

Nature of a health and safe workplace

According to Professor Jorma Saari of Centre of Expertise for Human Factors at Work, Finnish Institute of Occupational Health, a healthy workplace is an environment where health risks are recognised and controlled if they cannot be removed. In a healthy workplace, the work is designed to be compatible with people’s health needs and limitations and employees and employers recognise the responsibilities they bear for their own health and that of their colleagues. A safe

workplace is an environment where, to the highest degree, workers' well-being – physical, mental and social – is promoted and maintained. All possible efforts are made to prevent workers' ill health caused by working conditions, to protect workers in their employment from factors adverse to their health, and to place and keep workers in their individual physiological and psychological conditions while also promoting and maintaining a work environment that is free of harassment (Jorma, 2004:16; pp 7-8).

Empirical survey on occupational health and safety

A number of researches have been conducted in the sub-sectors of the manufacturing industry, construction industry, service industry, petroleum and plastics, and electronics. A few of these studies are reviewed as follows:

Safety Improvement

The achievement of safety improvement has been linked to the performance of management in a number of studies that also highlight the development and changes required of managers to achieve those improvements.

A study by Baker (1990) of the bauxite-alumina industry in Western Australia in the period 1980-1990 examined participative approaches to safety management and subsequent effects on safety performance. Baker (1990) used data derived from both safety authority records and company records and he undertook unstructured interviews with employees, managers and safety representatives within the Worsely Operation of Alcoa in Western Australia.

From the analysis of data, Baker (1990) identified two different styles of management. At the opening of the new plant in the early 1980s Baker (1990) claimed that there was an authoritarian or “top down” management style’ (p.472). After the initial phase of plant commissioning in the mid 1980s to 1990s, the management of the company developed a participative approach to safety management. Baker reported that this change included the following elements namely: leadership, trust, open systems, motivational programs and trained people. Baker (1990) contended that the participative style of management facilitated improvement to site safety through the establishment of functioning health and safety committees, safety representative training, crew safety plans, health support schemes, employee rehabilitation schemes, job skills training, project safety reviews, accident investigation and industrial hygiene approaches.

Baker (1990) described behavioural approaches before and after implementation of participative management. For example, prior to the participative management style there was a reactive role in safety management, responding to safety concerns only after incident or accidents, whereas after the adoption of the participative approaches, management sought out opportunities to eliminate unsafe behaviour and conditions generally. Baker (1990) found that consistent improvements in preventative action led to a drop in serious injuries in the period 1980 to 1990, indicated by a drop in the Serious Injury Frequency rate, with the total number of lost workday cases, alternative duty cases and medical treatments per 200,000 [working] hours, from 16 in 1980 to 5.5 in mid 1990 (p.472). Baker (1990) concluded that the basis for on-going success in safety will

be achieved in a well resourced safety environment through worker participation and management support in a process of continuous improvement (p.480).

A study by Rowe (2001) analysed the effects of the implementation of a behavioural based approach to safe work practice and subsequent changes to management of safety in WynCare, a wholly owned subsidiary of the Wyndham City Council Victoria. The implementation involved 65 staff engaged in high risk areas in home care activities and eight trained safety officers acting as assessors.

Rowe (2001) described the implementation as using a participative approach to development of safe working procedures for home care workers. Data was gathered through the use of monthly observations of the home care workers by the eight trained safety-officers, with each observation followed by feedback and development of safe responses to identified hazards. These safe responses included appropriate training and risk management strategies. Data from the trained safety-officer's observations were analysed in order to develop a schedule of key risks and a checklist of safe work procedures to manage those risks. This safe work checklist was then piloted with each of the 65 workers, ergonomists and other specialists.

The checklist was developed into a manual and a training program was developed in order to minimise key risk behaviours and other risk elements. This manual was then used as a basis for competency based training in injury prevention. A cycle of six-monthly observations was then undertaken to ensure continued application and improvement of the implementation.

Rowe (2001) contended that the participative approach used in the implementation led to the development of a sustainable approach to risk management. The risk management approach included induction, training, continuous improvement of tools and equipment, supported by staff involvement, ongoing periodic observation and safety audits.

Rowe (2001) described a change in the management of safety at WynCare from a reactive management style, where safety issues were only acted upon after an incident or accident occurred, to a proactive management style of safety, driven by employee involvement, supported by the strong commitment of managers to employee safety. Rowe (2001) reported the Lost Time Injury Frequency Rate (LTIFR) dropped from 38 to 16 over the two year implementation period, which yielded a 20 percent reduction in WorkCover premiums in the period 1999-2000. Rowe (2001) contended that involvement of staff and management in finding solutions for health safety issues in the work-place was a key aspect of change to practice contained in the implementation of health and safety policy. Changes were effective because staff and management were committed to the change (p.6).

Changes to organisational performance leading to safety improvement as highlighted by Baker (1990) and Rowe (2001) requires changes to both the way employees undertake their work in the work-place, and a change to the way in which managers manage the work-place. Such changes require significant alteration to systems of work and these alterations require significant degrees of

support including the provision of appropriate training to both employees and managers.

Occupational Stress among Algerian Teachers

Mokdad (2005) of the Department of Psychology, Bahrain University, Algeria, conducted a study on occupational stress among Algerian teachers. The aim of the study was to answer the following questions:

- What are the sources of occupational stress to which Algerian teachers are exposed?
- What symptoms of occupational ill health have teachers developed after they became teachers?
- How do teachers control effects of occupational stress?
- Are the differences between variable alternatives significant?

A sample of 126 teachers was randomly chosen from Biskra governorate (Algerian) primary schools to answer the study questionnaires. The main instrument used was the questionnaire designed as a Likert scale, with five alternative responses. The study revealed, that with regards to stress, the teachers' major sources of stress were society, parents, teaching, the teaching environment, pupils, supervision, the curriculum, colleagues, and administration. The result indicates that more than seven out of ten (74%) reported headaches. Other health problems such as sensual problems, ulcers, hypertension, heart problems, and diabetes were also reported by many teachers, but not the majority. As to the strategies for coping with stress, 62 percent of teachers said they watch television

programmes, 59 percent talk with their friends, and 54 percent pray to cope with occupational stress.

The study, however, did not make mention of the research design used and also the internal validity was not stated. The population and how the sample was selected were not indicated and there was no mention of the major recommendation for the findings of the study. The study, however, brought to light the negative impact of occupational stress among Algerian teachers.

Work-related diseases and occupational injuries among workers in construction industry

Alazab, a lecturer at the Department of Public Health and Industrial Medicine, Faculty of Medicine, Alazhar University, Cairo, Egypt conducted a study in 2003 on work-related diseases and occupational injuries among workers in the construction industry. This study had two goals; to define the work-related diseases occurring among workers in the construction industry; and to assess the distribution of occupational injuries and common risk factors of these injuries among workers in the construction industry.

The study employed a cross-sectional design and covered employee of a large construction company in Egypt. An interview schedule was used to collect the subjects' occupational history, present history, past history and their history of accidents and injuries. The results indicated that the mean age of the workers studied was 40 years. All workers were men and most of them (76.2%) were urban residents. The subjects mean duration of working in the construction

industry was 13 years. The result also shows that personal protective devices were not used at all by any of the workers. The most common exposures were dust, vibration, ergonomic stress, chemicals, and injuries. Eye complaints (23.6%), musculo-skeletal disorders (13.9%), gastrointestinal disorders (13.1%), and respiratory diseases (11.5%) were the most prevalent disease among them. The statistical analysis of work-related diseases in correlation to the duration of work revealed that varicose veins, hernia and musculoskeletal disorders, respectively, had the highest correlations.

The findings further indicate that being struck by an object (3.9%), falling at ground level (3.7%) and being hit by falling objects (2.7%) were the most common accidents leading to injuries. The incidence rate for disabling injuries increased from 10.2 in the year 2000 to 18.1 in the year 2002. The head (23.5%), upper limb (15.1%), and eye (1.4%) were the body parts most often injured in accidents. Factors contributing to the occurrence of disabling injuries include human, environmental and mechanical factors. With regard to human factors, 16.8 percent of the workers who were injured failed to follow safety rules. Concerning environmental factors, 8.2% of accident victims were hurt because of broken floors. In the case of mechanical factors, 2.6 percent of those involved in an accident were injured by rapidly moving parts. A combination of human, environmental and mechanical factors accounted for about 15.5 percent of the leading causes of injuries. The study concluded that most common work-related disease among construction industry workers in Egypt were eye diseases (23.6%), respiratory diseases (11.5%), and cardiovascular diseases (7.2%).

