



**THE IMPACT OF THE WORKPLACE ENVIRONMENT ON THE EMOTIONAL AND
PHYSICAL WELLBEING OF CALL CENTRE AGENTS IN THE CAPE
METROPOLE**

by

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DECLARATION

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ABSTRACT

Call centres have become an important source for organisations to provide efficient information to their customers through cost-effective communication channels. Call centres are defined as a work environment in which the main business is mediated by computer- and telephone-based technologies that allow the effective distribution of incoming calls to available staff, and permit customer–employee communication simultaneously with the use of display screen equipment (DSE) and instant access to information. Working in a call centre is often linked with high stress levels, difficult customers, shift work, high workload demand, absenteeism and high employee turnover rates. The work characteristics of call centres include performance targets where employees are required to achieve set targets, undergo close performance monitoring, performance appraisal systems, limited task variation, repetitive work and limited autonomy. The physical environment in the call centre is often associated with open-plan office layouts and booths where noise levels and workstations are positioned in close proximity to each other.

Wellbeing in call centres has become a concern and the research was undertaken to establish what effects the working environment (physical environment and job characteristics) in call centres in the Cape Metropole has on the wellbeing of call centre agents.

A quantitative research method was employed in the study. A structured questionnaire was distributed via SurveyMonkey® to call centre agents from four participating call centres in the Cape Metropole. The combined target population of the four call centres was 760. A sample size of 200 was determined by using the Raosoft Incorporated® calculation tool. Although the aforesaid sample size sufficed, a response rate of 275 was received.

Questions relating to job characteristics and significance of the work were based on the Job Diagnostic Survey by Hackman and Oldham. Social support questions were based on the instrument developed by Caplan, Cobb, French, Van Harrison & Pinneau in 1975. Job demand questions were based on the instrument developed by Karasek in 1979, and only the section on job demand was used. Performance monitoring and physical work environment were measured by using the questions based on these variables by Sprigg *et al* in 2003. Emotional wellbeing questions relating to burnout were measured using the Oldenburg Burnout Inventory. The wellbeing questions relating to vocal health, optical health and auditory health were based on the questionnaires developed by Sprigg *et al*. in 2003. General health was measured using the “Somatic Complaints” section of the NIOSH Generic

Job Stress Questionnaire. Musculoskeletal health problems were measured using the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) developed by Hedge in 1994.

Research question 1 addressed the gender perceptions of job characteristics, physical work environment and emotional and physical wellbeing. A T-test was conducted to answer the research question and the results revealed that there was no significant difference in gender perception on job characteristics; however there was a significant difference in perception of the physical work environment and wellbeing. Research question 2 addressed whether there is a significant difference in emotional and physical wellbeing experienced by call centre agents from various industries. A MANOVA analysis was conducted to determine the significance in industries, $p = .015$, and an ANOVA analysis was conducted that revealed agents working in the online retail as well as financial service industries were more likely to experience disengagement, $p = .035$. Research question 3 addressed the factors in the workplace environment that contribute to emotional and physical wellbeing problems. An ANOVA analysis was conducted and the results revealed lack of skills variety, $p = .014$, contributes to exhaustion; lack of autonomy, $p = .040$, contributes to disengagement; lack of supervisor support, $p = .009$, contributes to exhaustion, job demands, $p = .000$, contribute to exhaustion, performance monitoring, $p = .036$, contributes to exhaustion; and workstation layout, $p = .001$, contributes to auditory health problems. Research question 4 addressed whether there is a significant relationship between job characteristics, physical work environment and wellbeing. A Pearson correlation analysis was conducted and the results revealed that there is a significant relationship between job characteristics, physical work environment, and wellbeing.

It can be concluded that the workplace environment does have an impact on the wellbeing of call centre agents in the Cape Metropole. It is imperative that the management of call centres understand the nature of the job and how the physical environment contributes to job stress; burnout; vocal, auditory, and optical health problems; and musculoskeletal disorders. The researcher recognises that there are essential job characteristics associated with call centre work but that there are elements of the job that can be redesigned to improve the wellbeing of call centre agents. It is recommended that management implement interventions which will redesign those elements within the workplace environment that contribute to wellbeing issues. The findings of this study add to existing literature and knowledge of the workplace environment and wellbeing of call centre agents.

Key terms: call centre, call centre agent, physical work environment, physical wellbeing, emotional wellbeing, performance monitoring, autonomy, stress, burnout, musculoskeletal disorders

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DEDICATION

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GLOSSARY

Abbreviations and Acronyms	
ANOVA	Analysis of Variance
BPO	Business Processing Outsourcing
CMDQ	Cornell Musculoskeletal Discomfort Questionnaire
DSE	Display Screen Equipment
DTI	Department of Trade and Industry
ETSI	European Telecommunications Standards Institute
FIS	Fidelity National Information Services
HSE	Health and Safety Executive
JDS	Job Diagnostic Survey
MANOVA	Multivariate Analysis of Variance
MSD	Musculoskeletal Disorder
PCA	Principal Component Analysis
SPSS	Statistical Package for the Social Sciences
VDU	Visual Display Unit
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

The call centre industry is one of the fastest growing industries globally (Abraham, 2008) and has become an important source for businesses to communicate with customers, whether information is shared (inbound) or by means of telesales (outbound) (White & Roos, 2005). The work environment of call centres is mediated by computer- and telephone-based technologies that enable the distribution of calls to call centre agents (Holman *et al.*, 2003).

Call centres provide an alternative means of contact between the customer and the organisation and they eliminate the high costs of one-to-one interaction (Möller *et al.*, 2004). They are a cost effective way of achieving service quality and customer satisfaction (Dormann & Zijlstra, 2003). Call centres are expanding in terms of workspace and economic scope and are beneficial to organisations by reducing costs, improving customer services and generating new opportunities for extra revenue (Gans *et al.*, 2003). Most organisations are using business processing outsourcing (BPO) to cut operational costs and enable the use of the latest technology (Harris, 2012). BPO is the transfer of operational processes (purchasing, advertising, marketing, and sales) and supporting processes (accounting, recruitment, call centre and technical support) to companies that specialise in undertaking responsibility for information-intensive business processes for their clients (Naidoo & Neville, 2005).

Call centres operate in various industries, ranging from telecommunications, insurance, banking, retail, the government sector, and sales and marketing. Owing to the rapid growth of call centres, the process of call handling is increasingly emerging in specialised areas such as legal advice, psychological support, recruitment, market research, and public sector communication (Houlihan, 2001).

Typical tasks of a call centre agent include using telephone headsets, computer systems and interactive display terminals during calls, and performing multiple tasks with frequent interruptions (Bakker *et al.*, 2003). Call centres are important for customer-related management and the role of call centre agents is vital as they are the link between the customer and the organisation (Houlihan, 2001).

The working environment of a call centre is described as an “endless room with numerous open-space cubicles, in which people with earphones sit in front of computer terminals, providing teleservices to phantom customers” (Gans *et al.*, 2003:81).

Research has focused on the work design in call centres and how it affects employee wellbeing (Holman, 2002; Ackroyd *et al.*, 2006), as well as the psychological risk factors associated with work design and wellbeing (Sprigg *et al.*, 2003). Research has also investigated how the physical work environment in call centres affects employee commitment (McGuire & McLaren, 2007) and employee performance (Vischer, 2007). Research conducted by Holman (2002) and Deery *et al.* (2002) focused only on wellbeing aspects like anxiety and depression in call centres, and the emotional exhaustion and absenteeism of call centre agents.

In this study the researcher posits that the working environment in call centres consists of both job characteristics and the physical work environment.

The overall aim of this research is to identify whether workplace environmental factors have an impact on call centre agents' wellbeing. These factors include call centre job characteristic aspects like the monitoring of calls, performance monitoring, work tasks that are monotonous and repetitive, job demands, low job autonomy, low task significance and low skills utilisation (Bakker *et al.*, 2003; Sprigg *et al.*, 2003; Norman, 2005; Comcare, 2006; Visser & Rothmann, 2008). The physical environment consists of open-plan work areas, where noise levels are high (Comcare, 2006). Owing to the high volume of calls and job demands, call centre agents spend their working hours seated at their workstations, increasing their risk of developing musculoskeletal disorders, job stress and burnout (Amistead *et al.*, 2002; Healy & Bramble, 2003; Norman, 2005).

1.2 Problem statement

Against the preceding background it is evident that call centres are an important source of communication with customers in striving towards customer service. In South Africa, the call centre industry has grown immensely; it has become a source of job creation to alleviate unemployment in the country and a source of foreign investment and economic growth (Banks & Roodt, 2011). The call centre industry in the Western Cape generates about R8bn for the provincial economy and employs about 40 000 people (Phakathi, 2013). Cape Town's central business district has emerged as a global contender in attracting offshore and local BPO, and call centres play significant role, thus making Cape Town and the Western Cape one of the leading call centre hubs in the country (Phakathi, 2013).

While call centres in Cape Town are offering companies benefits in terms of cost savings and generate huge revenues for the Western Cape economy, not enough emphasis has been placed on the workplace environment of these call centres and how this impacts on the wellbeing of call centre agents. Therefore, the researcher is in agreement with research conducted by Holman *et al.* (2004) that the benefits for call centre agents are less clear. Call centre agents are the most important contact point between the customer and organisation. Because of the importance of these agents to the organisation, it is important that their wellbeing be taken into consideration to retain these agents within the organisation. Organisations need to pay sufficient attention to the job demands and ergonomic aspects of call centre work. Call centre agents who are repeatedly exposed to high job demands can be expected to develop feelings of exhaustion (Bakker *et al.*, 2003). There needs to be a focus on how to improve the job characteristics, working conditions and wellbeing of call centre agents. Organisations might have to improve the design of the call centre workplace environment to benefit the wellbeing of the call centre agent and to change the bad reputation of the industry (Doellgast & Sezer, 2012).

The call centre industry has suffered from a poor reputation exacerbated by low pay, monotonous work, high job demand, low control, limited social support and few opportunities for participating and acquiring new skills and training (Andersson & Jansson, 2006). The industry has variously been referred to as “electronic sweatshops”, and “an assembly line in the head”, while the term “battery hens” has been used to describe the perceived stressful environment (Garson, 1988; Fernie & Metcalf, 1998; Taylor & Bain, 1999).

The electronic sweatshops described by Garson (1988) are associated with inferior working conditions. Call centres are also associated with treating agents like slave labour and some employees are held accountable for strict metrics like time-to-answer, average call handle time, talk time, idling time, nonproduction time, and adherence to script (Bodine, 2011). Furthermore, the job characteristics of call centres include performance targets where employees are required to achieve set targets, undergo close performance monitoring and performance appraisal systems, have limited task variation, do repetitive work with limited autonomy, and endure long working shifts (Comcare, 2006). According to Cruz (2010:1), “every minute counts for every call centre agent, from the moment he or she logs into the computer, cigarette breaks, 15-minute tea breaks in the morning and afternoon and a one-hour lunch break which consists of consuming a heavy meal.”

The nature of the call centre working environment may contribute to stress and physical, mental and psychological strain in employees (Workman & Bommer, 2004). Call centre agents experience job stress as a result of the conflicting demands of the job, organisation, supervisors and customers (De Ruyter *et al.*, 2001). As a result, call centres are often perceived to have a negative effect on employee wellbeing, which is mainly attributed to job design, performance monitoring, HR practices and team leader support (Holman, 2002).

According to Toomingas *et al.* (2005), the physical environment in the call centre is often associated with open-plan office layouts and booths where noise levels are high and workstations are positioned close to one another. Glare on computer screens or visual display units (VDUs) in an open-plan office should be eliminated by selecting an appropriate lighting setting, luminaires, luminaire layout and correct workstation design (Newsham *et al.*, 2004). The design and layout of a call centre can have an effect on employee wellbeing and work performance. Contributing factors are poor lighting, lack of natural light, partitions that form box-like environments, and cluttered and untidy work environments (Australian Services Union, 2003).

The working environment of call centre personnel puts them at risk of contracting various health problems like stress, burnout, musculoskeletal disorders, ear infections, respiratory problems, weight gain or loss, hypertension, ulcers and voice loss (Boyce, 2007; Tecson, 2011). Research done by Knoll Inc. (2010) established that the health and performance of employees have a direct impact on customer satisfaction, turnover rate and company profits.

In concluding the problem statement it should be noted according to Banks & Roodt (2011) and Beaumont (2011) that management in the call centre industry focus on efficiency to benefit the organisation's targets rather than on quality service to customers. These contradicting demands affect the wellbeing of call centre agents which results in job dissatisfaction, absenteeism, turnover and poor work performance (Jacobs & Roodt, 2011). Although the call centre industry is booming in South Africa and creating jobs, the poor service to customers can negatively affect the reputation and business performance of call centres (Jacobs & Roodt, 2011).

1.3 Purpose statement

Given the background and problem statement of the study, the purpose of this study is threefold.

- To determine the factors within the workplace environment that contribute negatively to call centre agents' wellbeing.
- To determine the emotional and physical wellbeing problems experienced by call centre agents and whether these problems affect their ability to perform their work.
- To assess the call centre agents' perceptions of their workplace environment.

1.4 Objectives of the research

In order to carry out and achieve the purpose of this study as stated above, the objectives of this research are the following:

Primary objectives

The primary objectives of the study are:

- To determine whether the workplace environments of call centres within the Cape Metropole have an impact on the emotional and physical wellbeing of call centre agents.
- Ascertaining the specific factors that contribute to wellbeing could assist call centre agents in becoming aware of what may trigger certain health problems in the workplace as well as adding to the overall body of knowledge on call centres.
- To provide management of call centres in the Cape Metropole with valuable feedback and suggested measures to improve the working environment, which should assist in improving the wellbeing of call centre agents.

Secondary objectives

The secondary objectives of the study are:

- To conduct a thorough literature study of the job characteristics and physical working environment of call centres.
- To identify and describe what emotional and physical wellbeing problems are experienced by call centre agents

1.5 Research questions

Given the stated research objectives, a number of research questions were identified:

- Question 1: Is there a significant difference between male and female perceptions of job characteristics, physical working environment and emotional and physical wellbeing in call centres?
- Question 2: Is there a significant difference in the emotional and physical wellbeing experienced by call centre agents from various

industries?

Question 3: What are the factors within the workplace environment that contribute to emotional and physical wellbeing of call centre agents?

Question 4: Is there a significant relationship between the job characteristics, physical working environment and wellbeing of call centre agents employed within the Cape Metropole?

1.6 Significance of the research

The study will be beneficial to executive management of call centres, human resource departments, supervisors and employees, particularly those working within the call centre environment. The information generated in the study affords the aforementioned individuals an understanding of the wellbeing problems call centre agents experience. The results of the study forwards suggestion around how the physical work environment for example, could be restructured to alleviate problems pertaining to the general wellbeing of call centre agents. According to Bakker & Demerouti (2007) job resources like supervisor support, co-worker support, performance feedback and autonomy can act as a buffer to assist call employees to cope with job demands, burnout, stress and other health issues. The findings of this study will augment current literature on the topic and will identify areas for future research.

1.7 Research design and methodology

Since the purpose of this study is to identify whether the workplace environment, which comprises the job characteristics and the physical environment, has an impact on the wellbeing of call centre agents, the research method in terms of achieving the objectives of this study is quantitative, using a descriptive design (this is explained in greater detail in Chapter 3). Creswell (1994) defines quantitative research as a method that explains phenomena by collecting numerical data that are statistically analysed. Descriptive research aims to describe the relationship between variables (Sekaran & Bougie, 2013). The researcher's rationale for using this approach was that this type of research could evaluate objective data consisting of numbers and analyse it based on complex structured methods to confirm or invalidate the research questions (Welman *et al.*, 2005). The researcher also wants to establish whether there is a statistically significant relationship between variables. The objective is also to identify factors of the workplace environment that can influence the wellbeing of call centre agents, and therefore this research approach is also suitable to analyse these factors. This research deals with the

relationship between independent variables and a dependent variable. The dependent variable measures the consequences of the independent variables being studied (Mouton & Marais, 1988). In this study the independent variables are job characteristics and physical environment, while the dependent variable is wellbeing.

1.7.1 Population

The population for this study included 760 call centre agents from four inbound call centres located in the Cape Metropole. The Cape Metropole includes all places within the northern and southern suburbs, Atlantic Seaboard, False Bay and Helderberg region.

1.7.2 Sample size

From the population of 760 call centre agents, a sample size was calculated on the Raosoft® Incorporated Tool. This was determined by the researcher's taking into consideration a margin of error of 5%, a confidence level of 90%, and a response distribution of 50%. The results indicated a minimum sample size of 200 respondents required for the survey. The number of call centre agents who participated in the study was 275.

The sampling method selected for this study was self-selection sampling. Self-selection sampling is when individuals choose to participate in the research of their own accord (Lund Research Limited, 2010). The researcher chose this method of sampling, as it was easier to get a sample size of call centre agents volunteering to complete the questionnaires. This type of sampling also reduced time spent in sourcing call centre agents to participate in the study.

1.7.3 Data collection

Data can be obtained from primary or secondary sources. Primary data refers to information obtained by the researcher on the variables of interest to address the research problem (Hox & Boeije, 2005). Primary sources of data include interviews, questionnaires, focus groups and observations. Primary data for this study was collected by a structured questionnaire. A web-based SurveyMonkey® tool was used to compile the structured questionnaire. The questionnaire included items from questionnaires used in previous research. The questionnaire was pre-tested in a pilot study involving five call centre agents from a call centre not participating in this study. The findings of the five completed questionnaires were not included in this study as it was merely done to ascertain whether call centre agents would find it difficult to answer the questions and the time it would take them to furnish responses.

Secondary data refers to information gathered from sources that already exist, like books and journals, the media, internet resources, company records and annual reports (Sekaran & Bougie, 2013). The researcher made use of secondary data to formulate the literature review.

1.7.4 Data analysis

The data was interpreted using SPSS (Statistical Package for the Social Sciences). Reliability analysis was done using Cronbach alpha's coefficient. Descriptive statistics (means and standard deviations) were used to explore the data. Descriptive statistics describes the basic features of the data in which summaries about the sample and measures are provided (Trochim, 2004). A factor analysis was conducted by studying the eigenvalues to determine the number of factors. A principal component analysis with a varimax rotation was used to determine which variables correlate with each factor, as well as to maximise the sum of variance of the required loadings of the factor matrix (Wuensch, 2013). Inferential statistics was conducted which included t-tests, analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA) to answer the research questions. Inferential statistics allows the researcher to run tests to reach conclusions that extend beyond the immediate data (Trochim, 2004). For testing relationships between variables, Pearson's correlation was used. The data was analysed so that it could be interpreted into meaningful information or findings for this study. Chapter 3 discusses this in more detail.

1.8 Ethical considerations

Ethics is defined as a set of moral principles or values. It distinguishes between what is good and bad; determines moral duty and obligations; and establishes principles of conduct of an individual and a professional group (Crommelin & Pline, 2007:42).

In this study, the researcher received permission to conduct the study by obtaining written consent from four organisations with call centres within the Cape Metropole. Ethics approval for the study was obtained from the research ethics committee of the faculty at the university where the researcher is registered for the degree. The aim and benefits of the research were communicated to the participants in a cover letter and implied consent was received by participants' volunteering to answer the structured questionnaire. The researcher promised the respondents that their anonymity and the confidentiality of their responses to the questionnaire would be assured.

1.9 Limitation to the study

The study only focused on four call centres in the Cape Metropole within the Western Cape. Owing to time and financial constraints, the researcher was unable to survey call centres in other provinces. Therefore the results of the study are confined to the call centres that participated in the study.

The second limitation was that the study only focused on inbound call centres and not outbound call centres. This deliberate choice of inbound call centres was again premised on the lack of financial and other resources. Therefore the results are confined to inbound call centres only.

1.10 Definition of key terms

Call centre

Sprigg *et al.* (2003:1) define a call centre as a work environment in which the main business is conducted using DSE. The term 'call centre' includes sections of companies dedicated to this activity, such as internal help lines, as well as whole companies.

Norman (2005:1) defines a call centre as an organisation or a department that is specifically dedicated to contacting clients and customers.

Call centre agent

A call centre agent is a person who responds to or makes calls, has clearly defined job shifts, works exclusively in front of a computer, and must follow standard protocols to provide information and answers to customers (D'Alleo & Santangelo, 2011).

Sprigg *et al.* (2003:1) define a call centre agent as an employee whose job requires him or her to spend a significant proportion of his/her working time responding to calls on the telephone while simultaneously using DSE.

Job characteristics

Schuurman (2011:9) defines job characteristics as aspects of a job that include knowledge, skills, mental and physical demands, and working conditions.

Hackman and Oldham (1976) describe job characteristics as the factors that make a particular job satisfying.

Job autonomy

Hackman and Oldham (1975:162) define job autonomy as the degree to which the job provides substantial freedom, independence and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out.

Job demands

Schaufeli and Bakker (2004:296) define job demands as those physical, psychological, social or organisational aspects of the job that require sustained physical and/or psychological effort.

Performance monitoring

Performance monitoring is defined as those practices that involve “the observation, examination, or recording of employee work related behaviours (or all of these), with and without technological assistance” (Stanton, 2000:87).

Physical work environment

The physical work environment consists of the design and layout of the workplace, indoor climate and air quality, noise and light conditions, as well as the condition of the furniture and other equipment (Toomingas *et al.*, 2005:3).

Emotional wellbeing

Emotional wellbeing is defined as the ability to look after one’s emotional needs or how developed one’s emotional skills are to deal with challenges (Insight, 2011:1).

Stress

Papworth (2003:1) defines stress as a physical and mental reaction to a perceived challenge.

Burnout

Burnout is defined as a condition that is associated with the plight of those who are forced to work too hard for too long.

1.11 Outline of the study

Chapter 1: Introduction and Background

This chapter provides an introduction to the study, problem statement, purpose statement, research objectives, underlying research questions, significance of the

research, design and methodology, ethical considerations, limitations to the study, definition of key terms, and the outline of the study.

Chapter 2: Literature Review

This chapter presents a literature review of job characteristics, the physical work environment, and health-related issues, and how these affect call centre agents.

Chapter 3: Research Methodology

This chapter discusses the research approach and describes the research design and methodology used in the study to answer the research questions.

Chapter 4: Data Analysis and Results

This chapter presents all the results from the questionnaire. The findings are discussed, keeping the research questions in mind in order to provide answers to the research problem.

Chapter 5: Discussion on Findings

This chapter interprets the findings of the results.

Chapter 6: Recommendations and Conclusion

This chapter puts forward recommendations for consideration by managers in the selected call centres and concludes and summarises the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Call centres are strategically important to many organisations, as they are often the major customer interface and can provide a service-based competitive edge using high-volume, low-cost delivery via telephone (Callaghan & Thompson, 2001). However, in meeting both cost and service goals, call centre agents are usually expected to adhere to strict efficiency targets and to accept high levels of monitoring and control while managing customer service interactions (Brown & Maxwell, 2002; Houlihan, 2002). Working in a call centre is often associated with high stress levels, demanding customers, shift work, high workload demands, absenteeism and high employee turnover rates (Weinkopf, 2002).

The first call centre in South Africa was established in the 1970s; owing to improved computer technology and telecommunications costs this industry rapidly grew in the 1990s (Benner *et al.*, 2007). According to Benner *et al.* (2007), the South African call centre industry is dominated by centres servicing a domestic market (91%), of which the service calls are primarily inbound rather than outbound. The market has changed since 2007, and with the high unemployment rate in South Africa, the call centre industry offers a means of creating jobs and foreign investment (Banks & Roodt, 2011). Government's efforts to set South Africa up as a global call centre hub are bearing fruit and are viewed by the Department of Trade and Industry (DTI) as a quick way to attract foreign investments and to ensure job creation (Claasen, 2012). Many foreign companies outsource their call centres, giving them the opportunity to move their labour-intensive operations to low-wage countries (Dormann & Zijlstra, 2003). This also makes South Africa the ideal location for international call centres, given the favourable exchange rate between the South African rand and other major international currencies which contributes to lower operational costs (Janse van Rensburg *et al.*, 2013). South Africa is attracting many UK companies and is now the third largest low-cost offshore location for the UK market (Silva Cusi, 2010). The BPO is already a major industry in the Western Cape (Naidoo & Neville, 2005) of which call centres constitute a large part (Phakathi, 2013).

The call centre industry provides inexperienced graduates and matriculants with the opportunity to seek employment as call centre agents, as no formal qualification or work experience is needed and training is provided by the organisation (Benner *et al.*, 2007).

In the study done by Benner *et al.* (2007) on 64 call centres within South Africa and with a sample size of 5 600 respondents, the findings show that 84% of the employees had matric, 3% had a qualification lower than matric, and only 13% of the agents had a university degree or college diploma. This makes employment in South African call centres a low-skilled clerical job compared with other countries where a university degree is essential.

The objective of this chapter is to provide a theoretical overview of the workplace environment in call centres and the wellbeing aspects that may be experienced by call centre agents as a result of this workplace environment. It is therefore important to determine how job characteristics and physical work environment are related to wellbeing.

2.2 Theoretical overview

The theoretical overview is a guide to understanding the significance of the relationship between the independent variables, that is, job characteristics and physical work environment, as well as the dependent variables, namely, emotional and physical wellbeing.

The following section presents a discussion of job characteristics in call centres. Warr's Vitamin Model is also discussed, as well as how an increase in certain job characteristics can affect wellbeing negatively.

2.2.1 Job characteristics in call centres

Job autonomy

Autonomy in the workplace has to do with the amount of control an employee has over his or her environment (Sparks *et al.*, 2001). It is the amount of freedom an individual is given to decide how to accomplish a task that affects their overall wellbeing (Averill, 1973). Hackman and Oldham (1975) view autonomy as the amount of freedom and independence an individual has in terms of carrying out his/her work.

Call centre agents have limited autonomy over work tasks and their working environment; they cannot use their discretion in the methods they use, how tasks are completed and the time allocation of their work (Comcare, 2006). Research conducted by Holman (2002) found that the measures used for "method control", which is the extent to which call centre agents have control over the methods they use and how they speak to the customer were considered pertinent, as call centre work has been criticised for limiting

employees in when to take calls, when to do particular tasks, how to do the tasks, and how to speak to the customers. The work tends to be monotonous and repetitive, since call centre employees are not given challenging tasks or allowed to set their own goals (Houlihan, 2000; Deery & Kinnie, 2004).

Job demand

Job demands refer to the physical, social or organisational aspects of the job that require sustained physical and psychological effort from the employee (Hockey, 1997, cited in Schaufeli & Bakker, 2004). Karasek (1979), cited in De Bruin & Taylor (2006), defines job demands in terms of workload and time pressure. The researcher concurs with Karasek, but also sees job demand as workload, time pressure, efficiency and vocal communication demand. Dean and Rainnie (2008) found that efficiency demands of call centre work are linked to performance in terms of time pressures associated with workload. Efficiency demand and time pressure are associated with performance monitoring and performance targets.

Job demands in call centres are associated with performance monitoring, performance targets, customer demands and excessive workloads.

Performance monitoring

Performance monitoring can be defined as those practices that involve “the observation, examination, or recording of employee work related behaviors (or all of these), with and without technological assistance” (Stanton, 2000:87).

Call centre agents’ performance is monitored individually, as a team or as an entire call centre. Electronic performance monitoring records and monitors details of work, and audible monitoring involves listening to call centre agents’ conversations with clients (Comcare, 2006). Monitoring focuses on numbers of calls and performance, and provides data on the number of calls waiting, the proportion of calls answered, the average call duration, and the customer waiting time (Banks & Roodt, 2011). The information gained from the monitoring process can be used for disciplinary purposes, and is perceived as threatening, because it directly affects remuneration. Performance monitoring is viewed as a job demand and is associated with negative employee wellbeing (Visser & Rothmann, 2008).

Arguments in favour of performance monitoring suggest employees benefit from the feedback by developing new skills (Grant & Higgins, 1991) which will help them cope with job demands (Aiello & Shao, 1993; Stanton, 2000). Arguments against performance

monitoring suggest that it is threatening to employees or co-worker relationships (Alder, 1998).

Performance targets

A performance target represents the level of performance that the organisation aims to achieve from a particular activity (Comcare, 2006).

Call centre agents are often required to achieve targets based on key performance indicators such as abandoned call rates and the average speed of answering a call. Research studies have shown that emphasis on performance targets takes priority over customer service goals and the quality thereof (Taylor & Bain, 1999; Gilmore & Moreland, 2000; Kinnie *et al.*, 2000; Taylor & Tyler, 2000; Korczynski, 2001; Houlihan, 2002). Efficiency demands of call centre work are linked to performance and are expressed in terms of time pressures associated with workload and the connection created between productivity demands and service quality (Dean & Rainnie, 2008).

Social support

Social support is defined as an informal social network that provides individuals with expressions of emotional concern or empathy, practical assistance, informational support or appraisal (Etzion, 1984). Social support in the workplace has been identified as a significant factor in reducing occupational stress and improving health (Haines & Hulbert, 1991). Workplace social support focuses on the impact of support received from supervisors or team leaders and colleagues in the form of problem solving, sharing information, reappraising situations and obtaining advice (Brough & Frame, 2004). This support can be in the form of formal settings such as support groups or staff meetings, or informal settings such as lunch or smoke breaks (Maslach, 1982).

Skills utilisation

Sprigg *et al.* (2003) found that the opportunity for skill utilisation is a significant predictor of psychological wellbeing. Effective utilisation of skills will not only result in a change in work performance, but also in an increase in productivity (Leitch, 2006). Jobs that require few opportunities for skills use also have little task variety, few externally generated goals, and a low level of personal control (Warr, 2007). Warr (2007) also explains that the negative effects of having low skill use are due to the frustration of having work that is not challenging. Employees who use their skills and capabilities effectively in their jobs and have greater autonomy will have more job satisfaction, better mental health and less work-related stress (Terry & Jimmieson, 1999).

Some call centre work offers agents the opportunity to use skills such as communication skills, independent problem solving, multi-tasking and technical knowledge (Belt *et al.*, 2002; Russell, 2007). However call centre agents with college diplomas and university degrees are expected to perform simple tasks without using their skills acquired at college and university (Bagnara *et al.*, 2000, cited in Hauptfleish & Uys, 2006). In many instances call centre agents have no opportunities to use their skills as they are only allowed to do a small part of the work and the rest is passed on to the back office where specialists will complete the queries (Visser & Rothmann, 2008).

Skill and task variety

Skill variety refers to the extent to which a variety of skills and abilities are required to perform the job and the degree to which work is challenging and free from monotony (Malhotra *et al.*, 2007). Sprigg *et al.* (2003) define skill variety as the degree to which the job requires different skills.

Call centre agents have limited skills and task variation, as call centre work usually requires agents to sit at their workstations and use the telephone for most of their job functions. Agents usually only leave their workstations on allocated breaks, because their work is conducted using a telephone and computer. Call centre tasks have low complexity, owing to constrained and detailed procedures (Aksin *et al.*, 2007). Research has shown that a lack of complexity and low utilisation of skills are linked to low levels of affective commitment, while monotony and low variety, as well as low levels of complexity, are some of the factors which prompt employees to resign (Grebner *et al.*, 2003). Warr (2007) found that when a task is repetitive, workers are more likely to experience low levels of cognitive arousal, which will result in their disengaging from the task. Repetition of the same tasks can lead to low motivation and a decrease in performance. An increase in task variety can create the opportunity for knowledge transfer between tasks and continuous learning (Schilling *et al.*, 2003).

