

UNIVERSITY OF KWAZULU-NATAL

**Value Added by Occupational Health and Wellness (OH&W) Programs in the
Construction Industry**

By

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DECLARATION

I Ignatia Nombuyiselo Dionne Myeza declare that:

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ABSTRACT

It is an undeniable fact that transformation in South Africa has impacted positively on most business sectors, however, while other sectors were quick to adapt, others stumbled when they encountered challenges. Globally, it has been realised that employees are the most important assets of a businesses. Therefore as engines they must be kept healthy and productive. Legislation such as the Occupational Health and safety Act of 1993, emphasises the responsibility of the employer to keep workers healthy and to provide a safe and healthy working environment. The nature of other sectors, such as agriculture and construction tends to deny them an opportunity to develop and sustain Occupational Health and Wellness programmes. The construction industry may present worker with a hazardous environment. The study focuses on issues related to the challenges faced by the construction industry in trying to maintain healthy employees. It assists in identifying the strategies to adopting order to address their needs as short term mobile sector.

The survey was conducted in Pietermaritzburg, one of Group Five construction sites. The site was targeted because the project duration was more than five years and comprised many sub-contractors who were taking part in the project. The topic required experts in the field of Occupational Health and Safety, therefore certain categories of quantitative study data were collected using a non-probability sample. There were 112 valid respondents. According to the findings, most contractors seem to have benefited from current Occupational Health and Wellness programmes, but the challenges still exist which are hindering progress. Some of the challenges were perceived cost of running the programmes, pressure from the client to complete projects, inaccessible Occupational Health and Wellness centres. Without a paradigm shift by all stakeholders in the South African construction industry, occupational health and wellness standards will not improve. Stakeholders need to make a paradigm change in order to adopt strategies which will change the face of Occupational Health and Wellness programmes in the construction world.

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CHAPTER 1

1. Introduction

Occupational Health and Wellness (OH&W) plays an important role in maintaining a healthy workforce. Occupational Health is described as the protection of the bodies and minds of people from illness resulting from the materials, processes or procedures used in the workplace. Lopes 2011 (cited vol. 17 no.2 Occupational Health Journal). Whereas, wellness is the dynamic process of promoting and pursuing ideas, attitudes and behaviours, and making choices towards a culture and a way of life on balance, good health and peace of mind(Sieberhagen et al., 2009a). In South Africa legislations has played an important role in ensuring that the safety, health and wellness of employees are maintained (Jeebhay and Jacobs, 1999).

The construction industry is characterized by short term, mobile, unstable and low income workers. The health challenges faced by the industry are equivalent to those faced by the agriculture and mining industries (Govender, 2012). It is accepted that human capital is the best investment a profitable business can make. Developing countries are facing these challenges and South Africa is no exception. South Africa, as a liberated and developing country, is faced with fast growing small micro and medium enterprises. The construction industry comprises a number of emerging sub-contractors with informal employment (community upliftment whereby community projects are required to employ locally). The short term projects challenge the compliance and maintenance of Occupational Health and Wellness programmes. In China it was found that in the construction industry the implementation of Occupational Health and Wellness programmes is not common (Zou et al., 2007) , yet construction workers are exposed to different types of work hazards. The focus is more on safety than health and wellness (EL-Safty et al., 2010) forgetting that safety statistics could be improved through maintaining a healthy workforce. (Rooney, 2012b) Occupational health and wellness standards separated from safety standards could yield better results. According to Malek, it could result in a number of benefits such as higher quality work and increased productivity (Malek et al., 2010).

1.2 Motivation for the study

The study was conducted in order to identify occupational health and wellness challenges in the construction industry in order to devise strategies that will increase the value of occupational health and wellness in the construction industry, in South Africa. The beneficiaries identified were as follows:

1.2.1 Construction industry

The construction industry is fragmented, short term and mobile which makes it difficult to streamline Occupational Health and Wellness programs. The shortage of skills in South Africa affects all sectors. Therefore to maintain the little we have workplace health programs needed to improve. Therefore, the results of the study seek to contribute toward improving health and safety status of the workers. By formulating strategies which will improve occupational health, safety and wellness of the construction workers the benefits will be enjoyed by all stakeholders.

1.2.2 The Department of Labour

According to all regulations pertaining to the workforce Health, Safety and Wellness the Department of labour plays a crucial role of ensuring adherence and compliance. The study will also look into unveiling challenges that are hindering the progress when it comes to health, safety and wellness in the construction industry. The department of labour is the custodian of all employee and employer related legislations.

1.2.3 The Department of Health

The Department of Health is the custodian of all health programmes in South Africa. Therefore workplace programmes are supposed to work in partnership with the health department. Workplace health programmes create a good environment for promoting health.

In the construction industry the majority is made up of low income earners who are dependent on the state health facilities. Therefore the results will give support to the industry.

1.2.4 Small and Medium Contractors (SMC)

The small and medium contractors will benefit from the findings of the study in that they will be able to understand the value added by occupational health and wellness programmes and perhaps change the mindset in supporting the programmes. The small and medium contractors are still developing and usually struggle with starter capital. Therefore without realizing the value of the Occupational Health and Wellness programmes they will not embark on such programmes.

1.2.5 The Community and Families

The community and the families are the primary recipients of the occupational health and wellness programme. The workers come from the community and are family members therefore once the strategies are identified; the benefits will be enjoyed by all. This will generate a pool of potentially healthy and skilled workers to make it easier to recruit from the area. A healthy community is a happy community which in turn contributes to a stable society.

1.2.6 Other researchers and policy makers

The research findings will assist other scholars to know more about occupational health and wellness challenges facing the construction industry in terms of maintaining a healthy workforce. The research can be utilised by construction policy makers and the government to make sound and informed policies with regard to construction occupational health and wellness issues.

1.3 Study focus

The focus of the study was confined to all contractors involved including the principal contractor in Pietermaritzburg Group Five Project sites in Kwa - Zulu Natal. The sample

comprises of client representatives, project designers, project managers, site managers and health and safety management co coordinators on site. The construction industry operates differently from the corporate world. The site manager, project managers and occupational health and safety coordinators are fully responsible and accountable for the project health and safety issues. The sample comprised of the main contractor, and all other sub - contractors involved with the projects. The selection was based on the experience and accessibility to information. According to (Sekeran and Bourgie, 2010) , subjects are selected based on the expertise of the subjects under investigation (Sekeran and Bourgie, 2010).

1.4 Problem Statement

It has been identified that the construction industry is facing serious problems when it comes to the management of occupational health, safety and wellness issues. The problem is much worse with small and medium contractors. It is a generic problem in developing countries to focus on the redistribution of wealth by empowering and awarding small and medium companies. The problem surfaces when other pillars are ignored. The Occupational Health, Safety and Wellness programme should be the main focus as it supports all strategies by keeping healthy economic generators. In construction, the focus is more on safety than health and wellness (EL-Safty et al., 2010). forgetting that safety statistics could be improved through maintaining a healthy workforce (Rooney, 2012a). Occupational health and wellness standards separated from safety standards could yield better results. According to Malek it could result in a number of benefits such as higher quality work and increased productivity (EL-Safty et al., 2010). According to Malek et al (2010) the expense of occupational health problems in the construction industry have been escalating and are a concern to the construction and industrial fields (Malek et al., 2010). The neglect of wellness programmes has been found to be a huge contributor in the loss of valuable skilled and productive workers. Personal experience has led to exploration of the topic. The lack of integration of Occupational Health and Wellness is a major problem. Therefore, the study will focus on the alignment strategies between the two.

1.5 Research questions

The research will answer the following questions:

- What value does occupational health and wellness programmes add in the construction industry?
- How has Occupational health related legislation contributed to the health status of construction workers?
- How do construction stakeholders view workplace Occupational Health and Wellness programmes?
- What challenges are faced by the construction industry in sustaining Occupational health and wellness programmes.
- What strategies can be adopted by the construction industry in order to improve the quality and status of Occupational Health and Wellness?

1.6 Study Objectives

In order to address the research questions the following objectives have been formulated:

- To analyse the effectiveness of the current OH&W programmes in the construction industry.
- To establish the role played by legislation in occupational health and wellness in the construction industry
- To determine construction stakeholders' attitudes towards workplace Occupational Health and Wellness (OH&W) programmes.
- To identify challenges facing occupational health and wellness programmes in the construction industry(advancement)
- To identify strategies that will assist in improving the quality and status of Occupational Health and Wellness programmes in construction.

1.7 Study Limitation

The limitations of the study were as follows:

- The sample consisted of high ranked employees who were involved with issues of Occupational Health and Wellness and excluded all other employees on site.
- Secondly, only one site was selected to participate in the research. As a result generalisations apply only to Pietermaritzburg Group five sites.

- Thirdly, data collection time was minimal as the time given to the respondents to complete the questionnaire was only a month as the research had to be completed and submitted by the end of the semester (30 November 2015).

1.8 Study Framework

The study is presented in five chapters as follows:

- The first chapter comprised an introduction, the motivation for the study which discusses who will benefit from the study, the focus of the study, the problem statement, questions to be answered by research, the study objectives as well as limitations of the study.
- The second chapter is a review of literature which looks at other research studies on OH&W. This includes studies conducted by Malek, et al (2010) on occupational health and wellness integration in construction (EL-Safty et al., 2010).
- The third chapter defines research methodology and design including reasons why the methodology was used, participants and study location, sampling methods and sampling design. It also outlines the study population, sample size, discusses how participants were recruited, discusses the data collection strategies, questionnaire design, pre-testing and validation, questionnaire administration, as well as instruments and systems that were used to analyse data.
- The fourth chapter is the presentation, interpretation and analysis of results. The first part of this chapter showed the demographic profile of the respondents, positions of the respondents, findings on the benefits of occupational health and wellness in construction, challenges and the perception of construction stakeholders on occupational health & wellness programmes. The second part of this chapter deals with the presentation and discussion of findings in-line with the five objectives of the study and reference was made in-line with relevant literature review.

- The fifth chapter is the concluding chapter which comprises for recommendations and suggestions which arise from the research findings. This chapter also provides the conclusion and it outlines study limitations.”

1.9 Summary

Employees are the cornerstone and are valuable assets of any organisation and it is therefore important to ensure that issues that may negatively affect their productivity are identified and addressed. In this chapter, objectives were listed which will help in ensuring that the study is approached systematically and addresses to the key issues facing the construction industry in terms of health, safety and wellness. This chapter introduced the research on challenges facing construction industry in terms of occupational health and wellness programmes. It outlines the nature of the research together with the direction that was followed in this research. The problem statement was formulated, as well as the objectives study, research questions and limitations of this study. The next chapter focuses on the literature review, which formed the basis for the empirical study.

CHAPTER 2

2.1 Introduction

Basic occupational health and wellness programs play an important role in maintaining a healthy workforce. An unhealthy workforce could result in the loss of productivity for companies, loss of income for employees and in the long term affects economy of the country (Malek et al., 2010). It has been recognised that safer and healthier workplaces form part of the competitive advantage hence it boosts employee morale thus improving productivity (Nunez and Villanueva, 2011) (Sieberhagen et al., 2009b). In South Africa approximately 3.5% of the gross domestic product (GDP) is the cost of occupational accidents and diseases. This, according to the Department of Labour, is translated into about R30 billion per annum

According to the World Health Organisation (WHO) expert report committee report it was reported that the lifestyle related health problems have dramatically increased which has marked the importance of embarking on health promotion in the workplace (Muto et al., 1999). The study in Japan proved that the occupational diseases and injuries were decreasing but in contrast other chronic degenerative diseases such as diabetes mellitus, cardiovascular diseases, hypertension and mental health problems have emerged as major occupational health related problems (Muto et al., 1999).

A prevalence of behavioural risk factors associated with workers' health including smoking, sedentary lifestyle, obesity, stresses and lack of exercise has proven to be enough to motivate employers to invest on the workplace health programmes (Helen et al., 2006). A study conducted by the American Health Care System proved that chronic conditions are on the rise. It was projected that employers will be faced with the high cost of providing health support whilst losing income due to an unhealthy workforce (Hymel et al., 2011a) . Comparing this to the construction industry worse could be expected due to the nature of the industry. Therefore, there is no doubt workplace health programmes should combine occupational health and wellness.

The literature review will attempt to unpack and compare research on OH&W and wellness programmes in the construction industry. The topic is aimed at identifying the perceived

benefits of balancing both health and wellness with safety programmes in the workplace. This chapter focuses on synchronising and linking current and related literature on occupational health and wellness in the construction industry. The discussion will focus on:

The role of Legislation in Occupational Health and Wellness, the main employment statutes in S.A., discussion of key terms: OH&W and construction industry, the effect of legislation on OH&W, the background of Occupational health and wellness in the construction industry, a South African overview of OH&W in construction comparing it with international trends.

The benefits of OH&W will be discussed exploring the researched benefits. Challenges faced by the construction industry in terms of OH&W and finally proposed strategies for improving the level of OH&W in construction.

The research on the topic is limited but it is our aim to include existing literature in order to discover gaps and identify strategies that will boost construction health and safety status thus contributing to preserving human capital. International research papers will be utilised to strengthen the validity of the findings.

Sekeran and Bougie 2010 outline the following as the aims of the literature review:

- To review and critique published literature in order to identify gaps and attempt to find solutions.
- To summarize and synthesize the range of recommendations made and apply to South African context.
- To highlight the main issues addressed in the international literature and apply information data to the South African context (Sekeran and Bougie, 2010).

2.2 The role of legislation in Occupational Health and Wellness

In South Africa Legislation has played an important role in ensuring that safety, health and wellness of employees is maintained, though the focus is mostly on safety. Malek argues that health and wellness of employees should be given equal attention as safety in the workplace since it can affect the bottom line (Malek et al., 2010). According to Rantanen et al, 2004 cited Sieberhagen 2009, comparing the developed and developing countries he says the focus on OH&W is lacking more in developing countries than the developed countries

(Whereas, in developed countries the scope is wider and outside mandatory issues (Sieberhagen et al., 2009a) . The psychosocial aspects are also taken into consideration. In developing countries the focus is more on Occupational health and safety issues which totally ignore health and wellness (Sieberhagen et al., 2009a). According to Smallwood and Haupt, (2009) media coverage on construction accidents has contributed towards awareness of health and safety thus changing the way projects are planned and designed (Smallwood and Haupt, 2007b)

2.2.1 The main employment related statutes in South Africa pertaining to OH&W are as follows:

- **The Abdullah Report**

The Abdullah Report of January 1996, reports on the investigation into Occupational Health services in South Africa. It covers the legislation and statutory agencies dealing with Occupational Health in South Africa; profiles on occupational injuries and diseases and services provided; issues such as human resources, information systems and research, as well as proposals for a coherent Occupational Health and safety system, and the role of the Department of Health at National, Provincial, and District levels (Organization, 2013).

- **Erasmus Commission of Inquiry 1974**

The Commission found many inadequacies in the provision of health services in industry. These covered areas of hazardous exposure; lack of statistics regarding environment, state of health of the workers and the nature of diseases; and inadequate rehabilitation of workers affected by occupational diseases. It further revealed that the state of legislation affecting occupational health was grossly deficient, grossly duplicated (12 separate Government Departments involved), and that 71% of workers were not covered by legislation. No single body was responsible and the ability to change the legislation was hampered by the slowest departments. This inquiry resulted in the passing of the Machinery & Occupational Safety Act in 1983

- **The Constitution of the Republic of South Africa (Africa, 1996) (Ebrahim, 1998)**

The right of access to health care is set out in section 27 of the constitution of the Republic South Africa. The constitution states that: employee has the right to fair labour practices; every worker has the right to form and join a trade union, to participate in the activities and programme of a trade union, and to strike. The employer has the right to form an employer's organisation and to participate in the activities thereof and every trade union, employer's organisation and employer has the right to engage in collective bargaining (Grogan, 2005,p. 129) The constitution gives every worker the right to be protected from unfair labour practice (Grogan, 2005).

- **The Occupational Health and Safety Act (no. 85 of 1993)**

The act applies to all employers except in mining, owners of certain shipping vessels, those exempted by the Minister and temporary employment services. Council is established to advise the Minister on Occupational health and safety (Quinlan, 1993)

The general duties of the employer are as follows:

- To provide reasonable healthy and safe working environment.
- To provide information, training and supervision as necessary to ensure health and safety.
- To report to an inspector any injuries or illnesses that may cause death or serious illness.

The general responsibility of an employee is as follows:

- To obey health and safety rules.
- To report all potential incidents and accidents to employer representatives (Government, 1993) (Quinlan, 1993)

Where employers have more than 10 employees, health and safety representatives should be appointed to assist in health and safety related issues. Under this act certain regulations such as Hazardous Chemical regulation is covered (Grogan, 2005).

The Construction Regulation 2014

The Minister of labour has under Section 43 of the OH&S Act 1993 (Act No. 85 of 1993) made regulations in the schedule (Bluff, 2015) .

The Construction Industry Development Board (CIDB) - a Schedule 3A public entity - was established to promote a regulatory and developmental framework that builds:

- The construction delivery capability for South Africa's social and economic growth.
- A proudly South African construction industry that delivers to globally competitive standards (CIDB, 2004).

The construction industry development board focus is on:

- Sustainable growth, capacity development and empowerment
- Improved industry performance and best practice
- A transformed industry, underpinned by consistent and ethical procurement practices
- Enhanced value to clients and society(CIDB, 2004).

- **The Labour Relations Act (no. 66 of 1995)**

The act emphasises that the employers need to consult with workplace forums on a regular basis on issues related to the health and safety of employees (Grogan, 2005). The act ensures that employees' voices can be heard and that employee health and wellness issues can be addressed through workplace forums (Du Plessis and Fouché, 2015) (Sieberhagen et al., 2009).

- **The Basic Conditions of employment Act (No. 75 of 1997)**

The Act ensures that the working hours do not exceed the maximum, employees are granted adequate breaks during working days (Barker, 1999) (Grobler, 2005) which could have an impact on health and safety status. This act protects the health and wellness of employees through strict rules that ensure rest periods for employees, adequate leave and overtime pay (Sieberhagen et al., 2009). This applies to construction environment where workers are required to work long hours to complete delayed projects.

- **The Compensation for Occupational Diseases and Injuries Act (no.130 of 1993)**

The Act ensures that employees or their dependants who suffered injury, illness or death arising from the execution of their work is compensated (Republic, 1993) (South Africa, 1993 cited Sieberhagen et al, 2009). This Act influences the health and wellness of employees in that it ensures compensation for employees whose health was negatively affected while performing their work (Sieberhagen et al., 2009).

- **The Skills Development Act (Act 56 of 1997)**

The acts established a National Skills Authority, Sector Education and Training Authorities (SETAs and Skills Development Planning Units (Grogan, 2005 cited Sieberhagen et al, 2009). The act influences health and wellness by promoting the development of skills levels which translates into reducing stress levels among employees (Sieberhagen et al., 2009) (Smallwood and Haupt, 2007).

2.3 Occupational health, Wellness and the Construction industry.

2.3.1 Occupational Health

Occupational health is described as the protection of the bodies and minds of people from illness resulting from the materials, processes or procedures used in the workplace (Lopes et al (2009, cited volume. 17 no 2 Occupational health journal). The World Health Organisation describes “occupational health as a promotion and maintenance of the highest degree of physical, mental and social wellbeing of all workers in all occupations. It is the prevention among workers of departure from health caused by their working conditions, as well as protection of workers in their working conditions, as well as protection of workers in their employment from risk, resulting from factors adverse to health. It is placing the worker in an occupational environment adapted to his physiological wellbeing and equipment to summarise the adaptation of work to man and each man to his job” (WHO, 1990).

According to Hymel et al (2011), occupational health is analysed as the workplace health protection and promotion as the strategic and systematic integration of distinct environmental health, and safety policies and programs into continuum of activities that enhance the overall health and wellbeing of the workforce and prevent world related injuries and illnesses.

(Hymel et al., 2011b). The driving force for the demand of health and wellness in the workplace is the challenges faced by state of health in terms of work fitness (Hymel et al., 2011b).