The study made the following recommendations:

- The availability and use of personal devices should be stressed;
- Workers suffering from work-related diseases should be transferred to other jobs; and
- Safety measures at the workplace should be put in place and then examined regularly to avoid the risk of injuries.

The study, however, did not mention the population from which the sample of 487 workers was selected and only interview schedule was used to collect the data. Although the researcher did not indicate the population from which the sample was selected, a sample size of 487 workers may be considered as reasonable to enable the researcher to generalise his findings to the entire population.

Low back pain among rural and urban populations in Southwest Nigeria

Omokhodion, a Consultant Occupational Physician, Department of Community Medicine, University College Hospital, Ibadan, Nigeria conducted a study in 2002 on low back pain among rural and urban populations in Southwest Nigeria. Four surveys were carried out to enquire about low back pain among the population.

Hospital workers in a rural hospital in Igboora, Oyo State (n=74) and the general population in Igboora (n=900) constituted the two study groups in the rural setting while civil servants (office workers) in Ibadan (n=840) and the general population in Idikan area of Ibadan (n=474) constituted the study groups

in the urban area. A structured questionnaire was administered to the four study groups. The questionnaire sought information on socio-demographic variables such as age, sex, job history, smoking status and educational status. Respondents were requested to provide information about the occurrence of low back pain in the 12 months preceding the survey and at the time of the survey. Their knowledge of causes and prevention of low back pain was also recorded.

Among health care workers, the 12-month prevalence of low back pain was 46 percent. Back pain was more prevalent among females (64%) than males (37%). The prevalence increased with age. The highest prevalence was reported among nurses (69%) followed by secretaries and administrative staff (55%). Among the general population in Igboora, the 12-month prevalence of low back pain was 40 percent while the point prevalence was 33 percent. The prevalence was higher among males (44%) than females (36%). The residents in that rural population were predominantly petty traders, farmers and artisans. The prevalence of low back pain was highest among farmers (46%) and lowest among petty traders (34%). Artisans reported a prevalence of 40 percent. In this study the prevalence was not related to age.

In the urban setting, the 12-month prevalence of low back pain among office workers was 38 percent while the point prevalence was 20 percent. The prevalence was higher (40%) among males than females (34%). Low back pain was more prevalent among workers in the senior staff grade (42%) in comparison with those in the junior staff grade (28%). The prevalence of low back pain increased with age. The prevalence of low back pain was associated with smoking

and was highest among current smokers 57 percent as compared against 36 percent among those who had never smoked. The general population in the urban setting reported a 12-month prevalence of 44 percent and a point prevalence of 39 percent. The prevalence was higher among males (49%) than females (39%) and the prevalence increased with age. The prevalence of low back pain was highest among farmers (85%) and lowest among housewives (32%).

The finding further indicates that, about 80 percent of those with low back pain associated their back pain with the work they do. Causes of back pain mentioned included heavy physical work, poor posture, bending, lifting, sitting for long hours and walking long distances. The study concluded that the prevalence of low back pain in the rural and urban populations studied is about the same and comparable with those reported in industrialized countries.

The study made the following recommendations:

- The need for workplace education on the prevention of low back pain;
- Prolonged static positions, e.g. sitting and standing for long hours at work should be avoided; and
- Executive chairs in the office setting should be avoided if found to be ergonomically unsuitable.

The literature available on research conducted on occupational health and safety hazards in Ghana can be classified into the four main occupational sectors which are:

- Manufacturing
- Mining and quarrying

- Agriculture
- Services

A considerable proportion of fatal accidents in the manufacturing sector come from the woodworking sub-sector. In 1993, the woodwork sub-sector in Ghana recorded 57 percent fatality among the injured and 43 percent between 1995 and 1998 respectively. Noise, dust and vibration were physical hazards found to be rife in the woodworking and block moulding enterprises (Ministry of Health (MOH), 2002). These were due to poor house-keeping, manifested by poor arrangements of working implements posing a risk of trips and falls.

In Ghana, it is estimated that as much as 60% of the workforce is employed in agriculture (Ghana 2000 Census). A large percentage of these are peasant farmers. As in most developing countries, agricultural production is mostly labour intensive. Effective production requires strong persons resistant to diseases. It requires working in environments safe from hazards that are likely to cause injuries and ill health (Ministry of Health, 2002). In practice, however, agricultural workers are exposed to numerous hazards in the course of their work. Common safety and health hazards to which agricultural workers are exposed include parasitic diseases, bites, stings, skin irritation, reproductive health problems, musculo-skeletal problems, noise, physical stress and death. Poisoning of various intensities occur daily among pesticide users in Ghana (Ministry of Health, 2002).

The service sector is an important facet within the labour market, especially in developing countries like Ghana. However, the health and safety of

workers in this sector is an aspect that is often neglected, although it should have received the necessary attention and should not be different from safety accorded other workers in other sectors. The large services sector employs a number of people. Some of the occupations classified under this sector are health care work, tourism, telecommunication, education, water supply, transport, banking and commerce. The types and intensities of hazards to which persons in the sub-sectors are exposed to are varied (MOH, 2002).

Health care workers for example, comprise various occupational groups including doctors, nurses, laboratory and X-ray technicians, pharmacists and other paramedical employees. A study to unearth occupational health and safety problems among health workers revealed that the three commonest health and safety hazards to which health workers in Ghana perceived themselves to be exposed to are; biological hazards, handling of patients/poor work postures and stress (MOH, 2002). Biological hazards include viruses, bacteria and parasites predisposing workers to infections and infestations. Anecdotal evidence suggests that health workers have contracted (and some have died) from pulmonary and military tuberculosis, hepatitis B (and its implications), viral encephalitis, which are all believed to have been acquired on the job. Similarly, clients to health facilities have been known to suffer nosocomial (hospital acquired) infections.

Handling of patients and poor work postures usually result in musculo-skeletal problems including back pain. Many health workers, especially nurses have been incapacitated as a result of ergonomic hazards. Health workers are also exposed to chemical, physical and safety hazards. Such hazards include exposure

to dangerous drugs, X-ray radiation, poor lighting, noise, trips and falls. Stress was identified as the third most important hazard by health workers. Stress has been associated with various ailments suffered by health workers including hypertension.

The telecommunication sub-sector has the potential of exposure to hazards like work at heights. This poses a risk to falls resulting in serious injuries and mortality. A correspondent of the national *Daily Graphic*, Mr. Akwasi Ampratwum-Mensah reported on the 24th of November, 2006 the tragic death of three casual labourers caused by their fall from a height of 24m at Asufufu, a village off the Sunyani-Atronie Road of the Brong Ahafo Region of Ghana. The three casual labourers of Remi Ghana Ltd, contractors working on an antenna for Scancom Ltd, operators of Areeba Cellular Network died on the spot when they fell from a height of about 24 metres. Three other permanent employees of the company sustained various degrees of injury in the accident (*Daily Graphic*).

The educational sector, like other service sectors, has been undergoing profound changes during the past several decades. Many societies are facing new challenges resulting from the economic, social and political changes. Demographic changes such as ageing of the population, globalisation of the economy and trade, development of technology and the escalation of educational expenditures have all made structural re-adjustment necessary. However, statistical data on the risks faced by educational workers at the workplace are rarely collected in a systematic way or even not reported. Information on injuries and diseases in the educational sector is scanty.

Summary

This chapter has reviewed current OHS practices. Several key points emerged from the literature.

Two key aspects of integration of health and safety management into broader workplace management systems have emerged. First, the issue of appropriate fit with business strategy and second, the incorporation of health and safety into the functions and activities of personnel at all levels in the organization.

Safety improvement is achieved through a well resourced safety environment with worker participation and management support for continuous improvement of safety systems. The involvement of both staff and management in finding solutions for health and safety issues in the workplace was identified as a key aspect for improvement in the implementation of health and safety policy.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter focuses on the research design. Specifically, it deals with the study organisation, population and sample for the study, sampling procedures, instruments for gathering data, procedure for collecting data and how the data was analysed and presented.

Profile of the research site: University of Cape Coast

The University is structured as academic departments and support services. The academic departments are the faculties and schools. As at the time of the study, it had 3 faculties and 5 schools. The support services are the central administration, municipal services and staff and students services. The municipal and staff and students services include the following;

- Works and Maintenance Section (Construction & Woodworking)
- Electricity and Water Section
- Transport Section
- Grounds and Gardens Section
- Security Section
- Health Services (Hospital, Mortuary & Sanitary)

- Printing Press, and
- Halls of Residence

One of the corporate strategic thrusts of University of Cape Coast is to create a conducive working environment which recognises equal opportunities for faculties, staff and students. The nature of jobs undertaken by employees of the University is mainly the rendering of services in the form of teaching and support services in the form of administration, health care delivery and municipal activities such as maintenance and security services.