Task feedback

Feedback produces knowledge, motivating employees to do better and to grow in their work environment (Hackman & Oldham, 1975). Hodgetts and Hegar (2008:301) define task feedback as the degree to which the employee receives direct, clear information about the effectiveness of his/her performance. People spend a significant amount of time at work and they want to know how well they are doing; therefore organisations should provide as much feedback as possible (Lunenborg, 2011). According to Lunenborg (2011), performance varies and for employees to make appropriate adjustments they need to know how they are performing currently. This feedback can

also allow employees to monitor their own performance, rather than wait for supervisors or managers to do it for them (Hodgetts & Hegar, 2008).

Call centre agents receive feedback on performance monitoring via performance appraisal systems by means of grading or scoring work categories (Comcare, 2006).

Comcare found that feedback that is objective, consistent and well conducted is effective and will be accepted by employees. The wellbeing of an employee can be improved if the feedback can be used to enable the employee to improve performance and to upgrade his or her skills levels to promote development (Taylor & Bain, 1999; Holman, 2003).

Task significance

Task significance is the extent to which one's work has a positive impact on the wellbeing of other people (Hackman & Oldham, 1976). Task significance may play an important role in increasing job performance if employees find their work more meaningful (Grant, 2008). Grant (2007) developed and examined a theory on the relational mechanisms the effects of task significance have on job performance. He found that perceived social impact is one relational mechanism where employees feel that their jobs are meaningful and that their actions benefit other people. The second relational mechanism is perceived social worth, where employees feel that their contributions are valued by other people. Holman (2002), in his study on employee wellbeing in call centres, found that there was a positive association with job satisfaction in attending to and meeting customer needs. Employees experience greater emotional rewards and happiness when they know that they have assisted another person in a meaningful way (Aknin *et al.*, 2013). Thomas and Velthouse (1990) cited in Holdsworth and Cartwright (2003), identified meaning, competence, choice, and impact as the task assessment to approach work. Meaning gives employees the feeling that they are doing something that is worth their time and effort and that is worthwhile in the long run; competence gives them confidence that they have the ability to do their work well; self-determination allows them to choose how to do their work, and impact involves the sense that the task is proceeding and that they are actually accomplishing something and making a difference in the organisation (Spreitzer, Kizilos & Nason, 1997, cited in Holdsworth & Cartwright, 2003).

The next section comprises a discussion on Warr's Vitamin Model in relation to job characteristics and wellbeing.

2.2.2 Warr's Vitamin Model

Warr's Vitamin Model explains the effect that the employment environment has on the mental health of employees. The Vitamin Model of Warr (1987), cited in Schuurman, (2011), as depicted in Figures 2.1 and 2.2, indicates that job characteristics affect employee wellbeing in the same way that vitamin intake affects physical health. According to Warr (1987), excessive intake of Vitamin C and E (labelled Constant Effect) will not have any negative effects on the body, whereas excessive intake of Vitamin A and D (labelled Additional Decrement) will have a negative effect on the body. Job characteristics are grouped into nine categories and those characteristics labelled AD are job demands (performance monitoring, customer demands, excessive workloads and performance targets), job autonomy, social support (opportunity for interpersonal contact), skill utilisation, skill variety and task feedback.

The first six job characteristics as indicated in Figure 2.1 of Warr's Job Characteristics Classification, have a curvilinear effect on health, which means that a lack of or an excess of these characteristics will affect mental health negatively. The remaining three job characteristics as indicated in Figure 2.2 have a linear effect on health, which means that the higher the job characteristic is, the higher the level of mental health will be (De Jonge & Schaufeli, 1998).

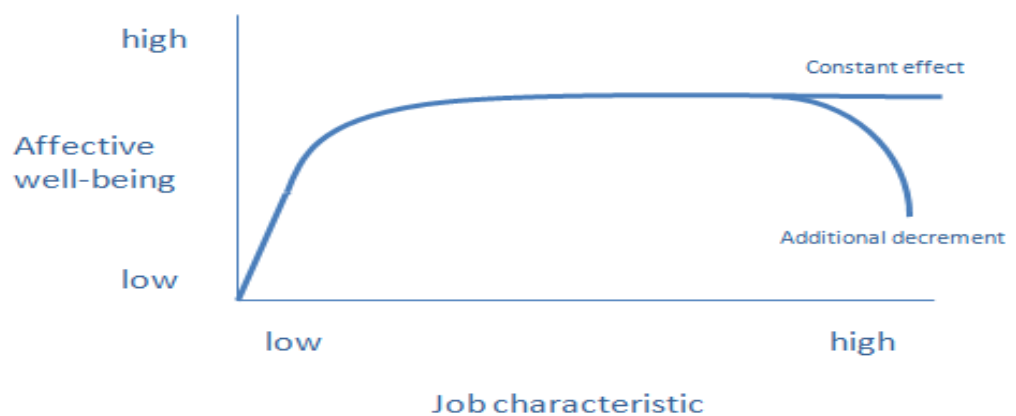


Figure 2.1: Warr's Vitamin Model

Source: Schuurman, 2011

Job characteristics	Vitamin type
1. Job autonomy	AD
2. Job demands	AD
3. Social support	AD
4. Skill utilisation	AD
5. Skill variety	AD
6. Task feedback	AD
7. Salary	CE
8. Safety	CE
9. Task significance	CE

Figure 2.2: Warr's Job Characteristics Classification

Source: Schuurman, 2011

The review of this model serves as a summary for the literature on job characteristics and wellbeing, and will be used to determine whether an increase in certain job characteristics in call centres will increase emotional wellbeing.

The next section comprises a discussion on the physical work environment in call centres, focusing on aspects pertaining to ergonomics, which include office layout, noise, light, temperature, air quality, workstations, and headsets.

2.3 The physical work environment in call centres

The physical work environment in an organisation consists of the office space, workstations, furniture, computer and telephone systems, air conditioning, lighting, ventilation and high noise levels. Design and ergonomics policies relating to health and safety are therefore critical to the wellbeing of call centre agents.

An organisation's physical environment and its design can affect employee behaviour in the workplace. Stallworth and Kleiner (1996) argue that an organisation's physical layout is designed around employee needs to increase productivity and job satisfaction. The physical work environment is also a tool to improve business results (Mohr, 1996) and employee wellbeing (Huang *et al.*, 2004).

Research in environmental psychology has developed ways of measuring how the physical work environment meets people's needs, whereby many varieties of misfit are recorded (Alexander, 1970; Preiser, 1983; Zeisel, 2005). The definition of misfit is when

the environment places inappropriate or excessive demands on users, despite their adaptation and adjustment behaviours.

Employees need environmental support, namely environmental comfort (Vischer, 1989, cited in Vischer, 2007), for the activities they need to perform. Environmental comfort comprises three categories, namely physical, functional and psychological (Vischer, 2005, cited in Vischer 2007). Physical comfort includes health and safety, hygiene, the quality of air, temperature, sound, and lighting, and accessibility into a building that is stable and not dilapidated (Vischer, 2005, cited in Vischer 2007; Herman Miller Inc., 2008). Physically uncomfortable employees will experience job dissatisfaction and be unproductive (Herman Miller Inc., 2008).

Functional comfort refers to ergonomic support for employees. Ergonomics are the elements in the physical working environment that can be identified as affecting fit or misfit between persons and environments at work (Vischer, 2007). Ergonomic studies in workplaces include a focus on office layout, workstations, furniture, and technology. Call centre agents spend most of their working day sitting at their workstations and dealing with high work demands, thus making them vulnerable to developing aching backs, necks and wrists (Herman Miller Inc., 2009). Therefore ergonomic furniture that can be adjusted to support postures is vital. Adjustable work surfaces, keyboard trays, and monitors allow call centre agents to customise their workspace to their needs and preference (Herman Miller Inc., 2009).

Psychological comfort is the feeling of belonging, ownership and control over the workspace. This is control over the immediate physical environment, which gives the employee the ability to create a personal space and to control access to the immediate environment by means of switchable lights, a device for personal climate control, or even by the employee's having control over certain aspects of how the job is done (Herman Miller Inc., 2008). According to Herman Miller Inc. (2008), psychological comfort may not directly impact on productivity, but it does affect employees' moods, cognitive functions, and feelings of loyalty and commitment.

For the purpose of this study, the research conceptualises the physical work environment as the space and conditions in which call centre agents perform their duties; these include office layout, furniture, workstations, computer systems, quality of air and ventilation, light, noise levels, cleanliness of the area, and work space.

2.3.1 Open plan office layouts, noise and light

The open plan office was established in the USA in the 1990s to apply production efficiency to administrative work (Duffy, 1980, cited in Baldry & Barnes, 2012). Open plan offices are a way of saving money on space, by fitting more people into a floor area. With the reduction of walls, the open plan office effectively gives management the opportunity to visually monitor employees' performance (Aronoff & Kaplan, 2005, cited in Baldry & Barnes, 2012). Open plan office layouts are favoured by many call centre organisations as the layout is flexible, and re-organisation of teams can easily be reflected by re-organising the layout of workstations. However, several studies provide evidence that employees are uncomfortable in open plan configurations and prefer private enclosed workspaces (Ornstein, 1999; Brennen *et al.*, 2002).

Often windows in call centres are covered with blinds to reduce glare, while employees prefer to work in an environment with some natural light. Researchers suggest that daylight increases the link between comfort and productivity of employees, with contributing factors being window size and proximity, view outside, control over blinds, and shielding from glare (Leather *et al.*, 1998; Hedge, 2000; Mallory-Hill *et al.*, 2004).

Unison (2001) argues that lighting requirements may differ, depending on whether call centre agents are only operating DSE or whether they need to consult and complete paperwork. They also argue that artificial lighting should produce no glare on VDU screens, and if there is little or no natural light, frequent breaks from working at VDUs should be taken.

Employees in open plan offices rate noise as the primary source of discomfort and reduced productivity (Oldham, 1988; Hedge, 1986; Stokols & Scharf, 1990, cited in Vischer, 2007). To ensure that noise is controlled in open plan offices, good sound absorption materials need to be constructed to form partitions, and photocopiers and facsimile machines need to be kept separate from the call centre workspace. Team meetings should be held outside the call centre workspace (Australian Services Union, 2003).

2.3.2 Temperature and air quality

Indoor temperature and air quality are primary characteristics of the physical working environment and they are strongly influenced by the architecture of a building as well as by workstation design (Danielsson, 2010). The indoor temperature of offices affects employee's to their work. Thermal comfort, perceived air quality, and sick building

syndrome severely compromise performance at work (Seppänen *et al.*, 2006). Results of their study show that performance increases with temperatures up to 21–22 °C, and decreases with temperatures above 23–24 °C.

Poor air quality in the workplace can negatively impact mental wellbeing, also resulting in “sick building syndrome”, where employees continuously breathe recycled air as they do not get sufficient fresh air (Cooper *et al.*, 2008). Although most call centres have air conditioners, these air conditioners are centralised throughout the floor and therefore fresh air can be an asset. Unison (2001) argues that a good turnover of air is important, as call centres have a high concentration of computers and therefore the air should be fresh and maintained at a comfortable temperature.

High temperature levels can lead to employees feeling lethargic and tired as a result of increased body temperature, whereas low temperature levels reduce body heat and cause shivering (Niemelä *et al.*, 2002).

2.3.3 Workstations

High workstation panels are related to physical and visual discomfort. Employees should be able to adjust the interiors of their workstation features, which will allow them more space in arranging furniture and equipment and increase their storage capacity (Knoll Inc., 2010). This will decrease stress and increase job satisfaction (Knoll Inc., 2010). The inferior features include chairs, display shelves, storage, and keyboard and mouse trays.

In call centres, hot-desking often occurs, which involves agents regularly changing workstations, sometimes on a shift-to-shift basis. Hot-desking may cause problems if the workstation does not suit the agent’s dimensions, is not adjusted correctly at the start of every shift, and is not adjustable (Comcare, 2006).

2.3.4 Headsets

Headsets are primary requirements in all call centres, owing to the large number of calls and the need to work on the computer when talking to customers (Comcare, 2006). Each call centre agent should have his/her own headset, and these headsets should be cleaned regularly (Australian Services Union, 2003).

The next session discusses wellbeing in call centres. Wellbeing is a vital component of this research and the literature will focus on emotional and physical wellbeing in call centres.

2.4 Wellbeing in call centres

Tehrani *et al.* (2007:4) define wellbeing as creating an environment to promote a state of contentment, which allows employees to flourish and achieve their full potential for the benefit of themselves and their organisation.

Deery *et al.* (2002) explored wellbeing in the call centre industry by identifying the factors that are associated with emotional exhaustion and absenteeism. The findings of the study show that the content and context of the work of call centre agents are important sources of job stress. Speed and pace of call centre work are significant factors in contributing to emotional exhaustion.

Sprigg *et al.* (2003) conducted a study of 36 call centres in the UK, and their findings show that call centre agents' poor wellbeing and stress are associated with job characteristics like skills utilisation, high workload, role conflict, and conflicting work demands.

Norman (2005) conducted a study on 84 call centres in Sweden. She divided the study into two main projects: study I was the "Epi-mouse" project, whereby 55 call centre agents were compared with 1459 computer users from other occupations. Studies II–V comprised the "Call centre project", where 1183 call centre agents (internal and external call centres) took part in the study. The findings of the study show that a higher proportion of call- centre agents experienced musculoskeletal symptoms compared with other professional computer users. The findings further indicate that the risk indicators for stress among call centre agents are limited social support from colleagues and supervisors, limited decision latitude, and time pressure. The findings also show that call centre agents experience emotional and cognitive demands during their working day. The consequences of emotional and cognitive demands during the working hours of a call centre agent could result in musculoskeletal symptoms, stress-related sickness and absenteeism (Deery *et al.*, 2002).

Research on wellbeing is divided into two categories, namely emotional wellbeing and physical wellbeing. The concept of emotional wellbeing refers to people's sense of wellbeing and their ability to cope with life events and to acknowledge and respect their own emotions as well as those of others (Samaritans, 2012). Colby (2008) defines emotional wellbeing as not the absence of emotions, but the ability to understand the value of one's emotions and to use them to move one's life forward in a positive direction.

In this study, emotional wellbeing is conceptualised by the researcher as employees' managing their feelings constructively to have positive social connections with supervisors and co-workers, and having coping abilities to deal with change and negative emotions such as stress and burnout occasioned by their working conditions.

Guest and Conway (2004:63) define employee wellbeing in terms of six key areas: a manageable workload; some personal control over the job; support from colleagues and supervisors; positive relationships at work; a reasonably clear role; and a sense of control of or involvement in changes at the workplace.

Deery *et al.* (2002), Sprigg *et al.* (2003) and Hannif & Lamm (2005) have shown that call centres are stressful to work in and that employees experience physical, mental and emotional damage because of their work environment.

Physical wellbeing is described as a good state of body health, proper nutritional intake, bodyweight management, regular exercise, abstaining from substance abuse, and good sleeping patterns (Nordqvist, 2009). Physical wellbeing relates to the functioning of the physical body. Various diseases, injuries and disabilities can impair the functioning of the physical body (Australian Bureau of Statistics, 2001).

In this study, physical wellbeing is conceptualised as the state of employee bodily health. Health-related problems such as diseases, injuries and disabilities caused by working conditions can prevent employees from performing their daily activities adequately.

What follows is a discussion on the emotional wellbeing of call centre agents, with the focus on job stress and burnout. This is followed by a discussion on the physical wellbeing of call centre agents, with the focus on visual health, vocal health, auditory health, general health and musculoskeletal disorders.

2.5 Emotional wellbeing

2.5.1 Stress

Stress is a term that is difficult to define (Halonen & Santrock, 1997, cited in Louw & Viviers, 2010). In simple terms it is defined as a physical and mental reaction to a perceived challenge (Papworth, 2003:1). A mismatch between the skills of the call centre agent and the job requirements, as well as a mismatch between the significance of the job and the actual work being done, can contribute to high levels of stress and employee dissatisfaction (Adorno, 2012). Leka *et al.* (2003) concur that job stress is the result of a mismatch between work demands and work pressures that exceeds the employee's ability to cope, as well as the inability of the employee to fully utilise his/her knowledge and skills. Leka *et al.* (2003) also state that stress occurs in a wide range of work circumstances but it is exacerbated when employees feel they have limited support from supervisors and colleagues, limited control over their work, and are at a loss as how to cope with the demands and pressures of their work.

Although call centres enhance customer relations, improve efficiency and are cost effective to businesses, Holman (2003) argues that the benefits to call centre agents are less clear; some agents enjoy call centre work but for many it is demanding and stressful.

Job-related stressors like work overload, time pressures and role conflict are more strongly associated with emotional exhaustion than client-related stressors, where clients are difficult and demanding (Lewig & Dollard, 2003). Taylor *et al.* (2003) undertook a study in two Scottish call centres and found that more than a quarter of call centre agents experience stress daily or several times a week and more than half experience stress several times a month.

Elements of work and the working environment can cause job stress that can stem from the work content (what the job involves) and from the work context (the psychosocial work environment) (Comcare, 2006).

The researcher has compiled ten categories of risk factors that may lead to job stress by combining the nine categories of stress-related hazards from the report by Leka *et al.* (2003) for the World Health Organization and by including one category from the research by Bond *et al.* (2006) for the Health and Safety Executive.

Table 2.1: The risk factors of job stress

Work Content:	Work Context:
<p>Job Content:</p> <ul style="list-style-type: none"> • Monotonous, under-stimulating, meaningless tasks • Lack of variety • Unpleasant tasks • Aversive tasks 	<p>Career Development, Status and Pay:</p> <ul style="list-style-type: none"> • Job insecurity • Lack of promotion prospects • Under-promotion • Work of low social value • Unclear or unfair evaluation systems • Being over-skilled or under-skilled for the job
<p>Workload and Work Pace:</p> <ul style="list-style-type: none"> • Having too much or too little to do • Working under time pressures 	<p>Role in the Organisation:</p> <ul style="list-style-type: none"> • Unclear role • Conflicting roles within the same job • Responsibility for people • Continuously dealing with other people and their problems
<p>Working Hours:</p> <ul style="list-style-type: none"> • Strict and inflexible working schedules • Long and unsocial hours • Unpredictable working hours • Badly designed shift systems 	<p>Interpersonal Relationships:</p> <ul style="list-style-type: none"> • Inadequate, inconsiderate or unsupportive supervision • Poor relationships with co-workers • Bullying, harassment and violence • No agreed procedure for dealing with problems or complaints
<p>Participation and Control:</p> <ul style="list-style-type: none"> • Lack of participation in decision making • Lack of control 	<p>Organisational Culture:</p> <ul style="list-style-type: none"> • Poor communication • Poor leadership • Lack of clarity about objectives and structure
<p>Working Environment:</p> <ul style="list-style-type: none"> • Temperature • Lighting • Noise • Ventilation 	<p>Home-work Interference:</p> <ul style="list-style-type: none"> • Conflicting demands of work and home • Lack of support for domestic problems at work • Lack of support for work problems at home

Source: Leka, 2003

Factors of job stress in call centres

Low autonomy

Call centre agents have little control over and input into their work in terms of planning and organising their workload (Grebner *et al.*, 2003). A lack of autonomy over timing of calls and limiting their ability to vary the way they speak to customers has put call centre agents under pressure (Holman & Fernie, 2000). Research has shown that low job control increases the risk of impaired wellbeing (Patterson *et al.*, 2004) and health (Elfering *et al.*, 2006). Employees with more control over their work and who are allowed to participate in decisions concerning their jobs are at lower risk of experiencing job stress (Leka *et al.*, 2003). Job autonomy allows employees to choose their tasks, thereby limiting their exposure to stressors and feelings of threat, and encourages them to adopt positive coping behaviours (Elsass & Veiga, 1997).

Performance monitoring

Holman (2002) conducted a study with 347 call centre agents from two UK call centres and found that performance monitoring has a strong negative relationship with wellbeing. Sprigg and Jackson (2002) found in a study they conducted with 823 call centre agents from 36 call centres that employees who experience greater prescriptive dialogue and intensive performance monitoring show high levels of stress.

Work overload

Call centre agents are given too much work to do in an allocated time. High performance targets are set for agents to take an allocated number of calls per day. Call centre agents are often under pressure to meet these targets, which can be stressful (Bowen *et al.*, 2002).

Repetitive/monotonous work

Call centre work is often associated with repetitive work, where agents follow scripts. Call centre agents may experience job stress if they feel that their work is monotonous and not challenging enough for them to use their skills (Bowen *et al.*, 2002).

Shift work and schedules

Shift work and work schedules are a common practice in call centres. Call centre agents who work shifts and whose shifts are constantly changed at short notice can experience stress, as this may interfere with their work-life balance by making it difficult to alter domestic and social arrangements (Bowen *et al.*, 2002). Shift work, night shift, inflexible working schedules, unpredictable working hours, and long and unsocial working hours are seen as stress-related hazards at work (Leka *et al.*, 2003).

Physical working environment

As the call centre office environment consists of an open-plan layout and call centre agents are unable to control the temperature, air quality, noise and lighting to their individual comfort levels, this can lead to tiredness and eye strain (Tham *et al.*, 2003 cited in Norman, 2005).

Symptoms of job stress

Job stress not only affects the health and wellbeing of employees, but also the productivity of organisations (Better Health Channel, 2013). The experience of job stress can cause unusual and dysfunctional behaviour at work and can contribute to poor physical and mental health (Leka *et al.*, 2003). Stress can have a negative effect on the mind and body and individuals react to stress in various ways (Bupa, 2011). What one person perceives as stressful, another may view as challenging (Better Health Channel, 2013). The symptoms of job stress can be physical, psychological and behavioural (Leka *et al.*, 2003; Bupa, 2011; Better Health Channel, 2013).

Physical symptoms

- Fatigue
- Muscular tension
- Headaches
- Heart palpitations
- Sleeping difficulties such as insomnia
- Gastrointestinal upsets, such as diarrhoea or constipation
- Dermatological disorders
- Nausea or dizziness
- Frequent colds

Psychological symptoms

- Depression
- Anxiety
- Discouragement
- Irritability
- Pessimism
- Feelings of being overwhelmed and unable to cope
- Cognitive difficulties such as inability to concentrate and memory problems

Behavioural symptoms

- An increase in sick days, arriving at work late and absenteeism
- Aggression
- Changes in eating habits
- Changes in sleeping patterns
- Increased smoking, drinking or drug taking
- Twitchy and nervous behaviour

- Unproductive at work
- Problems with interpersonal relationships
- Mood swings and irritability

2.5.2 Burnout

Maslach and Jackson (1981:99) defined burnout as a syndrome of emotional exhaustion and cynicism among service workers. Maslach and Jackson (1986) later redefined burnout as a syndrome of emotional exhaustion, depersonalisation and reduced personal accomplishment. This conceptualisation of the burnout theory was clarified by developing the measuring instrument, the Maslach Burnout Inventory, for use in human services occupations (Cordes & Dougherty, 1993). However research conducted by Bakker *et al.* (2002) found, in validating the Maslach Burnout Inventory, that burnout is not just limited to service professions but to other occupations with their own demands and resources.

Demerouti and Bakker (2007) assessed the Oldenburg Burnout Inventory (Demerouti *et al.*, 2003) and found that the two core factors of burnout are exhaustion and disengagement from work. Exhaustion is the most important factor of burnout and sets in first, with the demands of the work leading to emotional exhaustion (Maslach *et al.*, 2001). Emotional exhaustion can be described as fatigue and depletion of an individual's emotional resources (Cordes & Dougherty, 1993). Disengagement from work means that individuals distance themselves from work and work content (Demerouti & Bakker, 2007), take extended breaks, use humiliating language to discuss clients (Cordes & Dougherty, 1993) and have negative attitudes and behaviours towards their work (Demerouti *et al.*, 2001).

Research has been conducted on burnout, and although burnout can be found in many occupations, it is a major problem within occupations rendering a service to people (Maslach *et al.*, 2001). Burnout can be conceptualised as a chronic syndrome where there is a dysfunctional relationship with work. Employees are tired, uninvolved and ineffective (Weiner & Craighead, 2010), and this is coupled with a loss of energy and enthusiasm (James & Gilliland, 2013).

Factors of burnout in call centres

Burnout is a chronic response pattern to stressful working conditions that include excessive interpersonal contact (Ganster & Schaubroeck, 1991). Emotional, mental and physical exhaustion caused by excessive and prolonged stress can lead to burnout (Sowmya & Panchanatham, 2011).

Work overload

Research shows that there is a link between heavy job demand in the form of work overload and the development of burnout (Maslach *et al.*, 2001). These authors found that workload and time pressure are strongly related to the exhaustion aspect of burnout. Cordes and Dougherty (1993) established that work overload is directly related to the development of emotional exhaustion. In the call centre, the dynamics of work overload involve high levels of client contact, not being able to take a break between calls, receiving calls on a continuous basis, high target rates, and time pressures.

Customer demand and interaction

Call centre agents who deal with customer complaints require emotional and personality capabilities which include remaining calm, being active listeners, having patience and expressing empathy (Lloyd & Payne, 2009). Customers who are abusive and have unreasonable demands can bring tension to the work environment (Deery *et al.*, 2002). Call centre agents are encouraged to suppress their feelings to protect themselves from abuse and by doing so emotionally detach themselves from the abusive customer (Korczynski *et al.*, 2000). They distance themselves from the perceived sources of emotional strain by talking negatively about their work or customers (Cordes & Dougherty, 1993). Call centre agents find it difficult to cope with the number of requests from customers as well as the targets set, and they do not always have the cognitive and behavioural resources to respond positively to those requests (D'Alleo & Santangelo, 2011).

Performance monitoring

Call centre agents are constantly monitored on their performance and pressurised to ensure high levels of productivity (Wallace *et al.*, 2000). The fact that call centre agents have to take a certain number of calls per day to reach organisational targets and that their calls are timed can cause emotional exhaustion and depersonalisation (Healy & Bramble, 2003).

Role conflict

Call centre management want to achieve high customer service quality and customer processing levels, but output targets take preference over service quality (Kinnie *et al*, 2000). This creates internal conflict between management and call centre agents (Visser & Rothmann, 2008) and contradictory pressures on the call centre agents, which lead to emotional exhaustion.

Lack of skills and task variety

Call centre work is routine, with a lack of skill variety, which makes the job repetitive in nature (Visser & Rothmann, 2008). A lack of skill variety has been linked with a number of wellbeing outcomes, including burnout and depression (Karasek & Theorell, 1990). However, in a study conducted by Bremner & Carrière (2011), the authors found a direct relationship between skill variety and cynicism, which means that having the opportunity participate in complex and challenging work can be stimulating for employees. Task variety allows employees to engage in a number of tasks which lessen their involvement in repetitive tasks, and which allow them greater motivation and job satisfaction, while reducing their exposure to mechanical strain.

Social support

Encouraging relationships between call centre agents, co-workers and supervisors in call centres may be beneficial; however supervisors can either be a source of support or strain for call centre agents (Cappelli, 2008). Lack of support from supervisors and co-workers is strongly linked to burnout (Maslach *et al.*, 2001). Supervisors who focus on being supportive and developing employees will reap better attitudes and behaviour from employees, but when supervisors are too demanding, the pressures of the job are exacerbated for employees (Wilk & Moyihan, 2005). According to Maslach *et al.* (2001), a mismatch occurs when people lose a sense of positive connection with others in the workplace. The authors also argue that people function best when they share praise, comfort, happiness and humour with people, and that these qualities reaffirm the person's membership in a group. Co-workers can provide useful information and support to fellow agents, even though the contact time in the call centre environment is limited. These relationships can influence the productivity and innovativeness of workers in call centres (Dokko, 2006, cited in Cappelli, 2008). Social support has a positive effect on the individual's wellbeing through two different processes (Cherniss, 1980, cited in Cordes & Dougherty, 1993). This means that support can be a buffer between job-related stress and the influences of stressful events. Support can help individuals identify the harm in the situation or it can help them cope with the situation, knowing that they have the necessary resources (Cohen & Wills, 1995, cited in Cordes & Dougherty, 1993).

2.6 Physical wellbeing

2.6.1 Visual fatigue and eyesight

Call centre agents are faced with the task of making or receiving telephone calls and simultaneously using computer equipment where information is displayed on VDUs during calls. There is no research evidence that DSE or VDUs can cause permanent eye damage or disease, but they can cause visual fatigue, eye discomfort and headaches from intensive use (Australian Services Union, 2003; Amicus, 2006; Comcare, 2006). This is supported by a transversal study that was conducted by Charbotel *et al.* (2008) on call centres where it was found that 65% of employees complained of visual fatigue at the end of each working day.

2.6.2 Voice fatigue

Call centre agents are among the workers who rely on their voices to carry out their work and this increases the risk of voice disorders due to work-related excessive oral communication (Vilkman, 2004). Excessive talking affects both the voice and throat, and employees using their voices at work require a higher level of vocal competency (Comcare, 2006). In a study done by Jones *et al.* (2002), they compared the occurrence of voice problems among telemarketers with the occurrence among the general population, and determined that telemarketers are more likely to report one or more symptoms of vocal strain. Symptoms of vocal strain include (Comcare, 2006):

- total or intermittent loss of voice
- rough or hoarse quality of voice
- change in pitch
- pitch breaks on words and phrases
- vocal fatigue at the end of a working day
- constant throat clearing
- voice fading out at the end of a sentence
- dryness in the throat and excessive mucous
- increased effort to talk
- difficulty swallowing
- shortness of breath

According to Vilkman (2000) and Sapir *et al.* (1992), vocal attrition and occupational voice disorders are a result of the combined effects of vocational, personality and biological factors. Vocational factors include the vocal demands of the job, background noise, acoustics, speaking distance, air quality, posture, stress and equipment design. Background noise in call centres is common, and call centre agents often need to raise

their voices so that customers can hear them (Amicus, 2006). Personality factors include the habit of speaking loudly, excessively and rapidly. Although it is not always intrinsic to call centre agents' personalities, they are requested by management to speak in a particular vocal style when communicating with customers. Biological factors that may affect the respiratory ability to support speech and cause hoarseness of the voice may include smoking, thyroid problems, allergies, gastro-esophageal reflux, benign vocal cord nodules, inhalation of respiratory tract irritants, neurological conditions such as Parkinson's disease, and strokes and cancer of the larynx (Doerr & Shiel, 2013).

Voice strain and hoarseness of the voice contribute to physiological and cognitive stress that can result in less efficient interaction (Lehto *et al.*, 2006). A study conducted by Devadas and Rajashekhar (2013) in Indian call centres found that call centre agents are at a high risk of developing voice disorders, irrespective of developing one or more vocal symptoms, and that these voice problems can have adverse effects on job performance.

Call centre agents are requested to use a particular vocal style when communicating with customers. This vocal style is unnatural and is used every day.

2.6.3 Auditory problems

Headsets that are not cleaned regularly and shared amongst employees can cause ear infections (Australian Services Union, 2003). The most common auditory problems are caused by acoustic shocks (Lawton, 2003). Acoustic shocks are any temporary or permanent disturbance of the functioning of the ear, or of the nervous system, which may be caused by a sudden sharp rise in the acoustic pressure produced by a headset (BBC News, 2006). Acoustic shock can cause hearing loss and tinnitus, as well as earache and light-headedness (Lawton, 2003).

2.6.4 General health issues

Tecson (2011) found that the top seven illnesses encountered by call centre agents are hypertension, respiratory problems, anaemia, ulcers and carpal tunnel syndrome. Contributing factors to hypertension are work-related stress, smoking, unhealthy habits and lack of exercise. Respiratory problems encountered by call centre agents are due to bronchitis, pneumonia, asthma and allergic reactions. These conditions can be due to the environment of call centres, the long working hours, centralised air conditioning, carpeted floors and the close proximity of call centre agents to one another. Prolonged sitting is also not conducive to physical activity and exercise (Renton *et al.*, 2011). According to Renton *et al.* (2011), call centres that do not have on-site facilities can offer corporate

discounts for fitness facilities, implement a wellness committee, and establish walking groups for employees.