The International Commission on Occupational Health. (ICOH) define Occupational health as a broad field which covers the prevention of all impairments arising out of employment, work injuries and work-related disorders, including occupational diseases and all aspects relating to the interactions between work and health (Lavicoli, 2009).

The new workplace as defined by Hymel et al (2011) characterised by technological, economic, globalisation and environmental changes supports construction industry especially in South Africa whereby the sprang of small and medium enterprise in construction have created challenges especially on health and wellness issues (Govender, 2012).

2.3.1.1 Basic Principles of occupational health

International Commission on Occupational Health summarised the principles into three categories:

- The purpose is to serve the health and social-wellbeing of the workers individually and collectively.
- The Occupational health practitioner should practise with full professional independence and ethical compliance, maintaining integrity and protecting the health data.
- The main duties include defending the health and life, respecting the pride and promoting the highest ethical principles in occupational health policies and programmes. (Lavicoli, 2009). (Lavicoli, 2001)

2.3.1.2 Elements of comprehensive occupational health service

An overview of elements is based on available literature, findings have shown that elements are crafted based on the requirements of that specific company (Lavicoli, 2009). The National health guidelines of South Africa have endorsed the following elements as guidelines. (S.A, 2003)

(i) Promotion of wellness in the workplace.

Promotion of health through health and medical surveillance which is further defined as:

- A legally – mandatory medical examination of applicants and employees, aimed at promoting, preventing and maintaining a healthy workforce .
- It is a planned or periodic examination (which may include clinical examinations, biological monitoring or medical tests.) of employees by an occupational health practitioner (Goetzel, 2015).

(ii) Prevention occupational injuries and diseases

The monitoring of risk associated with the work processes.

(iii) A clinical service

The offering of primary health care services which includes emergency services and chronic conditions management.

(iv) Occupational Hygiene

The programme identifies workplace hazards, (including chemical, physical, psychosocial, biological, mechanical and ergonomic). The program focuses on control, monitoring and evaluation of risks.

(v) Consultation Services / Administration

This provides consulting service on occupational health related matters. This includes development of OH management system and statutory reports.

(vi) Research

Continuous research is required to keep abreast of new developments in occupational health globally.

(vii) Employee Assistance programme

An Employee Assistance Program (EAP) is a voluntary, work-based programme that offers free and confidential assessments, short-term counselling, referrals, and follow-up services to employees who have personal and/or work-related problems. The programme addresses all psychosocial problems such as emotional well-being, stress, grief, family issues and substance abuse (Richard, 2014).

2.3.1.3 Models of Occupational health services

The occupational health models are crafted and based on the specific industry risk profile including the entire workforce profile (Xingdi et al., 2011). According to Dr Ivan there are four models identified:

- (i) The healthcare separation model whereby the primary health care (PHC) is separated from occupational health services. The PHC is provided by the community health services around the workplace or closer to their residential areas (Xingdi et al., 2011)
- (ii) The comprehensive or integrated type where Primary Health Care and basic occupational health services are provided by the local health care providers. The model is an outsourced type of occupational health services (Xingdi et al., 2011)
- (iii) The on-site comprehensive occupational health service whereby the service is fully owned by the company to cater for its employees and its stakeholders (Xingdi et al., 2011)
- (iv) Privately owned occupational health services. This is owned by occupational health professionals. Outsourced occupational health services use privately owned clinics. This is an ideal option for industries like construction because of the nature of business. The service provided is driven by the demand (Xingdi et al., 2011).

2.3.2 Wellness

Wellness is the dynamic process of promoting and pursuing ideas, attitudes and behaviours, and making choices towards a culture and a way of life on balance, good health and peace of mind (Sieberhagen et al., 2009). It is described as a “multidimensional state of being describing the existence of positive health in an individual as exemplified by quality of life and a sense of well-being” Corbin and Pangrazi, 2001: 7 cited in (Csiernik and Chechak, 2014) . Furthermore, Bouchard, Shepard and Sutton argue that positive health means capacity to enjoy life and withstand life challenges (Bouchard et al., 2012).

2.3.2.1 An overview of Employee Wellness programme

Big organisations have identified the need for an integrated wellness programme which increases on organisational employee value proposition (Rossouw, 2010). Findings by Baicker et al (2010) on the impact of wellness programmes on absenteeism and medical costs

revealed that there was a remarkable result in favour of wellness benefits. It did not only improve the two variables but impacted on the return on investment and improved overall health (Baicker et al., 2010). The analysis did not recommend attributes that are the core of health and wellness programmes.

Wellness pertains to what you are, not what you do (Corbin, 2016). Therefore, good behaviour in terms of healthy lifestyle translates to wellness (Dunn, 1959 cited in Corbin and Pangrazi 2001). Yong (2011) argues that the crucial goal of wellness programmes is to promote an efficient, safe and sustainable industrial development. As much as wellness in the workplace is seen as impacting more on productivity, the positive behaviour is the main effect (Yong, 2011). Finally, Rothmann, (2006 cited in Sieberhagen 2009) defines employee wellness as the state of energetic, motivated, healthy, and productive and committed to an organisation and its goals (Sieberhagen et al., 2009).

According to (Johnson, 2013) wellness programs create an environment whereby companies benefit from healthier, productive and committed employees. He further states that lack of participation from the management and other stakeholders impacts negatively on the success of the programme (Johnson, 2013). Through workplace – based disease prevention and health promotion the companies benefit on lowering cost of absenteeism and health care cost (Baicker et al., 2010b) Therefore to maximize profits, investing in human capital, is a must for companies. Employee wellness programmes are structured in a manner that talks to employee profile and the needs (Rooney, 2012).

In the United Kingdom the studies proved that the stress and stress related illness followed musculoskeletal disorders as one of the major causes of occupational health disease (Sieberhagen et al., 2009). In the Netherlands, mental health cases comprised the majority of work incapacitation followed by musculoskeletal disorders (Sieberhagen et al., 2009). Both studies proved the importance of a holistic approach including psychological adjustment to the work environment and job demands. The neglect of occupational health and wellness programme in the workplace could result in low production, high production errors, employee turnover, increased absenteeism and high accident statistics (Cartwright and Cooper, 2014). In South Africa, the level of workforce performance is considered low due to poor health and living conditions (Sieberhagen et al., 2009). This proves that there is a need for health and wellness programmes in the workplace in order to reverse the situation (WHO, 1990) (Parks and Steelman, 2008). In South Africa the importance of health and wellness has

been proven by the emerging of health and wellness companies in response to the demand. Workforce Group is one of the companies that has been created to cater for the entire workforce and has positively added value to the business. (Malkin, 2011) .

An Employee wellness programme targets behavioural change but focuses on health related issues. There is a growing interest among policy- makers, government representatives and employers in health and wellness programmes in order to improve the quality of life (Baicker et al., 2010b).

2.3.2.2 Elements of the employee wellness program



FIGURE 2-1 WELLNESS WHEEL

SOURCE: (MAHIDA, 2015) ([HTTPS://RDE.STANFORD.EDU/COMMITMENT-WELLNESS](https://rde.stanford.edu/commitment-wellness), 2013)

In figure 2-1 Wellness Wheel Components at Health and Wellness for Families comprise six elements to form health and wellness. The components are summarised as physical health, emotional health, spiritual, intellectual, social and environmental health. The elements displayed are usually the of employee wellness programmes. Employee wellness program is industry specific hence different types of programmes exist. The elements are based on the employee health profile. It is vital to conduct risk assessment for the entire workforce in order to design proper wellness program (Baicker et al., 2010b). Health and wellness

programmes mostly target lifestyle modification such as exercise, gym, online health management systems, incentive based healthy programmes, disease management program, stress management, and work life balance programs (Parks and Steelman, 2008).

2.4 Theories relating to physiological and health needs

2.4.1 Maslow's hierarchy of needs.

According to the assumptions of Maslow's theory, it stated that within each human being exists a hierarchy of five needs (Robbins et al., 2009). These needs are divided into higher and lower orders, where higher order needs are satisfied within the human being and lower order needs satisfied externally by things such as health and wellness benefits (Robbins et al., 2009).

- The first is the physiological need which includes thirst, shelter, hunger and other physical needs.
- The second is the safety need which includes security and protection from physical and emotional harm.
- The third is the social need which includes the need for belonging; acceptance, affection and friendship.
- The fourth is the need for esteem and includes the need for internal factors like autonomy; achievement and self-respect as well as need for external factors like recognition and attention and status.

The fifth is the need for self-actualisation which includes things like growth, the urge to achieve ones' potential and self-fulfilment (Robbins et al., 2009). As each need becomes largely satisfied, the next need in the hierarchy becomes dominant. This theory of needs supports that employers are required to create an environment which will suggests all levels and maintain needs when they become dominant. Robbins et al (2009) stated that employers need to establish what level of the hierarchy is each employee currently at, and then devise strategies that will satisfy needs above that level. In the case of construction employees, the very basic needs could be physiological needs, safety and security needs for the subcontractors working in remote areas. Secondly, social needs as they are away from their families. Thirdly, the senior personnel will fall under the need for esteem and self –

actualization. Employers should seek to find out what the employees need and should not provide according to what they think is right. She argued that a homeless employee will not worry about promotion when he does not have a shelter (Phelan, 2014) .

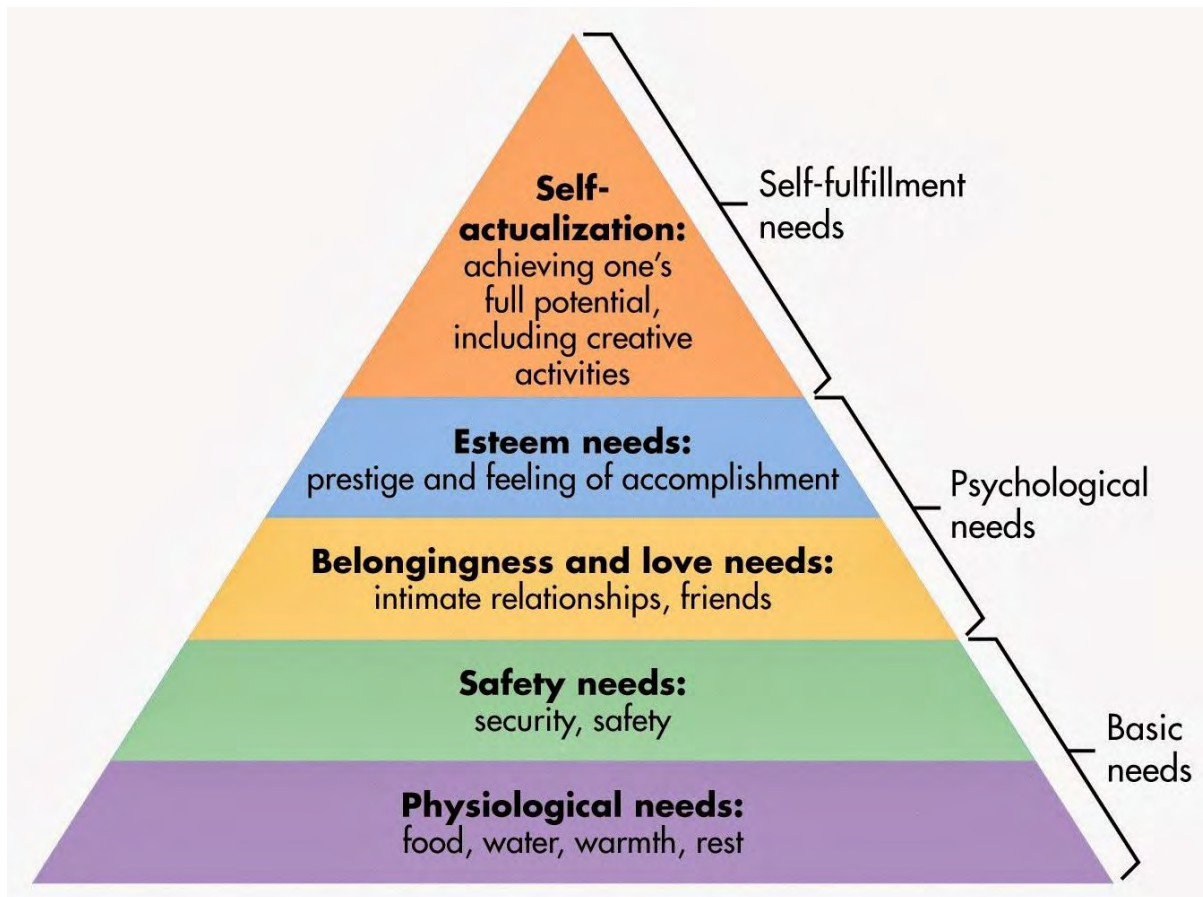


Figure 2.2 Maslow' hierarchy

Source:[HTTP://WWW.DRPHELANIPRESUME.BLOGSPOT.COM/2014/03/APPLYING-MASLOWS-HIERARCHY-OF-NEEDS.HTML](http://www.drphelanipresume.blogspot.com/2014/03/applying-maslows-hierarchy-of-needs.html)

According to Maslow's theory as shown in Diagram 2.2, not much evidence was presented to support the assumptions that unsatisfied needs motivate and that a satisfied need activates movement to a new level (Robbins et al., 2013). The fulfilment of employees' psychological needs which is attained through being able to buy food, shelter and clothes with the money earned from work results to employee commitment towards that organisation (Robbins et al., 2013). The theory proves that should the need be attained the employee find satisfaction and gain strength to perform his duties. Happy workers translate to healthy profits(Robbins et al., 2013).

2.4.2 Benefits of employee wellness programs



FIGURE 2-3 BENEFITS OF EMPLOYEE WELLNESS PROGRAMME

Source: <http://www.kkrwellnessworks.com>

As per diagram 2.3, the workplace wellness programme of an organisation increases productivity, job performance and decreases health care costs, absenteeism and sick leave and employee turnover (<https://rde.stanford.edu/commitment-wellness>, 2013). The programs are designed to suit the need of a particular organisation. A study by Parks and Steelman (2008) proved that an employee health and wellness programme contributes positively in reducing absenteeism statistics in organisations (Parks and Steelman, 2008). Health and wellness is one of the organisational factors which positively contribute towards job satisfaction (Parks and Steelman, 2008). The management of human resources have taken a strategic role within

business spheres (Parry et al., 2005). According to Robbins et al (2009) job satisfaction is one of the contributory factors towards employee retention(Robbins et al., 2009). It is therefore through health programs that companies can be able to retain skills and brains. Parks and Steelman (2008) argue that that employer who provides health and wellness are perceived as caring organisation and therefore enhance employee morale and attitude towards organisation (Parks and Steelman, 2008). U.S. research suggests that employers can benefit more by spending in the wellness of employees who are healthy rather than focusing on the sick minority (Paton, 2012). Research supported by Patterson, Warr and West (2004), cited in Parks and Steelman (2008) proves that employee welfare is one of the characteristics that may influence job satisfaction therefore health and wellness is grouped as one. (Parks and Steelman, 2008). Other organisations use health and wellness programmes as a recruitment tool to attract prospective applicants but it has not proven as successful (Parks and Steelman, 2008) (Shamiah and Jardali, 2007). ”

2.5 Construction industry Overview



FIGURE 2-4 CONSTRUCTION SITE - COEGA

[HTTP://STFRANCISCHRONICLE.FILES.WORDPRESS.COM/2013/06/DSC_7074-COPY.JPG](http://stfrancischronicle.files.wordpress.com/2013/06/dsc_7074-copy.jpg)

The Figure 2.4 of Coega the industrial development project, illustrates the way construction work operates, the positions adopted by the worker which contribute to back strain which is one the problems encountered by construction workers (EL-Safty et al., 2010). The dust exposure on site confirms the need for health and wellness activities such as medical screening for all workers. Gounden (2000) has defined the construction industry in South Africa as a vehicle that is playing a pivotal role in the reconstruction of the South African economy, via the delivery of economic and social infrastructure (Gounden, 2000).

The construction industry is a fundamental economic sector which permeates most of the other sectors as it transforms various resources into constructed physical economic and social infrastructure necessary for socio-economic development (EL-Safty et al., 2010). Construction industry is characterized by short term, itinerant, unstable and low income earners. The health challenges faced by the industry are equivalent to agriculture and mining industry (Govender, 2012),(Zou et al., 2007). It is acknowledged that that human capital is the best investment a profitable business can make. The developing countries are facing these challenges, South Africa is no exception. South Africa, as a liberated country which is developing economically is faced with fast growing small, micro and medium enterprises. Itinerant

The Globalisation has unveiled many gaps in construction industry which require some changes and improvement in all sectors in response to global competition. The improvement has been noticed on the following processes:

- Total quality management (TQM)
- Lean Manufacturing
- Supply chain management

The three have been around for a long a time for the manufacturing industry however construction industry is left behind. The emerging of small and medium construction companies has exposed construction sector to competition and forced industry stakeholder to adopt business innovative strategies (Saunders, 2013b). Total Quality Management deals with product quality without which in the construction industry, there would be disaster. This is because health and safety depends mostly on the quality of work (Goetsch, 2013). According to Saunders (2013) projects in construction has adopted lean tools “Kaizen”

(Kaizen is the practice of continuous improvement), visualisation techniques and other techniques which have impacted on health safety (Goetsch, 2013)

The fragmentation of the construction industry is a true picture of supply chain processes which requires structured management systems in place (Saunders, 2013b). The following section will discuss supply chain in the construction industry:

2.5.1 Supply chain management in construction industry

Supply chain management (SCM) is a common phenomenon in the manufacturing industry; it was an improvement from the total quality management (TQM) and just in time (JIT) (Saad et al., 2002) et al., 2002). It is defined by other scholars as the process of planning, implementing and controlling the operations of the supply chain as efficiently as possible (Faisal et al., 2006) (Black et al., 2000), (Saad et al., 2002). (Cooper et al., 1997a) defines supply chain management as “the integration of business processes from end user through original suppliers that provide products, services and information that add value for customers” (Cooper et al., 1997a)

According to Akintoye, (2000) supply chain in construction is a new development which is still in the infancy stage (Akintoye et al., 2000). The Construction industry comprises of a number of phases, stages and different stakeholders who demands reliable procurements processes, therefore a state of the art supply chain will be able to improve competitiveness (Burke, 2006). The department of Architecture and building services in Gaborone, (2000) in analysing developing countries construction industry, identified the lack of commitment in integrated project processes. An integrated project process is defined as the process that applies the full construction team, sourcing the stakeholder’s resourceful skills to focus on satisfying clients’ needs (Datta, 2000). The report also revealed that selection of new partners inhibits innovation and leads to project delays which could be improved by employing good supply chain management (Datta, 2000, Akintoye et al., 2000).

As explained the concept of supply chain management is new in the construction industry. However in developed countries, SCM seems to be gaining a competitive advantage globally (Akintoye et al., 2000). Faisal, Dainty and Price, (2006) studied perceptions on construction organisational relationships by exploring the supply chain strategies used and they have

proved that the organisations have realised the importance of developing a good relationship with their suppliers (Faisal et al., 2006). The benefits of a good relationship with partners were further divided into:

- Project level, improved quality, reduced cost, reduced risk and completion on time.
- Business level, increased profits, increased market share, enhanced competitiveness.
- Corporate level, cost effectiveness, increased labour productivity, increased innovative opportunity, continuous quality improvements (Faisal et al., 2006).

The benefits of SCM as confirmed by other scholars revolved around human capital, the driver of all processes. The construction industry is still dominated by manual labour which therefore unveils the need for occupational health and wellness in construction (Datta, 2000).

Faisal et al., (2006) argued that the success of construction projects relied on good relationships throughout the supply chain (Faisal et al., 2006). According to Malik et al (2010) health and wellness in the workplace contributes to a high productivity rate, mitigate the occurrence of illness and injuries, improves organisational culture and finally, boost the morale in the workplace (Malik et al., 2010). As the construction industry is labour intensive, improving the health of employee will indirectly improve project processes. Construction projects use the services of contractors, subcontractors and other stake holders (Burke, 2006) (Govender, 2012) (De Silva and Wilmalaratne, 2012).

Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption (Cooper et al., 1997b).