Study design

Both qualitative and quantitative techniques were used to explore and develop an understanding of the extent to which the University had adhered to all the requirements of legislation governing occupational health and safety and also to assess the level of awareness on the subject matter. The study employed cross-sectional survey design, which aimed at quantifying the distribution of certain quantitative and qualitative variables in a study population. This may cover for example, the physical and socio economic characteristics of people, the behaviour of people and their knowledge, attitudes, beliefs and opinions that may help to explain that behavior (Sarantakos, 2005).

From the available literature reviewed, a rough idea about the extent of occupational health and safety practices has been ascertained. The extent to which illnesses are associated with occupational health and safety hazards and the characteristics of those concerned are not known. According to Sarantakos

(2005), cross-sectional studies employ samples from different sectors or groups and compare them by using a set of criteria related to the theme of the study. It can also produce data which will permit the establishment of causal relationships. The most important advantage of cross sectional studies is that in general, they are quick and cheap. As there is no follow up, less resource are required to run the study. Cross sectional studies is one of the best way to determine prevalence and is useful for identifying associations that can then be more rigorously studied, using a cohort study or randomised controlled study. A cross-sectional survey design was therefore best suited to the aims and objectives of this study.

Population

The focus of the study is the University of Cape Coast management and employees. At the time of the study (October 2007), the University had a workforce of about 3,493 comprising 2,871 males and 622 females. The distribution of the employees across the various sections was; academic departments 1,409, central administration 284, municipal services 1,158 and student services 642. The University has four categories of employees and these are;

- Senior Members – Teaching
- Senior Members – Non-Teaching
- Senior Staff
- Junior Staff

The study population therefore consisted of 410 senior members-teaching (UTAG), 70 senior members-non-teaching (GAUA), 758 senior staff- (FUSSAG) and 2,255 junior staff- (TEWU).

Sample

The sample size for the study was 346 and was drawn from UTAG, GAUA, FUSSAG and TEWU. The sample size was chosen using statistical computation. A table developed by Krejcie and Morgan (1970) and cited by Sarantakos (2005) was used to select the sample size. This table computes the sample size by using a formula which takes into consideration chi-square for 1 degree of freedom, the population size, the population proportion, which is set at 0.50, and the degree of accuracy, which is set at 0.05. As indicated in Table 1, the sample size of a population of 3,500 is 346 (Sarantakos, 2005:174).

The sample selected was distributed proportionally across the various employee categories to determine the sample for that category. Systematic random sampling was then used to select the final sample. The distribution of the population and the sample chosen is shown in Table 1.

Table 1: Distribution of population and sample selected for study

Target	Population	Sample
Senior Members (Teaching)	410	41
Senior Members(Non-Teaching)	70	7
Senior Staff	758	73
Junior Staff	2,255	225
Total	3,493	346

Source: University of Cape Coast (2007)

The Vice Chancellor, the Registrar representing management, three Medical Officers and presidents' of UTAG, GAUA, FUSSAG and TEWU were purposively sampled from their respective employee category. They were also purposively sampled because of the role they play in managing the welfare of staff members which fall within the thrust of the research.

Sampling procedure

The sampling technique used in this study was stratified sampling, systematic random sampling and purposive sampling. First the sample population was stratified, the major criterion being by the roles of the respondents. Thus the stratified sample comprised four strata made up of, UTAG, GAUA, FUSSAG and TEWU. According to Sarantakos (2005), stratified sampling is a probability sampling procedure in which the target population is divided into a number of strata, and the sample is drawn from each stratum. The resulting sample makes up the final sample for the study.

To select the sample for each of the strata, the systematic random sampling technique was used. The population in each of the stratum was listed in a random order. The sampling fraction was calculated as follows;

$$\begin{aligned} \text{Population (N)} &= 3,493 \\ \text{Sample (n)} &= 346 \\ \text{Sampling fraction} &= 3,493/346 = 10\% \\ \text{Interval Size (k)} &= N/n = 3,493/346 = 10 \end{aligned}$$

A random integer from 1 to 10 was selected. The researcher chose 8. To select the sample, the researcher started with the 8th unit in the list of each of the stratum and took every k-th unit (every 10th, because k = 10). Sampling units 8,18,28,38, and so on was selected until the sample size in the stratum was determined.

The systematic random sampling was chosen because it spreads the sample more evenly over the population and it is easier to conduct than a simple random sample. According to Sarantakos (2005:158), Systematic sampling has been a very popular and also reliable method of sampling. However, a disadvantage of systematic sampling is that you may need a list to start with, if you wish to know your sample size and calculate your sampling size.

Purposive sampling was used for the selection of the Vice Chancellor, the Registrar, three medical officers and the Chairpersons of presidents of UTAG, GAUA, FUSSAG and TEWU from the respective strata. They were purposively sampled because of the roles they play in managing the welfare of staff members

which fall within the thrust of the research. Dane (1990) points out that, the advantage of purposive sampling is that it allows the researcher to zoom in on people or events, which have good grounds in what they believe will be critical for the research. Purposive sampling according to (Pilot and Hunglar, 1999, p284) is a form of non-probability sampling. Thus, a combination of stratified sampling, systematic random sampling and purposive sampling techniques were used in getting the sample for the study.

Data gathering instruments

Primary as well as secondary data were used. Primary data included the use of questionnaires, observation guides as well as semi-structured interview schedules. Secondary data were gathered from documents from the University hospital. The questionnaire was used to collect data from Senior Members, Senior Staff and Junior Staff. Data from the Vice Chancellor, the Registrar, and presidents of UTAG, GAUA, FUSSAG and TEWU was collected through interviews. Observation guide was used to collect data during observation.

The questions in the semi-structured interview schedule were designed to ascertain the nature of occupational health and safety practices in the University and how compatible they are with “best practice”. A semi-structured interview is useful to elicit the candid opinion of informants. Burns (2000) described interviews as “verbal exchange in which an interviewer tries to elicit information, beliefs or opinions from another person” (p.423). Burns suggests that an advantage of the semi-structured interview is the ability of the informants to use

their own perspective and the language natural to them rather than that of the research (p.425). However, the manner of the interviewer can have effect on the outcome of the interview. A bias can creep into interviews, according to Bell (2000), as a response effect and “may occur in the interview if the interviewer holds strong views about some aspect of the research” (p.139). The discipline of the interviewer in keeping to the schedule of questions may ameliorate any bias that could have crept into the interviews.

Another instrument used was a self administered questionnaire. Questionnaires serve as a method of “gathering data which is descriptive of current events, conditions or attributes of a population...at a particular point in time” (Burn, 2000:566). The aim of the questionnaire was to generate reliable and valid data from a high proportion of a population within a reasonable period and at a minimum cost, a view which Bell (2000:14) upholds.

In addition to the questionnaire and interviews, visits were made to offices, lecture theatres and other work places using observation guide to observe health conditions under which staff operate. Marshall and Rossman (1989:79) define observation as “the systematic description of events, behaviours, and artefacts in the social setting chosen for study.” Observations enable the researcher to describe existing situations using the five senses, and providing “written photograph” of the situation under study (Erlandson, Harris, Skipper, & Allen, 1993). Observation, as a method of collecting data offers first-hand information without relying on reports of others. Literally, observation requires the physical appearance of the researcher and the engagement of his/her five

senses to enable the researcher to form an opinion about a situation. It is also conducted in a natural setting and studies events as they evolve. One of the disadvantages of using observation as a method is that sometimes the researcher may not be interested in what happens in the public eye and that one must rely on key informants (Demunck and Sobo, 1998).

The use of the three data collection instruments provided a greater advantage in that it helped the researcher to confirm the validity of responses given by respondents. For example, observable responses given to particular question in the questionnaire were verified through observation.

Pre-Testing

The questionnaires were pre-tested in the University of Education, Winneba. The University of Education, Winneba was selected because it had similar features with the study area. Employees from the different categories were randomly selected. They were made to respond to the items on the questionnaire. The pre-testing revealed some weaknesses in the instrument. Some of the questions were not answered because they were not clear to respondents. Others provided poor answers which did not provide answers demanded by the questions. These weaknesses compelled the researcher to review the instrument. The restructured instrument was re-tested in the Kwame Nkrumah University of Science and Technology, also with parallel features of the University of Cape Coast. It was found to be suitable since all the questions were answered

satisfactorily. The instrument were also scrutinised by the researcher's supervisor before final administration.