2.6.5 Musculoskeletal disorders

Musculoskeletal disorders are health problems of the locomotor apparatus, that is, of muscles, tendons, the skeleton, cartilage, ligaments and nerves (Luttmann *et al.*, 2003: 1). Body regions most commonly affected by musculoskeletal disorder (MSD) are the lower back, neck, shoulder, forearm, hand and lower extremities, which include the hip, knee, ankle and foot (Punnett & Wegman, 2004). MSDs are reported by office workers worldwide (Halford & Cohen, 2003), most of whom work on computers and use VDUs (Aarås *et al.*, 2000).

Risk factors for developing MSDs depend on the posture of the employee: twisting and bending the trunk can increase the risk of developing the affliction in the lower back (Luttmann *et al.*, 2003). Static work postures can also result in MSDs in the lower back because of little movement and inactive muscles from prolonged sitting or standing. A study conducted by Norman *et al.* (2008) indicates that on average call centre agents spend 80% of their working day sitting, and the risk of developing disorders in the neck and upper extremities is increased through working with computers. Monotonous and repetitive operations over an extensive period may lead to musculoskeletal failures (Luttmann *et al.*, 2003). Luttmann *et al.* (2003) also contend that repetitive work occurs when the same body parts are repeatedly activated and no relaxation or variation in movement occurs. Call centre agents develop MSDs through repetitive movements and prolonged sitting postures while simultaneously being expected to communicate with customers efficiently, adhere to time pressures and have their performance monitored (Norman *et al.*, 2008). Repetitive keyboard use while typing, doing data entry, and clicking the mouse can lead to strain on the upper extremities (Luttmann *et al.*, 2003). MSDs among keyboard users are as high as 81% (Kamwendo *et al.* (1991). Exposure to both extreme postures and repetitive work can lead to the development of musculoskeletal symptoms of the wrist, hand and forearms (Silverstein *et al.*, 1987; Latko *et al.*, 1999). According to Wahlström (2005), this is due to the combination of high repetitiveness in the fingers and wrist, the static loading on the thumb to grip the mouse, and the extension and deviation of the wrist.

Physical workplace factors (e.g. posture, prolonged static muscle load, workstation setup, high temperature, VDUs and insufficient lighting) are risk factors for MSDs (Latko *et al.*, 1999; Luttmann *et al.*, 2003; Da Costa & Vieira, 2010). Psychosocial factors relating to the job and work environment also play a role in developing MSDs (Bernard *et al.*, 1997).

These psychosocial factors include workload, time pressure, job control, monotonous work, job clarity and social support from managers and colleagues (Bernard *et al.*, 1997; Wahlström, 2005). Halford and Cohen (2003) found that workload and performance monitoring have a significant association with MSD symptoms.

2.7 Summary

This first part of the chapter discussed the job characteristics in call centres, as well as a description of Warr's Vitamin Model, which will be a contributing factor to the findings.

The physical environment in call centres was discussed by examining the ergonomic factors which included office layout, noise, light, temperature and air quality, workstations and headsets, and the contribution that these factors can make to the wellbeing of call centre agents.

This chapter also discussed the wellbeing aspects of job stress, burnout, visual, auditory, and optical health, and musculoskeletal disorders, and how they relate to both the job characteristics and physical work environment.

The purpose of this chapter was to give a theoretical overview and create a better understanding of the factors in the workplace environment and how they relate to wellbeing. It was intended to identify sources and symptoms of job stress and burnout and to create awareness of other health-related problems that call centre agents could experience at work.

The next chapter will outline the research design and methodology used to address the research questions.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The objective of this chapter is to provide a theoretical overview of the methodology that guided this study. The chapter covers topics on the research design, and the research methodology used that allowed the required data to be gathered and analysed to arrive at a solution to the problem that initiated the research project. This chapter also focuses on the sample population, the data collection method used, and the measuring instrument.

3.2 Research design and methodology

A research design ensures that the evidence obtained allows the researcher to answer the research questions (De Vaus, 2001). Creswell (2009:3) defines a research design as plans and procedures for the research that span the decisions, from broad assumptions, to detailed methods of data collection and analysis. A descriptive research design was used in this study. This specific design was chosen to collect information pertaining to the research questions and to determine whether job characteristics and the physical work environment have an impact on wellbeing.

The research methodology comprises the specific methods or procedures of research that translate the approach into practice. This involves the methods of data collection, analysis and interpretation that researchers propose for their studies (Creswell, 2009). Creswell (1994) defines quantitative research as a method that explains phenomena by collecting numerical data that are statistically analysed. This type of research is to evaluate objective data consisting of numbers and to analyse the data based on complex structured methods to confirm or invalidate hypotheses (Welman *et al.*, 2005).

Qualitative research deals with subjective data produced by the minds of respondents and presented in language. This type of research is based on flexible and explorative methods which allow the researcher to change the data progressively to achieve a deeper understanding of what is investigated (Welman *et al.*, 2005).

For the purpose of this study, the researcher used a quantitative research method. Quantitative research methods can be classified into survey research, correlation research, experimental research and causal-comparative research (Sukamolson, 2007). For this study, the researcher made use of survey research. The reason for selecting a

survey research method was to attract a large population so that the data gathered could possess a better description of the characteristics of the population involved. The cost of doing a survey is lower and high representativeness facilitates finding statistically significant results. Survey research constitutes collecting information from or about a population and provides a numeric description of trends and attitudes, and explains the knowledge or opinions of a population through studying a sample of that population (Fink, 2003, cited in Creswell, 2009; Sekaran & Bougie, 2013). Data can be gathered in two ways using survey research, namely interviews and questionnaires (Creswell, 2009). The researcher used a questionnaire to gather data. This will be discussed under measuring instruments.

3.3 Population and sample

The target population for this study included all call centre agents from four inbound call centres located in the Cape Metropole. These call centres offer services ranging from online retail, fashion retail, consumer products, financial support, and media and publishing. The combined population size of all four call centres was 760. The researcher determined that the sample size for this study would be 200 by using the Raosoft® Incorporated Calculation Tool.

A sample comprises some of the members of the population (Sekaran & Bougie, 2013). Sekaran & Bougie (2013) emphasise that by studying the sample, conclusions may be drawn about the population. The sampling method selected for this study was self-selection sampling. Self-selection sampling is when individuals choose to take part in the research of their own accord (Lund Research Limited, 2010).

The sample size was determined by the researcher's taking into consideration a margin of error of 5%, a confidence level of 90%, and a response distribution of 50%. Although a sample size of 200 was adequate for this study, there was a response rate of 275 call centre agents. However, a total of 203 responses were returned fully completed with no questions skipped. The majority of the call centre agents who participated were female, 61.8%, compared with 38.2% of male participants. The age of the call centre agents varied from 21 years to 65 and older.

3.4 Permission to conduct research

Request letters for participation in the study were sent to 20 call centres within the Cape Metropole (Attached as Appendix A). The researcher had discussions during the period of February–May 2013 via telephone, meetings and email correspondence with the

human resource managers of the call centres, and the purpose of the study was explained to them. Of the 20 call centres, four call centres agreed to participate in the study. The researcher received permission from the human resource managers of the four call centres to conduct the study within their organisations. Ethical clearance was received from the faculty research ethics committee of the university where the researcher is registered for a master's degree (Appendix B).

3.5 Structured questionnaire design

A structured questionnaire was used for the survey study so that statistical data could be easily analysed. A structured questionnaire is a pre-formulated written set of questions to which respondents record their answers (Sekaran & Bougie, 2013). Questionnaires are efficient data collection mechanisms when a study is descriptive or exploratory (Sekaran & Bougie, 2013). They are cheap and less time-consuming than interviews and observations, and are designed to collect large numbers of quantitative data (Collis & Hussey, 2003; Sekaran & Bougie, 2013).

The structured questionnaire was tested in March 2013 as a pilot study with five respondents from call centre agents working at one of the organisations in the Cape Metropole. The reason for a pilot study was to check the time it would take the agents to complete the questionnaire and to ascertain whether the agents would find it difficult to answer the questions. Constructive criticism regarding the length of the questionnaire was received, and amendments to the questions regarding job characteristics were made by omitting those questions that were not needed to gather results for this study.

The structured questionnaire used for this study was developed using existing measuring instruments used in previous research studies. Questions relating to job characteristics and significance of the work were based on the Job Diagnostic Survey development by Hackman and Oldham in 1975. In this study, only the job dimensions and critical psychological states sections of the JDS questions were used.

Questions relating to social support were based on the instrument developed by Caplan *et al.* in 1975 (Fields, 2002). An adjustment was made to the instrument by the researcher by omitting "spouse, friends and relatives", as the focus would be on people in a work situation only. A five-point Likert scale was used where the lowest is represented by 1 ("Don't have any such person"), and the highest 5 ("Very much").

Job demand questions were based on the instrument developed by Karasek in 1979 (Fields, 2002). Only the section on job demand was used. A five-point Likert scale was

used where the lowest is represented by 1 (“Never”), and the highest by 5 (“Extremely often”). Performance Monitoring was measured by using the questions based only on performance monitoring in the Sprigg *et al.* (2003) study.

Questions relating to the physical work environment were based on the instrument developed by Sprigg *et al.* (2003). A five-point Likert scale was used where the lowest is represented by 1 (“Very dissatisfied”), and the highest by 5 (“Very satisfied”).

Emotional wellbeing questions relating to burnout were measured using the Oldenburg Burnout Inventory. A five-point Likert scale was used where the lowest is represented by 1 (“Strongly disagree”), and the highest by 5 (“Strongly agree”). The wellbeing questions relating to vocal health, optical health and auditory health were based on the questionnaires developed by Sprigg *et al.* (2003). A 5-point response scale was used for the vocal and optical health questions, ranging from 1 being the lowest (“Never”), to the highest being 5 (“All of the time”). A 5-point Likert response scale was used for the auditory health questions, ranging from 1 being the lowest (“Never/rarely”) to the highest being 5 (“Constantly”).

General health was measured using the “Somatic Complaints” section of the NIOSH Generic Job Stress Questionnaire. A five-point Likert scale was used where the lowest is represented by 1 (“Never”) and the highest by 5 (“Very often”). Musculoskeletal health problems were measured using the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) developed by Hedge (1994).

Demographic questions regarding race, gender, age, industry of work, years of employment, shifts and working hours, smoking, and exercise, were constructed by the researcher.

Closed-ended questions were used with Likert scales. Closed-ended questions help the respondents to make quick decisions by choosing from several alternatives. These types of questions also help to code the information easily for data analysis (Sekaran & Bougie, 2013). The questions were selected taking into consideration the problem statement and to address the variables within the study.

The structured questionnaire consisted of the following sections:

Section 1: Demographics

Section 2 and 3: Job Characteristics

Section 4:	Social Support
Section 5:	Job Demand
Section 6:	Performance Monitoring
Section 7:	Physical Work Environment
Section 8:	Emotional Wellbeing
Section 9:	Vocal Health
Section 10:	Optical Health
Section 11:	Auditory Health
Section 12:	General Health
Section 13:	Musculoskeletal Disorders

The structured questionnaire is appended as Appendix C.

3.6 Reliability

Although the questionnaires had been used in previous studies, their reliability had to be tested for this study. Reliability refers to the accuracy and consistency of the measuring instrument (Gregory, 2000), cited in Spreen and Risser (2003). An internal consistency test, which is a type of reliability test, was conducted on the questionnaires by calculating the Cronbach alpha coefficients. The results from the Cronbach alpha are presented in Table 3.1.

Table 3.1: Internal Consistency – Coefficient Alpha

Questionnaire	N	Cronbach Alpha
Job Diagnostics Section 1	244	.726
Job Diagnostics Section 2	228	.731
Social Support	224	.818
Job Demands	221	.824
Performance Monitoring	220	.707
Physical Work Environment	216	.926
Emotional Wellbeing	212	.873
Vocal Health	211	.867
Optical Health	210	.901
Auditory Health	210	.814
General Health	204	.933
Musculoskeletal Health Section 1	203	.888
Musculoskeletal Health Section 2	203	.859
Musculoskeletal Health Section 3	203	.870

The reliability consistency can range from 0 to 1, with 0 representing an instrument full of errors and 1 representing total absence of error (Radhakrishna, 2007). A low value of alpha could be due to a small number of questions and poor inter-relatedness between items (Tavakol & Dennick, 2011). A reliability coefficient of .70 or higher is considered acceptable (Radhakrishna, 2007). It is clear from the results in Table 3.1 that the reliability of the questionnaires was at an acceptable level.

3.7 Data collection

The researcher used the SurveyMonkey software tool to compile the structured questionnaire as the primary data collection method. The SurveyMonkey software tool is cost effective, and simplifies the data collection process by allowing the researcher to design questions, collect and analyse results (Rosenbaum & Lidz, 2007). An outline of the purpose of the study, the importance of completing the questionnaire, and the procedures for completing the questionnaire were explained to the call centre agents in a cover letter. Access to the questionnaire was via an electronic link inserted in the cover letter. A copy of the cover letter is included in Appendix D. The call centre agents were informed that participating in the study was voluntary and that anonymity and confidentiality were assured as their names or identity numbers were not required on the questionnaire. It was explained that the information collected was solely for research purposes. The completed responses were automatically submitted once each respondent had completed the questionnaire. With regard to secondary data collection, the literature on call centres in South Africa was limited, and most of the literature accessed was from studies conducted overseas.

The structured questionnaire was distributed as follows and indicated in Table 3.2:

Table 3.2: Structured questionnaire distribution

Date	Industry
Friday, 31 May 2013	Consumer Products
Monday, 3 June 2013	Media and Publishing
Tuesday, 4 June 2013	Online Retail
Thursday, 1 August 2013	Fashion Retail
Thursday, 1 August 2013	Financial Services

3.8 Data analysis

The data was interpreted using SPSS in October 2013 and the results are shown by means of tables. A copy of the Statistician Certificate is included as Appendix E. The demographic data was not interpreted by SPSS and that is shown in graphs. The following statistical techniques were used:

3.8.1 Reliability analysis

A reliability analysis was conducted on the scales used to determine whether the items in the instrument are related to one another. The reliability of the scales was calculated using Cronbach's alpha coefficient. Cronbach's alpha is a popular test for internal

consistency. Reliability less than 0.60 is considered poor, that in 0.70 range is acceptable, while over 0.80 is good (Sekaran & Bougie, 2013: 293).

3.8.2 Descriptive statistics

Descriptive statistics such as means and standard deviations were determined for the variables for the researcher to describe the data.

3.8.3 Factor analysis

For the purpose of this study, a factor analysis was conducted on the questionnaires pertaining to the physical environment and general health. Factor analysis is a technique in multivariate statistics to demonstrate which variables cluster together to form super-ordinate variables (Burns & Burns, 2008). Burns and Burns (2008) explain that the aim of factor analysis is to simplify and identify basic underlying factors that explain a larger number of other related variables.

The type of factor analysis used in this study is principal component analysis (PCA). PCA is referred to as factor analysis and is used when there are a number of observed variables and the researcher wishes to develop a smaller number of variables (Brown, 2009). By reducing the number of variables, patterns can be identified and similarities and differences can easily be highlighted (Smith, 2002).

The factors were selected by choosing the largest eigenvalue. Components with eigenvalues that were 1 or greater than 1 were selected. This selection is called the Kaiser rule (Burns & Burns, 2008). In order to identify the factors, the varimax rotation method was performed to identify meaningful factors. The varimax rotation is an orthogonal rotation method that produces uncorrelated factors and makes it possible to identify each variable with a single factor.

3.8.4 T-test

An independent sample test was conducted in order to determine whether two groups differ significantly or not. The independent sample t-test was conducted to establish whether the male and female respondents differed significantly with regard to their perceptions of job characteristics, physical work environment, and wellbeing.

3.8.5 ANOVA

Analysis of variance (ANOVA) is a statistical technique used to determine the interaction of the independent and dependent variables (Burns & Burns, 2008). A two-way ANOVA

was conducted to determine whether there were interactions between job characteristics and burnout, job characteristics and physical wellbeing, physical work environment and burnout, and physical work environment and physical wellbeing.

3.8.6 MANOVA

Multivariate analysis of variance (MANOVA) assesses the relationship between dependent variables in order to identify group differences in independent variables (Swanson & Holton, 2005). MANOVA was conducted to establish if there was a difference in relationship between the industry in which the call centre agents work and their wellbeing.

MANOVA uses four test statistics to assess multivariate differences among groups which are Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root (Grice & Iwasaki, 2007). In this study, Wilks' Lambda was used to test significance. Wilks' Lambda is a direct measure of the proportion of variance in the combination of dependent variables that is unaccounted for by independent variables (Crichton, 2000).

3.8.7 Pearson-product moment correlation

Correlations were conducted on the variables to determine whether there were significant relationships between the variables. In this study, the Pearson-product moment correlation coefficient was used to test for relationships between job characteristics, physical work environment and wellbeing. The Pearson-product moment correlation is the most widely used correlation coefficient (Burns & Burns, 2008). A correlation coefficient of 0 means that there is no linear relationship between variables, and a correlation coefficient of -1 or +1 indicates that there is a perfect linear relationship. The strength of the relationship can be anywhere between -1 and +1 (Mukaka, 2012). A positive correlation indicates that an increase in one variable coincides with an increase in another variable. A negative correlation exists when one variable increases and the other decreases.

Pearson correlations of various sizes (Tredoux & Durrheim, 2002) are:

$r < 0.2$: slight correlation, almost no relationship

$r < 0.2 - 0.4$: low correlation, small relationship

$r < 0.4 - 0.7$: moderate correlation, substantial relationship

$r < 0.7 - 0.9$: high correlation, strong relationship

$r < 0.9 - 1.0$: very high correlation, very dependable relationship

3.9 Summary

This chapter included an overview of the research methodology used and how it was applied in this research. Quantitative research was discussed and the use of a structured questionnaire was presented as the primary data collection method.

An overview of the measuring instruments used was given, as well as the data analysis processes used to gain the necessary results.

The next chapter presents the results of the data analysis.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter discusses the results generated through the structured questionnaire. The data was accumulated to answer the following research questions:

- Question 1: Is there a significant difference between male and female perceptions of job characteristics, physical working environment and emotional and physical wellbeing in call centres?
- Question 2: Is there a significant difference in the emotional and physical wellbeing experienced by call centre agents from various industries?
- Question 3: What are the factors within the workplace environment that contribute to emotional and physical wellbeing of call centre agents?
- Question 4: Is there a significant relationship between the job characteristics, the physical working environment and the wellbeing of call centre agents employed within the Cape Metropole?

The first section of this chapter analysis the demographics of the respondents in the form of bar charts. The demographics of the respondents include gender, age, race, industry employed in, years employed at the company, shift, determination of working hours, working days, whether they smoke and whether they are involved in exercise, sport or fitness training. The purpose of the demographic information was to provide a background of the profile of the respondents. The demographic attributes were also used as control variables to determine the effects they would have on the results.

The next section analysis the means and standard deviations. This is followed by analysis to answer the research questions which included factor analysis, T-test analysis, ANOVA, MANOVA and correlations.

4.2 Demographic analysis

Gender

The results indicated that 61.8% of the respondents were female while 38.2% were male, shown in Figure 4.1.

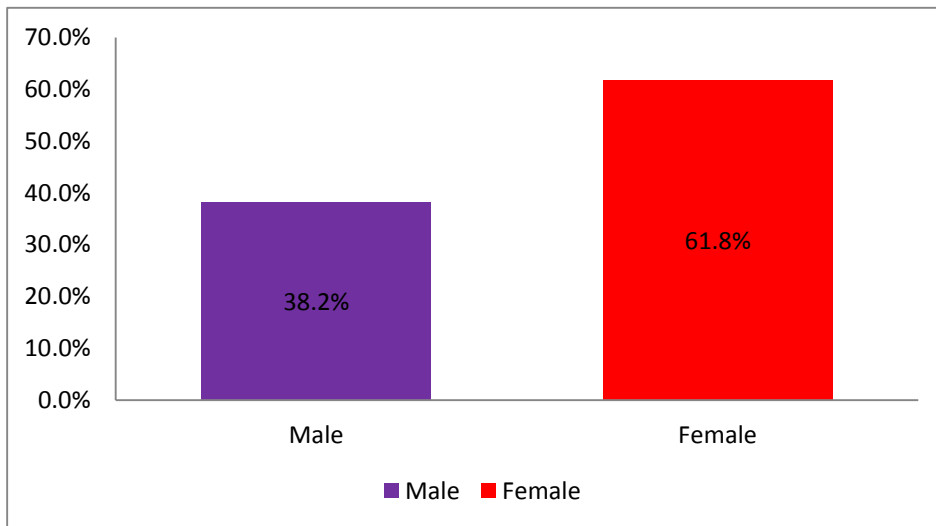


Figure 4.1: Gender Classification of Respondents

Age

The ages of respondents who work as call centre agents and participated in the study comprised 20 in the category 21 years and under (7.3%), 202 in the category 22 years to 34 years of age (73.5%), 34 in the category of 35 years to 44 years of age (12.4%), 14 in the category of 45 to 54 years (5.1%), 3 in the category of 55 to 64 years of age (1.1%) and 2 in the category of 65 years and older (0.7%). These results are indicated in Figure 4.2. It can be concluded that in the four call centres that participated in the study, the majority of call centre agents are between the ages of 22 – 34 years.

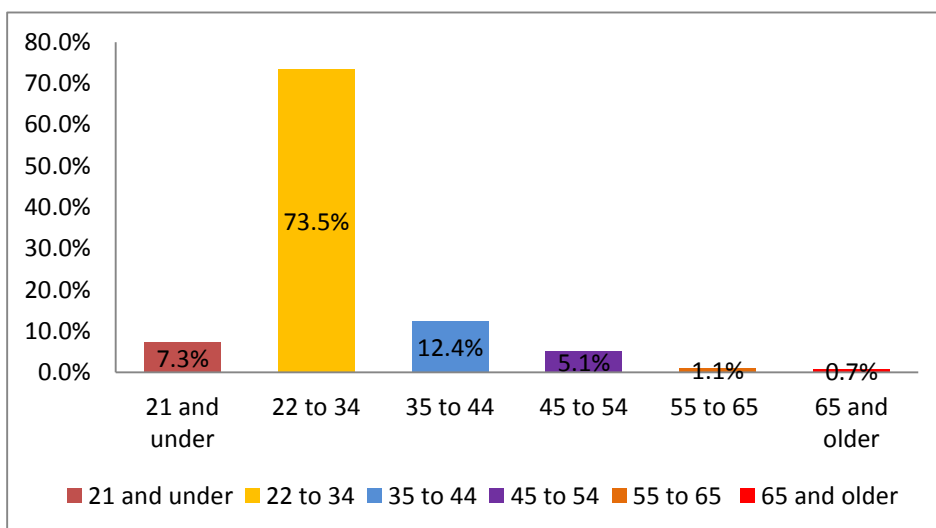


Figure 4.2: Age Classification of Respondents

Race

In terms of race in Figure 4.3, the total number of respondents comprised 14.5% whites, 63.6% coloureds, 4.7% Asians and 17.1% Africans.

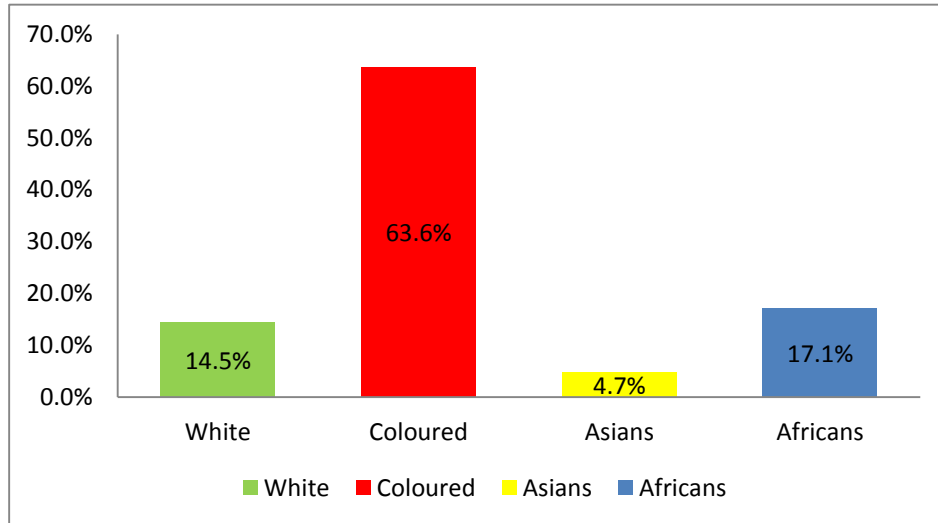


Figure 4.3: Race Classification of Respondents

Years employed as a call centre agent

The years employed as a call centre agent with the organisation indicated that 235 respondents have worked between 0 – 5 years (85.8%), 24 have worked between 6 – 10 years (8.7%), 10 have worked between 11 – 20 years (3.6%), 3 have worked between 21 – 30 years (1.1%) and 2 have worked between 31 – 40 years (0.7%).

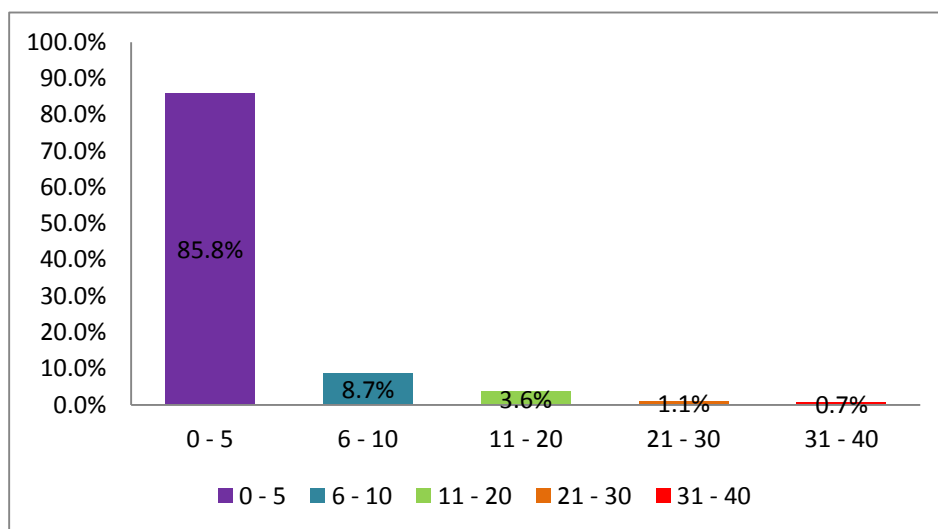


Figure 4.4: Years of Employment Classification of Respondents

From the data shown in Figure 4.4, it can be concluded that call centre agents are not retained in call centres for more than five years.

Shift

As indicated in Figure 4.5, the working hours of call centre agents who participated in the study were: 59.6% work the daytime shift from 08:00 – 18:00, 24% of the respondents work the evening shift from 18:00 – 22:00, 6.5% of the respondents work the night shift from 22:00 – 06:00 and 9.8% of the respondents work varying shifts.

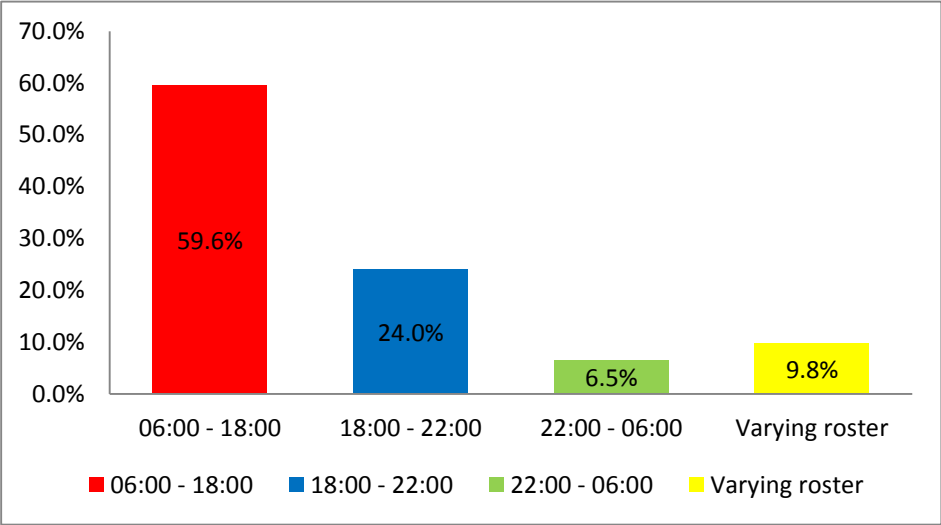


Figure 4.5: Shift

From the above data it can be concluded that call centre agents within all four organisations have limited autonomy when it comes to deciding on their working hours.

Determination of working hours

The determination of working hours is indicated in Figure 4.6, 89.5% of the respondents indicated that their working hours are determined by the company, compared with 10.5% of the respondents who indicated that their working hours are determined by the team.

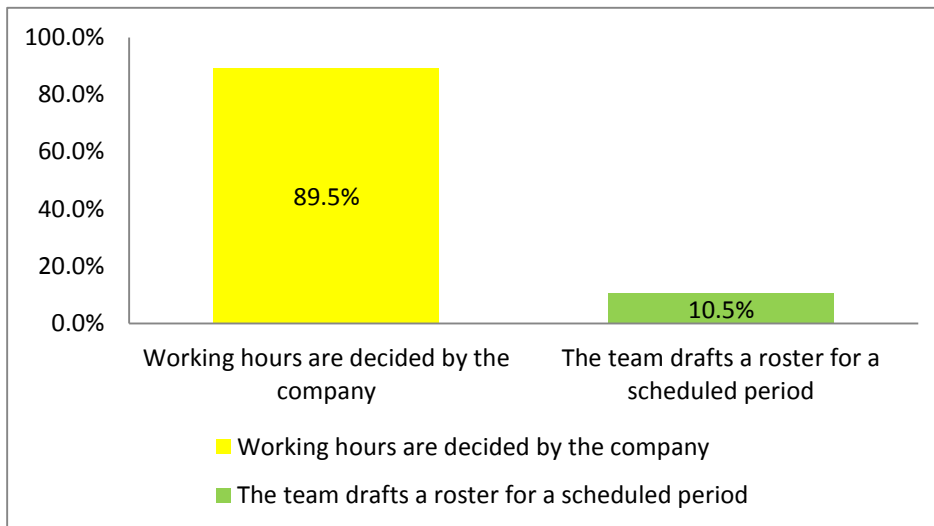


Figure 4.6: Determination of Working Hours

Working days

The working days are indicated in Figure 4.7, which revealed that 70.2% of the respondents work from Monday to Friday, 40.5% work on weekends and public holidays while 25.8% of the respondents' working days vary.