2.5.2 The construction industry governing body

Construction Industry Development Body (CIDB) Construction plays an important role in South Africa's economic and social development. It provides the physical infrastructure and backbone for economic activity with a high rate of employment. Since 1994, the South African construction industry has encountered a number of development and transformation challenges.

The challenges identified by South African construction industry were as follows:

- Improving effectiveness of public sector spending on physical infrastructure development and maintenance.
- Improving labour absorption, labour relations and job stability.
- Accelerating sustainable transformation through access to opportunity, finance and training.
- Reducing the impact of HIV and AIDS in construction
- Ensuring international competitiveness.

2.5.3 Current occupational health programmes in the construction industry

Generally, the benefits of occupational health have been explored in most industries except in construction, agriculture and among small and medium companies (Walters et al., 1997). The study conducted in Egypt and the United State of America construction industry supported an idea that construction companies that focused on Occupational Health and Wellness yielded positive results (EL-Safty et al., 2010). Occupational Health has become the focus of the Department of labour, unions, department of health and Department of Minerals and Energy (mines). The Department of Labour has enforced laws that require employers to develop occupational health programs that comply with the industry legislations (Jeebhay and Jacobs, 1999). There will be no discussion on mines related legislation for this topic. In South Africa the recent surge of private occupational health services was in response to the demand created by different legislations. There is not much research done on this topic hence the construction industry has neglected occupational health and focused on safety issues (Stocks et al., 2015), Malek et al., 2010).

Occupational health services in the construction industry are mostly on a part time consultancy basis. The nature of the industry makes it difficult to have an in house OH services (Lopes et al., 2009). This contributes to poor development of OH culture among industry stakeholders (De Silva and Wimalaratne, 2012b)). Mobile OH services have become the solution to the industry. However, sometimes it becomes a challenge to source service providers on time (Oakley, 2008). The distance in remote rural areas poses a

challenge. There is a lack of integrated services between occupational health and public health services (Jeebhay and Jacobs, 1999). The sub-contractors at the bottom of the supply chain are most sufferers when it comes to occupational health and safety issues. Fragmentation is one of the biggest challenges to the maintenance of health and safety in construction (Smallwood and Haupt, 2007.) The gap creates problems in the referral system and continuous monitoring of chronic cases. This undermines the benefits brought by OH programmes in industry.

2.5.4 Occupational hazards in the construction industry

According to De Silva and Wilmalaratne (2012) the work environment in the construction industry is more hazardous than in other industries (De Silva and Wilmalaratne, 2012a). Supported by Ahmed et al, (2006) and (Molenaar et al., 2015) the nature of operations, dangerous tools, hazardous materials, and uncertainty of the environment is the cause of a dangerous environment (Molenaar et al., 2015). The degree of health hazards in construction differ from one worker's trade to another and also from one type of project to another (De Silva and Wilmalaratne, 2012).

2.5.4.1 The common Occupational Health hazards

Occupational health hazards are categorised as follows:

- Physical and mechanical (noise, vibration, heat, radiation, various gases etc.)
- Chemical (chemical substances, dust, fumes, vapour, asbestos, cement, etc.)
- Ergonomic (sitting position, lifting, repetitive task, climbing, working at height and bending)
- Biological and environmental (Tuberculosis, hepatitis, malaria etc.,)
- Substance abuse (drugs, alcohol and smoking). (Palihawadane, 2009) (De Silva and Wilmalaratne, 2012).

LIFESTYLE WORKPLACE WORKOUT



FIGURE 2-5 LIFESTYLE WORKPLACE WORKOUTS

SOURCE: [HTTP://WWW.COMMERCIALAPPEAL.COM](http://www.commercialappeal.com)

The figure 2.5 lifestyle workout shows commitment of the employer in providing general exercising for the entire workforce on-site. The goal was to prevent back strain injuries by warming up the soft muscles (www.sparkpeople.com/resource/wellness_articles.asp?id=246, 2014).

According to (Molenaar et al., 2015) (Frantz and Himalowa, 2012) the low back pain (LBP) is one of the complications of working as a construction worker hence the industry is manual work dominated (Frantz and Himalowa, 2012). The most dangerous risk factor identified was the awkward, prolonged working postures, daily lifting and manipulation of heavy objects (Frantz and Himalowa, 2012). Further to that low back pain is the major contributory cause of absenteeism and disability in construction industry. LBP also contributed to the psychological and functional status of the participants. Frantz and Himalowa (2012) have recommended that multidisciplinary involvement by all stakeholders is imperative in order to adopt primary preventative measures (Frantz and Himalowa, 2012). The Figure 2-5 shows workers taking part in exercises as part of health and wellness activity.

According to De Silva and Wimalaratne (2012) the most vulnerable construction trade worker are masons, carpenters or roofers, plumbers, electricians, workers finishing work or painters, welders or steel workers, tillers and unskilled labourers (De Silva and Wimalaratne 2012). This leads one to conclude that the entire construction project is hazardous and therefore requires comprehensive occupational health programmes. The studies have proved that, generally the degree of occupational exposure varies from one trade to another as well as from project to project environment. (Palihawadane, 2009) (Smallwood and Haupt, 2007).

Most studies have focused on occupational safety processes and neglect the occupational health hazards as the main underlying cause of most of the accidents that happens on site.

2.5.5. Discussing employee health and wellness in the construction industry

There has been much research conducted on health and wellness in general but nothing much has been done on the construction industry. According to Rooney (2012), the focus on health and wellness has increased and progressed considerably, using absenteeism and job satisfaction as variables (Rooney, 2012b).

Since 1994, they have been a complete turnaround of occupational health and safety monitoring in South Africa. Department of labour has instituted stringent controls in all sectors most especially the most neglected sectors such as agriculture, mining and the construction industry <http://www.workforcehealthcare.co.za>.

The worksite has been identified as the good environment for the provision of health and wellness promotional services, hence the amount of time spent in the workplace (Fielding and Piserchia, 1989). Health and wellness programs are industry specific hence occupational health risk exposure and the demographic profile (Hymel et al., 2011b).

The findings presented by Alavinia et al (2009, cited Welch, L.S. 2009) suggested that the contributory factors towards keeping construction workers productive longer revolve around obesity, healthy lifestyle, chronic disease management and management of risks. Therefore he recommended comprehensive health promotion programmes for the construction industry (Welch, 2009). His view was supported by other scholars and proved that employee wellness intervention improved retirement age by 0.24% compared to the non-intervention group (Welch, 2009).

In the construction industry, workplace health and wellness programs should be integrated in the company human resource strategy. Construction health and safety legislation and other workplace policies can provide the basis for a workplace health program (Shamian and EL-Jardali, 2007).

The construction industry comprises of a number of emerging sub-contractors, informal employment (community empowerment whereby community project are required to employ locally). The short term projects challenge the compliance and maintenance of Occupational health and wellness programmes. In China it was found that in the construction industry the implementation of Occupational health and wellness programmes is not common (Zou et al., 2007) , yet construction workers are exposed to different types of work hazards (Lakhani, 2004). The focus is more on safety than health and wellness (Malek, Amal and Adel, 2010) forgetting that safety statistics could be improved through maintaining a healthy workforce (Rooney, 2012) Occupational health and wellness standards separated from safety standards could yield better results, according to Malek it could result in a number of benefits such as higher quality work and increased productivity (Malek et al., 2010).

2.6 Integrating Occupational Health and Wellness

2.6.1 The benefits of incorporating occupational health and wellness in the construction industry

This section will analyse the benefits of marrying the two programmes as one. (OH and wellness). According to Klane (2012) there are proven additional benefits to combining the two programs into one comprehensive and sound OH & wellness (Klane, 2012). The study ,which was conducted among United States and European companies proved beyond doubt the value of synergistic effect (Klane, 2012). The NASA Employee Health Model which had integrated health and wellness proved to be the best in wellness integration (Sciences, 2005) The findings proved that occupational health cannot survive isolated from wellness (Kitahara et al., 2014) (2014) proved that life expectancy can improve considerably with the implementation of proper and effective health and wellness programs (Kitara, 2014, Kitahara et al., 2014). Their study focused mostly on higher obesity for cardiovascular, cancer and diabetes deaths. Lifestyle modification is the key to combating growing health problems (Kitara, 2014). Healthy employees tend to be more motivated and productive; this is where employee wellness programs come in. The term “Synergistic model for Work Organisation and health Promotion” was crafted by National Institute of Occupational Safety and Health

(NIOSH) researchers Nigam and Murphy (Nygam and Murphy, 2004). This recommended a proactive approach rather than the reactive approach in promoting health and preventing worker ill-health. According to NIOSH (2014) findings found that integration improved the visibility of workplace health programs (Klane, 2012).

In Colorado, Lincoln industries fully integrated health surveillance and wellness program. There is onsite comprehensive, rated employee fitness (platinum, silver and non-metal). The program is attached to incentives which motivate employees to continuously participate in the program (Klane, 2012).

An American Cast Iron Pipe company (ACIPCO) merged wellness and OHS in the number of categories, (weight management, diet management, onsite fitness centre and smoking awareness). The program was able to recover its expenses in 3 years (Cable, 2007).

In construction industry, the main focus has always been on health and safety not health and wellness. Health and safety programs are governed by specific laws and regulations that must be complied with (Hillier et al., 2005a). The purpose of the Occupational Health and Wellness program is to offer a comprehensive health services to all employees. Employees are potentially exposed to a wide selection of health hazards or situations at work on a regular basis. Therefore, it is difficult to deal with occupational health issues in isolation from the wellness programs (Shamian and EL-Jardali, 2007). Worldwide companies have realised the benefits added by wellness in expanding employee value proposition (Annalize, 2010). The organisations are thought to have benefited on stress reduction by introducing employee wellness (Parks and Steelman, 2008). Kossek, Ozeki, and Kosier (2001) cited in Parks, 2008 supports the view that companies are able to benefit from employee wellness without having an onsite service (Parks and Steelman, 2008). This argument applies to itinerant workers such as Truck drivers and construction crew. GlaxoSmithKline comprehensive wellness program saved \$5.5million over a four year period of implementation which proved the cost benefit of the program (Parks and Steelman, 2008). According to Nunez and Villanueva (2011), musculoskeletal-related injuries form part of the high category in injury statistics. Young (2011) discovered that wellness program can assist by improving strength, flexibility, and overall conditioning of workers (Nunez and Villanueva, 2011).

Incorporating occupational health and wellness is perceived as the best to ensure employees are healthy and fit for the benefit of meeting the needs of the company. There is evidence that large number employers who have adopted health and wellness programs have had

substantial positive returns (Baicker et al., 2010a). In construction there is a huge gap of chronic disease monitoring after mandatory medical findings. The medicals are conducted to comply with the legal requirements but once findings indicate the need for continuous monitoring, companies tend to distance themselves and focus on project progression.

Rossouw (2010) stated that companies that monitored employees' health progress through wellness programmes identified staff retention and safety culture improving by 50% (Rossouw, 2010).

In support of an integrated wellness programme Martin (2010, p.20) said "The AIM of holistic wellness programme should embody a process or a journey rather than an event in itself," (Martin, 2010a). He further said an effective wellness programme is the core of human resource strategy. Studies are indicating that integrated health and wellness programmes are dominating and have proved to be adding value to the organisation (Martin, 2010a). The integrated wellness not only impacts on improving wellbeing of the workers but ensures the continued optimal functioning of operations which therefore increase return on investment (Klane, 2012)

A study in a Gallup organisation findings showed improvement of 50% in safety culture, productivity rise of 38%, customer care measures indicated a rise of 27% and an overall performance of 70% better (Rossouw, 2010) Therefore, it is recognised that a structured, integrated occupational health and wellness program is the way to go.

2.6.2 Occupational health and wellness challenges in construction industry

According to Malek et al (2010) there is high cost of occupational health related problems in construction and industrial fields. There is a lack of occupational health programs which proactively focuses on workforce health related issues; instead the focus is on safety (Malek et al., 2010).

Most research has been conducted on health and safety not on health and wellness especially in the construction industry (Sieberhagen et al., 2009b). The challenges start from there and they gave birth to a number of challenges affecting the reputation of the construction industry.

Occupational health and safety experts presented five top concerns in the construction industry.

- **Fragmentation** is one of the factors contributing towards problems associated with maintaining occupational health and wellness. There are many small contractors or subcontractors that tend to struggle financially to maintain a healthy workforce (Abd EI Salam, 2013).
- **The cost of health and safety.** The cost of occupational health and safety is high whereas the benefits are intangible, therefore it takes time for contractors to realise the benefits. The tendering systems have contributed to cutting corners due to contractors reducing costs in order to win the tender. Cost cutting has been seen as impacting negatively on occupational health and safety systems (Abd EI Salam, 2013).
- **Contractors and the supply chain.** This is another area where main clients and main contractors have introduced stringent requirements for occupational health safety requirements (Abd EI Salam, 2013). This therefore leaves small contractors struggling to meet the standards and end up cutting corners. Small contractors are not given a chance to partake in decision making when it comes to health and safety issues, they are forced to deviate from their existing health and safety procedures.
- **Client leadership on health and safety.** Client tends to shift health and safety responsibility to the main contractor, whereas they should take the lead in setting the high standards for the project. They have a moral and obligation not only a legal obligation to maintain high standards for healthy workforce for their project.
- **Too much too little regulation.** Ei Salam (2013) explains the notion of new regulations in focusing on high risk and previously neglected areas as in construction. Therefore, the government institutions are required to advice, support and assist small and medium enterprise in terms of health and safety issues. further sees construction regulations as adding value to the industry in order to be able to compete globally (Abd EI Salam, 2013).

Other barriers supported by De Silva and Wimalaratne (2012) were as follows:

Workers are reluctant to follow Occupational Health and Wellness procedures for fear of being victimised. The weakness of this industry is that it lacks leadership among small contractors which therefore affects policy and procedure enforcement within their companies (De Silva and Wilmalaratne, 2012).

The poor budget allocation to project of Occupational Health and Wellness projects translates to the poor compliance and focus on project completion. Small companies tend to cut corners in order to save profits. OH&W is perceived as an expense not as an investment (Malek et al., 2010) (Smallwood and Haupt, 2007a) (Cameron and Duff, 2007). There is a scarcity of suitable Occupational Health and Wellness programs for short term, itinerant construction industry. The services are aligned to safety program in order to satisfy audit requirements but have no value for wellness programmes.

There is a lack of valuable medical information required for research and design in order to improve Occupational Health and Wellness services in construction (Sieberhagen et al., 2009a) . The reporting of occupational diseases and safety statistics is mostly compromised. There is a lack of reporting even at public referral institutions to give insight in the range of occupational diseases encountered (Jeebhay and Jacobs, 1999). The Compensation for occupational disease is supposed to keep accurate records based on the reported incident but there are no systems in place. Therefore small and medium companies get away with this(Jeebhay and Jacobs, 1999) .

There is lack of government support at provincial and at national level hence even public works contractors have totally failed to policy and procedure that promote viable OH&W programs within their contractors (Jeebhay and Jacobs, 1999). Another challenges revealed by Paton, (2012) is the biggest barriers on how to elevate occupational health up to the business objectives and be allocated a stand in the boardroom(Paton, 2012)?

Psycho-Social services form part of EWP, therefore there is an evidence that a comprehensive wellness program offers an opportunity to organisations to keep staff well

balanced Magas, 2010 cited Annalize, 2010. According to Martin (2010) employee wellness reduces long-term people costs by sustaining productivity thus impacting on organisational image (Employer of choice) (Martin (2010) cited Annalize, 2010). He further proved that wellness programme improved culture and staff retention by 50%. EWP if implemented effectively forms part of company competitive advantage, (Martin (2010) cited Annalize, 2010). “ In relation to societal outcomes, evidence shows that consequences of healthy workplaces involve not only workers' health and well-being and organizational outcomes, but also societal outcomes” (Shamian and EL-Jardali, 2007)

2.7 Suggested strategies to improve occupational health and wellness in construction industry

According to De Silva and Wimalarante (2012), based on their findings on health and safety framework for construction workers in Sri Lanka the objective was the same as that of occupational health and wellness. The strategies could be adopted to Occupational Health and Wellness programmes in constructions (De Silva and Wilmalaratne, 2012). The strategies target all angles of OH &W, including public and private sector. As per Jeebhay and Jacobs (1999) there is a need for a multidisciplinary action to improve OH&W in South Africa (Jeebhay and Jacobs, 1999). The following strategies were perceived as the best for OH&W in construction industry:

- The alignment of OH&W strategies to corporate strategy.
- Assigning OH&W responsibilities to client (project owners) before involving project and contractors representatives.
- Planning of OH&W programs should take place during project design.
- Introducing set of procedures and rules to comply with in terms of Occupational Health and Safety.
- Introducing a reward system for the best OH&W programmes (Cameron and Duff, 2007) (De Silva and Wilmalaratne, 2012, Edwards and Holt, 2008).

The Construction bodies should form strong partnership with health professionals and the department of labour to continuously research on occupational health and safety issues. The bodies should be partly funded by the government especially because small contractors are unable to cope (Jeebhay and Jacobs, 1999).

The intervention suggested were as follows:

- The involvement of government institution at the district, provincial and national level to streamline referral and monitoring of non-medical aid employees. (Jeebhay and Jacobs, 1999).
- The non-organisation funding could also play vital role to fund projects which will assist with the provision of mobile wellness units to follow up contractors where ever they go (Public view).
- Department of Health, the national health Centre of Occupational Health and tertiary education institution to strengthen training programs for public and private sector (Jeebhay and Jacobs, 1999). Strengthening of research and development is vital to close gaps within the changing environment(Jeebhay and Jacobs, 1999).

The Wellness Council of America (WELCOA) identified seven elements to use as benchmarks to develop result oriented workplace health and wellness program:

- A commitment from the top management, it should form part of strategic intent (Conner, 2013).
- To create cohesive wellness team – dedicated, committed voluntary members (Conner, 2013).
- Employee baseline data profile to be used to assess employee’s health interest and risk (Conner, 2013).
- An operating plan which should include mission statement, along with specific, measurable, short and long term goals and objectives (Conner, 2013).
- Interventions should be according to the risk associated with the industry and aligning with corporate strategy (Conner, 2013).
- To create environment that will support prevailing plan of action (OH&W) program such as healthy eating, continuous health education, baseline medical screening, health awareness as in the national health calendar (Conner, 2013).
- To develop evaluation strategies in order to celebrate success and learn from ineffective initiatives(Conner, 2013).

2.8 Conclusion

As per the literature the strengthening of occupational health and wellness programs in construction industry has become a strategic issue. The construction stakeholders, government institution such as department of labour and health have embraced the need for devising and implementing strategies to improve and maintain the health of the working force (Bradley et al., 2006). Even though there is limited available research on construction health and wellness, current legislations have put pressure on compliance. The government as a big spender on infrastructure projects have put stringent labour laws on construction workers' health and safety (Goetsch, 2013). The limited research as per the literature review supported that there is no one strategy towards ensuring that the construction workers are kept healthy, safe and fit, this varies from one project to another. The variables used to measure the effectiveness of the Occupational Health and Wellness program differ from one project to another, absenteeism, injury statistics and productivity or project completion are the main variables (Goetsch, 2013). The construction industry cannot be monitored continuously as expected without limitation, their short term in nature impact negatively on long term studies such as the trends in Occupational Health and Wellness in construction projects.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Phatak (2008) described research as a systematic, objective, reproducible and deliberate attempt which is made to answer meaningful questions pertaining to a field of study or about phenomenon or events in a given situation (Phatak, 2008). Sekeran and Boogie (2010: P2) define research as a process of finding solutions of a process after thoroughly having done investigation and analysis for the subject in question (Sekeran and Bougie, 2010) In order for the study to be meaningful and understood by the user it must consist of systematic inquiry that utilises the disciplined methods (Polit and Beck, 2010). This chapter will give a brief description of the different methods used to address research questions outlined at the end of chapter 1.