Data collection procedure

The data were collected by the use of questionnaires, interview schedule and observation guide. The questionnaires were administered by a trained research assistant. The interview guide was administered by the researcher. The researcher also conducted the observation. The questionnaire for employees was made up of 35 items based on the objectives of the study. The interview guide was made up of 8 items. The respondents were given two weeks to respond to the questionnaire beginning 1st February, 2008 and ending 14th February 2008. After one week of distribution of the questionnaire, the research assistant went round to remind the respondents of the number of days they were left with and also replaced lost questionnaire. In the case of the interview guide, the researcher booked appointments with the Vice Chancellor, the Registrar and the presidents' of UTAG, GAUA, FUSSAG and TEWU. The date, time and venue for the interview sessions were scheduled. With respect to the observation, the researcher visited offices, lecture theatres and other work place and observed health conditions under which staff operate using observation guide.

Data analysis

In all, 341 questionnaires were given to employees. Out of this number, 262 questionnaires were retrieved. A total of 79 questionnaires could not

be retrieved. Over 75 percent of the target population sampled responded to the items on the questionnaire satisfactorily.

The data gathered were edited before the analysis was done. The questionnaires retrieved from the respondents were serially numbered to facilitate identification. The responses to the various items were coded. Data were grouped and subjected to statistical analysis by means of a personal computer using the Statistical Product for Service Solutions software (SPSS Version 12.0 for Windows). The analyses carried out were for descriptive statistics, cross tabulations, measures of association and analysis of variance. The data was presented in the form of tables, frequencies and percentages.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

In this chapter, data collected were analysed and discussed. The analysis was based on the research questions that informed the study. In discussing the issues emerging from the data, ideas expressed by authorities in the literature reviewed in Chapter Two were considered for purposes of confirming or contrasting ideas. The results covered biographic data on respondents which might have influence on OHS practices, OHS policy and practices in the university, the University's compliance with legislation on occupational health and safety and employees awareness of hazardous conditions at the workplace at the University of Cape Coast.

Biographic data on respondents

It was deemed necessary to gather background information on the respondents. Although, little use had been made of the background data in analysing responses to the research questions, the data had a purpose. It provided an understanding of the people who participated in the study. The biographic data were limited to sex, age, departments, respondents employment category, number of years worked in UCC and designation of respondents.

As shown in Table 2, 198 out of the 262 respondents representing 75.5 percent were males while 64 (24.4%) were females. The result was a reflection of what pertains in the University of Cape Coast as regards the sex profile of employees (University of Cape Coast, 2007).

Table 2: Distribution of respondents by sex

Sex	Frequency	Percentage
Male	198	75.6
Female	64	24.4
Total	262	100.0

Source: Field Work (2008)

As Table 3 depicts, majority (51.2%) of the respondents selected for the study were between the ages of 35 and 49 years. The range of 15 years was chosen to collaborate with the monthly out-patients morbidity returns of the university hospital. Age was of interest to the researcher as it has a bearing on health.

Table 3: Age of respondents

Age	Frequency	Percentage
20-34	97	37.0
35-49	134	51.2
Above 50	31	11.8
Total	262	100.0

Source: Field Work, (2008)

Age is a factor that can have a bearing on occupational health and safety. As a result, age was cross tabulated to certified health problems to establish any relationship that may exist between these variables. The details are as indicated in Table 4.

Table 4: Age of respondents and certified health problem [262]

Health Problems	Ages(Years)							
	20-34		35-49		50 and above		Total	
	N	%	N	%	N	%	N	%
Stress	53	54.6	80	59.7	13	41.9	146	22.3
Backache	70	72.9	103	75.4	25	80.6	198	30.3
Eye Injury	56	57.7	80	59.7	11	35.4	147	22.4
Chest Pains	54	55.7	74	55.2	10	32.3	138	21.1
Repetitive Strain Injury	11	11.3	10	7.5	5	16.1	26	3.9
Total							*655	100.0

Source: Field Work (2008)

* : Multiple responses

The result revealed that among the 97 people in the age bracket 20-34, 54.6 percent had experienced stress while 72.9 percent and 57.7 percent respectively had suffered from backache and eye injury. In the case of chest pains 55.7 percent of respondents in this age group had developed chest pains as a result

of their work while 11.3 percent respondents said they are experiencing repetitive strain injury.

With respect to the 134 respondents whose age was in the range 35-49 years, 59.7 percent respondents indicated that they had developed stress due to their work, while 75.4 percent and 59.7 percent had suffered from backache and eye injury respectively. With regard to chest pain 55.2 percent of the respondents in this age bracket said they had experienced chest pains due to their work, while 7.5 percent also suffer from repetitive strain injury.

Respondents aged 50 years and above were also considered in the study. Out of the 31 people who were in the age group, 41.9 percent had experienced stress as a result of their work while 80.6 percent and 35.4 percent had suffered from backache and eye injury respectively. In relation to chest pains, 32.3 percent said they had developed chest pains while 16.1 percent of the 31 respondents in the age group 50 years and above suffer from repetitive strain injury.

The results of the study indicate that the age group with the highest rate of occupational illness was 35-49 years. The next highest rate was for the group 20-34 years. The age group with the lowest rate was 50 and above. The results confirm the findings from a study conducted by the Australian Bureau of Statistics (ABS) which results indicated that the age group with the highest rate of injury or disease was 35-44 years. The next highest rate was for the age group 25-34 years, while age group with the lowest rate was 65 and over.

The result from the study also supports the assertion made by Laflame and Menckel (1995) that older workers are more likely to be aware of safety in the

workplace and, therefore, are less likely to have an accident. In addition Munk (2002) said older workers tend to develop coping strategies and this helps them to reduce their injury risks. However, 25 (80.6%) of those aged 50 years and above have developed backache and this revelation is in agreement with Omokhodion (2002), that the prevalence of backache increase with age.

It is revealed from Table 5 that, most of the respondents were from the student facilities, academic and the municipal services departments. These are the departments where some categories of employee work are considered by the university as being hazardous to their health.

Table 5: Distribution of respondents by departments

Departments	Frequency	Percentage
Academic	82	31.3
Administration	24	9.2
Municipal Services	63	24.0
Student Facilities	93	35.5
Total	262	100.0

Source: Field Work (2008)

The nature of work performed by the respondents differs and as such their exposure to occupational hazards may also differ. Senior members teaching job involve long hours of standing and again sitting for long hours to mark examinations scripts. The job of non-teaching senior members and senior staff involves sitting for long hours to perform administrative and other related tasks.

The junior staff category job includes maintenance and sanitation activities. The assumption was that each of these categories of respondents would be able to appraise OHS practices in the University of Cape Coast. The results as shown in Table 6 indicate that each category of respondents was able to appraise the OHS practices in the university. The majority (61.5%) of the respondents were from the junior staff category. This result is a reflection of what pertains in the University of Cape Coast (University of Cape Coast, 2007) with regard to categories of employees.

Table 6: Respondents employment category

Category	Frequency	Percentage
Senior Members (Teaching)	41	15.6
Senior Members (Non-Teaching)	6	2.3
Senior Staff	54	20.6
Junior Staff	161	61.5
Total	262	100.0

Source: Field Work (2008)

The questionnaire administered asked respondents to indicate the number of years that they had worked in the University of Cape Coast. The study sought to find out whether the number of years worked has any bearing on certified health problems that respondents had suffered as a result of their work and work environment. Number of years worked was therefore cross tabulated with certified health problems and the results are as indicated in Table 7.

Seventy-six percent of the respondents who had worked for a period of about 10 years indicated that they were experiencing backache as a result of their work, while 53.3 percent and 49.6 percent had suffered from stress and eye injury respectively. In the case of chest pains, 45.6 percent of the respondents said they have developed this due to the nature of their work while 9.6 percent said they were experiencing repetitive strain injury.

Table 7: Number of years worked at University of Cape Coast by health problems [262]

Health problems	Number of Years							
	1-10		11-20		21 and above		Total	
	N	%	N	%	N	%	N	%
Stress	72	53.3	49	60.5	25	55.6	146	22.3
Backache	103	76.0	63	77.8	32	71.1	198	30.3
Eye Injury	67	49.6	58	76.1	22	48.9	147	22.4
Chest Pains	62	45.6	55	67.9	21	46.6	138	21.1
Repetitive								
Strain. Injury	13	9.6	8	9.8	5	11.1	26	3.9
Total							*655	100.0

Source: Field Work (2008)

* Multiple responses

The majority (77.8%) of the respondents who had worked for a period of about 20 years in UCC experienced backache while 71.6 percent had suffered eye

injury as a result of their work. About 68 percent (67.9%) of respondents in this category also reported that they had developed chest pain while 60.5 percent and 9.8 percent of the respondents indicated that they had experienced stress and repetitive strain injury due to their work and work environment.