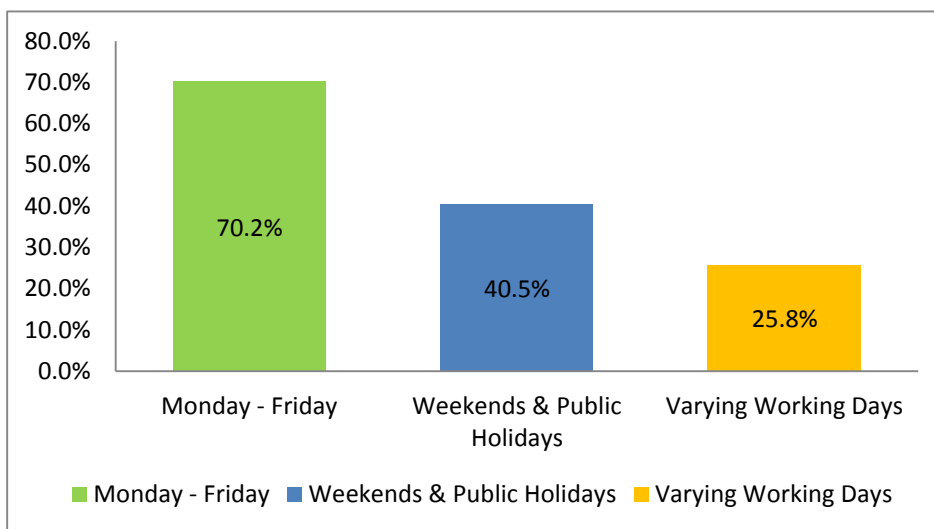


Figure 4.7: Working Days

Smoking habits

Figure 4.8 indicates that 171 respondents do not smoke, 59 respondents smoke between 1 – 5 cigarettes daily, 30 respondents smoke between 6 – 10 cigarettes daily, 10 respondents smoke 11 – 15 cigarettes daily, 4 respondents smoke 16 – 20

cigarettes daily and only 1 respondent indicated that they smoke more than 20 cigarettes daily.

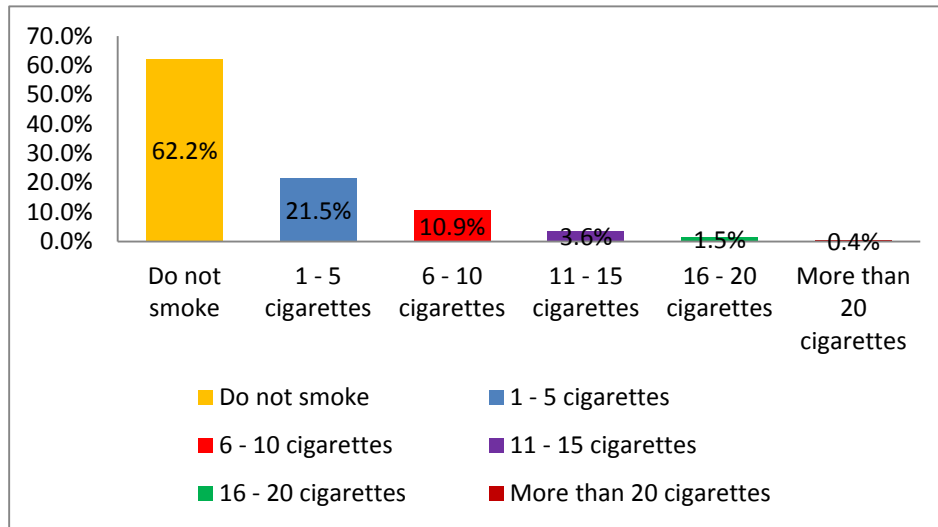


Figure 4.8: Smoking

Exercise

Figure 4.9 indicates that 10 of the respondents exercise on a daily basis, 6 respondents exercise 5 – 6 times per week, 29 respondents exercise 3 – 4 times per week, 66 respondents exercise 1 – 2 times per week, while 164 respondents do not exercise.

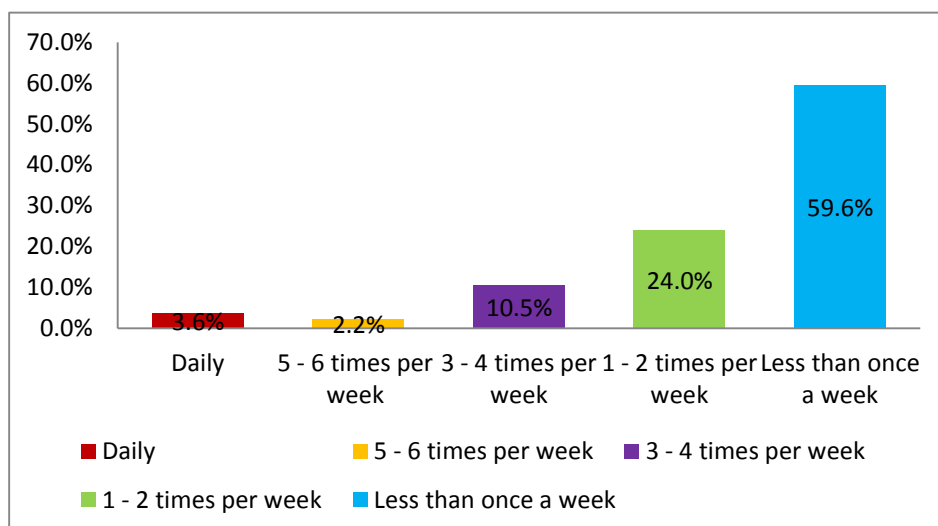


Figure 4.9: Exercise

4.3 Data analysis

4.3.1 Descriptive statistics

Descriptive statistics of the questions included in the questionnaire are presented in Table 4.1 to Table 4.13. The questions contained in the structured questionnaire are presented in Appendix C.

Means and Standard Deviations of Job Characteristics Questions

Table 4.1: Means and Standard Deviations of Job Characteristics Questions

Variable	N	Min	Max	Mean	Std. Deviation
Question 11	244	1	7	3.79	1.776
Question 12	244	1	7	4.57	1.931
Question 13	244	1	7	3.58	2.214
Question 14	244	1	7	4.94	1.874
Question 15	244	1	7	4.92	1.700
Question 16	228	1	7	4.75	1.670
Question 17	228	1	7	5.63	1.521
Question 18	228	1	7	5.01	1.456
Question 19	228	1	7	4.09	1.824
Question 20	228	1	7	4.90	1.457
Question 21	228	1	7	2.82	1.751
Question 22	228	1	7	3.85	2.085
Question 23	228	1	7	5.02	2.008
Question 24	228	1	7	5.60	1.449
Question 25	228	1	7	4.51	1.929
Question 26	228	1	7	5.11	1.683
Question 27	228	1	7	5.10	1.601
Question 28	228	1	7	4.48	1.857
Question 29	228	1	7	4.41	1.853
Question 30	228	1	7	4.68	1.989

Table 4.1 shows the means and standard deviations for each question of the Job Characteristics Questionnaire. Each of the 21 questions was related to a seven-point Likert scale ranging from (1) “very inaccurate” to (7) “very accurate”. Questions 19, 21, 22, 23, 25 and 28 were reverse scaled. The reverse-scaled responses revealed that the means of questions 11 (3.79), 13 (3.58), 21 (2.82) and 22 (3.85) were below the Likert scale midpoint of 4. This could mean that the respondents may have ticked the relevant answers without reading the questions properly. Question 17 had the highest mean score of 5.63.

Means and Standard Deviations of Social Support Questions

Table 4.2: Means and Standard Deviations of Social Support Questions

Variable	N	Min	Max	Mean	Std. Deviation
Question 31A	224	1	5	4.13	.940
Question 31B	224	1	5	3.91	.924
Question 32A	224	1	5	4.41	.831
Question 32B	224	2	5	4.56	.706
Question 33A	224	1	5	4.23	.978
Question 33B	224	1	5	4.11	.914
Question 34A	224	1	5	4.13	1.001
Question 34B	224	1	5	4.06	1.068

Table 4.2 shows the means and standard deviations for each question of the Social Support Questionnaire. Each of the 8 questions was related to a five-point Likert scale ranging from (1) “Don’t have any such person” to (5) “Very much”. The means of responses to the questions were all higher than the Likert scale midpoint of 3. Question 32B had the highest mean score of 4.56 and question 31B the lowest with 3.91.

Means and Standard Deviations of Job Demands Questions

Table 4.3: Means and Standard Deviations of Job Demands Questions

Variable	N	Min	Max	Mean	Std. Deviation
Question 35.	221	2	5	4.03	.794
Question 36	221	2	5	4.33	.715
Question 37	221	1	5	4.24	.783
Question 38	221	1	5	3.20	1.178
Question 39	221	1	5	3.58	1.035
Question 40	221	1	5	3.14	1.237
Question 41	221	1	5	3.34	1.035

Table 4.3 shows the means and standard deviations for each question of the Job Demands Questionnaire. Each of the 7 questions was related to a five-point Likert scale ranging from (1) “Never” to (5) “Extremely often”. The means of responses to the questions were all higher than the Likert scale midpoint of 3. Question 37 had the highest mean score of 4.24 and question 40 the lowest with 3.14.

Means and Standard Deviations of Performance Monitoring Questions

Table 4.4: Means and Standard Deviations of Performance Monitoring Questions

Variable	N	Min	Max	Mean	Std. Deviation
Question 42	220	1	5	4.24	1.110
Question 43	220	1	5	2.66	1.347
Question 44	220	1	5	3.82	1.459
Question 45	220	1	5	4.58	.901

Table 4.4 shows the means and standard deviations for each question of the Performance Monitoring Questionnaire. Each of the 4 questions was related to a five-point Likert scale ranging from (1) “Rarely or never” to (5) “Constantly”. The response to question 43 was below the Likert scale midpoint of 3. Question 45 had the highest mean score of 4.58.

Means and Standard Deviations of Physical Environment Questions

Table 4.5: Means and Standard Deviations of Physical Environment Questions

	N	Min	Max	Mean	Std. Deviation
Question 46	216	1	5	3.34	1.175
Question 47	216	1	5	3.28	1.261
Question 48	216	1	5	3.30	1.119
Question 49	216	1	5	3.24	1.279
Question 50	216	1	5	4.00	1.076
Question 51	216	1	5	3.66	1.183
Question 52	216	1	5	3.61	1.172
Question 53	216	1	5	3.21	1.300
Question 54	216	1	5	3.36	1.148
Question 55	216	1	5	3.82	1.116
Question 56	216	1	5	3.71	1.221
Question 57	216	1	5	3.72	1.207
Question 58	216	1	5	3.89	.996
Question 59	216	1	5	4.15	.850
Question 60	216	1	5	3.74	1.205
Question 61	216	1	5	3.99	1.036
Question 62	216	1	5	3.43	1.327
Question 63	216	1	5	3.27	1.348
Question 64	216	1	5	3.41	1.330
Question 65	216	1	5	3.15	1.410
Question 66	216	1	5	3.99	1.021
Question 67	216	1	5	3.75	1.169
Question 68	216	1	5	3.86	1.116

Table 4.5 shows the means and standard deviations for each question of the Physical Environment Questionnaire. Each of the 23 questions was related to a five-point Likert scale ranging from (1) “Very dissatisfied” to (5) “Very satisfied”. The means of responses to the questions were all higher than the Likert scale midpoint of 3. Question 59 had the highest mean score of 4.15 and question 65 the lowest, with 3.15.

Means and Standard Deviations of Emotional Wellbeing Questions

Table 4.6: Means and Standard Deviations of Emotional Wellbeing Questions

	N	Min	Max	Mean	Std. Deviation
Question 69	212	1	5	3.25	1.119
Question 70	212	1	5	2.17	1.041
Question 71	212	1	5	3.10	1.131
Question 72	212	1	5	2.53	1.133
Question 73	212	1	5	3.83	.980
Question 74	212	1	5	2.57	1.071
Question 75	212	1	5	3.27	1.122
Question 76	212	1	5	2.71	1.074

Question 77	212	1	5	2.58	1.092
Question 78	212	1	5	2.63	1.104
Question 79	212	1	5	3.07	1.010
Question 80	212	1	5	2.55	1.003
Question 81	212	1	5	1.81	.966
Question 82	212	1	5	4.00	.797
Question 83	212	1	5	3.28	1.077
Question 84	212	1	5	3.04	1.066

Table 4.6 shows the means and standard deviations for each question of the Emotional Wellbeing Questionnaire. Each of the 16 questions was related to a five-point Likert scale ranging from (1) “Strongly disagree” to (5) “Strongly agree”. Questions 70, 71, 72, 74, 76, 77, 79 and 80 were reverse scaled. The reverse-scaled responses revealed that the means of questions 70 (2.17), 72 (2.53), 74 (2.57), 76 (2.71), 77 (2.58), 78 (2.68), 80 (2.55) and 81 (1.81) were below the Likert scale midpoint of 3. This could mean that the respondents may have ticked the relevant answers without properly reading the questions. Question 82 had the highest mean score of 4.00.

Means and Standard Deviations of Vocal Health Questions

Table 4.7: Means and Standard Deviations of Vocal Health Questions

	N	Min	Max	Mean	Std. Deviation
Question 85	211	1	5	2.25	1.145
Question 86	211	1	5	2.47	1.255
Question 87	211	1	5	2.53	1.156
Question 88	211	1	5	1.96	1.086

Table 4.7 shows the means and standard deviations for each question of the Vocal Health Questionnaire. Each of the 4 questions was related to a five-point Likert scale ranging from (1) “Never” to (5) “All of the time”. The means of responses to the questions were all below the Likert scale midpoint of 3. Question 88 was the lowest, with 1.96.

Means and Standard Deviations of Optical Health Questions

Table 4.8: Means and Standard Deviations of Optical Health Questions

	N	Min	Max	Mean	Std. Deviation
Question 89	210	1	5	2.84	1.194
Question 90	210	1	5	2.89	1.189
Question 91	210	1	5	2.54	1.234
Question 92	210	1	5	2.93	1.190
Question 93	210	1	5	1.98	1.082
Question 94	210	1	5	2.66	1.193
Question 95	210	1	5	2.75	1.333

Table 4.8 shows the means and standard deviations for each question of the Physical Environment Questionnaire. Each of the 7 questions was related to a five-point Likert scale ranging from (1) “Very dissatisfied” to (5) “Very satisfied”. The means of responses

to the questions were all below the Likert scale midpoint of 3. Question 93 was the lowest, with 1.98.

Means and Standard Deviations of Auditory Health Questions

Table 4.9: Means and Standard Deviations of Auditory Health Questions

	N	Min	Max	Mean	Std. Deviation
Question 95	210	1	5	2.75	1.333
Question 96	210	1	5	2.22	1.260
Question 97	210	1	5	2.10	1.212

Table 4.9 shows the means and standard deviations for each question of the Auditory Health Questionnaire. Each of the 3 questions was related to a five-point Likert scale ranging from (1) “Very dissatisfied” to (5) “Very satisfied”. The means of responses to the questions were all below the Likert scale midpoint of 3. Question 97 was the lowest, with 2.10.

Means and Standard Deviations of General Health Questions

Table 4.10: Means and Standard Deviations of General Health Questions

	N	Min	Max	Mean	Std. Deviation
Question Q98_1	204	1	5	2.21	1.242
Question Q98_2	204	1	5	1.90	1.187
Question 98_3	204	1	5	2.72	1.308
Question 98_4	204	1	5	2.83	1.343
Question 98_5	204	1	5	2.90	1.302
Question 98_6	204	1	5	2.16	1.285
Question 98_7	204	1	5	2.13	1.213
Question 98_8	204	1	5	1.62	1.022
Question 98_9	204	1	5	1.91	1.185
Question 98_10	204	1	5	1.78	1.117
Question 98_11	204	1	5	1.74	1.058
Question 98_12	204	1	5	1.86	1.053
Question 98_13	204	1	5	2.35	1.306
Question 98_14	204	1	5	1.73	1.080
Question 98_15	204	1	5	2.25	1.162
Question 98_16	204	1	5	2.23	1.216
Question 98_17	204	1	5	3.02	1.502

Table 4.10 shows the means and standard deviations for each question of the General Health Questionnaire. Each of the 17 questions was related to a five-point Likert scale ranging from (1) “Very dissatisfied” to (5) “Very satisfied”. The means of responses to the questions were mostly all below the Likert scale midpoint of 3, except question 98.17 that had a mean score of 3.02.

Means and Standard Deviations of MSD Questions (Section 1)

Table 4.11: Means and Standard Deviations of MSD Questions (Section 1)

	N	Min	Max	Mean	Std. Deviation
Q99_1.Neck	203	1	5	2.57	1.389
Q99_2.Shoulder	203	1	5	2.62	1.393
Q99_3.Upper Arm	203	1	5	1.77	1.173
Q99_4.Lower Back	203	1	5	2.62	1.346
Q99_5.Forearm	203	1	5	1.55	1.044
Q99_6.Wrist	203	1	5	1.84	1.249
Q99_7.Hip/Buttocks	203	1	5	1.85	1.235
Q99_8.Thigh	203	1	5	1.45	.960
Q99_9.Knee	203	1	5	1.55	1.100
Q99_10.Lower Leg	203	1	5	1.38	.873

Table 4.11 shows the means and standard deviations for each question of the Musculoskeletal Questionnaire. The questions were divided into three sections. Section 1 had 10 questions that were related to a five-point Likert scale ranging from (1) “Never” to (5) “Several times every day”. The means of responses to the questions were all below the Likert scale midpoint of 3. Question 97 was the lowest, with 2.10.

Means and Standard Deviations of MSD Questions (Section 2)

Table 4.12: Means and Standard Deviations of MSD Questions (Section 2)

	N	Min	Max	Mean	Std. Deviation
Q100_1.Neck	203	1	3	1.76	.781
Q100_2.Shoulder	203	1	3	1.75	.809
Q100_3.Upper Back	203	1	3	1.57	.757
Q100_4.Upper Arm	203	1	3	1.26	.550
Q100_5.Lower Back	203	1	3	1.66	.782
Q100_6.Forearm	203	1	3	1.22	.510
Q100_7.Wrist	203	1	3	1.37	.611
Q100_8.Hip/Buttocks	203	1	3	1.33	.591
Q100_9.Thigh	203	1	3	1.17	.412
Q100_10.Knee	203	1	3	1.29	.569
Q100_11.Lower Leg	203	1	3	1.14	.399

Table 4.12 shows the means and standard deviations for each question of Section 2 of the Musculoskeletal Questionnaire. This section had 11 questions that were related to a three-point Likert scale ranging from (1) “Slightly uncomfortable” to (3) “Very uncomfortable”. The means of responses to the questions were all below the Likert scale midpoint of 2. Question 100.11 was the lowest, with 1.14.

Means and Standard Deviations of MSD Questions (Section 3)

Table 4.13: Means and Standard Deviations of MSD Questions (Section 3)

	N	Min	Max	Mean	Std. Deviation
Q101_1.Neck	203	1	3	1.58	.643
Q101_2.Shoulder	203	1	3	1.51	.640
Q101_3.Upper Back	203	1	3	1.39	.565
Q101_4.Upper Arm	203	1	3	1.19	.403
Q101_5.Lower Back	203	1	3	1.51	.648
Q101_6.Forearm	203	1	3	1.18	.432
Q101_7.Wrist	203	1	3	1.31	.569
Q101_8.Hip/Buttocks	203	1	3	1.19	.431
Q101_9.Thigh	203	1	3	1.14	.360
Q101_10.Knee	203	1	3	1.16	.391
Q101_11.Lower Leg	203	1	3	1.11	.327

Table 4.13 shows the means and standard deviations for each question of Section 3 of the Musculoskeletal Questionnaire. This section had 11 questions that were related to a three-point Likert scale ranging from (1) “Not at all” to (3) “Substantially interfered”. The means of responses to the questions were all below the Likert scale midpoint of 2. Question 100.11 was the lowest, with 1.11.

4.3.2 Factor analysis

A factor analysis was conducted to find clusters of related variables within the physical work environment section and the general health section.

Factor Analysis: Physical Environment Section

A factor analysis was conducted to answer the research question which was concerned with the factors in the workplace environment that contribute to emotional and physical wellbeing. Another reason for undertaking the factor analysis was to provide greater detail for ergonomics in the call centre environment.

Although 23 factors were initially extracted in SPSS, only five factors met the cut-off criteria. A five-factor analysis was conducted explaining co-variation amongst observed variables. The results are presented in eigenvalues, extraction sums of squared loadings and rotation sums of squared loadings. The percentage of variance column indicates how much of the total variability in all 23 variables can be accounted for by each of these factors. This is illustrated in Table 4.14 below.

Table 4.14: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum %	Total	% of Variance	Cum %	Total	% of Variance	Cum %
1	9.070	39.434	39.434	9.070	39.434	39.434	3.900	16.955	16.955
2	2.192	9.532	48.967	2.192	9.532	48.967	3.592	15.618	32.574
3	1.686	7.331	56.298	1.686	7.331	56.298	3.134	13.628	46.201
4	1.401	6.092	62.390	1.401	6.092	62.390	3.000	13.045	59.246
5	1.007	4.376	66.766	1.007	4.376	66.766	1.730	7.520	66.766

Source: Statistical Consultant, CPUT (2013)

The rotated component matrix illustrated in Table 4.15 shows the factor loadings for each variable.

Table 4.15: Rotated Component Matrix

	Component				
	1	2	3	4	5
46.The general temperature		.825			
47.The air quality		.861			
48.The draught levels		.772			
49.The ventilation		.820			
50.The lighting		.552			
51.Amount of workspace			.714		
52.Reflection and glare on computer screen	.343		.320	.352	
53.Background noise levels			.481	.529	
54.Noises coming through headsets	.318			.339	
55.General cleanliness of workstations	.634				.339
56.Condition of keyboard	.830				
57.Condition of computer mice	.826				
58.General suitability of work surfaces	.721		.360		
59.Height of work surface	.620		.317		
60.Adjustability of chairs				.759	
61.Adjustability of screens	.509	.304		.311	
62.Condition of chairs				.866	
63.Maintenance standards of chairs				.802	
64.Storage space for the information needed to do your work					.772
65.Storage space for personal items					.773
66.Space on desks so that the computer screen can be correctly positioned	.476		.607		
67.Space between you and your nearest colleagues			.794		
68.The overall layout of the call centre area			.738		

Source: Statistical Consultant, CPUT (2013)

Five factors were extracted and grouped under workstation (factor 1), temperate and air quality (factor 2), workspace and office layout (factor 3), maintenance and conditions of chairs (factor 4) and storage (factor 5).

Factor 1: Workstation

This factor includes items concerned with the workstation in a call centre that may impact wellbeing. This factor comprises ergonomic factors relating to workstation. Items included in the questionnaire under this factor are “general cleanliness of workstations”, “conditions of keyboards”, “conditions of computer mice”, “general suitability of work surface”, “height of work surface”, and “adjustability of screens”.

Factor 2: Temperature and air quality

This factor consists of items related to the indoor temperature, air quality and ventilation in a call centre. Items included in this factor are “general temperature”, “air quality”, “draught levels”, “ventilation” and “lighting”.

Factor 3: Workspace and layout of call centre

This factor consists of items concerned with the overall layout of the call centre and the amount of space that there is for call centre agents to do their work adequately. Included in this factor are items such as “amount of workspace”, “space on desks so that the computer screen can be correctly positioned”, “space between you and your nearest colleague” and “the overall layout of the call centre area”.

Factor 4: Maintenance and adjustability of chairs and screens

This factor consists of items related to the maintenance, conditions and adjustability of chairs. Items that are included in this factor are “adjustability of chairs”, “conditions of chairs” and “maintenance standards of chairs”.

Factor 5: Storage

This factor consists of items related to whether the call centre agents have enough storage space at their workstations for personal items or work-related documents. This includes items such as “storage space for the information needed to do your work” and “storage space for personal items”.

Reliability

Once the factors of the physical work environment were identified, the internal consistency of the factors, the subscales of the physical work environment section, and the variables used in the study were tested to determine whether the instrument had adequate reliability. This is illustrated in Table 4.16.

Table 4.16: Reliability of Factors

	Cronbach's Alpha	Number of items
Factor 1	.875	6
Factor 2	.868	5
Factor 3	.846	4
Factor 4	.901	3
Factor 5	.790	2

Source: Statistical Consultant, CPUT (2013)

Reliability was conducted on the five factors. Only variables with strong Cronbach alphas were included in the factors. Factor 1 included 6 items (questions 55, 56, 57, 57, 59 and 61) and had a reliability of .875. Factor 2 included 5 items (questions 46, 47, 48, 49 and 50) and had a reliability of .868. Factor 3 included 4 items (questions 51, 66, 67 and 68) and had a reliability of .846. Factor 4 included 3 items (questions 60, 62 and 63) and had a reliability of .901. Factor 5 included 2 items (questions 64 and 65) and had a reliability of .790. Factors related to noise (questions 53 and 54) were not included, as they had a poor reliability of .507.

Factor Analysis: General Health

Although 17 factors were initially extracted in SPSS, only three factors met the cut-off criteria. A three-factor analysis was conducted, explaining covariation amongst observed variables. The results are presented in eigenvalues, extraction sums of squared loadings and rotation sums of squared loadings. The percentage of variance column indicates how much of the total variability in all 17 variables can be accounted for by each of these factors. This is illustrated in Table 4.17 below.

Table 4.17: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum %	Total	% of Variance	Cum %	Total	% of Variance	Cum %
1	8.360	49.174	49.174	8.360	49.174	49.174	4.404	25.908	25.908
2	1.512	8.894	58.068	1.512	8.894	58.068	3.377	19.864	45.772
3	1.163	6.843	64.911	1.163	6.843	64.911	3.254	19.139	64.911

Source: Statistical Consultant, CPUT (2013)

The rotated matrix component in Table 4.18 shows the factor loading for each variable.

Table 4.18: Rotated Component Matrix

	Component		
	1	2	3
Q98_1.Your face became hot when you were not in a hot room or exercising.		.782	
Q98_2.You perspired excessively when you were not in a hot room or exercising.		.730	
Q98_3.Your mouth became dry.		.687	.323

Q98_4. Your muscles felt tight and tense.		.681	.363
Q98_5. You were bothered by a headache.		.540	.484
Q98_6. You felt as if the blood were rushing to your head.	.393	.520	.405
Q98_7. You felt a lump in your throat or a choked-up feeling.	.459	.389	.377
Q98_8. Your hands trembled enough to bother you.	.631		
Q98_9. You were bothered by shortness of breath when you were not working hard or exercising.	.775		
Q98_10. You were bothered by your heart beating hard.	.812		
Q98_11. Your hands sweated so that you felt damp and clammy.	.721		
Q98_12. You had spells of dizziness.	.682		.414
Q98_13. You were bothered by having an upset stomach or stomach ache.	.431		.678
Q98_14. You were bothered by your heart beating.	.836		
Q98_15. You were in ill health which affected your work.	.381		.726
Q98_16. You had a loss of appetite.	.333		.741
Q98_17. You had trouble sleeping at night.		.387	.723

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalisation.

a. Rotation converged in 7 iterations.

Source: Statistical Consultant, CPUJ (2013)

Three factors were extracted from and were grouped under anxiety (factor 1), acute stress (factor 2), and physical and behavioural stress symptoms (factor 3).

Factor 1: Anxiety

This factor consists of items related to anxiety. This includes items such as “your hands trembled enough to bother you”, “you were bothered by shortness of breath when you were not working hard or exercising”, “you were bothered by your heart beating hard”, “your hands sweated so that you felt damp and clammy”, and “you had spells of dizziness”.

Factor 2: Acute stress

This factor consists of items related to acute stress. Items included in this factor are “your face become hot when you were not in a hot room or exercising”, “you perspired excessively when you were not in a hot room or exercising”, “your mouth became dry”, “your muscles felt tight and tense”, “you were bothered by a headache”, and “you felt as if blood were rushing to your head”.

Factor 3: Physical and behavioural stress symptoms

This factor consists of items related to physical and behavioural stress symptoms. Items included are “you were bothered by having an upset stomach or stomach ache”, “you were in ill health which affected your work”, “you had a loss of appetite”, and “you had trouble sleeping at night”.

Reliability

Once the factors of general health were identified, the internal consistency of the factors, the subscales of the general health section and the variables used in the study were tested to determine whether the instrument had adequate reliability. Reliability is indicated in Table 4.19.

Table 4.19: Reliability of Factors

	Cronbach's Alpha	Number of items
Factor 1	.880	5
Factor 2	.854	6
Factor 3	.837	4

Source: Statistical Consultant, CPUT, 2013

Only variables with strong Cronbach alphas were included in the factors. Factor 1 included 5 items and had a reliability of .880. Factor 2 included 6 items and had a reliability of .854. Factor 3 included 4 items and had a reliability of .837.

4.3.3 Results for Research Question 1

A T-test was conducted to answer the first research question on whether there is a significant difference between the means of male and female levels of perceptions towards their job characteristics, physical working environment and emotional and physical wellbeing. The T-test results in Table 4.20 illustrate the levels of perception on job characteristics.

Table 4.20: Summary of T-test for gender means on job characteristics

	t	df	p-value (2-tailed)
Skill Variety	1.43	273	.15
Job Feedback	.63	242	.53
Task Variety and Identity	-.26	242	.80
Agency Feedback	.183	226	.86
Task Significance	1.19	242	.24
Autonomy	.59	242	.55
Supervisory Support	.26	222	.79
Co-worker Support	-.26	222	.80
Job Demand	-1.01	219	.32
Performance Monitoring	-.61	218	.54

Source: Statistical Consultant, CPUT, 2014

There was no statistically significant difference $t(273) = 1.43, p = 0.15 > .05$ between male and female perceptions on skills variety.

There was no statistically significant difference $t(242) = 0.628, p = 0.53 > .05$ between male and female perceptions of job feedback.

There was no statistically significant difference $t(242) = -0.26, p = 0.795 > .05$ between male and female perceptions of task variety and identity.

There was no statistically significant difference $t(242) = 1.19, p = 0.24 > .05$ between males and females on task significance.

There was no statistically significant difference $t(242) = 0.59, p = 0.55 > .05$ between males and females on autonomy.

There was no statistically significant difference $t(222) = 0.26, p = 0.79 > .05$ between males and females on supervisory support.

There was no statistically significant difference $t(222) = -0.26, p = 0.80 > .05$ between males and females on co-worker support.

There was no statistically significant difference $t(219) = -1.01, p = 0.32 > .05$ between males and females on their job demands.

There was no statistically significant difference $t(218) = -.61, p = 0.54 > .05$ between males and females on their level of performance monitoring.

The T-test results in Table 4.21 illustrate the levels of perception on physical work environment.

Table 4.21: Summary of T-test for gender means on physical work environment

	t	df	p-value (2-tailed)
Workstation	.78	214	.44
Temperature and air quality	2.4	194	.018
Workspace and office layout	2.9	212	.005
Maintenance and adjustability of chairs and screens	2.0	183	.048
Storage	1.3	214	.210

Source: Statistical Consultant, CPUT, 2014

There was no statistically significant difference $t(214) = 0.78, p = 0.44 > .05$ between male and female perceptions of their workstations.

There was a statistically significant difference $t(194) = 2.4, p = .018 < .05$ between male and female perceptions of temperature and air quality.

There was a statistically significant difference $t(212) = 2.9, p = .005 < .05$ between male and female perceptions on workspace and office layout.

There was a statistically significant difference $t(183) = 2.0, p = .048 < .05$ between male and female perceptions on the maintenance and adjustability of chairs and screens.

There was no statistically significant difference $t(214) = 1.3, p = .210 > .05$ between male and female perceptions on storage.

The T-test results in Table 4.22 illustrate the levels of perception on emotional and physical wellbeing.

Table 4.22: Summary of T-test for gender means on emotional and physical wellbeing

	<i>t</i>	<i>df</i>	<i>p-value (2-tailed)</i>
Exhaustion	2.0	190	.047
Disengagement	.69	210	.49
Vocal health	-2.1	209	.04
Optical health	-2.7	208	.007
Auditory health	-1.5	208	.141
Anxiety	-2.3	190	.022
Acute stress	-2.5	164	.013
Physical and behavioural stress symptoms	-2.2	173	.029
Musculoskeletal Disorder	-1.9	201	.058

Source: Statistical Consultant, CPUT, 2014

There was a statistically significant difference $t(190) = 2.0, p = .047 < .05$ between male and female levels of exhaustion.

There was no statistically significant difference $t(210) = .69, p = .49 > .05$ between male and female levels of disengagement.

There was a statistically significant difference $t(209) = -2.1, p = .04 < .05$ between males and females with regard to vocal health.