The review of literature confirmed that the benefits of integrating occupational health and wellness worldwide are confirmed however the problem is facing certain sectors. The sectors that are still struggling in aligning occupational health and wellness (OH&W) are mining, agriculture and construction (EL-Safty et al., 2010). The research methodology and approach that has been used to conduct research including the reason behind the type will be explained. The detailed outline of the research design, instruments, study population, sampling methods and strategies of collecting data will be covered. The research findings in chapter 4 and discussions and recommendations in chapter 5 will fully depend on the principles discussed in this chapter.

3.3 Research aim, questionnaire and objectives

3.3.1 The aim of the study

The research aim is a statement which formally specifies what the study intends to accomplish (Alvesson and Sandberg, 2011).

The aim of the study is to identify OH&W challenges in construction industry in order to craft strategies that can assist construction industry to fully benefit from the value added by occupational health and wellness programs in construction industry.

3.3.2 Research questionnaire

Research is conducted to answer questions or provide solutions to identified problems and challenges (Alvesson and Sandberg, 2011). It is a statement that has the ability to introduce the major problem which is addressed in the research project (Sekaran and Bougie, 2010). According to Alvesson and Sandberg (2009), more researchers generate research questions through problematisation. This has become more popular as most researchers are striving to arrive to these questions by identifying gaps in the existing literature and concepts, rather than challenging the assumptions which are fundamental to the existing theories (Alvesson and Sandberg, 2011).

3.3.3 Objectives

The research objectives have to be straight to the point and address one issue or content. Most researchers advise against using double barrel objectives (Alvesson and Sandberg, 2011) (Sekaran and Bougie, 2010). The research objectives should be measurable, achievable, realistic and timely (Neuman, 2006) .

In order to address the research questions the following objectives have been formulated:

- To analyse the effectiveness of the current OH&W programs in the construction industry.

- To establish role played by legislations in occupational health and wellness in construction industry.
- To determine construction stakeholders attitudes towards workplace (OH&W) programs.
- To identify challenges facing occupational health and wellness programs in construction industry (advancement.)
- To identify strategies that will assist in improving the quality and status of Occupational Health and Wellness programs in construction.

3.4 Research methodology

According to Walliman (2011), research methods are the techniques used to conduct research (Walliman, 2011). Research methodology discusses the issues of design, data gathering, sample, study population and research instrument they represent the tools of the trade, and provide the ways to collect, sort and analyse information so that conclusions can be drawn. Kumar (2005) believed that research is a way of thinking and it is more than just set of skills, it examines critically the various aspects of the day-to-day professional work, understanding and formulating guiding principles that govern a particular procedure, and developing and testing new theories for the enhancement of the practice. Kumar (2005) further stated that research is a habit of questioning what we do, and a systematic examination of the observed information to find answers, with a view to instituting appropriate changes for a more effective professional service (Kumar, 2005). The success of the research relies on the method used. The descriptive study was used for this particular survey in order to determine the challenges and come up with strategies to boost occupational health and wellness programmes in construction industry. Descriptive studies are used to describe to the researcher, the characteristics of the variables of interest in the particular situation (Sekeran and Bourgie, 2010).

Research methodology comprises of the following steps:

- Research design
- Data collection

- Sampling technique and sample size
- Data processing, analysis and presentation
- Conclusion

3.5.1 Research design

The research design is the plan according to which research participants are identified and information obtained from them, describing what will be done with the participants with a view to reaching conclusions about the research (Welman and Kruger, 2001) ; (Neuman, 2006). According to Sekeran and Bougie (2010) research design is described as a detailed framework of how an investigation will take place (Sekeran and Bougie, 2010). It gives an idea of how the data will be collected , what instruments will be employed and how data results will be analysed and reported (Sekeran and Bougie, 2010).

The research design function is to ensure that the evidence obtained enables the researcher to answer the initial question as unambiguously as possible (Sekeran and Bougie, 2010).

This research was conducted to unveil the value added by the integration of Occupational health and wellness in construction industry. This is one of the three pillars that forms sustainability in business as highlighted in the corporate governance. The people, planets and profit form the core of any business. The method used was quantitative methodology; data collected and was gathered through usage of a structured questionnaire which comprised of structured questions where participants had to choose from fixed predetermined answers. The decision to use quantitative methodology was based on the fact that quantitative results have improved and are now more positive and reliable then they were years ago (Barnham, 2010).

3.5.2. Data Collection

The data was obtained from primary source. According to Sekaran and Bougie (2010) primary data refers to first-hand information obtained whereas secondary data is the information obtained already existing source (Sekeran and Bougie, 2010). In this survey we have used primary data which was gathered from the participants through usage of a questionnaire.

There are various methods of collecting data such as:

- Interviews
- Questionnaires
- Observational studies
- Projective tests

The study used questionnaires as a tool to collect data, quantitative method to analyse data. The methods have both advantages and disadvantages. Questionnaire is described as a pre formulated written questions to which respondents are expected to record their answers following the given format (Sekeran and Bougie, 2010). There are three methods of administering questionnaire personally, mailed to the respondents or electronically distributed. The two methods were chosen because the personal administration was less expensive and promoted rapport with the respondents. The electronic version was the best as it was fast, easy to administer and respondent could answer during their own time. The questionnaires will be self-explanatory to make it easier for the respondents. The survey questions were sent by email and some handed by hand on site. The responded were targeted according to their position and involvement in the health and safety issues, project managers and co -coordinators. The questionnaires were closed ended type as this is believed to be one of the unambiguous type which can be interpreted to represent the exact views of the population. On the first day of conducting the study the researcher was present to assist the respondents in case they encounter problems in completing the questionnaire.

3.6 Sampling

According to Sekeran and Bougie (2010) sampling is a method used to choose items from the population in such a way that the sample characteristics can be generalised to that entire population (Sekaran and Bougie, 2010). It is a subset of the population however if the population is small, the whole population is used to cover the survey (Bryman and Cramer, 2006). In other words, it is a technique that is used to select the right and appropriate participants in which to collect data for a study.

Since the study targeted special individuals within Group five civil, specific sites and expects in the field it gave us no choice but to use selective technique. Bryman and Cramer (2006) stated that it is rare to find a perfectly representative of the population but can be enhanced by using between probability or non-probability sampling (Bryman and Cramer, 2006).

Sampling is used because of the following:

- Sampling provides reliable information at a reasonable cost and convenience.
- Data is collected more easily and fast to avoid delaying the project.
- The estimates based on sample survey are often more accurate than the census one because census requires large administration organisations(Lohr, 2009) (Lohr, 2009).

According to Sekeran and Bougie (2010) the major steps in sampling process are described as follows:

- Defining the population.
- Determine the sampling frame.
- Determine the sampling design.
- Determine the appropriate sample size.
- Execute the sampling process.

3.6.1 The population

Population refers to the whole group of people, events, or things of interest that the researcher desires to investigate (Sekaran 2003). According to Sekaran and Bougie (2010:267) “the target population must be defined in terms of elements, geographical boundaries and time. An element is a single member or unit of the population (Sekaran & Bougie 2010). The target population consisted of Group Five Civil workers, who hold positions in safety, health, project and management level. The site targeted was in Pietermaritzburg, Department of Labour as a client.

3.6.2 Sampling

Sampling is the representation of all elements in the population from which the sample is drawn (Sekeran and Bougie, 2010) . The study used senior personnel within the Pietermaritzburg Group five project including principal contractor, client and all sub-contractors who participated in the project. All the chosen participants were involved and participated in the issues of occupational health and wellness in their specific companies.

3.6.3 Sampling design

The choice of sampling design is important for the validity of the research (Sekaran and Bougie, 2010). Representativeness and generalizability is achieved by choosing and using an appropriate sampling design and size (Sekaran and Bougie, 2010). Large sample size alone cannot allow for findings to be generalised to the population. There has to be adequate level of accuracy and sureness in the sampling design being able to meet research objectives (O'Brien et al., 2009) ; (Sekaran and Bougie, 2010).

Sampling design is divided into nonprobability and probability design. Simple random sampling is an example of probability sampling. (Sekaran and Bougie, 2010). Unlike in nonprobability sampling, in probability sampling methods all the elements in the selected population have an equal opportunity of being selected. This means they have a positive probability of being part of the sample (Brick, 2010). All the elements have a known chance of being selected (Sekaran and Bougie, 2010). In Brick (2010), it is argued that a probability sample that has a low rate of responses can in fact be classified as nonprobability.

According to (Vaitkevicius and Kazokiene, 2013), researchers are advised to ensure that the selected methods of sampling and design are done in a way that meets the following criteria to ensure quality:

- Representativeness
- Objectivity
- Reliability or consistency
- Efficiency
- Validity
- Utility

(Vaitkevicius and Kazokiene, 2013).

Though probability sampling is widely preferred and used worldwide, the popularity is slowing down due to increasing costs of collecting data, losses that are experienced due to non-coverage and few responses (Brick et al., 2010).

In the study conducted at Group Civil site in Pietermaritzburg, selected employees with special expertise were selected for the study. The population was selected according to the position and responsibility within the company. The responsibility being involved with occupational health issues within the company. The group selected consisted of the project managers, site managers, company owners, safety officers and co coordinators as well as supervisors and foreman for small projects.

The sampling design will be non-probability, using convenience method of sampling. The method was chosen because Occupational health and wellness is specialised field which required knowledge of the subject and experienced in the field (Westerholm et al., 2004) . Secondly, the survey was based in one site Pietermaritzburg therefore to get enough sample we had to include all expects and those that were involved in one or the other in occupational health and safety programmes on site. The subjects will be selected based on the experience, involvement and accessibility to information. According to (Sekeran and Bougie, 2010), subjects are selected based on the expertise of the subjects under investigation (Sekeran and Bougie, 2010). The non-probability method is poorly generalised to the population unless there is no other methods to suite the study. This applied to our study where the people who could understand the value added by the occupational health and wellness in construction industry. For the sake of this study we targeted expects in the field of occupational health, project managers/ coordinators, supervisors and company owners.

Participants were all issued with questionnaire to complete electronically and handed in person on the first day of encounter. This method was to ensure that all relevant elements were considered as they are significant and appropriate for the study context. It was an efficient method to implement and it provided more information for a given sample size (Sekaran and Bougie, 2010).

Convenience and purposive sampling form part of non-probability method. Convenience type deals with collection of information from the elements that are readily available for the study. According to Sekeran and Bougie (2010) it is the best way to get basic information quick and efficiently (Sekeran and Bougie, 2010). The study used convenience method; hence participants were readily available on site and were the confirmed legal appointments of the project.

3.6.4 Sample Size

According to Sekaran & Bougie (2010) both sample size and sample design is important for the representativeness of the sample for generalizability. The sample size is dependent on the sampling design. Even if a large sample size is drawn, an inappropriate sample design would not yield the correct results to be generalised to the population (Sekaran and Bougie, 2010). According to Saunders et al (2003) based on probability, the larger the sample size the lower the margin of error (Saunders et al., 2003). The bigger the sample size the less sampling error hence the better the results and easier for the researcher to make interpretations (Dura and Nita, 2011). Cooper and Schindler (2006) indicated that a sample should allow some proportional relationship to the size of the population from which it is drawn. Sekaran and Bougie (2010) summarized six factors affecting decisions on sample size as:

- The research objective,
- The extent of precision desired,
- The acceptable risk in predicting that level of precision,
- The amount of variability in the population itself,
- The cost and time constraints or the size of the population itself.

Roscoe 1975 (cited in Sekaran & Bougie 2010) proposed that sample sizes larger than 30 and less than 500 are appropriate for most research. Due to the type of information required (critical information from the expert and senior management) the size was limited to $n = 120$.

Welman et al. (2007) stated that the choice of a sample size is governed by:

- The confidence that is needed from data, the level of certainty that the characteristics of the data collected will represent the characteristics of the whole population.
- The margin of error that the research can tolerate – that is, the accuracy we require for any estimates made for our sample.

- The type of analysis that is going to be undertaken- in particular the number of categories into which the data would be subdivided as different statistical techniques have minimum threshold cases for each variable.
- The size of the total population from which the sample is being drawn.

3.7 Data collection methods

Sekaran and Bougie (2010) stated that data collection methods are an integral part of research design. Data collection methods include:

- Interviews
- Face-to-face interviews
- Telephone interviews
- Computer-assisted interviews
- Interviews through the electronic media questionnaires
- Questionnaires administered electronically on the internet or sent through e-mail
- Observation of participants while videotaping, audio recording
- Project tests or essays

This study used online questionnaire and face to face questionnaire data collection as a data collection method. Hand delivering questionnaires during health and safety meetings also maintained the factor of authenticity as it is only the targeted individuals who attended these management meetings (Duchac and Amoruso, 2012, Brick, 2010). Data collection cost is a factor that most researchers assess when determining the sampling methods and sample sizes to use (Brick, 2010). According to Brick (2010) researchers always try to find cheaper approaches to data collection. This was a preferred method as a result of its advantages. It allowed the respondents to do questionnaires in their own time. The other reason for this type of data collection was time constraint to finalise research project.

It is easy to use and convenient for both the researcher and the respondents. Respondents accessed questions through the link to QuestionPro which is online survey software. Statistical Package for the Social Sciences (SPSS) is used for analysis of data. This method

provided the researcher with sufficient data to draw meaningful conclusions. It also enabled the researcher to present the results in different forms. There were disadvantages that the researcher encountered while using this method of data collection. Firstly, the researcher could not interact easily with the respondents hence they were always onsite. Secondly, the researcher could not ensure that questions were clearly understood. Thirdly, it was noticed that 18 respondents answered incorrectly and their response were rendered invalid. The reason for this was not established by the researcher. Lastly, the researcher could not communicate directly with other respondent due to unavailability of internet access on site.

Chapter two of this study is literature review which comprehensively reviews, analyses and documents the work of other researchers around value added by OH&W in construction industry. The information assists in the analysis of information that other scholars have accumulated about the topic.

3.8 Design and description of Questionnaire

A questionnaire is a pre-formulated set of questions with closed, defined alternatives within which respondents record their answers (Sekaran and Bougie, 2010). Saunders et al., (2003) defined a questionnaire as a data collection technique in which respondents are asked to answer the same set of predetermined questions. According to Gregg et al., (2013) a questionnaire is a tool that is guaranteed to make a study (to be) a success if constructed appropriately and a failure if constructed poorly. This is because the type of questions and the manner in which the questions are formulated and asked have a huge influence in shaping the nature of answers given by participants (Greg et al., 2013). Further to that, (Druckman, 2005) stated that the way the questionnaire is constructed and interpreted by the respondents can have a big impact on their willingness to continue answering the questions until completing the survey (Greg et al., 2013). Furthermore, questionnaires are an efficient data collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest.

Online questionnaires are easily designed and administered (Sekaran and Bougie, 2010). Several programmes have been developed to administer questionnaires electronically. SPSS (Statistical Package for the Social Sciences) has several software programmes for research purposes including SPSS Data Entry Builder – for creating surveys that can be administered over the web, phone, or mail; SPSS Data Entry Enterprise Server – for entering the data.

3.8 Deciding on research questions

According to Mitchell and Jolley (2010) a researcher might decide to use fixed - alternative questions. Fixed-alternative questions are questions that require the respondent to choose between two or more answers. Mitchell and Jolley (2010) further stated that the survey might include several types of fixed-alternative questions: true false, multiple-choice and rating scale (Mitchell and Jolley, 2010)

3.8.1 Open-ended questions

According to Sekaran and Bougie (2010) open-ended questions allow respondents to answer the questions in any way they choose. The researcher asks respondents to state five things that they have observed as benefits of occupational health and wellness in construction industry. Mitchell and Jolley (2010) supported two major advantages of allowing participants respond in their words. First, it avoids planting words in participants' mouths. Second, open-ended questions may let the researcher discover the beliefs behind the respondents' answers. Mitchell and Jolley (2010) further stated that although there are two major advantages of allowing respondents to answer in their own words, there are also two major disadvantages.

3.8.2 Closed-ended question

According to Druckman (2005) closed-ended questions are ones that offer response options that accurately reflect the way respondents actually think about the issue or topic at hand. It should be exhaustive and mutually exclusive options. Druckman (2005) advised that the list of options in a closed ended question should be relatively short – ideally three or four – unless the list is likely to be familiar to the respondents. In this survey, options are longer hence the respondents are familiar with the subjects. Sekaran and Bougie (2010) stated that closed-ended questions help the respondents to make quick decisions to choose among the several alternatives before them. They also help the researcher to code the information easily for subsequent analysis. Sekaran and Bougie (2010) suggested that all items in a questionnaire using a nominal, ordinal, Likert, or ratio scale are considered closed.

3.8.3 Nominal dichotomous questions

According to Mitchell and Jolley (2010) nominal dichotomous questions allow only two responses (usually “yes” or “no”). It has at least two advantages. Sekaran and Bougie (2010) define dichotomous scales as a simple category scale that offers two mutually exclusive response choices, such as a yes or no response (Sekaran and Bougie, 2010). First, respondents often find it easier to choose between two choices than many. Second, when there are only two very different options, respondents and investigators should have similar interpretations of the options. Therefore, a well-constructed dichotomous question can provide reliable and valid data. As much as there are advantages of offering only two choices, Mitchell and Jolley (2010) argued that there are also disadvantages. One disadvantage of nominal dichotomous questions is that some respondents may think that their viewpoint is not represented by the two alternatives given.

3.8.4 Likert-type and interval questions

Likert type questions typically ask participants to respond to a statement by choosing strongly disagree” (scored as “1”), “disagree” (scored as “2”), “undecided” (“3”), “agree” (“4”), or “strongly disagree” (“5”). Mitchell and Jolley (2010) explained that Likert type questions are extremely useful in questionnaire construction. Whereas dichotomous questions allow respondents only to agree or disagree, Likert type questions give respondents the freedom to strongly agree, agree, be neutral, disagree, or strongly disagree. According to Mitchell and Jolley (2010), the major disadvantage of Likert type questions is that some respondents may resist the fixed alternative nature of the question. Jackson (2008) explained that a Likert rating scale presents a statement rather than a question, and respondents are asked to rate their level of agreement with the statement. Jackson (2008) stated that many researchers favour Likert- type scale because it is very easy to analyse statistically (Jackson, 2008).

The questionnaire for this survey consists of a combination of forced Likert (4-point Likert scale), nominal dichotomous, and close-ended questions. This was necessary to assist the researcher to gather all the relevant data. The questionnaire for this study is made up of 29 questions. The questions are categorized as follows:

- Section 1: Demographic information – (Section 1: a- d)
- Section 2: The benefits of Occupational health and Wellness in construction industry.
- Section 3: The Legislative role
- Section 4: Perception of stakeholders in terms of Occupational health and Wellness in construction industry.
- Section 5: Challenges faced by construction industry in sustaining health and wellness programs.
- Section 6: Suggested strategies to improve OH&W in construction industry.
- Section 7: General mixed short question pertaining to OH&W in construction.

The last four questions participants had to make a rating by choosing one answers (Yes or No)

3.9 Pre-testing

Questionnaire should be tested before it is sent to the respondents for completion. This is normally done to ensure that there is no ambiguity and the questions are well structured and understood by the respondents. Pretesting allows for evaluation of the appropriateness of the questionnaire (Duchac and Amoruso, 2012). In this study, questionnaires were firstly checked by the supervisor, secondly submitted to the University research committee for final ethical approval. Recommendations and questions from the research committee were as follows:

- How will feedback be given to the participants?
- Gatekeeper permission letter(s) required.
- How will consent be obtained if Questionnaire is e-mailed.

All the queries were addressed and re -submitted for approval by the department of Humanities and Social science Research Ethics committee. The gate keeper had been submitted and the copy thereafter was re- submitted. After the approval, questionnaires were forwarded to the safety officers on site for testing. The aim was to test if there were no hitches when the form was completed. It was also to test if the instructions were clear and the questions were understood when completing the form on line and manually. The report stated that they did not have problems since the subject matter was familiar to them.

3.10 Study Limitations

- The sample comprises high ranked employees who were involved with issues of Occupational health and wellness and excluded all other employees on site.
- Secondly only one site was selected to participate in the research; as a result generalisation will only be for Pietermaritzburg Group Five Civils site.
- Thirdly, data collection time was minimal as the time given to the respondents to complete the questionnaire was only a month as the research had to be completed and submitted by the end of the semester in 30 November 2014.