With regard to respondents who had worked for more than 20 years, the majority (71.1%) said they were experiencing backache due to their work, while 55.6 and 48.9 percent respectively had suffered from stress and eye injury. In relation to chest pains 46.6 percent said they had developed chest pains, while 11.1 percent of the respondents who had worked for more than 20 years said they were experiencing repetitive strain injury.

The finding confirms the study conducted by Omokhodion (2002) which indicated that the prevalence of low back pain increases with age. The result from the study also supports the assertion made by Ilmarinen, et al (1997) that when people are employed in badly design work, the longer they spend doing such work, the higher their subsequent rate of disability.

The designations of respondents were examined as presented in Table 8. Analysing employee designation was of interest to the study, because the university as part of its OHS practices has identified some jobs as being hazardous to employee's health. Such jobs include the work of laboratory technicians, sanitation labourers, health care workers and artisans.

Technical assistants include artisans and sanitation labourers while technicians include laboratory technicians, nurses, research assistants and administrative staff. Lecturers are the academic staff while administrators

includes medical officers, accountants, pharmacists, quantity surveyors and engineers.

The result from the study as presented in Table 8 indicates that the majority of the respondents (55.3%) were on the grade of technical assistants while (21.0%) are technicians. The university provides personal protective equipment to technical assistants, laboratory technicians and health care workers to protect them from contracting occupational illness. Since the result indicated that majority of the respondents were people who were somehow aware of OHS, they were able to appraise OHS as practiced by University of Cape Coast.

Table 8: Designation of respondents

Designation	Frequency	Percentage
Technical Assistants	145	55.3
Clerks	15	5.7
Technicians	55	21.0
Lecturers/Administrators	47	18.0
Total	262	100.0

Source: Field Work (2008)

OHS policy and practices in the University of Cape Coast

The objective of this research question was to explore respondents' opinion as to whether Occupational Health and Safety practices in the University of Cape Coast are compatible with selected OHS 'best practice'. Respondents

were provided with nine elements of best practice culled from the literature reviewed and were asked to indicate their opinion by indicating whether they strongly agree, agree, not sure, disagree, or strongly disagree. For purposes of analysis, strongly agree and agree were called agree and strongly disagree and disagree were called disagree.

As shown in Table 9, 168 (64.1%) of the respondents disagreed with the statement that employees of UCC are notified on health and safety hazards at the workplace. Forty-five (17.2%) respondents said they were not sure about the statement, while 49 (18.7%) agreed with the statement. The fact that majority of respondents (64%) disagreed with the statement and 17.2% were uncertain about the extent to which the university creates awareness among staff about occupational health and safety provisions raises the issue of significance about the policy .

In terms of training in strategies for protection against hazards at the workplace, 142 (54.2%) respondents disagreed with the statement that employees of UCC are trained to protect themselves from hazards, but 72 (27.5%) respondents were not sure of the statement, while 48 (18.3%) respondents agreed with the statement. The majority of the respondents had not been trained. According to the human factors in Accidents Model, worker error causes equipment design limitation and poor maintenance practices exacerbate these faults, with the combination resulting in an accident. This model encourages firms to invest in safety training to develop worker skills and safety consciousness.

Another issue addressed was the identification and correction of hazards by the university. About 47 percent (46.6%) of the respondents disagreed with the statement that the university makes all reasonable efforts to identify and correct hazards, and 62 (23.7%) said they were not sure of the statement, while 78 (29.7%) respondents agreed that the university makes all reasonable efforts to identify and correct hazards. Related to this was a question as to whether employees of UCC are encouraged to report workplace hazards. About 46.2 percent of the 262 respondents said they were not encouraged to report workplace hazards, while 50 (19.1%) respondents said they were not sure about the extent to which employees were encouraged to report hazard, with 91 (34.7%) respondents saying they were encouraged to do so. Reporting occupational hazards is critical in OHS policy making and reviewing as contained in the OHS Regulation 2001 and Codes of Practice. According to Baker (1990), consistent improvements in preventive action through reporting hazards and eliminating unsafe behaviours lead to a drop in occupational hazards.

As to whether the university has spelt out clearly its responsibilities and that of employees towards ensuring health and safety at the workplace, 78 (29.8%) of the respondents said the university had not made it clear its responsibilities and that of employees in matters of health and safety. About 44.3 percent of the respondents indicated that they were not sure, while 68 (25.8%) said the responsibilities had been made clear. Rowe (2001) contended that involvement of staff and management in finding solutions for health and safety issues in the workplace is a key aspect of OHS practice.

Table 9: Respondents’ opinion on compatibility of Occupational Health and Safety practices in University of Cape Coast with “best practice”

Best practice	Disagree		Not sure		Agree		Total	
	N	%	N	%	N	%	N	%
Notification of H & S hazards	168	64.1	45	17.2	49	18.7	262	100
Trained to protect themselves	142	54.2	72	27.5	48	18.3	262	100
H & S as elements of Performance Appraisal	80	30.5	84	32.1	98	37.4	262	100
Identification and correction of Hazards	122	46.6	62	23.7	78	29.7	262	100
Encouraged to report Hazards	121	46.2	50	19.1	91	34.7	262	100
Clearly Spelt out Responsibilities	78	29.8	116	44.3	68	25.9	262	100
Provision of Information to Community	93	35.5	125	47.7	44	16.8	262	100
Involved in H & S Matters	84	32.1	104	56.5	74	28.2	262	100
Committee responsible for H & S Issues	48	18.4	148	56.5	66	25.1	262	100

Source: Field Work (2008)

Another issue that was addressed related to the university providing information to those on campus and surrounding communities regarding environmental hazards arising from its operations. While 93 (35.5%) of the respondents said the university does not provide information, 125 (47.7%) respondents said they were not sure but 44 (16.8%) respondents stated the university does provide information to those on campus and surrounding villages regarding environmental hazards arising from its operations.

Respondents were also asked whether they were involved in health and safety matters. Eighty-four (32.1%) of them indicated that they were not involved, with 104 (39.7%) saying they were not sure whether employees are involved in health and safety matters, while 34 (28.2%) said they were involved. Related to this was a question as to whether there is a university committee responsible for health and safety issues. Out of 262 respondents, 48 (18.4%) said there was no committee responsible for health and safety issues in the university, and 148 (56.5%) said they were not sure there is such a committee, while 66 (25.1%) indicated there is a committee responsible for health and safety issues in the university.

The responses to the questionnaire items indicated that the majority (75.8) of respondents either disagreed or were not sure that OHS practices in UCC were compatible with what has been described in literature reviewed as best practices of OHS. There was therefore the need to further explore the opinion of leaders of employee association, unions and management for their perspective on this subject. All the leaders of the four associations/unions confirmed the responses

from the questionnaire that OHS practices in UCC are not compatible with OHS “best practices”. They indicated that the only OHS practices that they were aware of are the provision of personal protective clothing to some category of staff whose work the university considers to be hazardous in nature. Such employees, they indicated, include sanitary, conservancy, hospital, academic laboratory and works/maintenance employees.

Contrary to the views expressed by the respondents to the questionnaire and views from leaders of unions, responses from management indicated that OHS practices in UCC is compatible with what has been identified to be best practices. They indicated that identification and monitoring of hazards through workplace inspections are carried out periodically by the Directorate of Physical Development and Estate Management and Directorate of Health Services. Management said employees are involved in OHS matters through their representation on the University Hospital Board which is the body that manage health and safety issues. Management further indicated that employees are notified on health and safety hazards through warning signs placed at hazardous places. However, in the opinion of leaders of association/unions, the Hospital Board which management consider as having responsibility for health and safety issues is really a health board because safety issues are not given the required attention.

The contrasting nature of responses from both employees and management necessitated the need to explore the issue of workplace inspection and notification of health and safety hazards through observation. The results

from the observation revealed that workplace inspection and notification of health and safety hazards are not carried out as stated by management. It was observed that there are so many places of work including the University's Central Administration block where electricity cables are exposed without any warning signs or any indication that the exposed electricity cables are hazards to health and safety. Further observation revealed that some septic tanks and manholes had their covers either broken or cracked. There were no warning signs to keep employees off such hazards. Furthermore, even though fire-fighting equipment has been positioned at some workplaces, about 60 percent of these equipments were found not to be functioning after it has been tested. The observation results therefore confirmed the responses from respondents to the questionnaire and interview results of the leaders of associations and unions that OHS policy and practices are not compatible with what has been described as "best practice".