There was a statistically significant difference $t(208) = -2.7, p = .007 < .05$ between males and females with regard to optical health.

There was a statistically significant difference $t(190) = -2.3, p = .022 < .05$ between males and females with regard to auditory health.

There was a statistically significant difference $t(164) = -2.5, p = .013 < .05$ between males and females with regard to acute stress.

There was a statistically significant difference $t(173) = -2.2, p = .029, p < .05$ between males and females with regard to physical and behavioural stress symptoms.

There was no statistically significant difference $t(201) = -1.9, p = .058 > .05$ between males and females with regard to musculoskeletal health problems.

4.3.4 Results for Research Question 2

The MANOVA technique was used to answer the second research question on whether there is a significant difference in the emotional and physical wellbeing experienced by call centre agents from various industries. The Wilks' lambda test was used to obtain the results. Wilks' lambda is a test statistic used in MANOVA to test whether there are differences between the means of identified groups of subjects on a combination of dependent variables (Crichton, 2000:381). The results for the multivariate test are shown in Table 4.23 below.

Table 4.23: Multivariate test for industry means on emotional and physical wellbeing

Effect		Value	F	Hypothesis df	Error df	p-value
Industry	Pillai's Trace	.255	1.623	32.000	764.000	.017
	Wilks' Lambda	.764	1.641	32.000	694.905	.015
	Hotelling's Trace	.284	1.654	32.000	746.000	.014
	Roy's Largest Root	.152	3.618 ^c	8.000	191.000	.001

Source: Statistical Consultant, CPUT (2014)

From the multivariate test above in Table 4.23, there is a significant difference among the industry group. Wilks' lambda = .76, $F(32, 695) = 1.64, p = .015 < .05$.

As the MANOVA was significant, the univariate ANOVA results were performed. The univariate ANOVA indicates that disengagement $F(4) = 2.64, p = .035 < .05$, vocal health $F(4) = 2.46, p = .047 < .05$ and auditory health $F(4) = 3.19, p = .014 < .05$ is statistically significantly different in the industry where the call centre agents are employed. These results are indicated in Table 4.24 below.

Table 4.24: Test of between subjects effect

Source	Dependent Variable	df	F	p-value
Industry	Exhaustion	4	1.83	.125
	Disengagement	4	2.64	.035
	Vocal health	4	2.46	.047
	Optical health	4	1.74	.142
	Auditory health	4	3.19	.014
	Anxiety	4	1.30	.272
	Acute stress	4	.010	1.000
	Physical and behavioural stress	4	.774	.544

Source: Statistical Consultant, CPUT, 2014

A pairwise comparison was conducted to determine which industries were significantly different. The results are reflected in Figure 4.10 below.

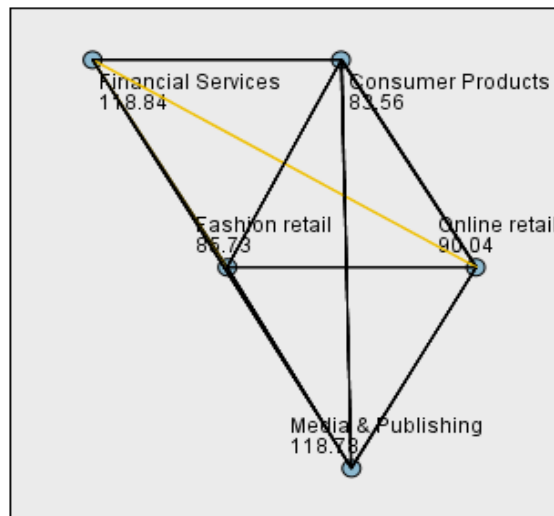


Figure 4.10: Pairwise comparison

4.3.5 Results for Research Question 3

The ANOVA technique was used in the current study to test relationships between the independent variables and the dependent variables. This was conducted to test the hypothesis of what factors within the workplace environment contribute to the emotional and physical wellbeing of call centre agents. These results are illustrated in Table 4.25 and 4.26. Owing to the voluminous nature of Table 4.27 representing the results of the physical wellbeing, it will be contained within Appendix F for ease of reference.

The ANOVA results presented in Table 4.25 and Table 4.26 illustrate the factors in the workplace environment that are related to exhaustion and disengagement.

Table 4.25: ANOVA Results for Exhaustion

Source	df	F	Sig.
Skill Variety	1	6.118	.014
Job Feedback	1	1.904	.169
Task Variety and Identity	1	.251	.617
Agency Feedback	1	3.034	.083
Task Significance	1	2.413	.122
Autonomy	1	3.094	.080
Supervisory Support	1	7.030	.009
Co-worker Support	1	.030	.863
Job Demand	1	32.827	.000
Performance Monitoring	1	4.472	.036
Workstation	1	.224	.636
Temperature and Air Quality	1	.421	.517
Workspace and Office Layout	1	1.101	.295
Maintenance and Adjustability of Chairs and Screens	1	.002	.963
Storage	1	.547	.460

Source: Statistical Consultant, CPUT, 2013

Table 4.26: ANOVA Results for Disengagement

Source	df	F	Sig.
Skill Variety	1	41.150	.000
Job Feedback	1	.103	.749
Task Variety and Identity	1	.168	.683
Agency Feedback	1	.353	.553
Task Significance	1	1.289	.258
Autonomy	1	4.256	.040
Supervisory Support	1	2.529	.113
Co-worker Support	1	2.485	.117
Job Demand	1	.884	.348
Performance Monitoring	1	2.335	.128
Workstation	1	1.673	.197
Temperature and Air Quality	1	5.166	.024
Workspace and Office Layout	1	.789	.375
Maintenance and Adjustability of Chairs and Screens	1	.046	.830
Storage	1	.083	.774

Source: Statistical Consultant, CPUT, 2013

A statistically significant p value indicates that a relationship exists between two variables. The p value at the intersection of the row and column is used to decide whether to reject the H_0 or not. If the p value is less than or equal to α (.05), then H_0 was rejected. In Table 4.25, the ANOVA revealed an interaction of skills variety and exhaustion, $F(1,196) = 6.119$, $p = .014$. The interaction of skills variety and disengagement $F(1,196) = 41.150$, $p = 0.000$. The p value for skills variety and exhaustion equals .014 which is less than α (.05), meaning the H_0 can be rejected. This means there was sufficient evidence to conclude that there is a relation between skills variety and exhaustion. The p value for skills variety and disengagement equals .000 which is less than α , meaning the H_0 was rejected. There is sufficient evidence to conclude that there is a significant relationship between skills variety and disengagement.

The ANOVA revealed an interaction autonomy and disengagement, $F(1,196) = 4.256$, $p = .040$. The p value of .040 was less than $\alpha (.05)$, so the H_0 was rejected. This means that there is sufficient evidence to conclude that there is a significant relationship between autonomy and disengagement.

An interaction between supervisory support and exhaustion, $F(1,196) = 7.030$, $p = .009$. The p value for supervisory support and exhaustion is .009, and was less than $\alpha (.05)$, so the H_0 was rejected. This means that there is sufficient evidence to conclude that there is a significant relationship between supervisory support and exhaustion.

An interaction between job demand and exhaustion, $F(1,196) = 32.827$, $p = .000$. The p value for job demand and exhaustion was .000, which was less than $\alpha (.05)$, so the H_0 was rejected. This means that there is a significant relationship between job demand and exhaustion.

An interaction between performance monitoring and exhaustion was established, $F(1,196) = 4.472$, $p = .036$. The p value for performance monitoring and exhaustion is .036, which is less than $\alpha (.05)$, so the H_0 was rejected. This means that there is a significant relationship between performance monitoring and exhaustion.

In Table 4.26 the ANOVA revealed an interaction between temperature and air quality, and disengagement was established, $F(1,196) = 5.166$, $p = .024$. The p value of .024 was less than $\alpha (.05)$, so the H_0 was rejected. This means that there is a significant relationship between physical work environment factor 2 and disengagement.

The ANOVA results presented in Table 4.27 (Appendix F) illustrate the independent variables used: skills variety, job feedback, task variety and identity, agency feedback, task significance, autonomy, supervisor support, co-worker support, job demand, performance monitoring, workstation, temperature and air quality, workspace and office layout, maintenance, and adjustability of chairs and screens, as well as storage. The dependent variables tested were vocal health, optical health, auditory health, anxiety, acute stress, physical and behavioural stress symptoms and musculoskeletal health.

The interaction of skills variety and optical health, $F(1,187) = 4.541$, $\rho = .034$. The ρ value for skills variety and optical health is .034, which is less than α (.05), which rejects the H_0 . This means that there is a significant relationship between skills variety and optical health.

The interaction of task variety and identity and anxiety, $F(1,187) = 4.092$, $\rho = .045$. The ρ value for task identity and anxiety is less than α (.05), which rejects the H_0 . This means that there is a significant relationship between task variety and identity and anxiety.

The interaction of supervisory support and optical health, $F(1,187) = 5.760$, $\rho = .017$. The ρ value for supervisory support and optical health is less than α (.05), which rejects the H_0 . This means that there is a significant relationship between supervisory support and optical health.

The interactions of job demand and vocal health, $F(1,187) = 5.986$, $\rho = .015$, job demand and optical health, $F(1,187) = 7.828$, $\rho = .006$, job demand and auditory health, $F(1,187) = 5.455$, $\rho = .021$ and job demand and physical and behavioural stress symptoms, $F(1,187) = 4.280$, $\rho = .040$. The ρ values of all four interactions are less than α (.05), which rejects the H_0 . This means that there is a significant relationship between job demand and vocal health, job demand and optical health, job demand and auditory health, and job demand and physical and behavioural stress symptoms.

The interaction of performance monitoring and auditory health, $F(1,187) = 12.093$, $\rho = .001$. The ρ value of performance monitoring and auditory health is less than α (.05), which rejects the H_0 . This means that there is a significant relationship between performance monitoring and auditory health.

The interaction of workstation and auditory health, $F(1,187) = 11.014$, $\rho = .001$. The ρ value of workstation and auditory health is less than α (.05), which rejects the H_0 . This means that there is a significant relationship between workstation and auditory health.

4.3.6 Results for Research Question 4

The correlation analysis was conducted to answer the fourth research question by assessing whether significant relationships exist between job characteristics, physical work environment and wellbeing. Owing to the voluminous nature of Table 4.28, it is shown as Appendix G for ease of reference.

A moderate positive correlation was found between skills variety and autonomy, with $r = 0.56$, $p = < 0.001$ and task significance with $r = 0.49$, $p = < 0.001$. A low, negative correlation was found between skills variety and exhaustion, $r = -0.29$, $p = < 0.001$ and a moderate negative correlation between skills variety and disengagement, $r = -0.59$, $p = < 0.001$. Low negative correlations were also found between skills variety and optical health, $r = -0.22$, $p = < 0.001$; acute stress, $r = -0.22$, $p = < 0.001$, and physical and behavioural stress symptoms, $r = -0.20$, $p = < 0.001$. The findings indicate that as skills variety increases, autonomy and task significance increases. Furthermore, the findings also show that as skills variety increases, exhaustion, disengagement, optical health problems, acute stress and physical and behavioural stress symptoms decrease.

Moderate positive correlations were found between autonomy and job feedback $r = 0.11$, $p = < 0.001$ and task significance $r = 0.47$, $p = < 0.001$. Low positive correlations were found between autonomy and workstation layout $r = 0.27$, $p = < 0.001$; workspace and layout $r = 0.25$, $p = < 0.001$ and storage $r = 0.32$, $p = < 0.001$. A low negative correlation was found between autonomy and exhaustion $r = -0.39$, $p = < 0.001$ and a moderate negative correlation between autonomy and disengagement $r = -0.52$, $p = < 0.001$. Low negative correlations were also found between autonomy and optical health $r = -0.24$, $p < 0.001$; acute stress $r = -0.28$, $p < 0.001$; physical and behavioural stress symptoms $r = -0.27$, $p < 0.001$ and MSD $r = -0.21$, $p < 0.001$. The findings indicate that as autonomy increases, job feedback and task significance increase. Satisfaction with workspace and office layout, as well as satisfaction with storage, increases. Furthermore, as autonomy increases, exhaustion, disengagement, optical health problems, acute stress, physical and behavioural symptoms and MSD decrease.

A moderate positive correlation was found between supervisory support and agency feedback $r = 0.42$, $p = 0.001$ and low positive correlations were found between supervisory support and job feedback $r = 0.31$, $p = 0.001$; autonomy $r = 0.29$, $p < 0.001$ and co-worker support $r = 0.31$, $p = < 0.001$. Low negative correlations were

found between supervisory support and exhaustion $r = -0.31$, $p = < 0.001$; disengagement $r = -0.29$, $p = < 0.001$ and optical health $r = -0.25$, $p = < 0.001$. The findings indicate that as supervisory support increases, agency feedback, job feedback, autonomy and co-worker support increase. Furthermore, as supervisory support increases, exhaustion, disengagement and optical health problems decrease.

A low positive correlation was found between co-worker support and job feedback $r = 0.23$, $p = < 0.001$, autonomy $r = 0.32$, $p = < 0.001$, supervisory support $r = 0.34$, $p = < 0.001$ and workspace and office layout $r = 0.25$, $p = < 0.001$. Low negative correlations were found between co-worker support and exhaustion $r = -0.22$, $p = < 0.001$; disengagement $r = -0.30$, $p = < 0.004$; physical and behavioural stress symptoms $r = -0.21$, $p = < 0.001$ and MSD $r = -0.21$, $p = < 0.001$. The findings indicate that as co-worker support increases, job feedback, autonomy, supervisory support, satisfaction with workspace and office layout increase. Furthermore, as co-worker support increases, exhaustion, disengagement, physical and behavioural stress symptoms and MSD decrease.

Low negative correlations were found between job demand and agency feedback $r = -0.24$, $p = < 0.001$, job demand and workstation $r = -0.22$, job demand and workspace and office layout $r = -0.31$, job demand and storage $r = -0.21$. A low positive correlation was found between job demand and exhaustion $r = 0.37$, $p = < 0.001$, job demand and optical health $r = 0.21$, $p = < 0.001$, job demand and auditory health $r = 0.24$, $p = < 0.001$, job demand and anxiety $r = 0.23$, $p = < 0.001$, job demand and physical and behavioural stress symptoms $r = 0.21$, $p = < 0.001$ and job demand and MSD $r = 0.24$, $p = < 0.001$. The findings indicate that as job demand increases, agency feedback and satisfaction with workspace and office layout, as well as satisfaction with storage decrease. Furthermore, as job demand increases, exhaustion, optical health problems, auditory health problems, anxiety, physical and behavioural stress symptoms and MSD increase.

Low positive correlations were found between performance monitoring and agency feedback $r = 0.23$, $p = < 0.0001$, vocal health $r = 0.19$, $p = < 0.0001$, auditory health $r = 0.29$, $p = < 0.0001$. Low negative correlations were found between performance monitoring and task significance $r = -0.22$, $p = < 0.0001$, autonomy $r = -0.21$, $p = < 0.0001$ and workspace and office layout $r = -0.15$, $p = < 0.0001$. The findings indicate that as performance management increases, so do agency feedback, vocal health problems and auditory health problems. Furthermore, as performance management

increases, task significance, autonomy and satisfaction with workspace and office layout decrease.

Low positive correlations were found between workspace and office layout and job feedback $r = 0.20$, $p = <0.001$; autonomy $r = 0.24$, $p = < 0.001$; co-worker support $r = 0.25$, $p = < 0.001$. Moderate positive correlations were found between workspace and office layout and workstation $r = 0.58$, $p = < 0.001$; temperature and air quality $r = 0.44$, $p = <0.001$; maintenance and adjustability of chairs and screens $r = 0.41$, $p = <0.001$ and storage $r = 0.54$, $p = <0.001$. Low negative correlations were found between workspace and office layout and job demand $r = -0.32$, $p = <0.001$, exhaustion $r = -0.25$, $p = < 0.001$; disengagement $r = -0.21$, $p = < 0.001$; anxiety $r = -0.25$, $p = < 0.001$; acute stress $r = -0.24$, $p = < 0.001$; physical and behavioural stress symptoms $r = -0.23$, $p = <0.001$ and MSD $r = -0.31$, $p = <0.001$. The findings indicate that as satisfaction with workspace and office layout increases, job feedback, autonomy, co-worker support, satisfaction with workstation, temperature and air quality, maintenance and conditions, as well as storage will increase. Furthermore, the findings suggest as satisfaction with workspace and office layout increases, job demand, exhaustion, disengagement, anxiety, acute stress, physical and behavioural stress symptoms and MSD will decrease.

Low positive correlations were found between workstation and job feedback $r = 0.20$, $p = < 0.001$; agent feedback $r = 0.22$, $p = <0.001$; autonomy $r = 0.27$, $p = <0.001$; supervisor support $r = 0.16$, $p = <0.001$; co-worker support $r = 0.18$, $p = <0.001$. Moderate positive correlations were found between workstation and temperature and air quality $r = 0.43$, $p = <0.001$; workspace $r = 0.58$, $p = <0.001$; maintenance and adjustability of chairs and screens $r = 0.59$, $p = <0.001$ and storage $r = 0.53$, $p = <0.001$. Low negative correlations were found between workstation and job demand $r = -0.22$, $p = <0.001$; exhaustion $r = -0.21$, $p = <0.001$; vocal health $r = -0.22$, $p = <0.001$; optical health $r = -0.22$, $p = <0.001$; auditory health $r = -0.30$, $p = <0.001$; anxiety $r = -0.19$, $p = <0.001$; acute stress $r = -0.28$, $p = <0.001$; physical and behavioural stress symptoms $r = -0.18$, $p = <0.001$ and MSD $r = -0.25$, $p = <0.001$. The findings suggest that as satisfaction in workstation increases, so does job feedback, agent feedback, autonomy, supervisor support and co-worker support. Satisfaction with the temperature and air quality, workspace, maintenance and adjustability of chairs and screens, as well as storage, also increases. Furthermore, the findings suggests that as satisfaction with workstations increases, job demand, exhaustion, vocal health, optical health, auditory health, anxiety, acute stress, physical and behavioural stress symptoms, and MSD decrease.

A low positive correlation was found between maintenance and adjustability of chairs and screens and autonomy $r = 0.17$, $p = <0.001$. Moderate positive correlations were found between maintenance and adjustability of chairs and workstation $r = 0.59$, $p = <0.001$; temperature and air quality $r = 0.38$, $p = <0.001$; workspace $r = 0.41$, $p = <0.001$ and storage $r = 0.41$, $p = <0.001$. Low negative correlations were found between maintenance and adjustability of chairs and screens and job demand $r = -0.19$, $p = <0.001$; vocal health $r = -0.23$, $p = <0.001$; auditory health $r = -0.19$, $p = <0.001$; anxiety $r = -0.21$, $p = <0.001$; acute stress $r = -0.25$, $p = <0.001$ and MSD $r = -0.24$, $p = <0.001$. The findings suggest that as satisfaction with maintenance and adjustability of chairs and screens increases, autonomy, workstation, temperature and air quality, workspace and storage also increase. Furthermore, the findings suggest that as satisfaction with maintenance and adjustability of chairs and screens increases, job demand, exhaustion, vocal health, optical health, auditory health, anxiety, acute stress, physical and behavioural stress symptoms, and MSD decrease.

Low negative correlations were found between exhaustion and skills variety $r = -0.29$, $p = <0.001$, job feedback $r = -0.28$, $p = <0.001$, task identity $r = -0.23$, $p = <0.001$, task significance $r = -0.27$, $p = 0.001$, autonomy $r = -0.39$, $p = <0.001$; supervisory support $r = -0.31$, $p = <0.001$, co-worker support $r = -0.22$, $p = <0.001$; workstation $r = -0.21$, $p = <0.001$; workspace and office layout $r = -0.25$, $p = <0.001$ and exhaustion and storage $r = -0.20$, $p = <0.001$. The findings indicate that as exhaustion increases, skills variety, job feedback, task identity, task significance, autonomy, supervisory support, and co-worker support decrease. The findings also indicate that as exhaustion increases, satisfaction with workstation, workspace, office layout and storage decreases.

Moderate positive correlations were found between anxiety and exhaustion $r = 0.40$, $p = <0.0001$, acute stress $r = 0.66$, $p = <0.0001$, physical and behavioural stress symptoms $r = 0.63$, $p = <0.0001$, vocal health problems $r = 0.46$, $p = <0.0001$, optical health problems $r = 0.49$, $p = <0.0001$, auditory health problems $r = 0.39$, $p = <0.0001$ and MSD $r = 0.62$, $p = <0.0001$. Moderate positive correlations were found between acute stress and exhaustion $r = 0.41$, $p = <0.0001$, anxiety $r = 0.66$, $p = <0.0001$, physical and behavioural stress symptoms $r = 0.65$, $p = <0.0001$, vocal health problems $r = 0.43$, $p = <0.0001$, optical health problems $r = 0.56$, $p = <0.0001$, auditory health problems $r = 0.39$, $p = <0.0001$ and MSD $r = 0.61$, $p = <0.0001$. Moderate positive correlations were found between physical and behavioural stress and exhaustion $r = 0.52$, $p = <0.0001$, disengagement $r = 0.36$, $p = <0.0001$, anxiety $r = 0.63$, $p = <0.0001$, acute

stress $r = 0.65$, $p = <0.0001$, vocal health problems $r = 0.38$, $p = <0.0001$, optical health problems $r = 0.53$, $p <0.0001$, auditory health problems $r = 0.31$, $p = <0.0001$ and MSD $r = 0.57$, $p = <0.0001$. The findings indicate that as job stress increases, all other health problems increase.

4.4 Summary of results

A demographic analysis was conducted on the sample that was used in this study. A factor analysis was then conducted on the physical work environment and NIOSH job stress scales in order to identify the factors. The factor analysis produced five factors from the physical environment scale, namely, workstation, temperature and air quality, workspace and layout of call centre, maintenance and adjustability of chairs and screens, and storage. The factor analysis produced three factors from the NIOSH job stress scale, namely, anxiety, acute stress and physical and behavioural stress symptoms.

Once the factors were identified, analysis was conducted to find the results to answer the research questions. A T-test was conducted to answer research question 1 to determine whether there were significant differences between male and female call centre agents' perceptions of their job characteristics, physical work environment and emotional and physical wellbeing. Significant differences were found.

A MANOVA technique was conducted to answer research question 2 on whether there were significant differences in emotional and physical wellbeing experienced by call centre agents from various industries. Significant differences were found.

An ANOVA technique was conducted to answer research question 3 to ascertain the factors within the workplace environment that contribute to emotional and physical wellbeing. The results yielded that job demands, performance monitoring, workstations and lack of skills variety, autonomy, task identity, and social support contribute to the poor emotional and physical wellbeing of call centre agents.

Finally, a Pearson correlation analysis was conducted to answer research question 4 to determine whether there are significant relationships between job characteristics, physical work environment, and emotional and physical wellbeing. Statistically significant relationships were found.

The next chapter discusses the findings.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents the findings from the data generated in the study.

The chapter firstly provides demographical data generated through the data-collection tool. A discussion of the findings follows as they relate to questions posed in the questionnaire.

5.2 Findings

Out of the 275 respondents, 175 were coloured. With regard to gender, the sample consisted of 170 female and 105 male respondents. In terms of age, 202 of the respondents were aged between 22 and 34, which is an indication that most of the call centre agents are relatively young. Out of the sample, 104 respondents were from the online retail industry, which indicates that more respondents from this industry participated in the study. Of the respondents, 236 within the sample size had been employed at their company for 0 to 5 years. Additionally, 164 respondents the sample worked a daytime shift between 06:00 to 18:00 from Mondays to Fridays. Of the respondents, 246 indicated that the company decided their working hours. Of the respondents, 171 indicated that they did not smoke, which makes this more than half of the sample size, while the rest indicated that they smoked between 1 to more than 20 cigarettes per day. Of the respondents, 164 indicated that they did not exercise.

These findings were consistent with research by Cohen (2013), which found that the call centre industry attracts more young people in South Africa and gives them an opportunity for a possible career path. The results on age also coincide with the number of years employed at the company and are consistent with the findings of Latif (2010), that young employees in the early stages of their careers have fewer years of employment. With regard to gender, the findings were consistent with those of Benner *et al.* (2007) and Holman *et al.* (2007), which indicated more females are employed in call centres. Working hours and their determination were consistent with findings of Holman *et al.* (2007), that call centres do not offer employees flexibility and discretion in respect of their working hours. Call centre agents in this study revealed that they had little time for physical activity after work; therefore most of them did not exercise during the week after work. A study conducted by Renton *et al.* (2011) revealed that allowing call centre

agents flexible time to exercise during the day would not be practicable, given the nature of call centre work.

This study revealed significant differences with gender and industry with regard to wellbeing. These are discussed under the relevant research questions. Reference is also made to the findings on working hours, smoking and exercise in the discussion of job characteristics and wellbeing.

5.3 Research Question 1

Is there a significant difference in the perceptions of male and female call centre agents on their job characteristics, physical work environment and wellbeing?

5.3.1 Gender perceptions of job characteristics

Autonomy

The results revealed that there was no significant difference in male and female perceptions on autonomy. Both men and women feel that they had very little to moderate autonomy, and that the work was fairly standardised and not under their control, but that they could make some decisions about their work.

Korczynski *et al.* (2000) found that call centre agents are creative workers and are given expanded levels of discretion. However, in a study conducted by Taylor *et al.* (2002), it was found that call centre agents have no autonomy over key aspects of their job.

This study agrees with both Korczynski *et al.* (2000) and Taylor *et al.* (2002), that call centre agents can make decisions and use their discretion in the way they solve client queries and problems. However, they still do not have control over their working hours as indicated in the demographics; the results from the job demands as well as performance monitoring sections indicate that call centre agents do not have control over performance targets, call queues, and performance monitoring. The little discretion that they have to make decisions needs to be in line with the organisation's goals.

Skills variety

The results indicate that there was no significant difference in male and female perceptions on skills variety. Men and women felt that the job required the use of a variety of skills to perform the work.

Call centre agents need to have good communication skills in dealing with customers, and they need to integrate the use of VDU, computer and telephone systems simultaneously (Suff *et al.*, 2005) and have the necessary product knowledge. Lloyd and Payne (2008) argue that unless skills are linked to technical knowledge and competence, they are meaningless in the call centre industry.

This study agrees that good interpersonal, communication, and computer skills and product knowledge are needed to work as a call centre agent; however the skills required are not so complex or scarce that a university or college qualification is needed to perform the work. This relates to the findings by Benner *et al.* (2007) that call centre agents need only a matriculation qualification.

Task variety and identity

There was no significant difference in male and female perceptions on task variety and identity. Men and women felt that there was very little variety in the job and that the work was simple and repetitive. Both men and women felt that the work allowed them to finish a set piece of work from beginning to end.

These findings correspond with those of Visser and Rothmann (2008), that call centre work is highly routinised and repetitive in nature and the division of labour only allows the call centre agents to do a small piece of the work; thereafter it is transferred to the back office employees to finalise (Visser & Rothmann, 2008).

Call centre agents often receive the same type of calls on a daily basis, making the work fairly standardised, monotonous and repetitive. As call centre agents are allowed to complete their work from beginning to end, this contributes to meaningfulness where they can see the outcomes of their work; however this can be difficult to achieve as added pressure is placed on the employees, considering the high job demands and time pressures to complete their work.

Task significance and job feedback

There was no significant difference in male and female perceptions on task significance. Men and women felt that their jobs were significant and that their ability to perform their jobs well would assist others.

Research conducted by Harter *et al.* (2003) concluded that employees who receive feedback from others on how significant and successful their work is will continue to broaden their thinking about how they can do more in contributing to assist others.

Call centre agents who experience some form of responsibility in the work they deliver and realise that they make a difference in the lives of others, increase their sense of purpose in their work.

Job demands

There was no significant difference in male and female perceptions on job demands. Men and women felt that working in a call centre was demanding and that the excessive workload required them to work hard and at a fast pace. They also felt that they did not have enough time to complete their work successfully.

These findings are similar to those of Taylor *et al.* (2003), that the job demands of call centre work, which consists of high target rates, high call volumes, lack of time between calls, call monitoring, and customer demands, are contributing factors to call centre agents' feeling pressurised (Taylor *et al.*, 2003). The findings of this study also showed that call centre agents felt that they had conflicting demands of delivering quality customer service and taking a high number of calls. This is consistent with the findings of Holman *et al.* (2004), that call centre agents have to deal with the conflicting demands of quality vs quantity in every call they take.

Performance monitoring

There was no significant difference in male and female perceptions on performance monitoring. Men and women felt that they were constantly monitored on their calls and log-in and log-out times. They were also monitored on the duration of time spent on the telephone as well as the time lags between calls. These findings correspond with those of Banks and Roodt (2011), that performance monitoring in call centres measures the number of calls waiting, number of calls answered, average call duration, and customer

waiting time. Banks and Roodt (2011) also state that managers can monitor every minute that call centre agents spend in the office and listen to their conversations to assess their performance.

One of the factors linking call centres with sweatshops (Holman *et al.* 2002; Taylor *et al.* 2003) is the frequency and intensity of performance monitoring in call centres to assess service quality and the performance of call centre agents. Performance monitoring is often used to measure the efficiency of the service rather than the quality of customer service, thus putting an added pressure on the call centre agent to perform faster to be able to take more calls.

Social support

There was no significant difference in male and female perceptions on social support (supervisors and co-workers). Men and women felt that their supervisors and co-workers were easy to talk to and willing to listen to their personal problems. However, 22% of the call centre agents felt that their supervisors did not go out of their way to make work life easier, and 27% felt the same way about co-workers. The study also found that 19% of call centre agents felt that they did not get support from their supervisors when they were working under extreme pressure.

These findings correspond with those of Hauptfleisch and Uys (2006): management do not always deliver on promises and occasionally turn their backs on consultants rather than assisting them with problems. According to Sloan (2012), employees may be unfairly treated by customers and co-workers and may feel uncomfortable discussing problems with their co-workers.

Call centre agents who get the necessary support at work will feel that they are valued within the organisation. Therefore this study concurs with the findings of Maertz *et al.* (2007) that social support signifies that supervisors recognise the value of employees' contributions and are interested in employees' wellbeing.

5.3.2 Gender perceptions of work environment

Temperature and air quality

There was a significant difference in male and female perceptions on temperature and air quality. Women were less satisfied than men with regard to the temperature and air quality in their call centres.

According to the European Telecommunications Standards Institute (ETSI) (2003), offices should be ventilated with fresh or re-circulated air to ensure that contaminated, hot or humid air is removed. They also indicate that a reasonable temperature for call centres is around 19° C, and that not all employees will be satisfied with the air quality and temperature.

The researcher agrees with ETSI that the open-plan offices in call centres should be adequately ventilated and that the temperature should be set at the correct level. These offices are fully occupied and the layout forces call centre agents to work in close proximity to one another, which could be a health risk. Inadequate ventilation and temperature could contribute to tiredness, lethargy, and irritated eyes. Not all call centre agents, as the findings have shown, would be satisfied with the temperature and air quality owing to individual differences in the level of comfort.

Workspace and office layout

There was a significant difference in male and female perceptions on workspace and office layout. Women were less satisfied with their workspace and office layout than men. The findings showed that 34% of women were dissatisfied with their storage space for work documentation, while 39% were dissatisfied with their storage space for personal items.

Call centre agents often complain about the lack of storage space for personal and work-related items.

According to Herman Miller Inc. (2007), employees want some control over their workspace to imprint their personalities and communicate who they are to their co-workers. Herman Miller Inc. (2007) states having control over the workspace fosters better performance and retention, and makes employees feel more comfortable in their working environment.