3.11 Reliability

Reliability deals with the outcomes of the research and relates to the credibility of the findings (Welman et al. 2007). The reliability of a measuring instrument shows the extent to which the measure is without bias, error free, and offers stable measurement across time and across various items in the instrument (Sekaran & Bougie 2010). A measuring instrument is reliable if it produces consistent results. Two important aspects of reliability are stability and consistency.

According to Sekaran & Bougie (2010) stability relates to the ability of a measure to remain the same over time despite uncontrollable testing conditions or the state of the respondents themselves, and consistency is indicative of the homogeneity of the items in the measure that tap the construct. Stability of measures is achieved by: Test–retest reliability is to administer the instrument on at least two occasions to the same large, representative sample from the population for which the instrument is intended (Sekeran and Bougie, 2010) (Welman et al. 2007) and the test-retest coefficient attests to the reliability and stability across time.

3.12 Validity of the questionnaire

Validity is referred as the most important criterion of any research. Validity refers to whether a questionnaire measures the objectives of the research (Hair et al., 2007). (Hair et al (2007) state three approaches to assess the validity of which any one can be used:

- Content validity
- Construct validity
- Criterion-related validity.

According to Sekeran and Bougie (2010), content validity refers to the establishment of the sampling of the whole set of items that measures the concept and reflects how well dimension and elements are delineated (Sekeran and Bougie, 2010). On the other hand Hair et al (2007) stated that validity involves consulting with a small group of typically chosen participants to make judgements on the questionnaire. Construct validity refers to what the questionnaire is measuring (Hair et al 2007). There are two ways of testing construct validity i.e. convergent and discriminant validity ((Sekeran and Bougie, 2010)). Convergent validity is established when two operations have the same result and discriminant validity is established when two variables are predicted to be uncorrelated based on theory (Sekeran and Bougie, 2010).

3.13 Data analysis

After the data has been collected from the sample the next step is to analyze it in order to test the research hypothesis (Sekaran and Bougie 2010). The first step after collection of data is the data coding which involves assigning a number to the participants' responses so that they can be entered into a database. According to Sekeran and Bougie (2010) in quantitative research one has to assign the number to the participant's responses (Sekeran and Bougie, 2010). This is called data coding and it enables entering of data to the database but depends on the method used to collect data. In this survey two methods were used, electronic type and manual type. The manual data was coded and the electronic data already existed online. According to Blaxter et al. (2010) data analysis "usually involves reducing accumulated data to manageable size, developing summaries, looking for patterns, and applying statistical

techniques” The data gathered was analysed and presented using descriptive and inferential statistics (Sekeran and Bourgie, 2010).

3.14 Summary

This chapter discussed research methodology used in this study. Included in the discussion were study design, sampling methods, sample size, selection of respondents and data collection techniques, the rationale behind the chosen methods for this study was discussed. Chapter Four deals with the presentation and discussion of results obtained from processed data.

CHAPTER 4

Presentation of Results

4.1 Introduction

Chapter three set out the design and methodology for this study. A questionnaire was administered to obtain the results of the data which are presented in this chapter. 112 participants were invited to participate and 100% participated on the study. In this chapter we will embark on presentation and analysis of the data. The presentation and analysis will be done according to the objectives and the questionnaire aligned to each objective.

4.2 Analysis of reliability

The validity and reliability of the result is crucial for the researcher in order to be able to use the results with confidence. Cronbach's Coefficient Alpha was used to test reliability. Questionnaires consisted of demographic and general information (question 1 to 5), question 6 asked respondents the benefits which they gained from occupational health and wellness programmes. The question offered 9 answers to choose from and indicate the level in which you agree or disagree with the answers. Question 7 ask respondents about the legislations which has contributed towards improving the standard of occupational health and wellness in construction industry. The question offered 5 legislations to choose from. Question 8 dealt with the role of construction industry development board (CIDB) in occupational health and wellness programmes. The question offered 5 roles to choose from. Question 9 dealt with stakeholder perceptions and offered 4 perceptions to choose from. Question 10 asked about challenges faced by construction industry and 5 answers were given to indicate the level in which they agree or disagree. Question 11 gave activities that are expected to form part of the occupational health and wellness, 6 statements were given to choose from. The 4 final questions ask general questions to check if the respondents had noticed changes in terms of occupational health and wellness in construction.

Table 4. 1 Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.761	.772	45

The reliability of the questionnaire was evaluated based on the Cronbach's Coefficient Alpha as this measure has the most utility for rating scales. The Cronbach's Coefficient Alpha coefficient for the rating scales used in the questionnaire was 0.761 which is shown in Table 4.1. An indication that the questionnaire was valid and reliable as the acceptable value of alpha should be between 0.7 and 0.9 (Bryman and Bell, 2015).

4.3 Overview of the results

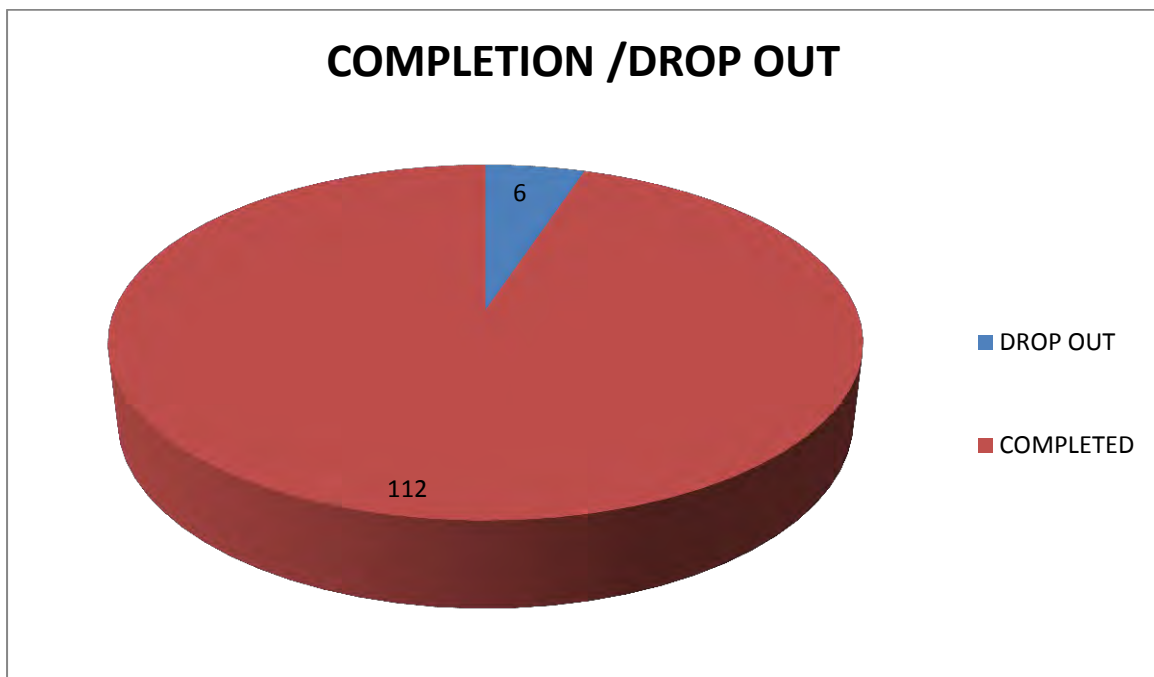


FIGURE 4.1 OVERVIEW OF THE RESULTS

The overview of the result shown positive response and displayed that the study was a success.

4.4 Demographical information

Demographic information will show the analysis and presentation of data in terms of gender, race, company work for in terms of main contractor or sub-contractor, position occupied and the service with particular company.

4.4.1 Gender of the respondents

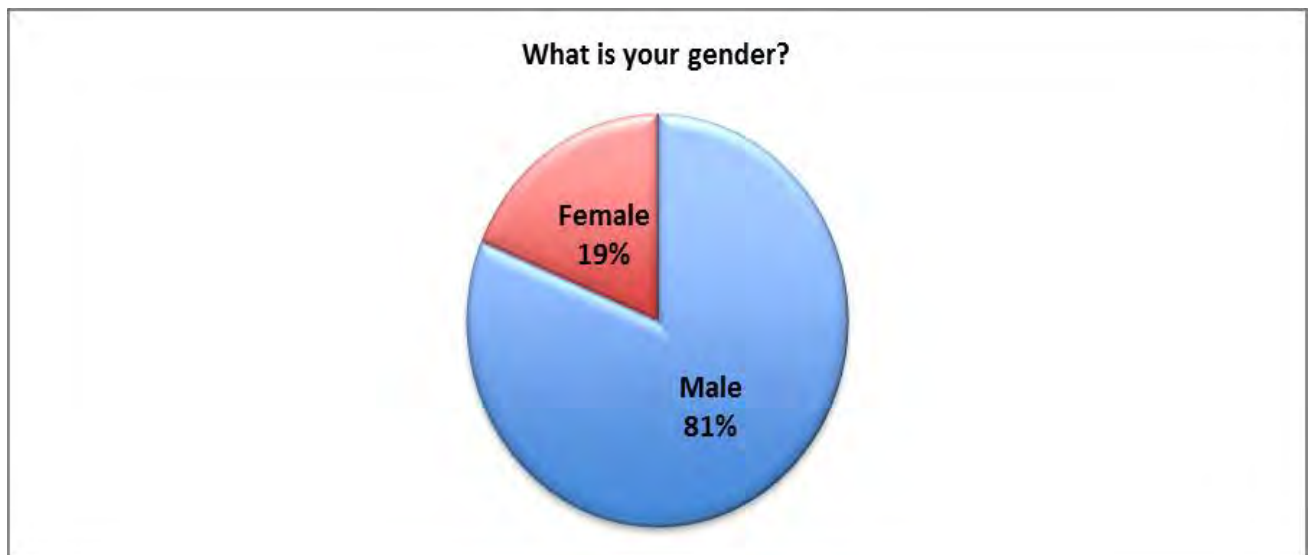


FIGURE 4.2: RESPONDENT'S GENDER

The results in figure 4.2 confirmed the current status of the construction industry, male dominated.

4.4.2 Race

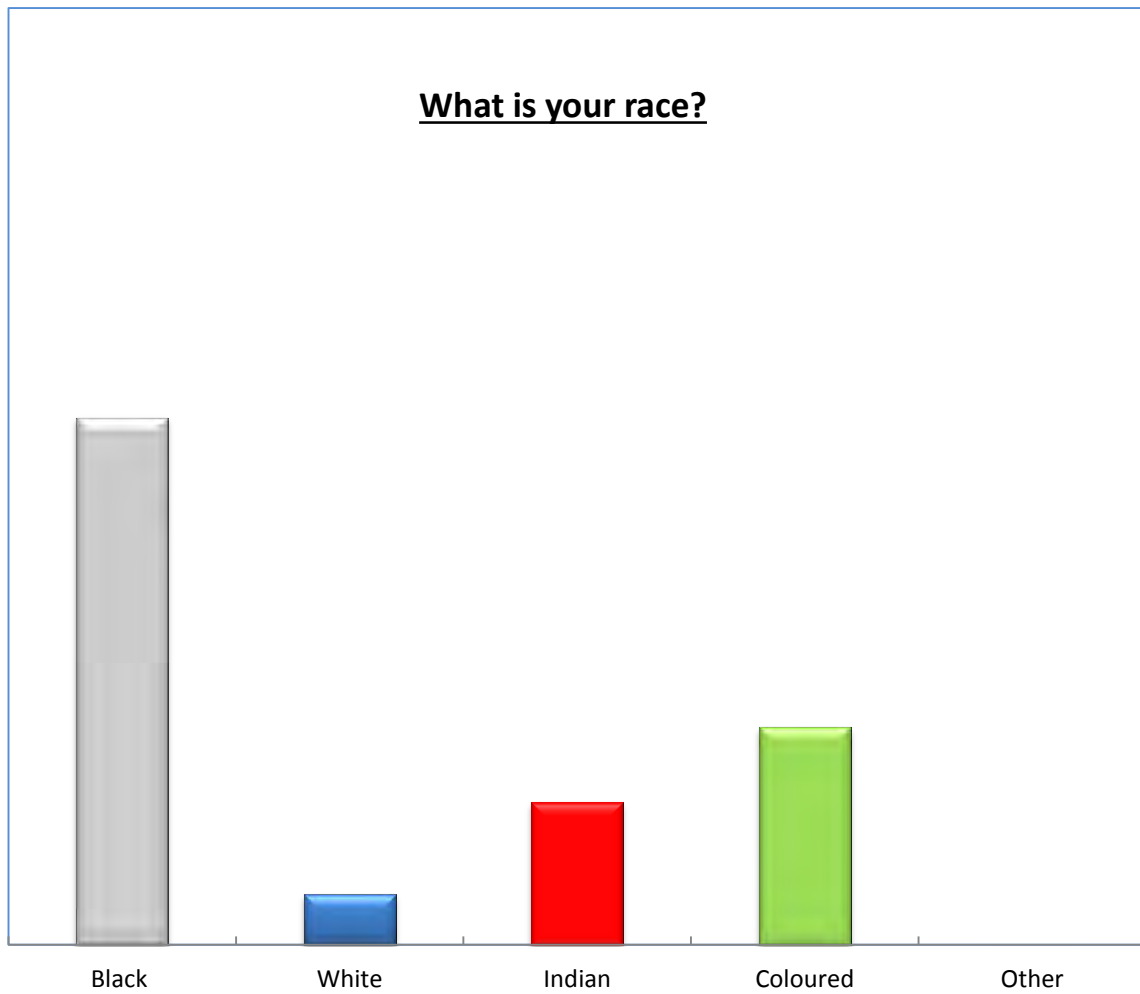


FIGURE 4.3 RESPONDENTS DISTRIBUTION BY RACE

The data in figure 4.3 showed the race of respondents. The majority were black made 56.25%, coloured's 23.21% and 25.18 % Indians.

4.4.3 Respondents positions within the selected project.

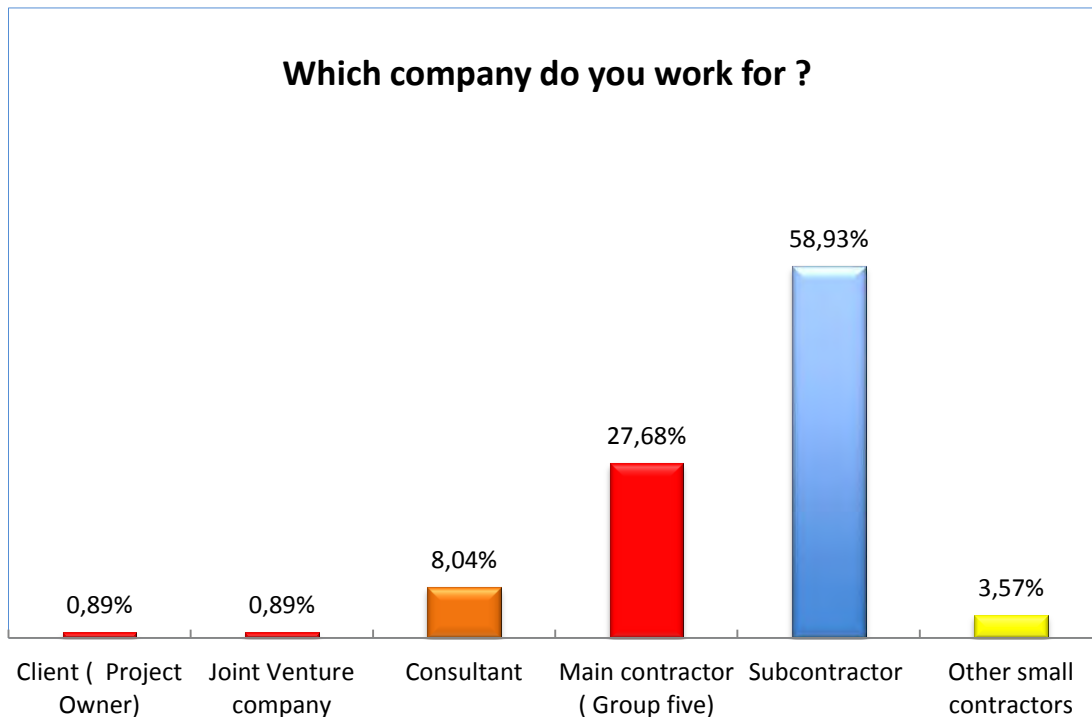


FIGURE 4.4 RESPONDENT’S COMPANY WORKING FOR IN THE PROJECT

The above Figure 4.4 illustrated that 58.93% of the respondents were working as a subcontractor. The distribution is expected as most of the work is performed by the different sub –contractors. The nature of building construction take place in phases, the main contractor is responsible for project design and monitoring of the development(Saunders, 2013a). The construction project comprise of separate firms which are responsible for their individual elements of the projects, hence the results of different companies on site(Saunders, 2013a).

4.4.4 Respondents position within the project

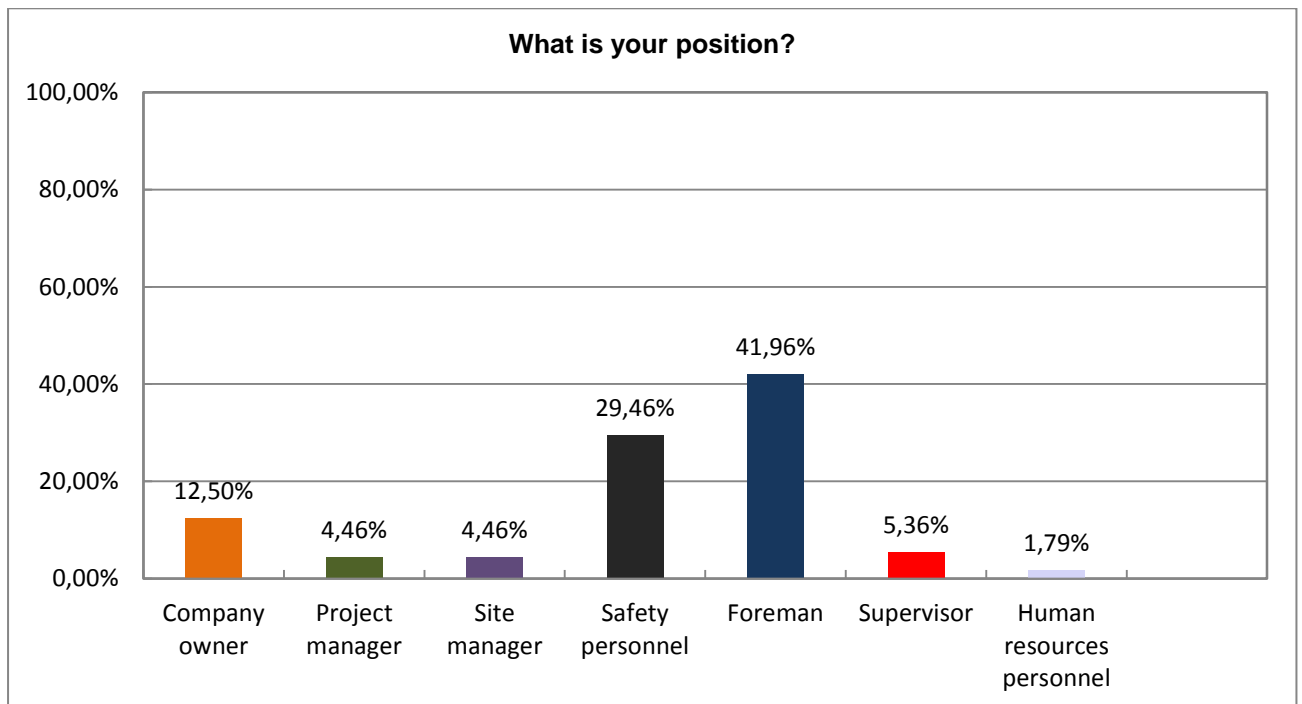


FIGURE 4.5 RESPONDENT'S POSITION

Figure 4.5 The majority of the respondents were foreman and few human resource department personnel. The distribution per position confirms that most of the time foreman and supervisor are one and the same people in construction industry.