Compliance with legislation on occupational health and safety

This research question sought whether in the opinion of respondents, the University of Cape Coast's health and safety policy and practices falls within legislation enshrined in the Unified Condition of Service for Unionised Staff of the Public Universities of Ghana. Eleven questions culled from the Factory, Offices and Shop Act, 1970, Act (328), Labour Act 2003, Act 651 and the Workmans' Compensation Law, 1987 (PNDCL 187) were provided for respondents to form their opinion by indicating whether they strongly agree, agree, not sure, disagree, or strongly disagree. For purposes of analysis, strongly

agree and agree were called agree and strongly disagree and disagree were called disagree.

As presented in Table 10, Over 60 percent (61.4%) of the respondents indicated that there were differences between OHS practices and what has been enshrined in the Unified Condition of Service of Unionised Staff of the Public Universities of Ghana. They stated that the university had not provided adequate orientation on health and safety legislation. Sixty-one (23.3%) of the respondents were not sure, while 40 (15.3%) agreed that the university had provided adequate orientation on health and safety legislation.

With respect to the statement that the University had made available, copies of health and safety policy document to employees, 176 (67.2%) of the respondents said copies of health and safety policy document had not been made available to them, and 52 (19.8%) respondents were not sure, while 34 (15.3%) indicated that they had copies of the health and safety policy. As to whether adequate health and safety training is given to employees of UCC, as many as 161 (61.4%) out of 262 of the respondents indicated that they had not been given any training in health and safety. Fifty-six (21.4%) respondents said they were not sure, while 45 (17.2%) agreed that they have been trained.

According to the Factory, Offices and Shop Act 1970, Act (328) and the Labour Act 2003, Act 651 of Ghana, employers are required to give employees orientation on legislation governing OHS, copies of OHS policy are to be made available to employees and they are to be trained on health and safety practices to ensure incident free workplace environment. However, from the analysis shown

in Table 9, majority of respondents indicated that these aspects of OHS legislation had not been complied with by UCC. This was confirmed by union leaders. Management also conceded that they had not been able to comply with these provisions in legislation governing OHS practices. When management was probed further as to why the university had not been able to comply with these provisions in legislation, they indicated among other things that the university lacked the human and material resources to ensure the compliance of these provisions even though effort were being made to ensure compliance.

Another issue that was addressed was the supply of adequate personal protective equipment (PPE) by the university at no cost to employees. Thirty-three (12.6%) of the respondents said PPE are supplied at a cost to employees, with 37(14.1%) saying they were not sure, while 192 (73.3%) of the respondents agreed that employees at UCC are supplied with PPE at no cost them. Union/associations leaders confirmed the provision of PPE at no cost to employees when they were interviewed. This was also confirmed during visits to workplace to observe conditions in which employees work.

Table 10: Respondent’s opinion on University of Cape Coast compliance with Occupational Health and Safety legislation

Item	Disagree		Not Sure		Agree		Total	
	N	%	N	%	N	%	N	%
Orientation in H & S Legislation	161	61.5	61	23.3	40	15.3	262	100
Copies of Policies available to Employees	176	67.2	52	19.8	34	15.3	262	100
Provision of Adequate Training	161	61.4	56	21.4	45	17.2	262	100
PPE Supply at no cost to Employees	33	12.6	37	14.1	192	73.3	262	100
Supervision of the use of PPE	57	21.8	109	41.6	96	36.6	262	100
System of Work that is Safe and without risk to Health	82	31.3	96	36.6	84	32.1	262	100
Sufficient Toilet facilities provided	28	10.7	15	5.7	219	83.6	262	100
Separate Toilet facilities provided for Male and Female	30	11.4	12	4.6	220	84	262	100
Adequate wholesome drinking water provided	114	43.5	55	21	93	35.5	262	100
Fire Fighting equipment provided at the Workplace	44	16.8	46	17.5	172	65.7	262	100
Compensation benefit paid to injured Employees	22	8.4	55	21	185	70.6	262	100

Source: Fieldwork (2008)

With regard to authorities supervising the use of PPE, 57 (21.8%) of the respondents said authorities do not supervise the use of PPE, and 109 (41.6%) respondents were not sure, while 96 (36.6%) agreed that authorities do supervise the use of PPE. However, both association/unions leaders and management indicated in the interview that authorities ensure that those who had been provided with PPE utilised these equipment. These contrasting statements necessitated visits to workplaces to observe the utilisation by employees of such PPE. The observation results indicated that employees who had been provided with PPE voluntary utilise them as there was no compulsion from any authority to ensure that these PPE were utilised.

Regarding the question as to whether the university had created a safe environment for work, 82 (31.3%) of the respondents disagreed that a safe environment had been created for work. Ninety-six (36.6%) of the respondents said they were not sure whether the university had provided for the workplace system of work that is safe and without risk to health, while 84 (32.0%) agreed that a safe environment had been created at the workplace. Part XV Section 118 of the Ghana Labour Act, 2003, (Act 651) provide for the need for the employer to provide and maintain at the workplace, plant and system of work that is safe and without risk to health.

Respondents were also asked whether sufficient toilet facilities had been provided by the university to employees. Almost 11 percent (10.7%) of the respondents said toilet facilities provided by the university was not sufficient, with 15 (5.7%) respondents saying they were not sure whether available toilet

facilities was sufficient for employees, however 219 (83.6%) agreed that sufficient toilet facilities had been provided by the university. A related question to this was whether UCC had provided separate toilet and washing facilities for male and female as enshrined in the Factories, Shop and Offices Act 1970, Act 328. Thirty (11.4%) respondents disagreed that there were separate toilet and washing facilities for male and female, with 12 (4.6) not being sure of the provision, while 220 (84.0%) respondents said there were separate toilet and washing facilities for both sex.

With regard to wholesome drinking water, 114 (43.5%) of the respondents said the university had not provided employees with wholesome drinking water, with 55 (21.0%) saying they were not sure whether the water provided was wholesome, while 95 (35.5%) agreed that the drinking water provided by the university was wholesome. Two union leaders also confirmed that wholesome drinking water had not been provided to employees of the university. To further explore the adequacy of drinking water provided to employees, observation was conducted at offices and other workplaces. The results revealed that majority of employees were taking tap water as drinking water which to some extent may not be considered wholesome.

In terms of managing fire at the workplace, 44 (16.8%) of respondents said they do not agree that the university had provided fire-fighting equipment at the workplace, while 46 (17.5%) of them said they were not sure. About 66 percent (65.7%) of the respondents thought otherwise. They agreed that the university had provided fire fighting facilities at the workplace. With regard to

compensation benefits, 22 (8.4%) did not agree that compensation benefits were paid to employees who sustain injuries at the workplace. Fifty-five (21.0%) of the respondents said they were not sure whether this benefits were paid by the university, however 185 (70.6%) agreed that compensation benefits are paid to employees who sustain injuries in the course of work. All four leaders of unions and association confirmed the result.

Responses from open ended questions were categorised and a common theme that emerged was the need for protective equipment for jobs. About 83.2% of the respondents indicated that they required the use of personal protective equipment (PPE) for their jobs, while 44 (16.8%) of respondents said they do not require the use of personal protective equipment in the performance of their jobs. The personal protective equipment requirements of respondents were safety boots, nose masks, gloves, goggles, overcoat, and computer screen filters.

Respondents were further asked about their opinion on the provision of these equipments by the University, which has been presented in Table 11. The result show that 37 percent of the respondents said they required the use of safety boots in the performance of their job. Ninety (92.8%) of them said they were provided with safety boots by the university. One hundred and thirty-five (51.5%) of the respondents indicated that they required the use of nose masks and gloves for their jobs. One hundred and twelve (82.9%) of the 135 respondents said the university provides them with these protective equipment.

With respect to the requirement of goggles, 118 (45%) of the respondents said they required goggles for use in the performance of their jobs of which 103

(87.3%) indicated that the university provides them with goggles for use in the performance of their jobs. Almost 70.0 percent (69.5%) of the respondents said they required the use of overcoat, and 147 (80.8%) said they were provided with overcoat. Thirty-three (12.6%) of the respondents indicated that they required computer screen filter for use in the performance of their jobs, however, 1 (0.4%) out of the requirement was provided by the university.

The result from the study revealed that there were gaps in the provision of personal protective equipment to employees who require the use of these equipment in the performance of their jobs.

Management and leaders of unions/association agreed that there were some key challenges facing the University of Cape Coast in managing occupational health and safety. Notably among these challenges was the non availability of health and safety professionals to recruit, lack of capacity to design OHS policy and lack of funding to provide all the necessary resources needed to manage OHS practices to meet what had been described as OHS best practice.