Maintenance and adjustability of chairs and screens

There was a significant difference in male and female perceptions on maintenance and adjustability of chairs and screens. Women were less satisfied with the maintenance and adjustability of chairs and screens. The findings show that 32% of women were

dissatisfied with the conditions of the chairs, while 35% were dissatisfied with the maintenance standards of the chairs.

Toomingas and Gavhed (2008) note that office furniture and equipment of high quality are needed in call centres, but that it is important that they are correctly positioned and adjusted to allow good working postures and a lower risk of MSD. The findings of this research agree with those of Toomingas and Gavhed (2008), in that good-quality furniture and chairs are needed as call centre agents spend hours working in a sitting position without taking regular breaks.

5.3.3 Gender perceptions on wellbeing

Burnout

There was a significant difference in male and female perceptions on exhaustion. The study showed that men experienced exhaustion. The findings show that 51.9% of call centre agents indicated that after work they usually felt worn out and weary.

Exhaustion is the first symptom of burnout (Maslach *et al.*, 2001) and could be emotional, mental or physical. Exhaustion is a consequence of intense physical, affective and cognitive strain which stems from continuously being exposed to certain job demands (Demerouti & Bakker, 2007). Employees feel overwhelmed and are unable to meet the constant job demands (Sowmya & Panchanatham, 2011).

Exhaustion is exacerbated by the excessive job demands of call centre work which include constant performance monitoring, high call volumes and constant customer interaction. This can lead to call centre agents being drained and having no energy to perform their work.

There was no significant difference in male and female perceptions on disengagement. The study showed that men and women felt that they experienced disengagement from their work. The findings show that 21.2% of call centre agents indicated that they were not engaged in their work, while 25% indicated that they did not find their job to be a positive challenge. The findings also show that 31.1% of call centre agents indicated that they regularly talked about their work in a negative way.

According to Maslach *et al.* (2001), disengagement is a reaction to exhaustion and a way of coping by distancing oneself from work. Negative attitudes are also developed towards the work (Demerouti & Bakker, 2007).

Vocal health

There was a significant difference in male and female perceptions on vocal health. The study showed that more women have experienced vocal health problems. The results showed that 56.7% of women experienced voice hoarseness, 72.9% of women had a change in pitch, 79% had discomfort in the throat, and 59% had voice loss.

The findings corresponds with those of Vilkmán (2000) and Hunter *et al.* (2011), that women have a higher risk of voice problems due to higher fundamental frequency, laryngeal physiology and hormonal influences on the vocal fold.

Call centre agents rely on their voices to carry out their work and therefore they are at greater risk of developing voice disorders (Hunter *et al.*, 2011; Devadas & Rajashekhar, 2013), resulting in absenteeism due to voice problems (Jones *et al.*, 2002). Vocal fatigue is common in call centre agents. Their vocal quality is weaker, and this is caused by discomfort in the voice production areas which makes it sound as if they have a hoarse voice or the urge to clear their throats (Lehto, 2007).

Call centre agents are at greater risk in developing vocal health problems owing to their job demands of constantly using their voices to assist clients. This is due to the heavy vocal load on the vocal cords.

Optical health

There was a significant difference in male and female perceptions on optical health. The study showed that more women experienced optical health problems. The results showed that 92% of females experienced headaches related to optical health, and 89.4% indicated that they experienced irritated, sore or red eyes. The findings also showed that 78% experienced blurred vision, 88.6% had visual fatigue, 58.3% experienced dizziness related to optical health problems, and 81% experienced overall eye discomfort.

A study conducted by Logaraj, Madhu Priya, Seetheraman & Hedge (2013) found that dry eyes are more commonly encountered by women. Similar findings were reported in this study: more women indicated that they experienced headaches, visual fatigue, blurred vision, and red and sore eyes. Logaraj *et al.* (2013) also noted that being seated in front of a computer for a long time can cause reduced blinking by 60%, leading to poor tear production and temporary stressing of the corneas, resulting in dry eyes. As call

centre agents remain in a sitting position most of the day, while focusing on the computer monitor, VDU and DSE boards, their risk of developing optical health problems are higher. The work does not allow them to take regular short breaks to reduce eye discomfort or to focus their eyes on something else.

Job stress

There was a significant difference in male and female perceptions on job stress. The study showed that female call centre agents were likely to experience anxiety, acute stress, and physical and behavioural stress symptoms.

Job stress occurs when there is a conflict between the employee and the job demands placed on that employee (Colligan & Higgins, 2005). This study agrees with the findings of Colligan & Higgins (2005), in that employees working within a toxic environment work in fear, paranoia and increased anxiety. Anxiety relates to pressures experienced by employees that are provoked by their job requirements. Time pressure relates to insufficient time to accomplish the demands of the job (Holman, 2002; Addae & Wang, 2006). Hannif and Lamm (2005) state that employees who have a relatively strong financial reliance on the work often experience anxiety due to the uncertain nature of their employment. Anxiety experienced by female call centre agents could be related to the ongoing pressures of reaching performance targets, as in most cases these are linked to annual monetary increases or bonuses.

In this study, 20% of the female respondents indicated that they smoked 1–5 cigarettes and 13% indicated that they smoked 6–10 cigarettes daily. The study also shows that 27% of females had trouble sleeping at night. Of the female respondents, 27% indicated that they worked an evening shift from 18:00–22:00. According to Crew (2006), unsocial working hours affect sleeping patterns and are associated with health and safety problems which can increase job stress. Female call centre agents working the evening shift might find it stressful to balance work and family life as they would need childcare assistance at night and are not available to manage the household duties and support that is needed at home. Job stress caused by job strain and job demands is associated with smoking intensity (Kouvonen *et al.*, 2005).

MSD

There was no significant difference in male and female perceptions on MSD. The study showed that men and women experienced low levels of MSD.

In this study, call centre agents indicated that they had experienced aches, pain and discomfort in various parts of their body in the past work week. The most frequently reported areas were pain and discomfort in the neck (73%), in the shoulder (73%) and in the lower back (74%). This is similar to findings by Woods (2005). The most commonly affected areas are the neck, shoulders, back and eyes, due to prolonged time in a seated position, and postural alterations due to repetitive movements (Lacaze *et al.*, 2010; Constancio *et al.*, 2012). These repetitive movements are associated with constant and simultaneous use of the telephone and computer mouse, and with typing. MSDs have been associated with computer screen work, and as call centre agents often use computer screens intensively and have fewer opportunities to take breaks from using the computer, they are at a higher risk of experiencing MSD (Australian Services Union, 2003).

According to Lacaze *et al.* (2010), exercise decreases the discomfort of MSD. The findings of this study, however, indicate that 60% of call centre agents do not exercise, therefore there is no relief to the discomfort caused by MSD.

5.4 Research Question 2

Is there a significant difference in the emotional and physical wellbeing experienced by call centre agents from various industries?

The results indicate that there is a significant difference among the industry groups. The ANOVA analysis showed that vocal and auditory health problems were experienced in all industries. However, when doing a Kruskal–Wallis analysis, it was detected that disengagement was experienced by call centre agents in the online retail as well as the financial services industry.

Shopping online offers the customer a cheaper and convenient form of purchasing products and goods (Smithers, 2014). Online retail in South Africa is small and less developed than in other countries, and South African consumers find it more difficult than other markets (Chelin, 2014; Moorad, 2014). Customers expect a certain level of service based on the online company's brand values (Irvine, 2014), and exceptional online customer experience is a contributing factor for customers to make repeated purchases

online (Mahlaka, 2014). According to Irvine (2014), the online retail employees are the face or voice of the brand to customers. Most online companies deliver a very average and inconsistent online experience for customers (Mahlaka, 2014). Problems experienced by customers with purchasing products or goods online range from overcharging, extra unexpected fees incurred, faulty or damaged goods, goods delivered late, or goods not delivered at all (Smithers, 2014). The results of the study showed that 27% of call centre agents indicated that they sometimes felt sickened by their work tasks and 42.4% indicated that they felt emotionally drained. These findings could stem from difficult customers who experience poor online service and therefore extra pressure is placed on call centre agents when interacting with an unhappy customer. This causes employees to disengage from their work, as they need to project pretence when interacting with customers. This is supported by the findings, which showed that 51% of call centre agents indicated that they could become disconnected from their work. According to Irvine (2014), disengaged employees cost retail companies millions per year as customer loyalty is affected. Besides the customer demands and job demands, call centre disengagement could also be contributed to poor supervisor support, pay, and benefits not being in line with those of industry, inconvenient working schedules, or the work environment (Hanifin, 2014).

According to Fidelity National Information Services (FIS) (2013), banks and other financial institutions rely heavily on call centre resources. Call centre agents represent a bank or financial institutions brand. The four most important application areas in a financial services call centre is retail banking (checking account), retail brokerage and funds transfer, credit card operations, and insurance (Pinedo, Seshandri & Shantihikumar, cited in Melnick *et al.* (2000). According to Pinedo *et al.*, the characteristics that distinguish financial call centres from other call centre industries are that the customer is reluctant to switch to a different financial institution due to the high cost involved in switching; furthermore high security and confidentiality need to be observed, execution of tasks is fast paced, and there is no room for error. Financial services customers demand superior service and support to secure their loyalty. Call centre agents who are not properly trained in the products that are offered will not be able to cope with the demands of the work and therefore will not be able to deliver a superior service to customers. FIS (2013) argue that the success of financial call centres lies in keeping their staff engaged by developing and motivating them.

5.5 Research Question 3

What are the factors within the workplace environment that contribute to emotional and physical wellbeing of call centre agents?

Skills variety

The results indicated that there was a significant relationship between skills variety and exhaustion, as well as skills variety and disengagement. There was also a significant relationship between skills variety and optical health.

This study is consistent with that of Visser and Rothmann (2008), who established that low levels of skills variety are positively linked to burnout. A misfit between job demands and skills can contribute to burnout (Bakker & Costa, 2014). According to Hauptfleisch and Uys (2006), work-related changes without any form of professional training can result in call centre employees feeling stressed and having negative experiences in the work environment.

Constant changes in the work environment and the introduction of new products without prior knowledge and training can result in call centre agents communicating incorrect information to customers. Lack of product knowledge could lead to customer dissatisfaction and spark low confidence levels, low morale and disengagement in the call centre agent, by not being able to deliver a quality service.

Optical health problems are related to a lack of knowledge and training on how to adjust screen contrast and brightness; organisations should cover this in DSE and VDU training (Sprigg *et al.*, 2003). Call centre agents use computer screens intensively and adequate training needs to be given on how to adjust the brightness and contrast settings for individual use.

Autonomy

The results indicated that there was a significant relationship between autonomy and disengagement.

According to Saragih (2011), job autonomy enhances performance at work, as employees feel that they are trusted to perform the task by using their own discretion. However, Deery *et al.* (2002) argue that call centre agents have little control over the pace of their work or the way they interact with customers. Call centre work is highly

routine, with a lack of task variety and little discretion of how to interact with customers (Lloyd & Payne, 2008).

Call centres agents with low autonomy will feel less motivated to effectively complete their tasks as their actions and decisions are closely monitored, resulting in their feeling disengaged. Discretion on how to interact with customers without following a script and showing true emotions when dealing with customer demands are limited. Those agents with a reasonable level of discretion and autonomy will have a sense of responsibility to solve customer queries effectively.

Task identity

The results indicated that there is a significant relationship between task identity and anxiety.

According to Lin and Hsieh (2002), a mismatch between task identity and employees' abilities occurs when task identity requires employees to elevate their abilities. Lin and Hsieh state that employees encounter difficulties and resist elevating their abilities, leading to stress and anxiety.

Task identity gives employees the ability to complete work from the beginning to end and allows them to see the outcomes which empower them to grow and develop in their work. However, in call centres, task identity and time constraints to complete these tasks could have a negative effect on call centre agents' health and the quality of their work. Call centre agents are pressurised to take a certain number of calls and complete the administrative work of the call during a set time, making them vulnerable and anxious.

Social support

The results indicated that there is a significant relationship between social support (supervisory) and exhaustion, as well as social support (supervisory) and optical health.

This study is in agreement with that of Lambert *et al.* (2012), that lack of supervisor support, where supervisors do not care about employees and create an unpleasant work experience for employees, is associated with emotional burnout.

The role of leadership in call centres should not just be to monitor call centre agents' performance and set targets. Managers should coach and motivate the agents to better

their work tasks and give them the necessary support where needed to reach their targets.

Regular short breaks away from the DSE and VDU should be encouraged and supported by supervisors to control the risk of visual disorder symptoms (Sprigg *et al.*, 2003).

Job demand

The results indicated that there is a significant relationship between job demand and exhaustion, as well as job demand and vocal health, auditory health, and physical and behavioural stress symptoms.

Call centre work is demanding on the hearing of call centre agents and a large proportion of the work consists of listening to customers on the telephone (Toomingas *et al.*, 2005). The job requires call centre agents to wear their headsets for the duration of working hours and therefore it is important that they are trained how to adjust and clean the headset to reduce irritation and infections of the ear. The demand of reaching targets can lead to call centre agents feeling pressurised and stressed (Taylor *et al.*, 2003). In call centres, call centre agents are constantly pressurised to meet targets set for the day; besides those pressures, they worry and stress about the efficiency of their work and whether they are meeting the demands of the customers.

Performance monitoring

The results indicated that there is a significant relationship between performance monitoring and exhaustion, as well as performance monitoring and auditory health.

According to Holman (2002), a high level of performance monitoring has a negative association with wellbeing. Holman *et al.* (2002) argue that the intensity of performance monitoring, along with job demand, is associated with emotional exhaustion. Holman *et al.* (2002) also state that using performance monitoring for disciplinary reasons rather than for developmental purposes will have a negative effect on wellbeing. Therefore the findings of this study are consistent with those of Holman *et al.* (2002), but not with those of Visser and Rothmann (2008), where performance monitoring did not emerge as a predictor of burnout.

Clear feedback from performance monitoring should be given on a regular basis. It should not be linked to reward or disciplinary measures, but should be used to assist

agents' work performance, develop their skills, and enhance their job satisfaction. This may alleviate the negative association with performance monitoring and improve wellbeing.

Workstation

The results indicated a significant relationship between workstation and auditory health.

According to Taylor *et al.* (2003), earache is directly related to headset problems and poor audial environment. Because of the demands, calls answered simultaneously, and workstations positioned close to one another, background noise can cause call centre agents to increase the volume on their headsets, which makes them prone to experience acoustic shock or loud noises coming through the headsets.

5.6 Research Question 4

What is the nature of the relationship between the job characteristics, the physical working environment and the wellbeing of call centre agents employed within the Cape Metropole?

The Pearson correlation analysis was conducted to determine whether there are significant relationships between job characteristics, physical work environment and wellbeing.

A moderate positive correlation was found between skills variety and autonomy and task significance. A low negative correlation was found between skills variety and exhaustion, optical health, acute stress and physical and behavioural stress symptoms. A moderate negative correlation was found between skills variety and disengagement.

The findings show that as the skills variety of call centre agents increases, they experience more autonomy and task significance. Additionally, exhaustion, disengagement, optical health problems, acute stress and physical and behavioural stress symptoms decrease as more skills variety is experienced. These findings were consistent with those of Lunenburg (2011), in that skills variety and task significance are additives and correlate positively with autonomy, which means that employees experience meaningfulness in their work and are motivated. This study also supports that of Sprigg and Jackson (2006), that call centre agents who utilise a variety of skills will report lower job-related strain.

A moderate positive correlation was found between autonomy and job feedback, task significance, and task identity. A low positive correlation was found between autonomy and agency feedback, workstation layout, workspace, and storage. Moderate negative correlations were found between autonomy, and exhaustion and disengagement. Low negative correlations were found between autonomy and performance monitoring, optical health, acute stress, physical and behavioural stress, and MSD.

The findings indicate that call centre agents who have a form of autonomy whereby they are given the opportunity to use their discretion in how they perform their work, and who have the ability to complete a variety of tasks from beginning to end with success, will receive positive job feedback. This will result in meaningfulness of work and job satisfaction. As the level of autonomy increases, so will their satisfaction with the physical work environment increase, as call centre agents will be able to give input and voice their concerns regarding their workstations, workspace and storage facilities. This study also confirms that as autonomy increases, performance monitoring decreases. Additionally, autonomy decreases burnout, stress and other health-related problems. This study supports that of Wegge *et al.* (2006), that call centre agents' attitudes and wellbeing improve when task variety and autonomy are provided through work design. Similar findings by Thompson and Prottas (2006) indicate that autonomy has a negative relationship to stress. Johari (2009) also indicates that autonomy and feedback are related to task performance.

A moderate positive correlation was found between supervisory support and agency feedback. Low positive correlations were found between supervisory support and job feedback, autonomy, and co-worker support. Low negative correlations were found between supervisor support and exhaustion, disengagement, and optical health.

The findings indicate that call centre agents who experience supervisory support will have more feedback on how well they are doing their work and will be motivated to improve their job performance. Supervisors who allow call centre agents to use their own discretion and support the team as a whole will increase morale and job satisfaction, and decrease burnout and other health-related problems. Call centre agents who feel that they are all treated alike, without any prejudice or favour, will have a level of trust in their supervisor; at the same time their work engagement and commitment should improve. Therefore this study concurs with that of Hocine and Zhang (2014), where supervisors should provide the necessary autonomy to employees for them to succeed on their own, but provide support when it is needed. Hocine and Zhang also state that supervisors create a positive working environment when they see their role as coordinating,

facilitating and supportive, rather than controlling. Holman (2003) found that supportive leadership can have a positive effect on employee wellbeing. According to Chandrasekar (2011), employees who feel that they are treated equally at their workplace are motivated to complete their work with interest and are more productive. Chandrasekar (2011) argues that fairness promotes trust and loyalty, and encourages better team work.

Low positive correlations were found between co-worker support and job feedback, autonomy, supervisory support, and workspace and office layout. Low negative correlations were found between co-worker support and job demand, exhaustion, disengagement, physical and behavioural stress, and MSD.

The findings in this study indicate that as call centre agents experience co-worker support, supervisory support, and autonomy, and receive positive feedback on how they are doing their jobs, they will be satisfied with their physical work environments. Co-worker support alleviates the job demand, decreases burnout, stress and MSD.

This research supports that of Deery *et al.* (2010), in that co-worker support in the form of listening to job-related problems does not provide adequate assistance to mitigate the effects of high work demands, but it does facilitate opportunities to escape from those work demands and decreases stress and burnout.

The study also supports that of Ajala (2012), that employees are satisfied with open-plan office layouts because they facilitate communication and enable them to exchange information rapidly and informally with co-workers. According to Ajala (2012), effective communication and feedback can boost employee morale, making employees psychologically and emotionally stable, and enabling them to perform their work efficiently and effectively, thereby increasing productivity. It is in disagreement with the study conducted by De Croon *et al.* (2005), that open plan offices reduce employees' psychological privacy, productivity and job satisfaction.

Low negative correlations were found between job demand and agency feedback, workstation, workspace and office layout, and storage. Low positive correlations were found between job demand and exhaustion, optical health, auditory health, anxiety, physical and behavioural stress symptoms, and MSD.

This study shows that as call centre agents experience more job demands, many do not have the ability to communicate that they cannot cope with the demands, which include time pressure, long working hours, and work overload. As the job demands increase, call

centre agents experience dissatisfaction with their physical working environment, and an increase in burnout, stress, MSD and other health-related problems occurs.

This study supports the findings of Bakker *et al.* (2003) and Maslach *et al.* (2001), that job demand is a predictor of burnout, as well as that of Toomingas *et al.* (2005), that high job demand and workload are a predictor of poor call centre agent wellbeing. An increase in job demand and the repetitive nature of the job can contribute to MSD. According to Comcare (2006), the risk factors that can cause MDS are awkward working postures, repetition of movements using the same muscles, and the duration of the work.

Low positive correlations were found between performance monitoring and agency feedback, vocal health, and auditory health. Low negative correlations were found between performance monitoring and task significance, autonomy, and workspace and office layout

The findings of this study showed that constant performance monitoring increases the feedback call centre agents receive about how effectively they are performing their jobs, as well as contributing to an increase in vocal and auditory health problems. Additionally, call centre agents in this study indicated that they were constantly performance monitored, which shows that they have no control over how and when they are being monitored, as well as over call timing. It also decreases call centre agents' commitment to their work, as well as its meaningfulness, which affects the quality of their performance. In this study, performance monitoring had an impact on the vocal and auditory health of call centre agents, as the measure was on efficiency and timing control, resulting in stressful demands on the vocal and listening abilities of the agents.

This study did not support that of Suff *et al.* (2005), that high levels of performance management produce high levels of anxiety and depression. However it did support that of Holman (2002), that wellbeing will be low if performance is monitored constantly. Lack of control over performance monitoring in terms of timing control and target setting is fundamental to call centres (Taylor *et al.*, 2003).

Low positive correlations were found between workspace and office layout, and job feedback, autonomy and co-worker support. A moderate positive correlation was found between workspace and office layout and workstation, temperature and air quality, maintenance and adjustability of chairs and screens, and storage. Low negative correlations were found between workspace and office layout and job demand, exhaustion, disengagement, anxiety, acute stress, physical and behavioural stress

symptoms, and MSD. The findings indicate that as satisfaction with workspace and office layout increases, job feedback, autonomy, co-worker support, satisfaction with workstation, temperature and air quality, maintenance and conditions as well as storage will increase. Furthermore, the finding suggest as satisfaction with workspace and office layout increases, job demand, exhaustion, disengagement, anxiety, acute stress, physical and behavioural stress symptoms and MSD will decrease.

Low positive correlations were found between workstation and job feedback, agent feedback, autonomy, supervisor support, and co-worker support. Moderate positive correlations were found between workstation, and temperature and air quality, workspace, maintenance, and adjustability of chairs and screens and storage. Low negative correlations were found between workstation and job demand, exhaustion, vocal, optical, and auditory health, anxiety, acute stress, physical and behavioural stress symptoms, and MSD. The findings suggest that as satisfaction in workstation increases, so does job feedback, agent feedback, autonomy, supervisor support and co-worker support. Satisfaction with the temperature and air quality, workspace, maintenance, and adjustability of chairs and screens, as well as with storage also increases. Furthermore, the findings suggests that as satisfaction with workstations increases, job demand, exhaustion, vocal, optical and auditory health, anxiety, acute stress, physical and behavioural stress symptoms, and MSD decrease.

A low positive correlation was found between maintenance and adjustability of chairs and screens, and autonomy. Moderate positive correlations were found between maintenance and adjustability of chairs and workstation, temperature and air quality, workspace and storage. Low negative correlations were found between maintenance and adjustability of chairs and screens and job demand, vocal health, auditory health, anxiety, acute stress and MSD. The findings suggest that as satisfaction with maintenance and adjustability of chairs and screens increases, satisfaction with autonomy, workstation, temperature and air quality, workspace and storage also increases. Furthermore, the findings suggests that as satisfaction with maintenance and adjustability of chairs and screens increases, job demand, exhaustion, vocal, optical and auditory health, anxiety, acute stress, physical and behavioural stress symptoms, and MSD decrease.

This study correlates with that of McGuire and McLaren (2007), in that a pleasant and compliant physical environment can be an effective tool in reducing stress and promoting employee wellness and occupational health. McGuire and MacLaren further contend that by eliminating hot desking, having adequate work space, and allowing employees to personalise their work space, will ensure that employees feel comfortable and secure

within their working environment. This is supported by Pitzer (2006), who suggests that employees should be allowed to personalise their workstations by putting photographs and personal mementoes on their desks to enhance their workspace. Call centre agents who feel that their supervisors are considerate of their physical comfort levels at work will have an increase in physical work environment satisfaction. Therefore, this study supports that of Newsham *et al.* (2009), in that employees' opinions of their management are influenced by the quality and maintenance of the physical environment, and that these elements indicate that management values their employees.

Low negative correlations were found between exhaustion and skills variety, job feedback, task identity, task significance, autonomy, supervisory support, co-worker support, workstation, workspace, and office layout and storage. A moderate positive correlation was found between exhaustion and disengagement, optical health, anxiety, acute stress, and physical and behavioural stress symptoms. Low positive correlations were found between exhaustion and vocal health, auditory health, and MSD. The findings indicate that as exhaustion increases, skills variety, job feedback, task identity, task significance, autonomy, supervisory support, and co-worker support decrease. The findings also indicate that as exhaustion increases, satisfaction with workstation, workspace, and office layout and storage decreases.

Moderate positive correlations were found between anxiety and exhaustion, acute stress and exhaustion, and physical and behavioural stress symptoms, vocal health problems, optical health problems, auditory health problems, and MSD. Moderate positive correlations were found between acute stress and exhaustion, anxiety, physical and behavioural stress symptoms, vocal health problems, optical health problems, auditory health problems, and MSD. Moderate positive correlations were found between physical and behavioural stress and exhaustion, disengagement, anxiety, acute stress, vocal health problems, optical health problems, auditory health problems, and MSD. The findings indicate that as job stress increases, all other health problems increase.

The results are consistent with those of previous research (Koekemoer & Mostert, 2006; Oldfield & Mostert, 2007), that job characteristics (job demands and a lack of job resources) relate negatively to burnout. This study also agrees with HSE (2013), that poor ergonomics may lead to tiredness and exhaustion. According to Hillhouse and Adler (2006), cited in Khamisa *et al.* (2013), job stress predicts burnout, which predicts physical and mental health symptoms. Similar findings were found in a study by Zhong *et al.* (2009). This means that burnout plays an intervening role between job stress and

other health problems, and this study supports the findings of Hillhouse and Adler, as well as those of Zhong *et al.*

With reference to Warr's Vitamin Model that was discussed in Chapter 2, the results indicate that the study does not support the model of Warr (1987), cited in Schuurman, 2011). The findings showed that job characteristics like skills variety, skills utilisation, autonomy, job feedback, social support and task significance are negatively associated with wellbeing. The only finding that supports Warr's model is that of job demands that are positively associated with wellbeing.

5.7 Chapter summary

In this chapter the researcher discussed the findings of each research question in detail. The findings revealed that there was no significant difference between male and female call centre agents with regard to their perception of the job characteristics in call centres. Both male and female call centre agents felt that they had little to moderate autonomy, low skills utilisation, and lack of task variety; they further contended that they were constantly performance monitored and that their job demands were high. Although most of the call centre agents indicated that they had support from their supervisors and co-workers, there was a small percentage that indicated that they did not get the necessary social support to assist them in improving their job performance. There was a significant difference in the perceptions of the physical work environment, and the findings revealed that women were dissatisfied with the temperature. With regard to workspace, women were dissatisfied with the space for work documentation and personal items. Women were dissatisfied with the conditions and maintenance of the chairs. There was also a significant difference in the perception of wellbeing, and the findings revealed that men experienced exhaustion, while women experienced vocal and optical health problems and job stress. Both men and women experienced levels of MSD.

The findings revealed that call centre agents who worked in the online retail and financial services industries were more likely to be disengaged from their work.

Findings showed that factors within the workplace environment that contributed to emotional and physical wellbeing of call centre agents were skills variety, autonomy, task identity, social support, job demands, performance monitoring, and workstations. Lack of skills variety contributed to burnout and optical health problems; lack of autonomy was a contributor to disengagement; lack of task variety contributed to anxiety; and lack of social support was a contributor to exhaustion and optical health problems. Job demand was a contributor to exhaustion, vocal and auditory health problems, and physical and

behavioural stress symptoms; performance monitoring was a contributor to exhaustion; while auditory health problems and workstations contributed to auditory health problems.

Finally the findings revealed that there were significant relationships between the job characteristics, physical work environment and wellbeing in call centres.

The next chapter discusses the limitations of the study, recommendations for management and for future studies, and concluding remarks.

CHAPTER SIX

RECOMMENDATIONS AND CONCLUSIONS

6.1 Introduction

This study focused on the impact the workplace environment has on call centre agents' emotional and physical wellbeing in the Cape Metropole. Job characteristics and the physical work environment were focused on as contributors to wellbeing.

The purpose of this study was to determine the factors within the workplace environment that contribute negatively to call centre agents' wellbeing; to determine the emotional and physical wellbeing problems that are experienced by call centre agents and whether these wellbeing problems affect their ability to perform their work; and to assess the call centre agents' perceptions of their workplace environment. To achieve the purpose of the study, the following objectives were identified.

The primary objectives of this study were:

- to determine whether the workplace environment of call centres within the Cape Metropole has an impact on the emotional and physical wellbeing of call centre agents; and
- to provide management of call centres in the Cape Metropole with valuable feedback and suggested measures to improve the working environment which will assist in improving the wellbeing of call centre agents.

The secondary objectives of this study were:

- to conduct a literature study on the job characteristics and physical working environment of call centres; and
- to identify and describe what emotional and physical wellbeing problems are experienced by call centre agents.

In light of the aforementioned, the following section highlights limitations encountered in the study. Recommendations to resolve the problem are proposed.

6.2 Limitations of the study

One of the limitations was finding call centres to participate in this study. Twenty companies with call centres were approached to participate, but only four companies were willing to participate. The combined population size of all the four call centres was

760. Out of the population size, only 275 respondents participated in the study, which is not a representation of the total number of call centres in the Cape Metropole.

Seventy-two respondents did not fully complete the structured questionnaire; questions were skipped and this could have influenced the results. All the respondents completed the demographic section of the structured questionnaire; however, from the job characteristics section to the section on MSD, questions were omitted. The reasons for omitting these questions could be that the respondents did not understand the questions or that they found the length of the questionnaire onerous.

Another limitation was that only the job dimensions and critical psychological states sections of the Job Diagnostic Survey (JDS) were used to measure the core job characteristics; the remaining sections on affective reactions to the job and individual growth and strength were not used, as they did not relate to the study. It is possible that not including all the sections of the JDS affected the results of the study, as more information could have been extracted to ascertain the effect on wellbeing.

6.3 Recommendations to call centre management

The following recommendations are made to improve the wellbeing of call centre agents.

Skills and task variety

Call centre agents need to be cross-trained by in-house product specialist trainers at the organisations' learning centres to handle various product-related call types which will eliminate monotonous and routine work. Call centre management should give call centre agents the opportunity to develop and use a wide range of skills to increase their work complexity.

Increased autonomy

Team leaders/supervisors should allow call centre agents to decide on their working hours by making schedules available six weeks in advance and giving them control and flexibility over when they work. They should be involved in decision making with regard to work design, performance targets and monitoring. Call centre agents should be allowed to use their discretion when interacting with customers.

Job demand

Realistic and achievable performance targets need to be set by senior management. These targets can only be reached if sufficient staff is employed which will reduce the job demands significantly. Service quality managers should consider the quality and efficiency of calls as well as customer satisfaction, instead of the number of calls that are taken on a daily basis. Team leaders/supervisors should submit requests to senior management for more time to be allocated to administrative tasks and after-call work.

Performance monitoring

Performance monitoring should be done quarterly by direct supervisors and be based on team performance. Team leaders/supervisors and service quality managers should not use individual monitoring as a disciplinary or monetary system but as a training and development tool. Team leaders/supervisors should inform call centre agents when monitoring will take place.

Supervisor support

Supervisors should be accessible by having an “open door” policy to provide support should call centre agents have work or personal concerns. Direct supervisors should schedule regular team meetings on a weekly basis to allow call centre agents to communicate their concerns and to give feedback with regard to work policies and new products. It is important that supervisors give acknowledgement when call centre agents perform well at their job. They should get involved by assisting with difficult customers. Supervisors should have knowledge of the products and systems, and assist should agents experience problems. Team-building sessions should be encouraged to boost the morale of employees. The preceding can only be achieved if direct supervisors go on leadership training courses.

Co-worker support

The researcher suggests that a call centre agent from each department be allowed to attend organisational meetings. The representative will convey any concerns that agents might have, and communicate possible interventions for these concerns, ideas and innovations.