4.4.5 Respondents by the duration of employment within the company

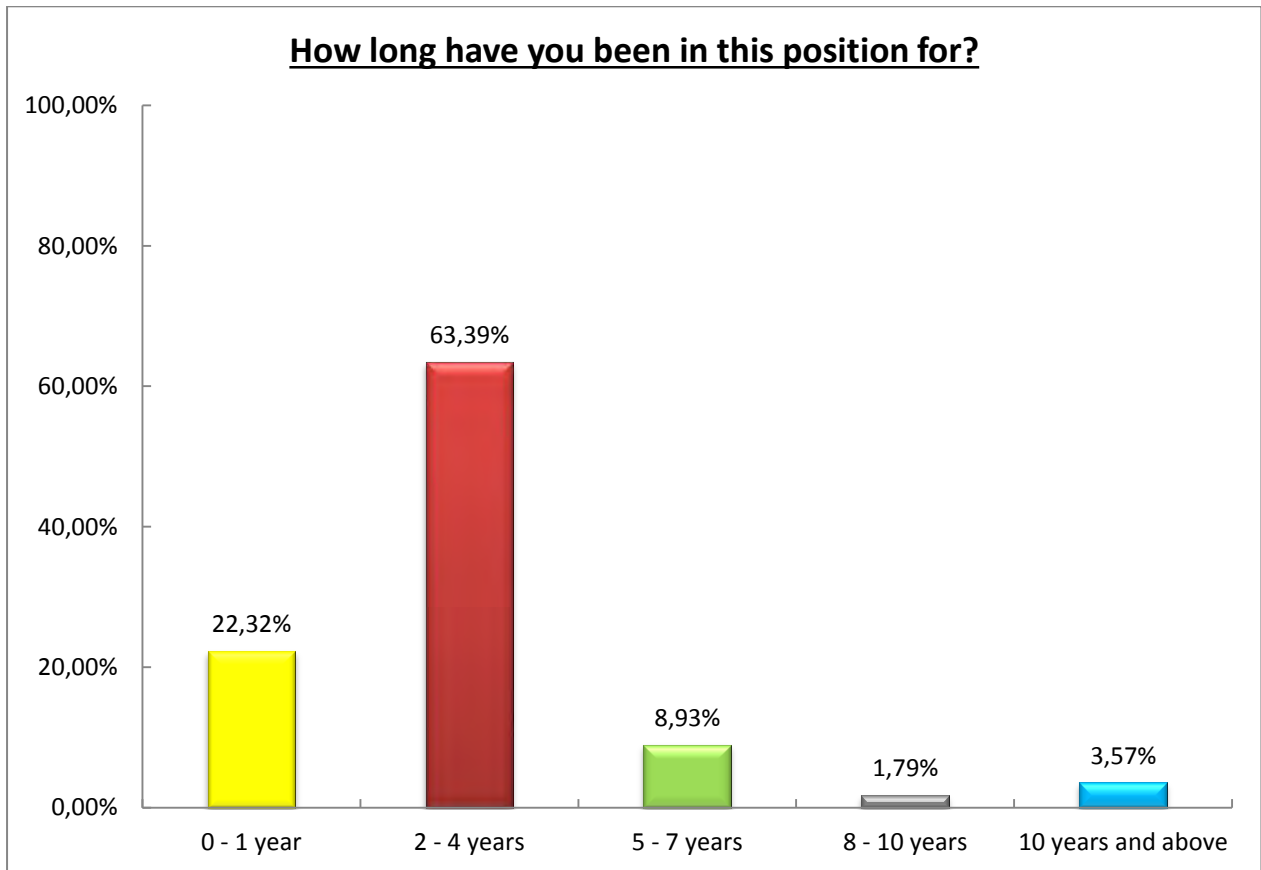


FIGURE 4.6 LENGTH OF SERVICE IN THE CURRENT POSITION

In the above Figure 4.6 the service displayed showed that the majority have been working for 2 – 4 years. The longest service of 8- 10 years was 1.79%. The figure confirmed that construction is short term a mobile type of industry. The overall length of service included sub-contractors and other contractors which are found to employ only when they have been given work by big contractors or won a tender. The construction industry is unable to retain employees longer unless if the project is big, and sub divided into project phases longer.

4.5 Objective 1. How effective are the current occupational health and wellness programmes?

Question1: What benefits has the construction gained from occupational health & wellness programmes. To show the level in which they agree or disagree.

4.5.1 It has improved workers' performance.

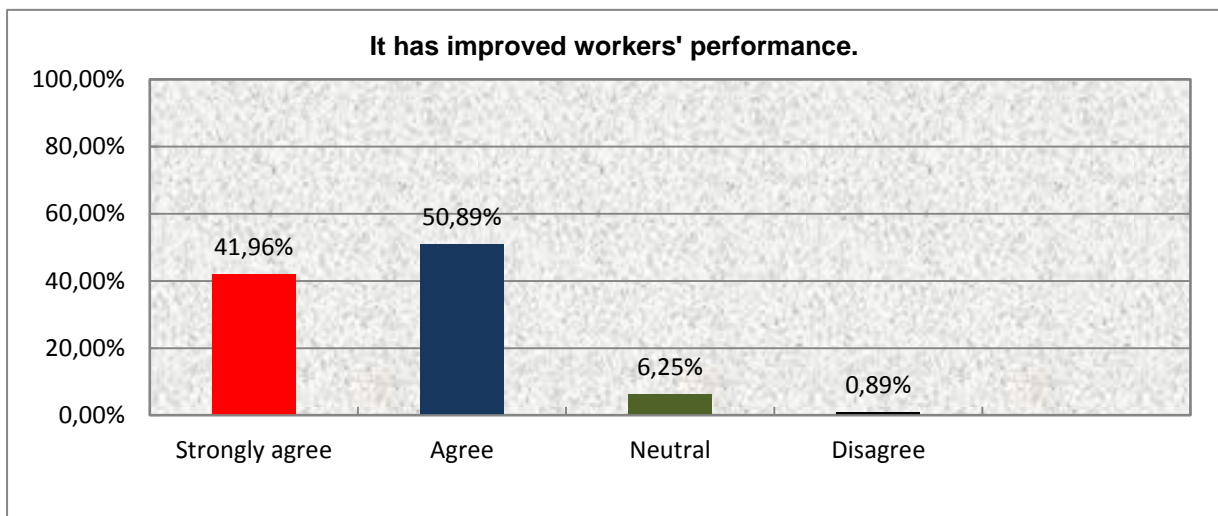


FIGURE: 4.7 IMPROVED WORKERS PERFORMANCE.

Figure 4.7 indicated that the majority agree on (OH&H) contributing towards improving workers performance. The respondents' position gave them an opportunity to access worker's performance.

4.5.2 Job satisfaction among workers has improved.

The job satisfaction amongst workers showed some improvement according to most of the respondents. The majority strongly agreed. The client and the main contractors have noticed much improvement compared to the sub contractors.

4.5.3 It has increased employee retention.

Table 4.2 Increased employee retention

<i>Response</i>	<i>No of respondent</i>	<i>Percentage</i>
<i>Strongly agree</i>	9	8,04%
<i>Agree</i>	33	29,46%
<i>Neutral</i>	65	58,04%
<i>Disagree</i>	4	3,57%
<i>Strongly disagree</i>	1	0,89%
<i>Total</i>	112	100

Table 4.2 indicated overall results for increased employee retention, high percentage of respondents were neutral an indication that within their company they had not noticed retention of employees. This proves as per literature review that the construction industry comprise of short term project which supports temporary and short term employees therefore it would not be easy to see an increase in employee retention. The 29.46% agreed and 9% strongly agreed OH&W increased employee retention. The majority of the respondents were main contractors, consultants and the client. The nature of industry makes it difficult to retain workers and employees.

4.5.4 It has indirectly impacted on the success of the company.

Table 4.3 the impact on the success of the company.

<i>Strongly agree</i>	28,57%
<i>Agree</i>	42,86%
<i>Neutral</i>	26,79%
<i>Disagree</i>	1,79%
<i>Strongly disagree</i>	0,00%
<i>Count</i>	112

Table 4.3 reflects the overall response of the respondents on the indirect impact of the OH&W programmes in construction. The indirect impact comprised of a number of positive spin offs such as meeting of the project timeline, completion of some task and legal compliance was easily noticeable.

4.5.5 It has lowered absenteeism

The statement asked if the respondents had noticed improvement in the rate absenteeism as a result of OH&W programmes.

Table 4.4 Absenteeism rate.

Strongly agree	19,64%
Agree	66,96%
Neutral	10,71%
Disagree	1,79%
Strongly disagree	0,89%
Count	112

Table 4.4 Illustrated that out of 112 respondents, 66, 96% agreed, 19, 64% strongly agreed and 10, 71% were neutral. The mean of 1.97 strongly supports improvement in absenteeism

rate. The results supported general aim of OH &W programmes, to ensure that absenteeism rate is improved. Most organisations use absenteeism as a variable of measure to the effectiveness of the employee and wellness programmes (Katherine et al., 2010). The findings of cost and savings in Hymel et al (2011a) associated with prevention programs in the workplace found that an absenteeism costs were reduced by \$2.73 for every \$1.00 spent on OH&W programmes (Hymel et al., 2011a).

4.5.6 The injury statistics has decreased.

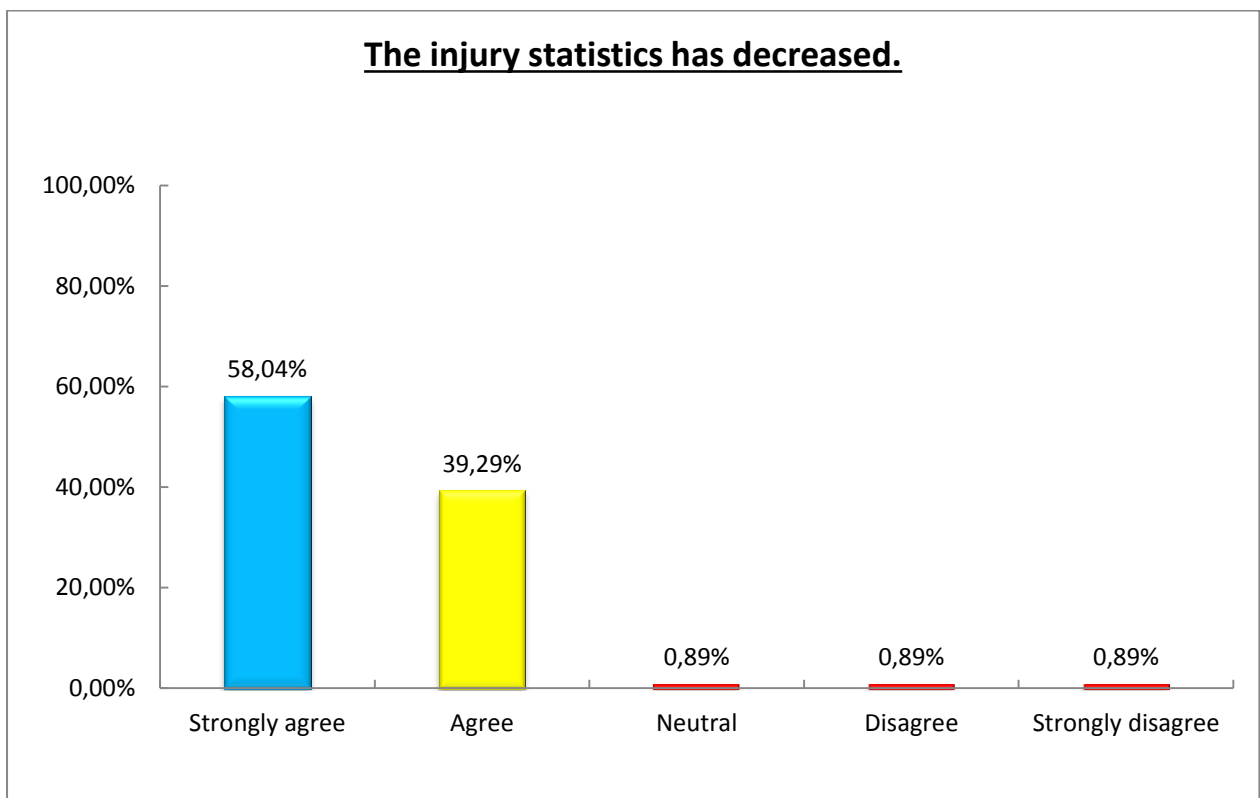


FIGURE 4.8 THE INJURY STATISTIC

The injury statistics displayed in figure 4.8 illustrated that 58, 04% of the respondents strongly agreed, and 39.29% agreed which positively confirmed that there was a noticeable decrease in injury statistics. This supported the views of other scholars that a comprehensive occupational health and wellness programs can improve injury statistics (De Silva and Wimalaratne, 2012a) (Alavinia et al., 2009) .

4.5.7 General health of the workers.

Table: 4.5 Improved general health of the workers vs improved work performance.

Cross Tabulation		7. [Q6] It has improved general health of the workers.						
Frequency/Percent			Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Row Totals
7. [Q6] It has improved workers' performance.	Strongly agree		29	17	1	0	0	47
			61.7%	36.17%	2.13%	0%	0%	41.96%
	Agree		28	27	2	0	0	57
			49.12%	47.37%	3.51%	0%	0%	50.89%
	Neutral		3	3	1	0	0	7
			42.86%	42.86%	14.29%	0%	0%	6.25%
	Disagree		1	0	0	0	0	1
			100%	0%	0%	0%	0%	0.89%
	Strongly disagree		0	0	0	0	0	0
			0%	0%	0%	0%	0%	0%
	Column Total		61	47	4	0	0	112
	Column Percent		54.46%	41.96%	3.57%	0%	0%	100%

Table 4.5 illustrated that the 61.7% of the participants strongly agreed that improved general health of the workers as well improved workers performance. It has been proven that well-conceived health and wellness programs can produce substantial benefits for employers and employees(Ronald et al., 2002).

4.5.8 It has enhanced organisational brand image.

Table 4.6 Organisational brand image

Response	Percentage
Strongly agree	11,61%
Agree	15,18%
Neutral	62,50%
Disagree	10,71%
Strongly disagree	0,00%
N	112
Mean	2,72

As indicated in Table 4. 6 the view of the most respondents was neutral (62.50%) which indicated that they were not sure if the OH&W had an impact on the company brand image. The 29.46 of safety personnel and 41, 96% foreman focuses on the project operations than company branding, hence neutral response on the above table 4.5.8. According to Cretu and Brodie (2011) brand's image has a more specific influence on the customers' perceptions of product and service quality while the company's reputation has a broader influence on perceptions of customer value and customer loyalty(Cretu and Brodie, 2011). Usually, the brand image is monitored by the certain category within an organisation. Respondents who strongly agree (11,61% and 15,18% agreed which could be among 12,50% of company owners.

4.5.9 Reported Occupational related diseases have improved.

Table 4.7 Occupational related diseases reporting

Response	Percentage
Strongly agree	40,18%
Agree	48,21%
Neutral	10,71%
Disagree	0,89%
Strongly disagree	0,00%
Count	112
Mean	1,72

The occupational health related diseases should be accurately reported in order to ensure compliance on COID act, which require employers to report all job related disease and injuries on duty. Respondents have shown positive response towards an improvement of reported occupational disease related.

Objective 2

4.6 To establish the role played by legislations in occupational health and wellness in construction industry.

4.6.1 The respondents were given different legislations topics to establish whether they understood the role played by different legislations, it was a Yes or No answers. The responses were as follows:

Table 4.8 the role played by legislation in OH&W programmes.

Legislations	Yes	No
Occupational Health and Safety act (no 85 of 1993):	100%	0
Compensation for Occupational injuries and diseases act (no 130 of 1993):	96.4%	3.60%
Basic Conditions of Employment act (no 75 of 1997)	26.13%	73.87%
The Labour relations act (no 66 of 1995)	41.44%	58.58%
The Constitution of the Republic of South Africa 1996:	22.52%	77.48%

It is clear from Table 4.8 that respondents acknowledged that OSHACT 1993 had contributed most in improving the status of occupational health and wellness in construction this was shown by 100% who responded yes to the questions and this applied to all companies on site. The COIDACT followed by 96.4% (Yes), the piece of legislation talks to the occupational related diseases and injury compensation. It came as no surprise because the belief is that once you are injured you get compensated, therefore the majority of employees understand. As supported by De Silva and Wimalaratne (2012) that in construction industry the rate of injury is still considered high in underdeveloped countries, it is with no doubt that the response on OSHACT and COIDACT was positive because they both talk directly to their safety in the workplace (De Silva and Wimalaratne, 2012a). The BCOE and Constitution were the opposite 73.87% and 77.48% (NO) this was an indication of the lack of awareness in all walks of life. The positions of our sample corresponds with the response, the majority were safety personnel and foreman (Figure 4.5). The LRA almost balanced with 41.44% yes

and 58.58% no which illustrated that some respondents understood the importance of LRA in occupational health, safety and wellness within their organisations.

4.6.2 The role of CIDB in occupational health and wellness.

Please indicate whether you agree or disagree with the following statement in terms of the role of the construction industry development board (CIDB) in occupational health and wellness.

4.6.2.1 To provide strategic leadership role to the construction stakeholders.

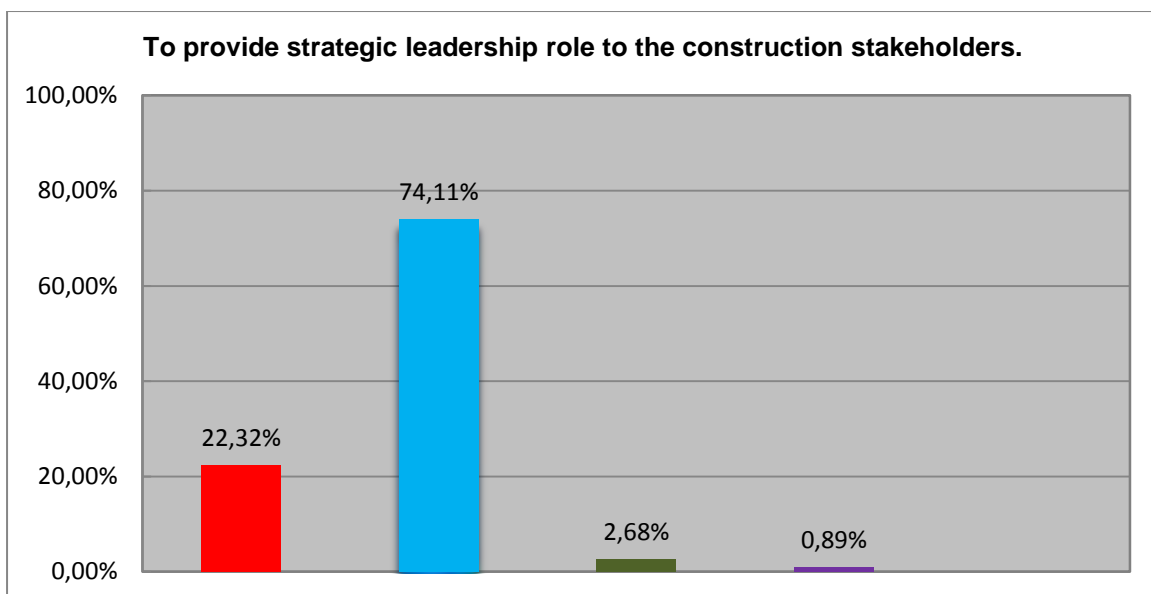


FIGURE 4.9 CIDB ROLE IN OCCUPATIONAL HEALTH AND WELLNESS

The figure 4.9 depicted responses of respondents on the extent the agree (74. 11%) and 22.32%) that CIDB should provide strategic leadership role to the construction industry in terms of OH&W. The results confirmed that stakeholder's expert CIDB to lead. Construction industry development body (CIDB) Construction plays an important role in South Africa's economic and social development.