Table 11: Personal Protective Equipment required and Personal Protective Equipment provided by University of Cape Coast

PPE	Required	Provided	Percentage	Gap
Safety Boots	97	90	92.8	7
NoseMask/Gloves	135	112	82.9	23
Goggles	118	103	87.3	15
Overcoat	182	147	80.8	35
Screen filter	33	1	0.4	32

Source: Fieldwork, (2008)

Employee awareness of hazardous conditions at the workplace at University of Cape Coast

This question sought to find how employees were aware of hazardous conditions at the workplace at UCC as illustrated at Table 12.

Table 12: Employee awareness of hazardous conditions at the workplace

Item	Disagree		Not Sure		Agree		Total	
	N	%	N	%	N	%	N	%
Exposed to OHS Policy	183	69.8	40	15.3	39	14.9	262	100
Aware of practices that post health hazards	25	9.6	31	11.8	206	78.6	262	100
Excessive heat is a health threat	25	9.5	23	8.8	214	81.7	262	100
Poor lighting system constitute health hazard	29	11.1	31	11.8	202	77.0	262	100
Poor work posture pose a threat to health	21	8.0	19	7.3	222	84.7	262	100
Developed certified health problem	26	9.9	27	10.3	209	79.8	262	100

Source: Fieldwork (2008)

The majority (69.8%) of the respondents said that employees were not exposed to OHS policy in UCC. Forty (15.3%) of them were not sure of the statement, while 39 (14.9%) agreed that employees were exposed to OHS policy. Respondents were further asked whether they were aware of practices that pose health hazards, 25 (9.6%) of the respondents indicated that they were not aware of practices that posed health hazards, and 31 (11.8%) of them were not sure of practices that posed health hazards, while 206 (78.6%) said they were aware of hazardous practices at the workplace at UCC.

With respect to excessive heat as a health threat, 25 (9.6%) of the respondents said they do not agree that excessive heat was a health threat. Twenty-three (8.8%) respondents were not sure of the statement, while 214 (81.7%) agreed that excessive heat was a threat to health. Respondents were asked whether poor lighting system constitute health hazard. About 11.1 percent of the respondents said poor lighting system was not a health hazard. Thirty-one (11.8%) of them were not sure as to whether poor lighting system was a health hazard, while 202 (77.0%) agreed that poor lighting system was a health hazard.

The respondents were further asked whether poor work posture posed a threat to health. Twenty-one (8.0%) of the respondents said poor work posture do not pose a threat to health, but 19 (7.3%) of them were not sure whether poor work posture posed a threat to health, while 222 (84.7%) indicated that poor work posture pose a threat to health.

In terms of certified health problems developed as a result of work and work environment, 26 (9.9%) of the respondents said they had not developed any

certified health problem as a result of their work. Twenty-seven (10.3%) of the respondents said they were not sure as to whether their health problems may be attributed to their work, while 209 (79.8%) agreed that they had developed certified health problems since they were employed.

In an open ended question, respondents were further asked to indicate certified health problems that they had developed as a result of their work. The health problems identified were stress, backache, eye injury, chest pains and repetitive strain injury.

About 56.0 percent (55.7%) of the respondents said they had suffered from stress related illnesses as a result of their work. One hundred and ninety-eight (75.6%) of them indicated that they were suffering from backache, while 147 (56.1%) of the respondents said they were suffering from eye injury as a result of their work. Out of 262 respondents, 138 (52.7%) of the respondents indicated that they had developed chest pains as a result of their work, while 26 (9.9%) of the respondents said they had developed repetitive strain injury as a result of their work. The results of the study confirm the suggestion from the university hospital that staff related illnesses were caused by the nature of their work and work environment.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents a summary of research activities and the main issues that emerged from the study. It also draws out the key findings, main conclusions from the study and provides recommendations for improving occupational health and safety practices in the University of Cape Coast. The study sought to examine the Occupation Health and Safety (OHS) practices of University of Cape Coast and its compatibility with best practices, determine the extent to which the University had complied with the requirements of legislation governing occupational health and safety, assess the extent to which employees are aware of hazardous conditions associated with their work and make recommendation based on the findings.

A cross-sectional survey design was adopted and it focused on the management and employees of the University of Cape Coast. The study sampled 346 employees of the University of Cape Coast. Data for the study were collected using both qualitative and quantitative methods. Questionnaires, observations as well as semi-structured interviews were used. The questionnaire was used to collect data from Senior Members, Senior Staff and Junior Staff. Data from management was collected through interviews. Prior to the main study, the

questionnaires were pre tested at the University of Education, Winneba. Out of 346 questionnaires administered, 262 were retrieved. Descriptive statistics were used to analyse the data. In all cases, tables, frequencies and percentages were the main representation and measures used for the data collected.

Summary of key findings

The key findings are of the study are:

- From the employees' perspective, UCC hardly notify staff on health and safety hazards at the workplace. They did not also agree that the university had spelt out clearly its responsibilities and that of employees towards ensuring health and safety at the workplace;
- The university does not train employees in strategies for protection against hazards at the workplace;
- Over 70.0 percent did not think the university makes all reasonable efforts to identify and correct health and safety hazards;
- Employees were also not encouraged to report workplace health hazards;
- The majority (84.8%) of the respondents said the university had not provided adequate orientation on health and safety legislation;
- The university had also not made available copies of health and policy document to employees;
- Almost 68 percent (67.9%) of the respondents indicated that the university had not provided for the workplace system of work that is safe and without risk to health;

- Supervisors' do not adequately supervise the utilisation of personal protective equipment supplied to employees;
- Adequate wholesome drinking water is not provided by the university for employees;
- Sixty percent of the fire-fighting equipment provided at the workplace was not properly functioning;
- Compensation benefits are paid to employees who sustain injuries at the workplace;
- Nearly 79.0 percent (78.6%) of the respondents were aware of hazardous conditions at the workplace and that they had developed certified health problems as a result of their work;
- Certified health problems that respondents had suffered as a result of their work include stress, backache, eye injury, chest pains and repetitive strain injury;
- Employees within the age brackets of 35-49 years are more prone to developing higher rate of occupational illness;
- Respondents aged 50 years and above were experiencing higher rate of backache; and
- Respondents who have worked for more than 10 years were experiencing higher rate of backache and stress.

Conclusions

Based on the summarised findings it can be concluded that occupational health and safety practices at the University of Cape Coast is not in conformity with what has been described as “best practices”. This is because the university hardly gives notice of health and safety hazards at the workplace. Other reasons are that responsibilities of employees and that of employers with regard to OHS had not been clearly spelt out. Employees are also not trained in strategies for protection against hazards at the workplace and the university had not made all reasonable efforts to identify and correct health and safety hazards.

The University had not adhered completely to the requirements of the legislation governing OHS as enshrined in the Unified Conditions of Service for Unionised Staff of Public Universities in Ghana. For instance, it had not provided adequate orientation on health and safety legislation and had not made available, copies of health and safety policy document to employees. The University had also not provided for the workplace system of work that is safe and without risk to health. Furthermore, supervisors are not supervising the utilisation of personal protective equipment supplied.

Employee awareness of hazardous conditions associated with their work was high because more respondents were aware that poor work posture and poor lighting system were threats to their health. Furthermore, employees were aware that their certified health problems were as a result of hazardous conditions that are associated with their work.

Recommendations

Several issues emerged from the summarised findings and conclusions. It is therefore recommended that Management of UCC should:

- Provide notices to warn of hazards;
- Include health and safety training in its staff orientation and in-service training programmes;
- Make all reasonable efforts to identify and correct health and safety hazards;
- Provide for the workplace system of work that is safe and without risk to life;
- Update the University's Health and Safety Policy document to reflect current OHS best practices and ensure that copies of the document is made available to all employees;
- Encourage all the category of staff to report through the appropriate channel of communication any identified workplace hazard for action to be taken to correct such hazards; and
- Ensure that supervisors supervise the utilisation of personal protective equipment;

Union Leaders and Presidents of Associations are also advised to:

- Ensure that they are actively involved in all matters concerning the health and safety of their members; and
- Collaborate with Management to develop an OHS policy document that reflects best current practices.

The general staff must:

- Be conscious of the health and safety hazards that are associated with their work and ensure that they are not exposed to such hazards; and
- Avoid practices that would expose them to health hazards.

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APPENDIX A
QUESTIONNAIRE FOR EMPLOYEES OF UNIVERSITY OF
CAPE COAST

Introduction

A research is being conducted by a student from the Institute for Development Studies, University of Cape Coast. The purpose of the study is to examine Occupational Health and Safety (OHS) practices in the University of Cape Coast (UCC) and how these practices could be improved to achieve organisational goals. Your candid views on OHS practices in UCC will contribute immensely towards achieving this goal. You are assured that your responses would be confidential.