Organisational support

CEOs or senior management should visit call centre departments twice a year to have feedback sessions with call centre agents. The agents should be given the opportunity to pose questions directly to senior management. Regular communication should be emailed on the role of call centre agents in the organisation – that they are valued and how important they are to the success of the organisation. Product or work environment changes should be communicated well in advance to allow adequate training before the product is introduced to customers. Clear and transparent health and safety policies, human resource policies, and information security policies (amongst others) should be easily accessible to all employees on the company's intranet, so that they are aware of the rules of the organisation and how these will affect them should they not adhere to the policies. These policies should also be revised after five years and draft copies should be made available to employees to give their input. Opportunities for training and development should be provided, and call centre agents should be permitted to stipulate which training should be added to the annual human resource training schedule. The duration of induction programmes for new call centre agents should be at least five days to incorporate all information about the organisation and work design. The induction programme should consist of information about the structure, vision and mission of the organisation, and the role of the call centre within the organisation. The programme should also include work processes, customer service skills, familiarity with IT systems, stress management, wellness awareness, and organisational culture, for example, dress code and work expectations. Refresher training sessions on existing products or changes to products should be scheduled for agents. More flexibility on schedules will allow call centre agents to take regular breaks when needed. It is recommended that ten-minute breaks be allocated after every two hours of work to allow call centre agents to stretch their legs and rest their eyes from the continuous glare of the screens. Regular toilet breaks without permission should be allowed.

Physical work environment

Workstation design in call centres should be comfortable and adjustable for call centre agents to perform their tasks. Call centre agents should be prompted at the beginning of their shift to adjust their workstations and chairs to their individual comfort level and sufficient time should be given to make these adjustments. Workstations should be designed to allow call centre agents to personalise their workspace and adequate storage facilities should be made available. Training should be given on how to adjust

the screen controls and brightness on monitors, DSE and VSUs. Computer systems and equipment should be in good working condition. Air and temperature control should be at a comfortable level. This means that the air should be fresh and clear of any pollutants like odours and chemical gases. It is recommended that the temperature be set at 19° C (ETSI, 2003) to prevent employees from getting too cold or too hot. Rest areas with comfortable furniture should be situated away from the call centre area to allow call centre agents to relax.

Wellbeing

The health and safety executive officer of call centres should ensure that an acoustic shock protection device be attached to the headsets to prevent loud sounds reaching call centre agents' eardrums.

Team leaders/supervisors should ensure that cool air be distributed throughout the office area to prevent the drying effect of the vocal folds, and laryngeal and nasal membranes of call centre agents. They should also ensure that fresh purified water in water coolers is in close proximity to workstations and encourage call centre agents to drink water in between calls. The health and safety executive officer, with the organisation's facilities manager, should also reduce background noise to prevent agents from increasing their voice volumes.

Team leaders/supervisors should encourage call centre agents to adopt appropriate working postures or changes in posture during tasks by standing and stretching to allow blood flow to the muscles, which will reduce MSD.

Senior management should make sure that regular in-house visual and auditory tests are conducted. Senior management should ensure that there is an employee wellness department that can offer support/counselling to employees who are stressed and suffer from burnout.

6.4 Recommendations for future research

The study focused on call centres in the Cape Metropole in the Western Cape. A similar study needs to be conducted in other provinces to establish consistency of findings.

More in-depth research should be conducted in respect of the physical working environment and ergonomics, that is, furniture, temperature, noise, and design, as this

study only focused on employee satisfaction but not on the extent of the effects of the above on employee health.

6.5 Conclusion

Call centres are rapidly expanding in the Western Cape, and in particular in the Cape Metropole, owing to the quality of service, high rate of fluency in English, a favourable exchange rate, compatibility with Europe's time zone, and an advanced telecommunications industry (SouthAfrica.info, 2014). However, as the background of call centres was explored in Chapter 1, the nature of the work and the work environment were highlighted. It was noted how the preceding characteristics had a negative effect on call centre agents' wellbeing. Based on the background, the researcher formulated the purpose statement and objectives of this study. This study has highlighted the effects that the workplace environment of call centres has on the wellbeing of call centre agents in the Cape Metropole.

The literature review has clearly demonstrated that wellbeing of call centre agents employed in call centres is of great concern. Chapter 2 formed the framework of the study and explored literature on the characteristics of call centres in relation to the title of this study. A considerable amount of literature was found on job characteristics, burnout, stress, MSD and the physical work environment in call centres.

The methodology used for data collection and analysis of the study was discussed in Chapter 3. A quantitative research method was used and the sampling method selected was self-selection sampling. A structured questionnaire was used to collect the data and was distributed using the SurveyMonkey tool.

Chapter 4 presented the results of the data collected which were computed using the SPSS computer program. These results answered the research questions of the study. The results revealed that there was no significant difference between male and female perceptions on job characteristics but that there were significant differences in perceptions on physical work environment and wellbeing. The results revealed that vocal and auditory health problems are experienced in all call centre industries but that disengagement is mostly experienced in the online retail and financial services industry. Factors within the workplace environment that contribute negatively to the emotional and physical wellbeing were lack of skills variety, autonomy, task identity, social support, increase in job demand, performance monitoring, and dissatisfaction with workstations. Although vocal, optical and auditory health problems were reported, there was no evidence that concluded that it affected call centre agents' ability to perform their work.

However the results also revealed that ill health affected agents' ability to perform their work and MSD in the neck, shoulder and lower back caused pain and discomfort, and interfered with call centre agents' ability to work. The Pearson correlation analysis determined that there are significant relationships between job characteristics, the physical working environment and wellbeing.

Although most of the findings were supported by previous studies, there were a few findings that were not consistent with previous studies and these were discussed in Chapter 5. These findings add to existing literature on job characteristics, physical working environment and wellbeing of call centre agents by providing insight into the relationships between these variables.

A summary of the purpose of the study, suggested recommendations to call centre management, and general conclusions, were therefore provided in Chapter 6.

REFERENCES

- Aarås, A. & Horgen, G. & Ro, O. 2000. Work with the visual display unit: health consequences. *International Journal of Human-Computer Interaction*, 12(1):107-134.
- Abraham, M. 2008. Globalization and the call center industry. *International Sociology*, 23(2):197-210, March.
- Ackroyd, K., Gordon-Dseagu, V. & Fairhurst, P. 2006. *Well-being and call centres*. Brighton: Institute for Employment Studies, University of Sussex.
- Addae, H.M. & Wang, X. 2006. Stress at work: linear and curvilinear effects of psychological-, job-, and organization-related factors: an exploratory study of Trinidad and Tobago. *International Journal of Stress Management*, 13(4):476-493.
- Adebayo, S.O. & Ezeanya, I.D. 2011. Task identity and job autonomy as correlates of burnout among nurses in Jos, Nigeria. *International Review of Social Sciences and Humanities*, 2(1):7-13, October.
- Adorno, A.J. 2012. *Understanding and combating call center employee turnover*. http://www.degarmogroup.com/wp-content/themes/toolbox/pdf/Understanding_and_Combating_Call_Center_Employee_Turnover.pdf [13 August 2012].
- Aiello, J.R. & Shao, Y. 1993. Electronic performance monitoring and stress: the role of feedback and goal setting. In Smith, M.J. & Salvendy, G. (eds). *Human-computer interactions: applications and case studies*. Amsterdam: Elsevier Science: 1011-1016.
- Ajala, E.M. 2012. The influence of workplace environment on workers' welfare, performance and productivity. *The African Symposium*, 12(1):141-149, June.
- Aknin, L.B., Dunn, E.W., Whillans, A.V., Grant, A.M. & Norton, M.I. 2013. Making a difference matters: impact unlocks the emotional benefits of prosocial spending. *Journal of Economic Behavior & Organization*, 88:90-95.
- Aksin, Z., Armony, M. & Mehrotra, V. 2007. The modern call center: a multi-disciplinary perspective on operations management research. *Production and Operations Management*, 16(6):665-688, November-December.
- Alder, G.S. 1998. Ethical issues in electronic performance monitoring: a consideration of deontological and teleological perspectives. *Journal of Business Ethics*, 17(7):729-743, May.
- Alexander, C. 1970. The goodness of fit and its source. In Proshansky, H., Ittelson, W. & Rivlin, L. (eds). *Environmental psychology: man and his physical setting*. New York: Holt, Rinehart and Winston: 42-56.
- Amicus. 2006. *Health and safety in call centres: Amicus guide for members*. London: Unite the Union.
- Andersson, E. & Jansson, A. 2006. A call for learning – a model for developmental learning in call centres. Paper presented at the 6th UFHRD/AHRD Conference on Human Resource Development Research and Practice across Europe, Tilburg, the Netherlands, 23–25 May.
- Armistead, C., Kiely, J., Hole, L. & Prescott, J. 2002. An exploration of managerial issues in call centres. *Managing Service Quality*, 12(4):246-256.

- Australian Bureau of Statistics. 2001. *Measuring wellbeing: framework for Australian social statistics, 2001*. Canberra: ABS.
- Australian Services Union: Victorian Private Sector Branch. 2003. *Good practice guide for occupational health and safety in call centres*. Melbourne, Victoria: ASU.
- Averill, J.R. 1973. Personal control over aversive stimuli and its relationship to stress. *Psychological Bulletin*, 80(4):286-303.
- Bakker, A.B. & Costa, P.L. 2014. Chronic job burnout and daily functioning: a theoretical analysis. *Burnout Research*.
http://www.beanmanaged.com/doc/pdf/arnoldbakker/articles/in_press_arnold_bakker_377.pdf
 [Article in press]. [23 August 2014].
- Bakker, A.B. & Demerouti, E. 2007. The Job Demands-Resources model: state of the art. *Journal of Managerial Psychology*, 22(3):309-328.
- Bakker, A.B., Demerouti, E. & Schaufeli, W.B. 2003. Dual processes at work in a call centre: an application of the job demands – resources model. *European Journal of Work and Organizational Psychology*, 12(4):393-417.
- Baldry, C. & Barnes, A. 2012. The open-plan academy: space, control and the undermining of professional identity. *Work Employment & Society*, 26(2):228-245, April.
- Banks, D. & Roodt, G. 2011. The efficiency and quality dilemma: what drives South African call centre management performance indicators? *South African Journal of Human Resource Management*, 9(1):1-17.
- BBC News. 2006. Experts discuss hearing condition. November 27, 12:34 GMT.
http://news.bbc.co.uk/2/hi/uk_news/scotland/6187248.stm [22 September 2012].
- Beaumont, P. 2011. Call centre culture puts the whole world on hold. *The Guardian*, May 8.
<http://www.theguardian.com/commentisfree/2011/may/08/call-centres-utilities> [25 August 2014].
- Belt, V., Richardson, R. & Webster, J. 2002. Women, social skill and interactive service work in telephone call centres. *New Technology, Work and Employment*, 17(1):20-34.
- Benner, C., Lewis, C. & Omar, R. 2007. The South African call centre industry: a study of strategy, human resource practices and performance. Part of The Global Call Centre Industry Project, June.
- Bernard, B.P., Putz-Anderson, V., Burt, S.E., Cole, L.L., Fairfield-Estill, C., Fine, L.J., Grant, K.A., Gjessing, C., Jenkins, L., Hurrell, J.J., Nelson, N., Pfirman, D., Roberts, R., Stetson, D., Haring-Sweeney, M. & Tanaka, S. 1997. *Musculoskeletal disorders and workplace factors: a critical review of epidemiological evidence for work-related musculoskeletal disorders of the neck, upper extremity, and low back*. Cincinnati, OH: National Institute of Occupational Safety and Health.
- Better Health Channel. 2013. Work-related stress.
http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/work-related_stress
 [11 November 2013].
- Bodine, K. 2011. Wake up call: call centers hold enormous potential for brands. March 7.
http://blogs.forrester.com/kerry_bodine/11-03-07-wake_up_call_call_centers_hold_enormous_potential_for_brands
 [7 March 2012].
- Bond, F.W., Flaxman, P.E. & Loivette, S. 2006. *A business case for the Management Standards for stress. Report No. 431*. London: Goldsmiths College, University of London; Health & Safety Executive.

- Bowen, K., Munn, Y. & Richardson, P. 2002. *Call handling operations: S/NVQ level 2: candidate handbook*. Oxford: Heinemann.
- Boyce, W.T. 2007. A biology of misfortune: stress activity, social context, and the ontogeny of psychopathology in early life. In Masten, A. (ed.). *Multilevel dynamics in developmental psychopathology: pathways to the future*. Mahwah, NJ: Lawrence Erlbaum: 45-82.
- Bremner, N. & Carrière, J. 2011. The effects of skill variety, task significance, task identity and autonomy on occupational burnout in a hospital setting and the mediating effect of work meaningfulness. Working Paper No. 11-02. Telfer School of Management, University of Ottawa.
- Brennan, A., Chugh, J.S. & Kline, T. 2002. Traditional versus open office design: a longitudinal field study. *Environment and Behavior*, 34(3):279-299, May.
- Briner, R.B. 2000. Relationship between work environments, psychological environments and psychological well-being. *Occupational Medicine*, 50(5):299-303, July.
- Brough, P. & Frame, R. 2004. Predicting police job satisfaction and turnover intentions: the role of social support and police organisational variables. *New Zealand Journal of Psychology*, 33(1):8-18, March.
- Brown, G. & Maxwell, G. 2002. Customer service in UK calls centers: organizational perspectives and employee perceptions. *Journal of Retailing and Consumer Services*, 9(6):309-316.
- Brown, J.D. 2009. Principal components analysis and exploratory factor analysis – definitions, differences, and choices. *Shiken: JALT Testing & Evaluation SIG Newsletter*, 13(1):26-30, January.
- Bupa. 2011. *Managing stress in the workplace*.
<http://www.bupa.com.au/health-and-wellness//health-information/az-health-inform>
 [15 August 2011].
- Burns, R.B. & Burns, R.A. 2008. *Business research methods and statistics using SPSS*. London: Sage.
- Butcher, J.N., Mineka, S. & Hooley, J.M. 2004. *Abnormal psychology*. 11th ed. Boston, MA: Allyn and Bacon.
- Callaghan, G. & Thompson, P. 2001. Edwards revisited: technical control and call centres. *Economic and Industrial Democracy*, 22(1):13-37, February.
- Cappelli, P. 2008. *Employment relationships: new models of white-collar work*. Cambridge: Cambridge University Press.
- Chandrasekar, K. 2011. Workplace environment and its impact on organisational performance in public sector organisations. *International Journal of Enterprise Computing and Business Systems*, 1(1). <http://www.ijecbs.com/January2011/N4Jan2011.pdf> [1 January 2011].
- Charbotel, B., Croidieu, S., Vohito, M., Guerin, A-C., Renaud, L., Jaussaud, J., Bourboul, C., Imbard, I., Ardiet, D., & Bergeret, A. 2008. Working conditions in call-centers, the impact on employee health: a transversal study. Part II. *International Archives of Occupational and Environmental Health*, 82(6):747-756.
- Chelin, C. 2014. *Bright future for online retail in South Africa*.
<http://www.super-brands.co.za/bright-future-for-online-retail-in-south-africa> [23 July 2014].

- Claasen, L. 2012. Good start stalled: call centres. *Financial Mail*, April 2. <http://www.financialmail.co.za/fm/2009/12/18/call-centres> [23 August 2014].
- Clements-Croome, D.C. 2006. *Creating the productive workplace*. 2nd ed. London: Taylor & Francis.
- Cohen, M. 2013. Call centres give SA's unemployed a voice in job market. *Business Day Live*, December 3. <http://www.bdlive.co.za/business/technology/2013/12/03/call-centres-give-sas-unemployed-a-voice-in-job-market> [13 January 2014].
- Cohen, S., Tyrrell, D.A. & Smith, A.P. 1991. Psychological stress and susceptibility to the common cold. *New England Journal of Medicine*, 325(9):606-612.
- Colby, A. 2008. *The official guide to energy health*. http://www.selfgrowth.com/articles/Definition_Emotional_Well-Being.html [12 September 2012].
- Colligan, T.W. & Higgins, E.M. 2005. Workplace stress: etiology and consequences. *Journal of Workplace Behavioral Health*, 21(2):89-97.
- Collis, J. & Hussey, R. 2003. *Business research: a practical guide for undergraduate and postgraduate students*. 2nd ed. Basingstoke: Palgrave Macmillan.
- Comcare. 2006. *Call centres: a guide to safe work*. Canberra: Comcare.
- Constancio, S., Moreti, F., Guerrieri, A.C. & Behlau, M. 2012. Body aches in call center operators and the relationship with voice use during work activities. *Revista da Sociedade Brasileira de Fonoaudiologia*, 17(4):377-384.
- Cooper, R., Boyko, C. & Codinhoto, R. 2008. *The effect of the physical environment on mental wellbeing*. State-of-Science Review SR-DR2. London: Government Office for Science.
- Cordes, C.L. & Dougherty, T.W. 1993. A review and an integration of research on job burnout. *Academy of Management Review*, 18(4):621-656, October.
- Cox, T. & Griffiths, A. 1996. Assessment of psychosocial hazards at work. In Schabracq, M., Winnubst, J.A.M. & Cooper, G.L. *Handbook of work & health psychology*. Chichester: John Wiley: 127-143.
- Coyne, J. & DeLongis, A. 1986. Going beyond social support: the role of social relationships in adaptation. *Journal of Consulting and Clinical Psychology*, 54(4):454-460, August.
- Creswell, J.W. 1994. *Research design: qualitative & quantitative approaches*. Thousand Oaks, CA: Sage.
- Creswell, J.W. 2009. *Research design: qualitative, quantitative, and mixed methods approaches*. 3rd ed. Los Angeles, CA: Sage.
- Crew, S. 2006. A qualitative study on effects of working unsocial hours. *Nursing Times*, 102(23):30-33.
- Crichton, N. 2000. Information point: Wilks' lambda. *Journal of Clinical Nursing*, 9:381. http://www.blackwellpublishing.com/specialarticles/jcn_9_381.pdf [24 August 2014].
- Crommelin, R.W. & Pline, J.L. 2007. Ethics for experts. *ITE Journal*, May: 42-43.

- Cruz, M.D. 2010. What are the common health problems of a call center agent? October 18. <http://ezinearticles.com/?What-Are-the-Common-Health-Problems-of-a-Call-Center-Agent?&id=5222964> [7 March 2012].
- D'Alleo, G. & Santangelo, A. 2011. Organizational climate and burnout in call-center operators. *Procedia – Social and Behavioral Sciences*, 30:1608-1615.
- Da Costa, B.R. & Vieira, E.R. 2010. Risk factors for work-related musculoskeletal disorders: a systematic review of recent longitudinal studies. *American Journal of Industrial Medicine*, 53(3): 285-323, March.
- Danielsson, C.B. 2010. The office – An explorative study. Architectural design's impact on health, job satisfaction and wellbeing. Unpublished PhD thesis (Architecture and the Built Environment), Royal Institute of Technology, Stockholm, Sweden.
- De Bruin, G.P. & Taylor, N. 2006. The job demand-control model of job strain across gender. *SA Journal of Industrial Psychology*, 32(1):66-73.
- De Croon, E., Sluiter, J., Kuijer, P.P. & Frings-Dresen, M. 2005. The effect of office concepts on worker health and performance: a systematic review of the literature. *Ergonomics*, 48(2):119-134, February.
- De Grip, A., Hoevenberg, J. & Willems, E. 1997. Atypical employment in the European Union. *International Labour Review*, 36(1):49-71.
- De Jonge, J. & Schaufeli, W.B. 1998. Job characteristics and employee well-being: a test of Warr's Vitamin Model in health care workers using structural equation modelling. *Journal of Organizational Behavior*, 19(4):387-407, July.
- De Ruyter, K., Wetzels, M. & Feinberg, R. 2001. Role stress in call centers: its effect on employee performance and satisfaction. *Journal of Interactive Marketing*, 15(2):23-35, Spring.
- Dean, A.M. & Rainnie, A. 2008. Frontline employees' view on organizational factors that affect the delivery of service quality in call centers. *Journal of Services Marketing*, 23(5):326-337.
- Deery, S.J., Iverson, R.D. & Walsh, J.T. 2002. Work relationships in contact centres: understanding emotional exhaustion and employee withdrawal. *Journal of Management Studies*, 39(4):471-496, June.
- Deery, S.J., Iverson, R.D. & Walsh, J.T. 2010. Coping strategies in call centres: work intensity and the role of co-workers and supervisors. *British Journal of Industrial Relations*, 48(1):181-200, March.
- Deery, S.J. & Kinnie, N. 2004. *Call centres and human resource management: a cross-national perspective*. Basingstoke: Palgrave Macmillan.
- Demerouti, E. & Bakker, A.B. 2007. The Oldenburg Burnout Inventory: a good alternative to measure burnout (and engagement). http://www.beanmanaged.com/doc/pdf/arnoldbakker/articles_arnold_bakker_173.pdf [23 August 2-14].
- Demerouti, E., Bakker, A.B., Nachreiner, F. & Schaufeli, W.B. 2001. The job demands – resources model of burnout. *Journal of Applied Psychology*, 86(3):499-512.
- Demerouti, E., Bakker, A.B., Vardakou, I. & Kantas, A. 2003. The convergent validity of two burnout instruments: a multitrait-multimethod analysis. *European Journal of Psychological*

Assessment, 19(1):12-23.

DeSanto Iennaco, J., Cullen, M.R., Cantley, L., Slade, M.D., Fiellin, M. & Kasl, S.V. 2009. Effects of externally rated job demand and control on depression diagnosis claims in an industrial cohort. *American Journal of Epidemiology*, 171(3):303-311.

Devadas, U. & Rajashekhar, B. 2013. The prevalence and impact of voice problems in call centre operators. *Journal of Laryngology and Voice*, 3(1):3-9, January.

De Vaus, D. 2001. *Research design in social research*. London: Sage.

Doellgast, V. & Sezer, L. 2012. Making the right call: redesigning call centres from the bottom up. A research report for UNI Global Union.

Doerr, S. & Shiel, W.C. 2013. *Hoarseness*.
<http://www.medicinenet.com/hoarseness/article.htm>
<http://www.medicinenet.com/script/main/art.asp?articlekey=2051> [8 January 2014].

Dormann, C. & Zijlstra, F.R.H. 2003. Call centres: high on technology – high on emotions. *European Journal of Work and Organizational Psychology*, 12(4):305-310.

Durbin, S. 2011. Knowledge creation, call centres and gender – A critical perspective. In Krings, B.-J. (ed). *Brain drain or brain gain: changes of work in knowledge-based societies*. Berlin: Sigma: 241-260.

Elfering, A., Semmer, N.K. & Grebner, S. 2006. Observer-rated work stressors as predictors of characteristics of safety-related events reported by young nurses. *Ergonomics*, 49(5-6):457-469.

Elsass, P.M. & Veiga, J.F. 1997. Job control and job strain: a test of three models. *Journal of Occupational Health Psychology*, 2:195-211.

Erdinç, O., Hot, K. & Ökzaya, M. 2011. Turkish version of the Cornell Musculoskeletal Discomfort Questionnaire: cross-cultural adaptation, validity and reliability. *Work*, 39(3):251-260.

ETSI see European Telecommunications Standards Institute.

Etzion, D. 1984. Moderating effect of social support on the stress-burnout relationship. *Journal of Applied Psychology*, 69(4):615-622, November.

European Telecommunications Standards Institute. 2003. Human factors. Human factors of work in call centres. Technical report. Sophia Antipolis: ETSI. May. <http://www.etsi.org> [23 August 2014].

Evans, D.L., Foa, E.B., Gur, R.E., Hendin, H., O'Brien, C.P., Seligman, M.E.P. & Walsh, B.T. (eds). 2005. *Treating and preventing adolescent mental health disorders: what we know and what we don't know*. New York: Oxford University Press.

Fairlie, P. 2011. Meaningful work, employee engagement, and other key employee outcomes: implications for human resource development. *Advances in Developing Human Resources*, 13(4):508-525, November.

Fernie, S. & Metcalf, D. 1998. (Not) hanging on the telephone: payment systems in the new sweatshops. London: Centre for Economic Performance, London School of Economics and Political Science. Report No. 390, May.

Fidelity National Information Services (FIS). 2013. *4 strategies to optimize call center performance*. Jacksonville, FL: FIS.
http://www.fisglobal.com/ucmprdpub/groups/public_searchable/documents/document/C025040.pdf

[9 July 2014].

Fields, D.L. 2002. *Taking the measure of work: a guide to validated scales for organizational research and diagnosis*. Thousand Oaks, CA: Sage.

FIS see Fidelity National Information Services.

Fried, Y., Slowik, L.H., Ben-David, H.A. & Tiegs, R.B. 2001. Exploring the relationship between workspace density and employee attitudinal reactions: an integrative model. *Journal of Occupational and Organizational Psychology*, 74(3):259-372, September.

Gans, N., Koole, G. & Mandelbaum, A. 2003. Telephone call centers: tutorial, review and research prospects. *Manufacturing & Service Operations Management*, 5(2):79-141, Spring.

Ganster, D.C. & Schaubroeck, J. 1991. Work stress and employee health. *Journal of Management*, 17(2):235-271.

Garson, B. 1988. *The electronic sweatshop: how computers are transforming the office of the future into the factory of the past*. New York: Simon & Schuster.

Gilmore, A. & Moreland, L. 2000. Call centers: how can service quality be managed? *Irish Marketing Review*, 13(1):3-11.

Grant, A.M. 2007. Relational job design and the motivation to make a prosocial difference. *Academy of Management Review*, 32(2):393-417.

Grant, A.M. 2008. The significance of task significance: job performance effects, relational mechanisms, and boundary conditions. *Journal of Applied Psychology*, 93(1):108-124.

Grant, R.A. & Higgins, C.A. 1991. Computerized performance monitors: factors affecting acceptance. *IEEE Transactions on Engineering Management*, 38(4):306-315, November.

Grebner, S., Semmer, N.K., Lo Faso, L., Gut, S., Kälin, W. & Elfering, A. 2003. Working conditions, well-being, and job-related attitudes among call centre agents. *European Journal of Work and Organizational Psychology*, 12(4):341-365.

Grice, J.W. & Iwasaki, M. 2007. A truly multivariate approach to MANOVA. *Applied Multivariate Research*, 12(3):199-226.

Guest, D.E. & Conway, N. 2004. *Employee well-being and the psychological contract: a report for the CIPD*. London: Chartered Institute of Personnel and Development.

Hackman, J.R. & Oldham, G.R. 1975. Development of the Job Diagnostic Survey. *Journal of Applied Psychology*, 60(2):159-170, April.

Hackman, J.R. & Oldham, G.R. 1976. Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance*, 16(2):250-279.

Haines, V.A. & Hulbert, J.S. 1991. Occupational stress, social support, and the buffer hypothesis. *Work and Occupation*, 18(2):212-235.

Halford, V. & Cohen, H.H. 2003. Technology use and psychosocial factors in the self-reporting of musculoskeletal disorder symptoms in call center workers. *Journal of Safety Research*, 34(2):167-173.

Hanifin, B. 2014. There's a link between employee engagement and customer loyalty. <http://www.retailwire.com/discussion/17393/theres-a-link-between-employee-engagement-and->

customer-loyalty [22 July 2014].

Hannif, Z.N. & Lamm, F. 2005. Occupational health and safety in the New Zealand call centre industry. In Baird, M., Cooper, R. & Westcott, M. (eds). *Reworking Work: Proceedings of the 19th Association of Industrial Relations Academics of Australia and New Zealand (AIRAANZ) Conference*, Sydney, Australia, 9–11 February 2005. Vol. 1: Refereed papers. Sydney, AIRAANZ: 247-256.

Harris, L. 2012. The changing face of the contact centre. *Brainstorm Magazine*, February 1. http://www.brainstormmag.co.za/index.php?option=com_content&view=article&id=4508:the-changing-face-of-the-contact-centre [24 August 2014].

Harter, J.K., Schmidt, F.L. & Keys, C.L.M. 2003. Well-being in the workplace and its relationship to business outcomes: a review of the Gallup Studies. In Keyes, C.L.M. & Haidt, J. (eds). *Flourishing: positive psychology and the life well lived*. Washington: American Psychological Association: 205-224.

Hauptfleisch, S. & Uys, J.S. 2006. The experience of work in a call centre environment. *SA Journal of Industrial Psychology*, 32(2):23-30.

Health and Safety Executive. 2013. Ergonomics and human factors at work. A brief guide. <http://www.hse.gov.uk/pubns/indg90.pdf> [26 August 2013]

Healy, J. & Bramble, T. 2003. Dial 'B' for burnout? The experience of job burnout in a telephone call centre. *Labour & Industry: A Journal of the Social and Economic Relations of Work*, 14(2):39-59.

Hedge, A. 1986. *Open versus enclosed workspaces: the impact of design on employee reactions to their offices*. In Wineman, J.D. (ed.). *Behavioral issues in office design*. New York: Van Nostrand Reinhold: 139-176.

Hedge, A. 1994. Cornell musculoskeletal discomfort questionnaire: Human Factors and Ergonomics Research Laboratory at Cornell University. <http://ergo.human.cornell.edu/ahmsquest.html> [12 April 2012].

Hedge, A. 2000. Where are we in understanding the effects of where we are? *Ergonomics*, 43(7):1019-1029.

Herman Miller Inc. 2007. It's all about me: the benefits of personal control at work. <http://www.hermanmiller.com> [24 August 2014].

Herman Miller Inc. 2008. New directions in call center design: demanding challenges in a complex workplace. <http://www.hermanmiller.com> [24 August 2014].

Herman Miller Inc. 2009. Call centers find their voice: workplace solutions for improving employee satisfaction and productivity. <http://www.hermanmiller.com> [24 August 2014].

Hocine, Z. & Zhang, J. 2014. Autonomy support: explaining the path from leadership to employee creative performance. *Open Journal of Social Sciences*, 2:417-423.

Hodgetts, R.M. & Hegar, K.W. 2008. *Modern human relations at work*. 10th ed. Mason, OH: Thomson Learning/Southwestern.

Holdsworth, L. & Cartwright, S. 2003. Empowerment, stress and satisfaction: an exploratory study of a call centre. *Leadership & Organization Development Journal*, 24(3):131-140.

- Holman, D. 2002. Employee wellbeing in call centres. *Human Resource Management Journal*, 12(4):35-50.
- Holman, D. 2003. Phoning in Sick? An overview of employee stress in call centers. *Leadership & Organizational Development Journal*, 24(3):123-130.
- Holman, D., Batt, R. & Holtgrewe, U. 2007. The global call center report: international perspectives on management and employment.
<http://www.digitalcommons.ilr.cornell.edu/report> [15 September 2012]
- Holman, D., Chissick, C. & Totterdell, P. 2002. The effects of performance monitoring on emotional labor and well-being in call centers. *Motivation and Emotion*, 26(1):57-81, March.
- Holman, D. & Fernie, C. 2000. 'Can I help you?' Call centres and job satisfaction. *CentrePiece*, 5(1):2-5, Spring.
- Holman, D., Wall, T.D., Clegg, C.W., Sparrow, P. & Howard, A. (eds). 2003. *The new workplace: a guide to the human impact of modern working practices*. Chichester: John Wiley.
- Holman, D., Wall, T.D., Clegg, C.W., Sparrow, P. & Howard, A. (eds). 2004. *The essentials of the new workplace: a guide to the human impact of modern working practices*. Chichester: John Wiley.
- Houlihan, M. 2000. Eyes wide shut? Querying the depth of call centre learning. *Journal of European Industrial Training*, 24(2-4):228-240.
- Houlihan, M. 2001. Managing to manage? Stories from the call centre floor. *Journal of European Industrial Training*, 25(2):112-113.
- Houlihan, M. 2002. Tensions and variations in call centre management strategies. *Human Resource Management Journal*, 12(4):67-85, November.
- Hox, J.J. & Boeijs, H.R. 2005. Data collection, primary versus secondary. In Kempf-Leonard, K. (ed). *Encyclopedia of social measurement*. San Diego, CA: Academic Press: 593-599.
- Huang, Y-H., Robertson, M.M. & Chang, K-I. 2004. The role of environmental control on environmental satisfaction, communication, and psychological stress: effects of office ergonomics training. *Environment and Behavior*, 36(1):617-637, September.
- Hunter, E.J., Tanner, K. & Smith, M.E. 2011. Gender differences affecting vocal health of women in vocally demanding careers. *Logopedics, Phoniatrics, Vocology*, 36(3):128-136, October.
- Hussey, J. & Hussey, R. 1997. *Business research: a practical guide for undergraduate and postgraduate students*. Basingstoke: Macmillan Business.
- HSE see Health and Safety Executive
- Ilozor, B.D., Love, P.E.D. & Treloar, G. 2002. The impact of work settings on organisational performance measures in built facilities. *Facilities*, 20(1-2):61-68.
- Insight. 2011. Emotional well-being.
<http://www.emotional-wellbeing.org.uk/definition.htm>
[12 April 2012].
- Irvine, D. 2014. Would you buy from a disengaged retail employee? May 23.
<http://www.recognizethisblog.com/2014/05/disengaged-retail-employee/> [22 July 2014].