4.6.2.2 To support and promote small and medium contractors within the construction industry.

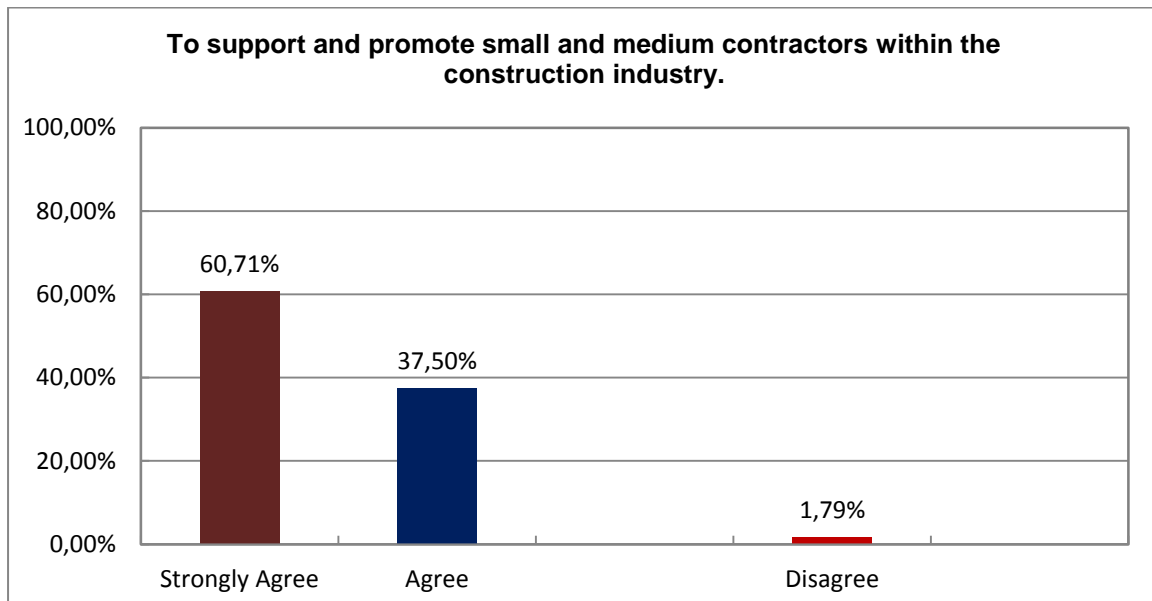


FIGURE 4.10 LEVEL OF SUPPORT TO SMALL AND MEDIUM CONTRACTORS

The above figure 4.10 confirms that the support of small and medium contractors is vital, this is confirmed by 60.7% and 37.50% of strongly agree and agree graphs. As per literature the majority of employees within construction industry are small and medium contractors (Smallwood and Haupt, 2007b), therefore in order to develop and improve health and wellness program other contractors should be supported by strong professional bodies like CIDB.

4.6.2.3 To provide strategic guidelines towards maintaining healthy workforce.

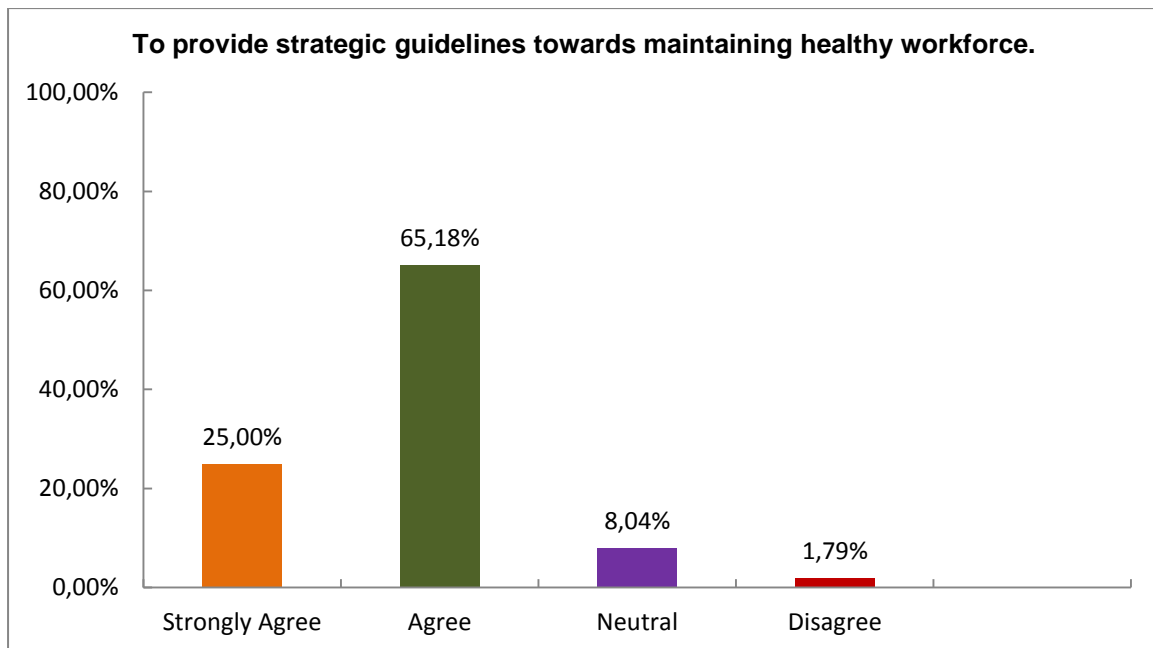


FIGURE 4.11 PROVISION OF GUIDELINES TOWARDS MAINTAINING HEALTHY WORKFORCE.

The figure 4.11 gives us a clear picture of what is expected from the CIDB in order to maintain workforce. 25% strongly agreed and 65.1% agreed and 8.04% were neutral. The construction industry in South Africa believes on professional bodies like CIDB should be able to formulate strategic guidelines towards maintaining healthy workforce.

4.6.2.4 To ensure compliance towards health and safety related legislations.

Table 4.9 Compliance towards health and safety related legislations.

Strongly Agree	91	81,25%
Agree	20	17,86%
Neutral	0	0,00%
Disagree	1	0,89%
Strongly disagree	0	0,00%
Total	112	

The results in Table 4.9 showed that most of respondents (81.25%) strongly agreed and (17.86%) agreed on ensuring compliance towards health and safety related legislations. This has been the focus of the department of labour to ensure construction industry is in compliance with all relevant legislations (Smallwood and Haupt, 2007b). Hillier et al, (2005) supported that Health and safety regulations must be complied with (Hillier et al., 2005b).

4.6.2.5 To conduct research and development on Occupational Health & Wellness suitable for the industry.

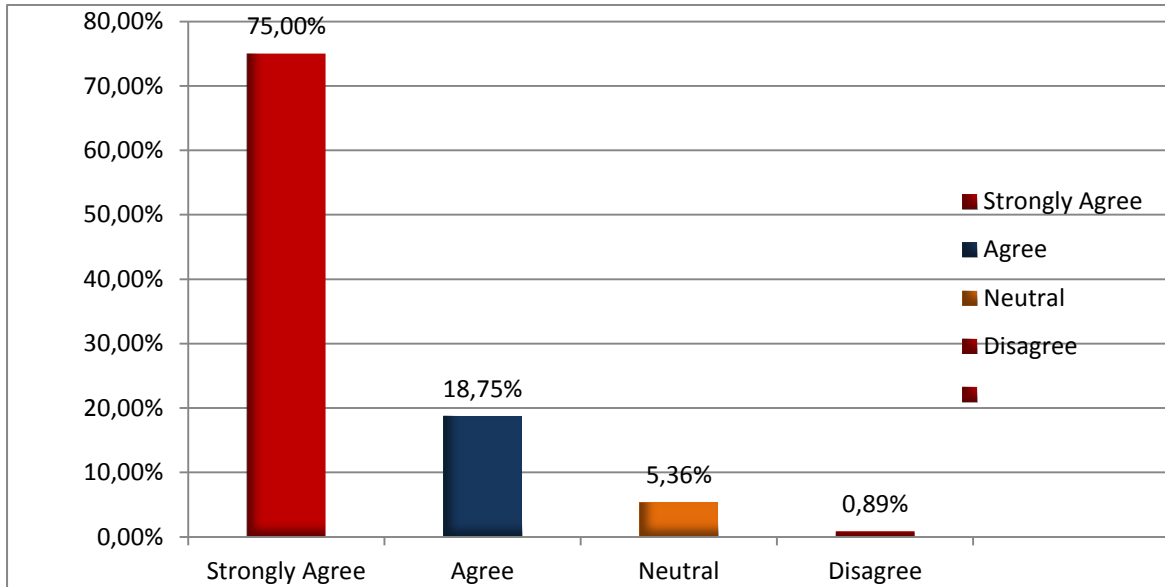


FIGURE 4.12 RESEARCH AND DEVELOPMENT IN OCCUPATIONAL HEALTH AND WELLNESS

The respondents responded positively in support for the role of research and development on occupational health and wellness programmes in construction industry. 75% strongly agree and 18,75% agree, 0,89% disagree and 5.36% were neutral.

4.7 Objective 4. Construction industry Stakeholder’s attitudes.

The question asks respondents their opinion on stakeholders’ attitude towards occupational health and wellness programmes. Answer **Yes or No**

Table 4.10 Stakeholder perception

Perceived Stakeholder attitudes	Yes	No	(N)
OH&W is the cause of delay	92.86%	7.14%	112
OH&W benefits client and main contractor only	13.39%	86.61%	112
OH&W benefits construction industry at large	91.07%	8.93%	112
It is perceived as the main contributor towards healthy workforce	93.75%	6.23%	112

Respondents were asked to indicate by Yes/No on the perception of the stakeholders in terms of occupational health and wellness. The respondents' responses on three variables were as follows, OH&W as a cause of delay to projects was 92.86% (Yes) and 7.14% (No). This implies that there is pressure from the clients and main contractor to speed up and complete project as per project plan. Mostly clients (Project owner) believe that H&S in construction site is the responsibility of the workers to comply with H&S regulations (Iopes et al., 2011).

The second statement which asks if OH&W programmes benefit clients and main contractor only, the responses were 13.39% Yes and 86.61% No. The table represented understanding of the importance of workplace health programme that it's for the benefits of all project participants. Thirdly, the benefit for all was supported by 91.07% (Yes) and 8.93% (No). This implies that the latter was a true reflection of the respondents whereby they believe the programme is for their benefit as well. Lastly, 93.75% (Yes) and 6.23% (No) as a main contributor towards healthy workforce. If this is what stakeholders believe, it is an added value to construction health and safety status.

4.7 Objective 5. To identify challenges facing occupational health and wellness programs in construction industry (advancement)

Question: To indicate the level in which they agree with the statement in terms of challenges facing construction industry in terms of OH&W.

4.7.1

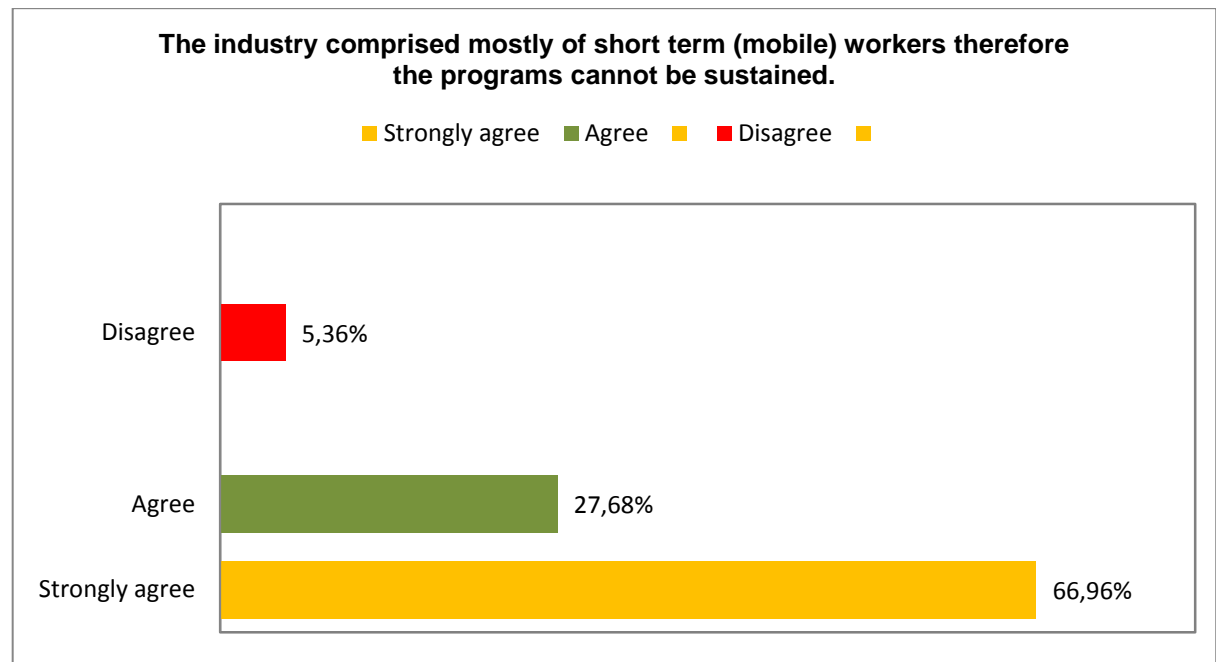


FIGURE 4.13 SHORT TERM WORKERS CANNOT SUSTAIN OH&W PROGRAMME

Figure 4.13 displayed the result of the respondents on how much they agreed with the above statement. Occupational Health and Wellness programmes in construction are difficult to sustain as most workers are temporary. The result of the study confirms what was discussed in the literature review of the unstable industry. The sustenance of the programmes is a challenge.

4.7.2 Accessibility of Occupational health and wellness services.

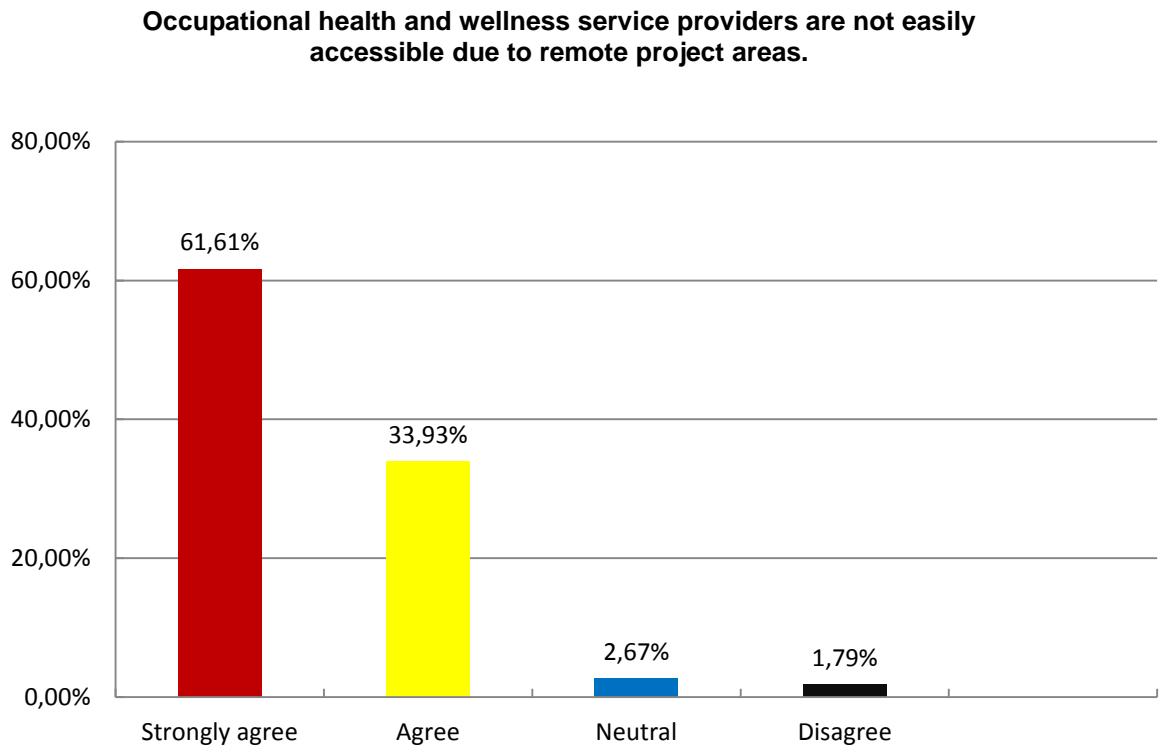


FIGURE 4.14 POOR ACCESSIBILITY OF OCCUPATIONAL HEALTH SERVICES.

Figure 4.14 illustrated 61.61% strongly agreed and 33.93% agreed that Occupational Health and Wellness services are not easily accessible. It is one of the reasons when one looks at the remote areas where projects are taking place.

4.7.3 Pressure to complete projects

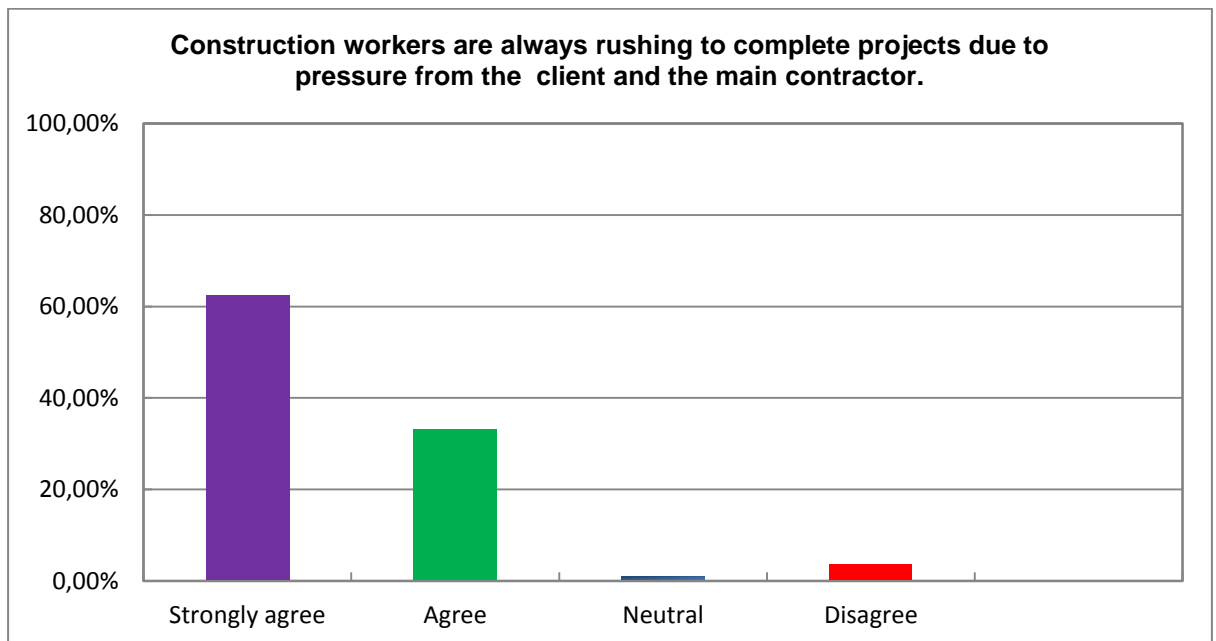


FIGURE 4.15 PRESSURE TO COMPLETE PROJECTS ON TIME.

Table 4.15 indicate that respondents supported that there is a pressure from the client to complete the project. 62.5% strongly agreed and 33.04% agreed. The construction and project management goes hand in hand.