I would be happy if you could complete the questionnaire within a week from the day of receipt of the questionnaire. I shall return to pick them. Thank You.

Please tick where appropriate, and provide your views in the spaces provided.

Section A: Personal Data		
Please tick the option applicable		
1	Sex	Male [] Female []
2	Age	20-34 [] 35-49 [] 50 and above []
3	Department/Section
4	Employee Category	SM (Teaching) [] SM (Non-Teaching) [] Senior Staff [] Junior Staff []
5	How long have you worked in U.C.C	1-10 [] 11 – 20 [] 21 and above []
6	What is your designation?

Section B: Compatibility of OHS Practices in UCC with “Best Practice						
Please tick the option applicable						
Statement	Strongly agree	Agree	Not Sure	Disagree	Strongly disagree	
7.	University employees are notified on health and safety hazards at the workplace					
8.	Employees of the university are trained to protect themselves from hazards in their working environment					
9.	Health and safety performance are an essential ingredient of performance appraisal					
10.	The university makes all reasonable efforts to identify and correct health and safety hazards					

11.	Employees of the university are encouraged to report workplace hazards					
12.	The university has spelt out clearly its responsibility and that of employees towards ensuring health and safety at the workplace					
13.	The university provides information for those on campus and in surrounding communities regarding environmental hazards arising from its operations					
14.	Employees are involved in health and safety matters					

15.	There is a university committee responsible for health and safety issues					
<p>Section C: The University's compliance with OHS Legislation</p> <p>Please tick the option applicable</p>						
16.	The university has provided adequate orientation on health and safety legislation					
17.	The university has made available copies of health and safety policy to employees					
18.	Adequate health and safety training is provided to employees of the university					

	Statement	Strongly agree	Agree	Not Sure	Disagree	Strongly disagree
19.	The university supply at no cost to the employee adequate personal protective equipment (e.g. helmet, wellington boots, goggles, nose mask, gloves, overcoats etc)					
20.	Authorities supervise the use of personal protective equipment					
21.	The university has provided for the workplace system of work that is safe and without risk to health					

22.	Sufficient toilet facilities are provided to employees of the university					
23.	Employees are provided with separate toilet and washing facilities for male and female					
24.	The university provides adequate wholesome drinking water at the workplace					
25.	The university has provided fire-fighting equipment at the workplace					

	Statement	Strongly agree	Agree	Not Sure	Disagree	Strongly disagree
26.	Compensation benefit is paid to employees who sustain injuries at the workplace					
SECTION D: Level of employees awareness of hazardous conditions at the workplace						
27.	I have been exposed to OHS policy in the university					
28.	I am aware of some practices that pose health hazards to me.					
29.	Excessive heat is a health threat to my work					

	Statement	Strongly agree	Agree	Not Sure	Disagree	Strongly disagree
30.	Poor lighting system constitute health hazards to my job					
31.	Poor work posture pose a threat to my job					
32	I have developed certified health problems since I was employed					

33. What protective equipment (e.g. nose masks, etc.) do you require for your job?

.....

.....

.....

.....

34. In your opinion, does the university provide this protective equipment?

.....
.....

35. What certified health problems have you developed as a result of your work? Please tick what is applicable.

- a) Work related Stress
- b) Backaches
- c) Eye injury
- d) Chest pains
- e) Repetitive strain injury
- f) Others (please specify)

36. In what ways does your attitude at the workplace expose you to health hazards?

.....
.....
.....
.....
.....

APPENDIX B

INTERVIEW GUIDE FOR MANAGEMENT OFFICIALS OF

UNIVERSITY OF CAPE COAST

Please, I would like to have your candid views on Occupational Health and Safety (OHS) practices at University of Cape Coast (U.C.C).

The following are considered among others as “best practice” that acts to reduce injuries and illness at the workplace.

- Identification and monitoring of hazards through workplace inspections
- Tracking the integration of Health and Safety into management systems
- Development and implementation of injury and illness prevention strategies in the workplace
- Top managements’ genuine involvement and commitment to OHS
- Active employee involvement in OHS
- Clearly assigning responsibilities at various management levels
- Aligning Health and Safety policies with other human resource policies

1. How are these practices compatible with the OHS practices at U.C.C?

(Probe: workplace inspection, integration of OHS into management systems, injury and illness prevention strategies in the workplace etc)

2. Through what means does the University manage health and safety issues?

(Probe: How are people assigned responsibilities for health and safety issues? Why?)

3. What are the specific duties assigned to the body that is responsible for health and safety in the University?

(Probe: what do these entail? what are the challenges associated with the responsibilities? how are people prepared for the responsibilities? etc)

- 4 Article 21 of the *Conditions of Service for Unionised Staff of the Public Universities of Ghana* states that the universities “shall take such measures as will ensure the good health and safety of its employees in accordance with the Factories, Offices and Shop Act, 1970 (Act 328) or any amendment thereof”.

In your opinion, how has U.C.C adhered to this provision in the Act?

4. Article 21 of the *Conditions of Service for Unionised Staff of the Public Universities of Ghana* states that “any employee who sustains any injury or suffers disability, illness or disease in the course of performance of his/her duties shall be entitled to compensation in accordance with the Workmen’s Compensation Law 1987 (PNDCL 187) and subsequent enactment”.

5. What provisions has the University made for employees who get injured or contract illness during duty performance?

(Probe: what if the person is incapacitated? etc)

6. As a policy maker in the University, how will you rate the significance of OHS?

(Probe: why do you say so? what evidence is there to prove the significance UCC attaches to OHS? etc)

7. Now, can you please tell me what policy guidelines the University has on OHS?

(Probe: How are the staff made aware of these guidelines?)

8. In your opinion, what are the key challenges faced by the University in managing OHS?

(Probe: nature, coping strategies etc.)

APPENDIX C

INTERVIEW GUIDE FOR PRESIDENTS OF UNION/ASSOCIATION OF UNIVERSITY OF CAPE COAST

Please, I would like to have your candid views on Occupational Health and Safety (OHS) practices at University of Cape Coast (U.C.C).

The following are considered among others as “best practice” that acts to reduce injuries and illness at the workplace.

- Identification and monitoring of hazards through workplace inspections
- Tracking the integration of Health and Safety into management systems
- Development and implementation of injury and illness prevention strategies in the workplace
- Top managements’ genuine involvement and commitment to OHS
- Active employee involvement in OHS
- Clearly assigning responsibilities at various management levels
- Aligning Health and Safety policies with other human resource policies

1. How are these practices compatible with the OHS practices at U.C.C?
2. Through what means does the University manage health and safety issues?
3. Is your union/association involve in OHS matters

4. What are the specific duties assigned to the body that is responsible for health and safety in the University?
5. Article 21 of the *Conditions of Service for Unionised Staff of the Public Universities of Ghana* states that the universities “shall take such measures as will ensure the good health and safety of its employees in accordance with the Factories, Offices and Shop Act, 1970 (Act 328) or any amendment thereof”.
6. In your opinion, how has U.C.C adhered to this provision in the Act?
7. Article 21 of the *Conditions of Service for Unionised Staff of the Public Universities of Ghana* states that “any employee who sustains any injury or suffers disability, illness or disease in the course of performance of his/her duties shall be entitled to compensation in accordance with the Workmen’s Compensation Law 1987 (PNDCL 187) and subsequent enactment”.
8. What provisions has the University made for employee who get injured or illness during duty performance?
9. As a leader of your union/ association in the University, how will you rate the significance of OHS?
10. Now, can you please tell me what policy guidelines the University has on OHS?

How the staff is made aware of these guidelines?

11. In your opinion, what are the key challenges faced by the University in managing OHS?

APPENDIX D
OBSERVATION CHECK LIST

A) Awareness Creation Strategies	Yes	No	Comments
1. OHS Policy displayed strategically			
2. Hazard warning notices available			
3. Fire fighting equipment positioned at workplace			
B) Protective Equipment			
1. Grounds and Gardens employee wear wellington boots.			
2. Sanitary workers wear gloves, nose masks and wellington boots.			
3. Painters wear nose masks.			
4. Computer screen filters provided at offices.			
5. Laboratory Technicians wear gloves when drawing blood			

sample.			
6. Maintenance workers wear overcoat, nose masks and goggles.			
7. Authorities supervise the use of personal protective equipment.			
8. Security personnel are provided with torchlight.			
9. Shelter is provided security staff against rain/sunshine.			
10. Security personnel are provided with communication gadgets.			
C) Health and Safety Issues			
1. Staff caution of slippery floor			
2. Sufficient toilet facilities provided			
3. Separate toilet and washing facilities provided for male and female.			
4. Wholesome drinking water provided at the workplace.			
D) Other Opportunistic Observation			