4.7.4 Occupational Health and Wellness perception.

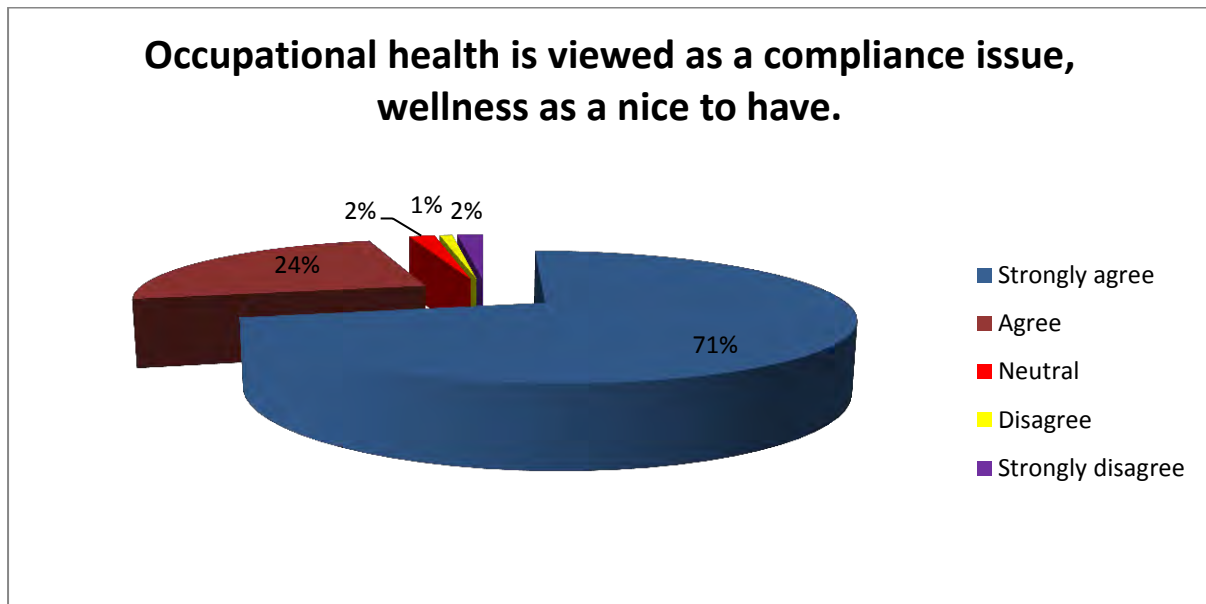


FIGURE 4.16 OCCUPATIONAL HEALTH IS A COMPLIANCE ISSUE.

Occupational Health is viewed is viewed as a compliance issue, based on Occupational Health and Safety Act 85 of 1993 it state clearly the responsibility of an employer (P.D. et al., 2006). Therefore that is why it is supported by their response hence the focus is on safety. The wellness programme are seen as a nice to have programmes (Moore et al., 2009). The response proved that strongly agree is 71% and 24% agree.

4.7.5 The focus is on Safety not on wellness programmes

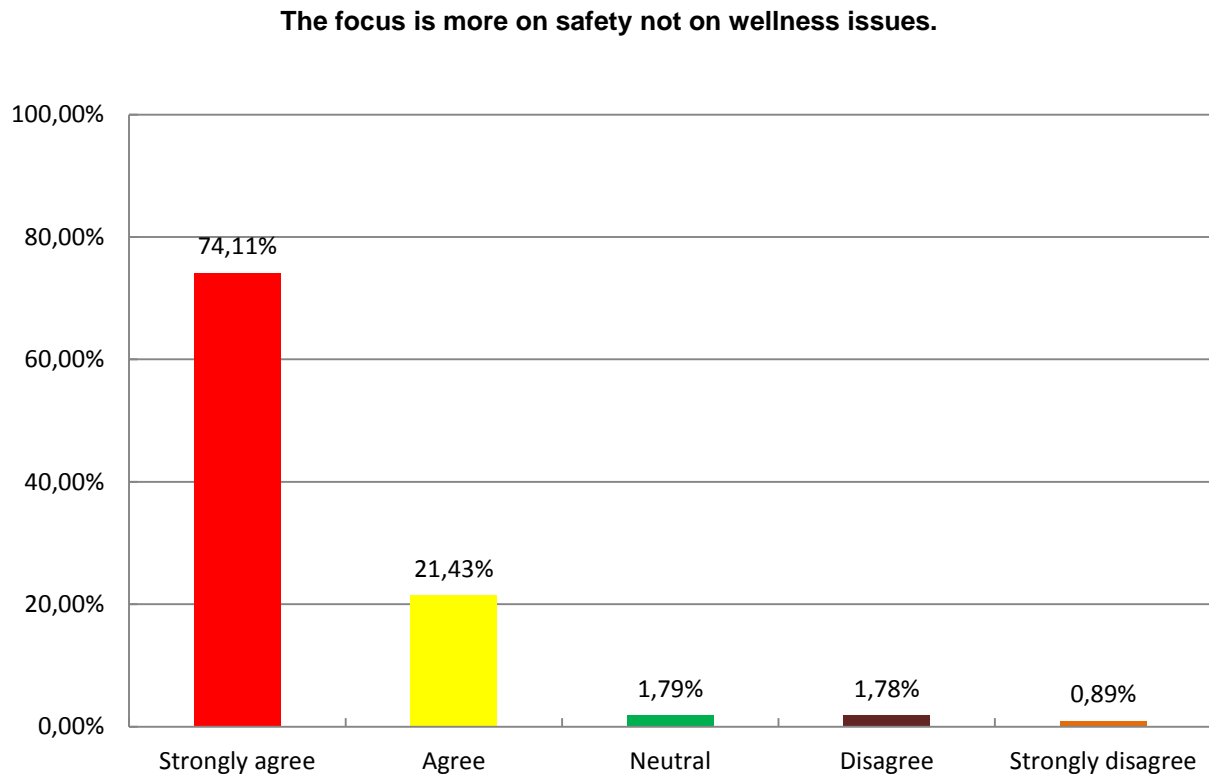


FIGURE 4.17 FOCUS IS ON SAFETY NOT ON WELLNESS

The respondents strongly supported that there is more focus on safety than on health and wellness issues.

4.8 Objective 5: To identify strategies that will assist in improving the quality and status of Occupational Health and Wellness programs in construction.

Questions were divided into two main questions comprising of four and six sub questions to show the level of the respondents agreeing or disagreeing with the statement.

4.8.1 Question 1 answers on the level of agree on the following statements.

Table 4.11 Improve quality of Occupational Health and Wellness programmes.

Strategies	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
To support small and medium contractors in Occupational Health & Wellness issues.	58.04%	41.07	0.89%	0.00%	0.00%
To continuously monitor Occupational Health & Wellness progress from start until the end of all projects.	45.54%	50.89%	1.79%	1.78%	0.00%
To involve all stakeholders in matters of Occupational Health & Wellness in each project.	73.21%	23.21%	2.68%	0.89%	0.00%
To identify specific needs for each project on Occupational Health & Wellness issues (operating in different areas with different people).	69.64%	27.68%	1.79%	0.89%	0.00%

Table 4.11 give an illustration of how respondents supported strategies to improve OH&W programmes in construction. Most respondents strongly agreed with all four statements, firstly to support small and medium contactors at 58.04% strongly agreed, 41.07% agreed. The continuous monitoring of the OH&W progress strongly agreed (45.54%) and agreed (50.89%) agreed. The matter of involving all stakeholders in occupational health and safety related issues was supported by 73.21% who strongly agreed and 23.21% agreed and lastly

the identification of the specific needs for each project; strongly agree 69.64% and 27.68% agreed. The respondents understood the need for all four mentioned strategies.

4.8.2 Question 2 answers “Yes” or “No” on the activities of occupational health and wellness which form part of strategies to comprehensive programme.

Table 4.12 Activities of Occupational health and wellness programmes.

Occupational health and wellness activities	Response	Response
OH Activities	Yes	No
Medical Surveillance Programme	100%	0.0%
Health Education programmes	86.49%	13.51%
Healthy life style programmes (<i>exercise, weight management , smoking and substance abuse</i>)	27.93%	72.07%
Employee assistant programme	54.95%	45.05%
Work life balance programmes	12.61%	87.39%
Chronic disease management programmes	95.50%	4.50%

Occupational health and wellness comprise of various activities, therefore table 4.12 showed that 100 % responded yes on the medical surveillance which seem to be the most important activity as it constitute fitness medicals for the workers. The health education was supported by 86.49% (Yes) and 13.51% (No). Health education is another easy activity which is understood by most workers. The healthy lifestyle programme and work life balance are wellness components which are prominent to other sectors but unpopular to construction industry (27.93% Yes) and (72.07% No), (12.61% Yes) and (87.39% No). Baicker et al (2010b supported that health and wellness targets lifestyle modification such as exercise, gym, disease management programme, work life balance and stress management (employee

assistant programme (Baicker et al., 2010b) . Finally, the other important activity is the chronic disease management programme which has gained popularity in construction due to high injuries on site. The response was positive 95.50% (Yes) and 4.50% (No), in support of the study conducted by Hymel et al (2011) proved that chronic conditions are on the rise (Hymel et al., 2011a).

4.9 General questions on the understanding of occupational health and wellness in contractors. Questions were divided into four with Yes or No answers.

4.9.1 Do You Agree That The Following Activities Should Form Part Of Occupational Health And Wellness?

Table 4.13 Occupational Health and Wellness Activities

OCCUPATIONAL HEALTH ACTIVITIES	YES	NO	TOTAL
MEDICAL SURVEILLANCE PROGRAMME	100%	0.00	112
PERIODIC HEALTH EDUCATION	86.49%	13.51%	112
HEALTHY LIFESTYLE MONITORING	27.93%	72.07%	112
EMPLOYEE ASSISTANT PROGRAMME	54.95%	45.05%	112
WORK LIFE BALANCE	12.61%	87.39%	112
Chronic disease management	95.5%	4.50%	112

The above Table 4.13, illustrated activities of occupational health and wellness. The activities show 100% on medical surveillance, health education 86.49%, and chronic diseases management 95.5% (Yes). The two which scored less on (Yes) answer were work life balance and healthy lifestyle. The medical surveillance is supported by National health guidelines on occupational health programmes (health, 2003).

CHAPTER 5

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter outlines the discussion of results in conjunction with the literature reviewed. It also reviews the research objectives in comparison with the results obtained and generates new ideas which will assist in improving the quality of occupational health and wellness programmes in construction industry. The results and interpretation of the findings are discussed in accordance with the objectives of the study.

5.2 Summary

South Africa, as a developing country, is faced with a fast growing economy which requires adaptation of new strategies in order to compete globally. Employee health and wellness play a vital role as one of the major elements used to evaluate company performance. Therefore, all sectors are supposed to devise strategies that will assist them in sustaining their programmes. The construction industry seems to be one of the industries where employee health, safety and wellness is struggling to flourish like the corporate sectors. The study focused on identifying the challenges that are hindering the occupational health and wellness programmes in the construction industry and coming up with strategies which will boost the industry. In order to arrive at a solution and recommendation the responses to questionnaires were analysed as outlined in chapter 4.

5.3 Recommendations

The recommendations were discussed after the explanation of each objective. Therefore the summary of the recommendation will be discussed. The main challenge of construction is the short period an employee spends with one employer. Secondly, wellness component in health and safety programmes is neglected. Construction industry should embark on designing a special model of occupational health and wellness programmes. The following should be taken into consideration:

- The integration of occupational health, safety and wellness activities in one comprehensive programme. The integrated programme will create procedures of managing employees found with chronic diseases. The integrating of occupational health and wellness has produced an evidence of positive returns (Baicker et al., 2010b). This was also supported by Martin (2010) that effective integrated health and wellness is the core of human resource strategy (Martin, 2010b).
- The construction industries to use mobile occupational health and wellness services in order to reduce time loss which has negative impact on production and improving employee wellness.
- The new OH&W programme should be aligned with the National Health Strategy of South Africa which states that the goals of improving quality of care, health facility planning and information management. Therefore, in alignment to the goals of the National Health strategy construction industry needs to improve in the quality of care by including OH&W programmes in the corporate strategies.
- The construction employers, occupational health teams, and public health institutions should form synergy in order to monitor medical conditions of the uninsured, employees, retrenched and retired workers. These employees should be referred through structured system for continuance of medical care.
- A pilot programme should be conducted to gauge the sustainability of the new integrated programme. As much as the study has indicated that most activities positively supported the two, specific studies are still needed. These should be aimed explicitly at demonstrating the bond between the specific occupational health (preventative), wellness activities and safety injury reduction and productivity.
- The safety require basic knowledge of employee wellbeing, therefore the employers of the construction industries must have a basic training programme which will include wellness programme (chronic diseases management and employee assistant programme) The safety officers are responsible for all occupational health and safety programme on site. Therefore, upgrading their curriculum will benefit construction industry. The courses should be registered with the South African National Qualification Authority.
- A network of occupational health and wellness professionals should be developed, formalised and accessible. OH&W professionals should be registered with an accredited institution in order to monitor performance.

- The Occupational Health and Wellness management systems for the construction industry should be established in order to monitor compliance.
- Develop a system for measuring the effectiveness of the OH&W programme. Ensure that the system is standardised and utilised for all construction industries.
- The department of labour should strengthened controls and introduce stringent policies and procedures to monitor health and safety in construction sites.
- CIDB should align Construction Company's OH&W performance to their grading system. This will forced compliance in order to be promoted to another level which gives them an opportunity to tender for bigger contracts.
- The government should offer incentive programmes to construction companies in order to aid in compliance with Occupational Health and safety.

5.4 Recommendations for future studies

Future studies should consider the following:

- The study was limited to the Pietermaritzburg construction site. During this study it is acknowledged that other construction companies could have been included.
- The future studies must consider comparative study in occupational health and wellness. The study should compare two sectors more or less similar in nature to be able to understand how their programme is structured.
- Future studies should use probability sampling techniques to be accurate and reliable in order to generalise findings for the industry at large.
- The Department of Health in partnership with the construction industry should introduce sponsored research programmes on Occupational Health and Wellness in the construction industry.

5.5 CONCLUSION

Finally, I conclude that a structured, integrated occupational health and wellness program is the way to go. There are many small contractors or subcontractors that tend to struggle financially to maintain a healthy workforce (Abd-El-Salam et al., 2013). This study demonstrates that the value added by occupational health and wellness in construction is well-conceived by all stakeholders. However, the gaps still exist in terms fully utilising the programmes to their full advantage. The nature of construction industry confirms difficulties in sustaining health and wellness programmes. Therefore, in conclusion construction industry needs to form synergies with public health institutions, private occupational health service providers and non-governmental community organisations. The synergy will endeavour to improve chronic disease management which will result in maintaining healthy construction workforce.

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APPENDIX 1

QUESTIONNAIRE

I, Ignatia Dionne Myeza an MBA student at the Graduate school of business and leadership, of the University of KwaZulu Natal, invite you to participate in a research project entitled (Value added by Occupational Health and Wellness (OH& W) programmes in construction industry). The aim of the study is to identify OH W challenges in construction in order to identify strategies that can be adopted to assist the construction industry to fully benefit from the value added by occupational health and wellness in construction industry. Through your participation I hope to understand and identify challenges facing the construction industry. The findings of the study are intended to support the advancement of the occupational health and wellness in the construction industry. It will take you approximately 15 minutes to complete the questionnaire. Your survey responses will be strictly confidential and data will be reported only in aggregate. Your information will be coded and will be treated with confidentiality. Thank you for your participation. Please press continue to start to the survey.

What is your gender?

1. Male
2. Female

What is your race?

1. Black
2. White
3. Indian
4. Coloured
5. Other

Which company do you work for ? Choose one. (Category of your company)

1. Client (Project Owner)
2. Joint Venture company
3. Consultant
4. Main contractor (Group five)
5. Subcontractor
6. Other small contractors

What is your position?

1. Company owner

2. Project manager
3. Site manager
4. Safety personnel
5. Foreman
6. Supervisor
7. Human resources personnel
8. Other

How long have you been in this position for?

1. 0 - 1 year
2. 2 - 4 years
3. 5 - 7 years
4. 8 - 10 years
5. 10 years and above

What benefits has the construction industry gained from Occupational Health & Wellness programme?
Please choose one answer to indicate the level in which you agree or disagree with the following statements.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
It has improved workers performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Job satisfaction among workers has improved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It has increased employee retention.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It has indirectly impacted on the success of the company.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It has lowered absenteeism rate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The injury statistics has decreased.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It has improved general health of the workers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It has enhanced organisational brand image.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reported Occupational health related diseases have improved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Given the following South African Legislations would you agree that it ;has contributed most in improving the standard of Occupational & health and wellness in construction industry? Answer Yes or No

	Yes	No
Occupational Health and Safety act (no 85 of 19193):	<input type="checkbox"/>	<input type="checkbox"/>
Compensation for Occupational injuries and diseases act (no 130 of 1993):	<input type="checkbox"/>	<input type="checkbox"/>
Basic Conditions of Employment act (no 75 of 1997):	<input type="checkbox"/>	<input type="checkbox"/>
The Labour relations act (no 66 of 1995)	<input type="checkbox"/>	<input type="checkbox"/>

The Constitution of the Republic of South Africa 1996:	<input type="checkbox"/>	<input type="checkbox"/>
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Please indicate whether you agree or disagree with the following statement in terms of the role of the construction industry development board (CIDB);in occupational health and wellness.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
To provide strategic leadership role to the construction stakeholders.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To support and promote small and medium contractors within the construction industry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To provide strategic guidelines towards maintaining healthy workforce.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To ensure compliance towards health and safety related legislations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To focus and conduct research and development on Occupational Health & Wellness suitable for the industry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In your opinion, would you support the following statements in terms of stakeholders perception towards occupational health and wellness programmes. Answer Yes or No

	YES	NO
Occupational Health & Wellness is the cause of project delays.	<input type="checkbox"/>	<input type="checkbox"/>
Occupational Health & Wellness programme benefits clients (project owner) and the main contractor only.	<input type="checkbox"/>	<input type="checkbox"/>
Occupational Health & Wellness programmes benefits construction industry at large.	<input type="checkbox"/>	<input type="checkbox"/>
It is perceived as a main contributor towards healthy workforce (early diagnosis and early treatment).	<input type="checkbox"/>	<input type="checkbox"/>

The following statements discusses challenges faced by construction industry. Indicate ;the level in which you agree or disagree with the following statements.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The industry comprised mostly of short term (mobile) workers therefore the programs cannot be sustained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Occupational health and wellness service providers are not easily accessible due to remote project areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Construction workers are always rushing to complete projects due to pressure from the client and the main contractor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Occupational health is viewed as a compliance issue, wellness as nice to have programme.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The focus is more on safety not on wellness issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Indicate the level in which you agree or disagree with the role of the project owner or main contractor in Occupational health and wellness.

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
To support small and medium contractors in Occupational Health & Wellness issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To continuously monitor Occupational Health & Wellness progress from start until the end of all projects.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To involve all stakeholders in matters of Occupational Health & Wellness in each project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To identify specific needs for each project on Occupational Health & Wellness issues (operating in different areas with different people).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you agree that the following activities should form part of Occupational Health and Wellness.

	YES	NO
Medical surveillance program. (medical examination for employees, baseline, periodic and exit medical program)	<input type="checkbox"/>	<input type="checkbox"/>
Periodic health education programs through adherence to national health calendar days e.g. AIDS, TB months	<input type="checkbox"/>	<input type="checkbox"/>
Healthy Lifestyle monitoring programs (smoking, substance abuse, exercise and weight management)	<input type="checkbox"/>	<input type="checkbox"/>
Employee Assistant program (managing troubled workers in a professional way)	<input type="checkbox"/>	<input type="checkbox"/>
Work /life balance programs. (Education on balancing work and home demands especially when they are working away from home)	<input type="checkbox"/>	<input type="checkbox"/>
Chronic disease management program. (Monitoring of Blood pressure, Diabetes and others)	<input type="checkbox"/>	<input type="checkbox"/>

In your experience do you think construction industry is concerned about health and wellness of their workers?

1. YES
2. NO

In terms of health and wellness, do you think there is an improvement in the way contractors and sub-contractors are treating their workers?

1. YES
2. NO

Do you agree that, construction industry operates differently from other corporate sectors therefore for its success a special model of Occupational health & Wellness is required?

1. Yes
2. No

Would you say Occupational Health & Wellness services is easily accessible to contractors and sub-contractors?

1. Yes
2. No

1. Health and Wellness in Construction Industry

APPENDIX 3

Turnitin Originality Report



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