- Jacobs, C. & Roodt, G. 2011. A human capital predictive model for agent performance in contact centres. *SA Journal of Industrial Psychology*, 37(1):1-19.
- James, R.K. & Gilliland, B.E. 2013. *Crisis intervention strategies*. 7th ed. Belmont: Brooks/Cole, Cengage Learning.
- Janse van Rensburg, Y., Boonzaier, B. & Boonzaier, M. 2013. The job demands-resources model of work engagement in South African call centres. *SA Journal of Human Resource Management*, 11(1):1-13.
- Johari, J. 2009. Linking organizational structure, job characteristics, and job performance constructs: a proposed framework. *International Journal of Business and Management*, 4(3):145-152.
- Jones, K., Sigmon, J., Hock, L., Nelson, E., Sullivan, M. & Ogren, F. 2002. Prevalence and risk factors for voice problems among telemarketers. *Archives of Otolaryngology – Head & Neck Surgery*, 128(5):571-577, May.
- Kalleberg, A.L. 2000. Nonstandard employment relations: part-time, temporary and contract work. *Annual Review of Sociology Journal*, 26:341-365.
- Kamwendo, K., Linton, S.J. & Moritz, U. 1991. Neck and shoulder disorders in medical secretaries. *Scandinavian Journal of Rehabilitation Medicine*, 23:127-133.
- Kaplan, H.I., Sadock, B.J. & Grebb, J.A. 1994. *Kaplan and Sadock's synopsis of psychiatry: behavioral sciences, clinical psychiatry*. 7th ed. Baltimore, MD: Williams & Wilkins.
- Karasek, R. & Theorell, T. 1990. *Healthy work: stress, productivity, and the reconstruction of working life*. New York: Basic Books.
- Khamisa, N., Peltzer, K. & Oldenburg, B. 2013. Burnout in relation to specific contributing factors and health outcomes among nurses: a systematic review. *International Journal of Environmental Research and Public Health*, 10(6):2214-2240, June.
- Kinnie, N., Hutchinson, S. & Purcell, J. 2000. 'Fun and surveillance': the paradox of high commitment management in call centres. *International Journal of Human Resource Management*, 11(5):967-985.
- Knoll Inc. 2010. A call center case study: the impact of workstation design and work tools on performance. <http://www.knoll.com/media/74/722/CallCenterCaseStudy.pdf> [24 August 2014].
- Koekemoer, F.E. & Mostert, K. 2006. Job characteristics, burnout and negative work-home interference in a nursing environment. *SA Journal of Industrial Psychology*, 32(3):87-97.
- Korczynski, M. 2001. The contradictions of service work: call centre as customer-oriented bureaucracy. In Sturdy, A., Grugulis, I. & Willmott, H. (eds). *Customer service: empowerment and entrapment*. Basingstoke: Palgrave: 79-101.
- Korczynski, M., Shire, K., Frenkel, S. & Tam, M. 2000. Service work in consumer capitalism: customers, control and contradictions. *Work, Employment & Society*, 14(4):669-687, December
- Kouvonen, A., Kivimäki, M., Virtanen, M., Pentti, J. & Vahtera, J. 2005. Work stress, smoking status, and smoking intensity: an observational study of 46 190 employees. *Journal of Epidemiology & Community Health*, 59:63-69.
- Lacaze, D.H.de C., Sacco, I.C.N., Rocha, L.E.de C., Bragança Pereira, C.A. & Casarotto, R.A.

2010. Stretching and joint mobilization exercises reduce call-center operators' musculoskeletal discomfort and fatigue. *Clinics*, 65(7):657-662.
- Lambert, E.G., Hogan, N.L., Cheeseman Dial, K., Jiang, J. & Khondaker, M.I. 2012. Is the job burning me out? An exploratory test of the job characteristics model on the emotional burnout of prison staff. *Prison Journal*, 92(1):3-23.
- Lansbury, R. 1988. Performance management: a process approach. *Asia Pacific Journal of Human Resources*, 26(2):46-54, March.
- Latif, J. 2010. An investigation into the moderating effects of hardiness between performance monitoring and life satisfaction in a call centre environment. Unpublished MA thesis, University of the Witwatersrand, Johannesburg.
- Latko, W.A., Armstrong, T.J., Franzblau, A., Ulin, S.S., Werner, R.A. & Albers, J.W. 1999. Cross-sectional study of the relationship between repetitive work and the prevalence of upper limb musculoskeletal disorders. *American Journal of Industrial Medicine*, 36(2):248-259, August.
- Lawton, B.W. 2003. Audiometric findings in call centre workers exposed to acoustic shock. *Proceedings of the Institute of Acoustics*, 25(4):249-258.
- Leather, P., Pyrgas, M., Beale, D. & Lawrence, C. 1998. Windows in the workplace: sunlight, view and occupational stress. *Environment and Behavior*, 30(6):739-762, November.
- Lee, S.Y. 2006. Expectations of employees towards the workplace and environmental satisfaction. *Facilities*, 24(9-10):343-353.
- Lehto, L. 2007. Occupational voice – studying voice production and preventing voice problems with special emphasis on call-centre employees. Unpublished PhD dissertation, Helsinki University of Technology, Finland.
- Lehto, L., Laaksonen, L., Vilkmann, E. & Alku, P. 2006. Occupational voice complaints and objective acoustic measurements – do they correlate? *Logopedics, Phoniatrics, Vocology*, 31:147-152.
- Leitch, S. 2006. *Prosperity for all in the global economy – world class skills: final report*. Norwich: HMSO.
- Leka, S., Griffiths, A. & Cox, T. 2003. *Work organisation & stress: systematic problem approaches for employers, managers and trade union representatives*. Geneva: WHO.
- Lewig, K.A. & Dollard, M.F. 2003. Emotional dissonance, emotional exhaustion and job satisfaction in call centre workers. *European Journal of Work and Organizational Psychology*, 12(4):366-392.
- Lin, S-L. & Hsieh, A-T. 2002. Constraints of task identity on organizational commitment. *International Journal of Manpower*, 23(2):151-165
- Lloyd, C. & Payne, J. 2008. What is a skilled job? Exploring worker perceptions of skill in two UK call centres. ESRC Centre on Skills, Knowledge and Organisational Performance (SKOPE) Research Paper No. 81, Cardiff University, July.
- Lloyd, C. & Payne, J. 2009. 'Full of sound and fury, signifying nothing': interrogating new skill concepts in service work – the view from two UK call centres. *Work, Employment & Society*, 23(4):617-634, December.
- Logaraj, M., Madhu Priya, V., Seetharaman, N. & Hedge, S.K. 2013. Practice of ergonomic

- principles and computer vision syndrome (CVS) among undergraduate students in Chennai. *National Journal of Medical Research*, 3(2):111-116.
- Louw, G.J. & Viviers, A. 2010. An evaluation of a psychosocial stress and coping model in the police work context. *SA Journal of Industrial Psychology*, 36(1):1-11.
- Lumley, E.J., Coetzee, M., Tladinyane, R. & Ferreira, N. 2011. Exploring the job satisfaction and organizational commitment of employees in the information technology environment. *Southern African Business Review*, 15(1):100-118.
- Lund Research Limited. 2010. Self-selection sampling. <http://dissertation.laerd.com/self-selection-sampling.php> [15 September 2011].
- Lunenburg, F.C. 2011. Motivating by enriching jobs to make them more interesting and challenging. *International Journal of Management, Business, and Administration*, 15(1):1-11.
- Luttman, A., Jäger, M., Griefahn, B., Caffier, G. & Liebers, F. 2003. *Preventing musculoskeletal disorders in workplace*. Geneva: WHO.
- Maertz, C.P., Griffeth, R.W., Campbell, N.S. & Allen, D.G. 2007. The effects of perceived organizational support and perceived supervisor support on employee turnover. *Journal of Organizational Behavior*, 28(8):1059-1075, November.
- Mahlaka, R. 2014. Online shopping: is SA ready for it? <http://www.moneyweb.co.za/moneyweb-south-africa/online-shopping-is-sa-ready-for-it> [23 July 2014].
- Malhotra, N., Budhwar, P.S. & Prowse, P. 2007. Linking rewards to commitment: an empirical investigation of four UK contact centres. *International Journal of Human Resource Management*, 18(12):2095-2127.
- Mallory-Hill, S., Van der Voordt, T.J.M & Van Dortmont, A. 2004. Evaluation of innovative workplace design in the Netherlands. In Preiser, W.F.E. & Vischer, J.C. (eds). *Assessing building performance*. Oxford: Elsevier:160-169.
- Maslach, C. 1982. *Burnout: the cost of caring*. Beverly Hill, CA: Prentice Hall.
- Maslach, C. & Jackson, S.E. 1981. The measurement of experienced burnout. *Journal of Occupational Behavior*, 2(2):99-113, April.
- Maslach, C. & Jackson, S.E. 1986. *Maslach burnout inventory manual*. 2nd ed. Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W.B. & Leiter, M.P. 2001. Job burnout. *Annual Review of Psychology*, 52: 397-422.
- McGuire, D. & McLaren, L. 2007. The impact of physical environment on employee commitment in call centres: the mediating role of employee well-being. Paper presented at the Academy of Human Resource Development Conference, Indianapolis, Indiana, 1–4 March.
- Melnick, E.L., Nayer, P.R., Pinedo, M.L. & Seshadri, S. (eds). 2000. *Creating value in financial services: strategies, operations and technologies*. New York: Kluwer Academic.
- Mohr, R. 1996. Office space is a revenue enhancer, not an expense. *National Real Estate Investor*, 38(7):46-47.
- Moller, Y., Crous, F. & Schepers, J.M. 2004. 'n Ondersoek na die persoonlikheidseienskappe van

inbelsentrumkonsultante. *SA Journal of Industrial Psychology*, 30(2):74-84.

Moorad, Z. 2014. In-store experience still trumps online buying in SA. *Business Day Live*, July 11. <http://www.bdlive.co.za/business/retail/2014/07/11/in-store-experience-still-trumps-online-buying-in-sa> [23 July 2014].

Mouton, J. & Marais, H.C. 1988. *Basic concepts in the methodology of the social sciences*. Pretoria: HSRC Press.

Mukaka, M.M. 2012. Statistics corner: a guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal*, 24(3):69-71, September.

Naidoo, R. & Neville, R. 2005. Call Centres / Business Process Outsourcing (BPOs). First Paper. Current situational analysis of the call centres / BPOs sector in the Western Cape. http://www.westerncape.gov.za/other/2005/10/call_cen_business_process_outsourcing_paper_1.pdf [25 August 2014].

National Institute for Occupational Safety and Health. 1988. NIOSH Generic Job Stress Questionnaire. <http://www.cdc.gov/niosh/topics/workorg/detail088.html> [22 August 2012]

Nenonen, S. 2004. Analysing the intangible benefits of work space. *Facilities*, 22(9):233-239.

Newsham, G., Brand, J., Donnelly, C., Veitch, J., Aries, M. & Charles, K. 2009. Linking indoor environment conditions to job satisfaction: a field study. *Building Research & Information*, 37(2):129-147.

Newsham, G.R., Veitch, J.A., Reinhart, C.F. & Sander, D.M. 2004. Lighting design for open-plan offices. Construction Technology Update No.62. National Research Council of Canada, October 2004. http://www.nrc-cnrc.gc.ca/ctu-sc/files/doc/ctu-sc/ctu-n63_eng.pdf [27 August 2014]

Niemelä, R., Hannula, M., Rautio, S., Reijula, K. & Railio, J. 2002. The effect of air temperature on labour productivity in call centres – a case study. *Energy and Buildings*, 34(8):759-764, September.

NIOSH see National Institute for Occupational Safety and Health

Nordqvist, C. 2009. What is health? What does good health mean? *Medical News Today*. <http://www.medicalnewstoday.com/articles/150999.php> [12 September 2012].

Norman, K. 2005. Call centre work – characteristics, physical, and psychosocial exposure, and health related outcomes. Unpublished PhD thesis, Linköping University, Sweden.

Norman, K., Tornqvist, E.W. & Toomingas, A. 2008. Working conditions in a selected sample of call centre companies in Sweden. *International Journal of Occupational Safety and Ergonomics*, 14(2):177-194.

Oldfield, G. & Mostert, K. 2007. Job characteristics, ill health and negative work-home interference in the mining industry. *SA Journal of Industrial Psychology*, 33(2):68-75.

Oldham, G.R. 1988. Effects of changes in workspace partitions and spatial density on employee reactions: a quasi-experiment. *Journal of Applied Psychology*, 73(2):253-258, May.

Ornstein, S.W. 1999. A post-occupancy evaluation of workplaces in São Paulo, Brazil. *Environment and Behavior Journal*, 31(4):435-462, July.

Papworth, M. 2003. *Stress busting*. London: Continuum.

- Patterson, M., Warr, P. & West, M. 2004. *Organisational climate and company productivity: the role of employee affect and employee level*. CEP Discussion Paper No. 626. London: Centre for Economic Performance, London School of Economics and Political Science.
- Phakati, B. 2013. Cape Town 'talent, infrastructure' luring global call centres. *Business Day Live*, May 28.
<http://www.bdlive.co.za/national/2013/05/28/cape-town-talent-infrastructure-luring-global-call-centres> [26 February 2014].
- Phelan, J., Schwartz, J. & Bronet, E. 1991. Work stress, family stress and depression in profession and managerial employees. *Psychological Medicine*, 21(4):999-1012, November.
- Pitzer, P. 2006. Worker comfort in cubicle workstation environments. A paper submitted towards Human Factors Engineering, QAS 515, in the MSc Quality Assurance program. Summer 2006.
http://jclauson.com/msqa/term_papers/worker_comfort_in_cubicle_workstation_environments_pitzer.pdf [25 August 2014].
- Preiser, W.F.E. 1983. The habitability framework: a conceptual approach towards linking human behaviour and physical environment. *Design Studies*, 4(2):84-91, April.
- Punnett, L. & Wegman, D.H. 2004. Work-related musculoskeletal disorders: the epidemiologic evidence and the debate. *Journal of Electromyography and Kinesiology*, 14:13-23.
- Radhakrishna, R.B. 2007. Tips for developing and testing questionnaires/instruments. *Journal of Extension*, 45(1), February. <http://www.joe.org/joe/2007february/tt2.php> [25 August 2014].
- Renton, S.J., Lightfoot, N.E. & Maar, M.A. 2011. Physical activity promotion in call centres: employers' perspectives. *Health Education Research*, 26(6):1050-1059.
- Rosenbaum, J. & Lidz, C.W. 2007. Maximizing the results of Internet surveys. *Psychiatry Information in Brief*, 4(2):1-2, February.
- Russell, B. 2007. 'You gotta lie to it:' software applications and the management of technological change in a call centre. *New Technology, Work and Employment*, 22(2):132-145, July.
- Samaritans. 2012. *Emotional health*. <http://www.samaritans.org> [12 September 2012].
- Sapir, S., Attias, J. & Shahar, A. 1992. Vocal attrition related to idiosyncratic dysphonia: re-analysis of survey data. *European Journal of Disorders of Communication*, 27(2):129-135.
- Saragih, S. 2011. The effects of job autonomy on work outcomes: self efficacy as an intervening variable. *International Research Journal of Business Studies*, 4(3):203-215.
- Schaufeli, W.B. & Bakker, A.B. 2004. Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior*, 25:293-315, May.
- Schilling, M.A., Vidal, P., Ployhart, R.E. & Marangoni, A. 2003. Learning by doing *something else*: variation, relatedness, and the learning curve. *Management Science*, 49(1):39-56, January.
- Schuurman, J. 2011. Job characteristics, health and satisfaction. Can satisfaction with social life overcome negative job traits? Unpublished MSc Health Economics thesis, Erasmus University, Rotterdam, the Netherlands.
- Sekaran, U. & Bougie, R. 2013. *Research methods for business: a skill-building approach*. 6th ed. Chichester: John Wiley.

- Seppänen, O., Fisk, W.J. & Lei, Q.H. 2006. *Effect of temperature on task performance in office environment*. <http://eaei.lbl.gov/sites/all/files/LBNL-60946.pdf> [25 August 2014].
- Silva Cusi, V. 2010. Government boost for South African call centres. <http://www.contactcenterworld.com/view/contact-centre-news/government> [12 September 2012]
- Silverstein, B.A., Fine, L.J. & Armstrong, T.J. 1987. Occupational factors and carpal tunnel syndrome. *American Journal of Industrial Medicine*, 11(3):343-358.
- Singh, J. 2000. Performance productivity and quality of frontline employees in service organizations. *Journal of Marketing*, 64(2):15-34.
- Sloan, M.M. 2012. Unfair treatment in the workplace and worker well-being: the role of coworker support in a service work environment. *Work and Occupations*, 39(1):3-34, February.
- Smith, L.I. 2002. A tutorial on principal components analysis. February 26. http://nyx-www.informatik.uni-bremen.de/664/1/smith_tr_02.pdf [25 August 2014].
- Smithers, R. 2014. Half of online customers experience problems – Which? *The Guardian*, March 7. <http://www.theguardian.com/money/2014/mar/07/half-online-shoppers-problems> [23 July 2014].
- SouthAfrica.info. 2014. Investing in the Western Cape. http://www.southafrica.info/business/investing/opportunities/wcape.htm#.U_sAeigVrHg [18 August 2014].
- Sowmya, K.R. & Panchanatham, N. 2011. Job burnout: an outcome of organizational politics in banking sector. *Far East Journal of Psychology and Business*, 2(1):49-58.
- Sparks, K., Faragher, B. & Cooper, C. 2001. Well-being and occupational health in the 21st century workplace. *Journal of Occupational and Organizational Psychology*, 74(4):489-509.
- Spreen, O. & Risser, A.H. (eds). 2003. *Assessment of aphasia*. New York: Oxford University Press.
- Sprigg, C.A. & Jackson, P.R. 2006. Call centers as lean service environments: job-related strain and the mediating role of work design. *Journal of Occupational Health Psychology*, 11(2):197-212, April.
- Sprigg, C.A., Smith, P.R. & Jackson, P.R. 2003. *Psychosocial risk factors in call centres: an evaluation of work design and well-being*. Research paper prepared by the University of Sheffield, Health and Safety Laboratory and UMIST for the Health and Safety Executive. Research Report No. 169. Norwich: HSMO.
- Stallworth, O.E. & Kleiner, B.H. 1996. Recent developments in office design. *Facilities*, 14(1-2):34-42.
- Stanton, J.M. 2000. Reactions to employee performance monitoring: framework, review and research directions. *Human Performance*, 13(1):85-113.
- Statt, D.A. 1994. *Psychology and the world of work*. Basingstoke: Macmillan.
- Stellman, J.M., Klitzman, S., Gordon, G.C. & Snow, B.R. 1987. Work environment and the well-being of clerical and VDT workers. *Journal of Organizational Behavior*, 8(2):95-114, April.
- Stokols, D. & Scharf, F. 1990. Developing standardized tools for measuring employees' rating of

- facility performance. In Davis, G. & Ventre, F. (eds). *Performance of Buildings and Serviceability of Facilities*. Papers Presented at the Symposium on Overall Facility Performance-Use, Operation and Cost, Toronto, Canada, 13–14 October 1988. Philadelphia, PA: American Society for Testing and Materials: 55-79.
- Suff, P., Reilly, P. & Mercer, M. 2005. Your call: managing reward and performance in call centres. HR Network Paper MP51. Brighton: Institute for Employment Studies. <http://www.employment-studies.co.uk/network/research/report.php?id=mp51> [25 August 2014].
- Sukamolson, S. 2007. Fundamentals of quantitative research. <http://www.culi.chula.ac.th/Research/e-Journal/bod/Suphat%20Sukamolson.pdf> [25 August 2014].
- Sutherland, V.J. & Cooper, C.L. 1993. *Understanding stress: a psychological perspective for health professionals*. London: Chapman and Hall.
- Sutherland, V.J. & Cooper, C.L. 2000. *Strategic stress management: an organizational approach*. Basingstoke: Macmillan.
- Swanson, R.A. & Holton, E.F. (eds). 2005. *Research in organizations: foundations and methods of inquiry*. San Francisco, CA: Berrett-Koehler.
- Tavakol, M. & Dennick, R. 2011. Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2:53-55.
- Taylor, P. & Bain, P. 1999. 'An assembly line in the head': work and employee relations in the call centre. *Industrial Relations Journal*, 30(2):101-117, June.
- Taylor, P., Baldry, C., Bain, P. & Ellis, V. 2003. "A unique working environment": health, sickness and absence management in UK call centres. *Work, Employment & Society*, 17(3):435-458, September.
- Taylor, P., Mulvey, G., Hyman, J. & Bain, P. 2002. Work organization, control and the experience of work in call centres. *Work, Employment & Society*, 16(1):133-150, March.
- Taylor, S. & Tyler, M. 2000. Emotional labour and sexual difference in the airline industry. *Work, Employment & Society*, 14(1):77-95, March.
- Tecson, A. 2011. Top seven illnesses encounter [sic] working in call center. <http://cold-flu-health-center.blogposthq.info/tag/encounter/> [25 August 2014].
- Tehrani, N., Numpage, S., Willmott, B. & Haslam, I. 2007. *What's happening with well-being at work? A report for the CIPD*. London: Chartered Institute of Personnel and Development.
- Terry, D.J. & Jimmieson, N.L. 1999. Work control and employee well-being: a decade review. In Cooper, C.L. & Robertson, I.T. (eds). *International review of industrial and organizational psychology, Vol. 14*. Chichester: John Wiley: 95-148.
- Thompson, C.A. & Prottas, D.J. 2006. Relationships among organizational family support, job autonomy, perceived control, and employee well-being. *Journal of Occupational Health Psychology*, 11(1):100-118, January.
- Toomingas, A., Cohen, P., Jonsson, C., Kennedy, J., Mases, T., Norman, K. & Odefalk, A. 2005. A sound working environment in call and contact centres: advice and guidelines. <http://www.av.se/dokument/teman/datorarbete/callcentre-guidelines.pdf> [25 August 2014].
- Toomingas, A. & Gavhed, D. 2008. Workstation layout and work postures at call centres in Sweden in relation to national law, EU-directives and ISO-standards, and to operators' comfort

and symptoms. *International Journal of Industrial Ergonomics*, 38:1051-1061.

Tredoux, C. & Durrheim, K. 2002. *Numbers, hypotheses and conclusions: a course in statistics for the social sciences*. Lansdowne: UCT Press.

Trochim, W.M. 2004. *Research methods knowledge base*.
<http://www.socialresearchmethods.net/kb/> [25 August 2014].

Unison. 2001. *Holding the line: Unison's guide to making call centres a better place to work*. London: Unison.

Vilkman, E. 2000. Voice problems at work: a challenge for occupational safety and health arrangement. *Folia Phoniatrica et Logopaedica*, 52(1-3):120-125.

Vilkman, E. 2004. Occupational safety and health aspects of voice and speech professions. *Folia Phoniatrica et Logopaedica*, 56(4):220-253.

Vischer, J.C. 2007. The effects of the physical environment on job performance: towards a theoretical model of workspace stress. *Stress & Health*, 23(3):175-184, August.

Visser, W.A. & Rothmann, S. 2008. Exploring antecedents and consequences of burnout in a call centre. *SA Journal of Industrial Psychology*, 34(2):79-87.

Wahlström, J. 2005. Ergonomics, musculoskeletal disorders and computer work. *Occupational Medicine*, 55:168-176.

Wallace, C.M., Eagleson, G. & Waldersee, R. 2000. The sacrificial HR strategy in call centers. *International Journal of Service Industry Management*, 11(2):174-184.

Warr, P. 1990. The measurement of well-being and other aspects of mental health. *Journal of Occupational and Organizational Psychology*, 63(3):193-210, September.

Warr, P.B. 2007. *Work, happiness and unhappiness*. Mahwah, NJ: Lawrence Erlbaum.

Wegge, J., Van Dick, R., Fisher, G.K., Wecking, C. & Moltzen, K. 2006. Work motivation, organisational identification, and wellbeing in call centre work. *Work & Stress*, 20(1):60-83.

Weiner, I.B. & Craighead, W.E. (eds). 2010. *The Corsini encyclopedia of psychology, vol. 1*. 4th ed. Hoboken, NJ: John Wiley.

Weinkopf, C. 2002. Call centres between services orientation and efficiency: "the polyphony of telephony". Paper presented at the 23rd International Conference of the International Working Party on Labour Market Segmentation: The Quality of Work, Spetses, Greece, 17–20 July.

Welman, C., Kruger, F. & Mitchell, B. 2005. *Research methodology*. 3rd ed. Cape Town: Oxford University Press.

White, C. & Roos, V. 2005. Core competencies of a call centre agent. *SA Journal of Human Resource Management*, 3(2):41-47.

Wilk, S.L. & Moynihan, L.M. 2005. display rule "regulators": the relationship between supervisors and worker emotional exhaustion. *Journal of Applied Psychology*, 90(5):917-927, September.

Woods, V. 2005. Musculoskeletal disorders and visual strain in intensive data processing workers. *Occupational Medicine*, 55:121-127.

Workman, M. & Bommer, W. 2004. Redesigning computer call center work: a longitudinal field

experiment. *Journal of Organizational Behavior*, 25(3):317-337, May.

World Health Organization (WHO). 2012. What is depression?
http://www.who.int/mental_health/management/depression/definition/en/ [13 September 2012].

Wuensch, K.L. 2013. Item analysis and alpha factor analysis with SPSS. *International Journal of Mathematics and Computer Sciences*, 20, August. <http://www.scholarism.net/FullText/2013205.pdf> [24 August 2014].

Yoleri, S. & Bostanci, M.O. 2012. Determining the factors that affect burnout and job satisfaction among academicians: a sample application on the Hitit University. *International Periodical for the Languages, Literature and History of Turkish or Turkik*, 7(4):589-600, Fall.

Zeisel, J. 2005. *Inquiry by design: environment/behavior/neuroscience in architecture, interiors, landscape, and planning*. Rev. ed. New York: Norton.

Zhong, J., You, J., Gan, Y., Zhang, Y., Lu, C. & Wang, H. 2009. Job stress, burnout, depression symptoms, and physical health among Chinese university teachers. *Psychological Reports*, 105(3F):1248-1254, December.

APPENDICES

APPENDIX A: PERMISSION LETTER TO COMPANIES



[Date]

[Name and Address of Company]

Dear Sir/Madam

My name is Noleen Miller and I would like to invite your organisation to participate in a research study I am currently conducting for the purpose of obtaining my Master's Degree in Business Administration at the Cape Peninsula University of Technology. My research focuses on the wellbeing of call centre employees and how it is affected by their working conditions. The results of this research will be published in my thesis.

Strict confidentiality will be ensured, as the name of the participating organisation will not be mentioned in any published documents. All the employees of the organisation will be invited to complete a questionnaire. The questionnaire is easy to read and should take 10–15 minutes to complete. The participants will complete the questionnaire on a voluntary basis and all responses will be anonymous, as no names or identity numbers are required. The completed questionnaires will be submitted directly via SurveyMonkey® and will not be seen by anyone but me. Responses will also be examined to establish trends.

The questionnaire will be completed via a link that will be placed on the organisation's intranet. Volunteering participants in the study will be required to complete the questionnaire as honestly as possible.

The aim of this research is to add to existing knowledge of the wellbeing of employees. The results of the findings will be made available to the participating organisations at their request. Should you have any queries, please do not hesitate to contact either me, or my supervisor, Dr Rozenda Hendrickse.

Yours sincerely

Noleen Miller
MTech student
Tel: 021 4603189

Dr Rozenda Hendrickse
Supervisor

APPENDIX B: ETHICS CERTIFICATE

APPENDIX C: STRUCTURED QUESTIONNAIRE

DEMOGRAPHIC QUESTIONNAIRE

Kindly complete the information below for statistical purposes.
You are **not** required to state your name.

Instructions

Please tick the applicable blocks

1. **Race**

White

Coloured

African

Indian

2. **Gender**

Male

Female

3. **Age**

21 and under

22 to 34

35 to 44

45 to 54

55 to 64

65 and older

4. **Which industry do you work in?**

Online retail

Fashion retail

Consumer products

Media & publishing

Financial services

5. **How long have you been employed at the company?**

- 0 – 5 years
- 6 – 10 years
- 11 – 20 years
- 21 – 30 years
- 31 – 40 years
- 40 years and more

6. **At what time of day do you work?**

- Usually daytime (between 06:00 – 18:00)
- Usually in the evening (between 18:00 – 22:00)
- Usually at night (between 22:00 – 06:00)
- Varying roster

7. **Which days of the week are you employed?**

- Monday – Friday
- Saturdays, Sundays or public holidays
- Varying days of the week

8. **How are your working hours decided?**

- My working hours are decided by the company
- The team drafts a roster for a scheduled period

9. **Do you smoke, and if so how many cigarettes daily?**

- Do not smoke
- 1 – 5 cigarettes
- 6 – 10 cigarettes
- 11 – 15 cigarettes
- 16 – 20 cigarettes
- More than 20 cigarettes

10. **Have you done any exercise, sport or fitness training during the past month?**

Daily

5 – 6 times per week

3 – 4 times per week

1 – 2 times per week

Less than once a week

JOB DIAGNOSTIC SURVEY

Please indicate by means of rating on the scale from 1 - 7, in the space provided whether each statement is an accurate or inadequate description of your job.

SECTION 1

11.	How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?
<p>1-----2-----3-----4-----5-----6-----7</p> <p>Very little; the job gives me almost no personal “say” about how and when the work is done. Moderate autonomy; many things are standardised and not under my control, but I can make some decisions about the work. Very much; the job gives me almost complete responsibility for deciding how and when the work is done.</p>	
12.	To what extent does your job involve doing a “whole” and identifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, which is finished by other people.
<p>1-----2-----3-----4-----5-----6-----7</p> <p>My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service. My job is a moderate-sized “chunk” of the overall piece of work; my own contribution can be seen in the final outcome. My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service.</p>	
13.	How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?
<p>1-----2-----3-----4-----5-----6-----7</p> <p>Very little, the job requires me to do the same routine things over and over again. Moderate variety Very much; the job requires me to do many different things, using a number of different skills and talents.</p>	
14.	In general, how significant or important is your job? That is, are the results of your work likely to significantly affect the lives or wellbeing of other people?
<p>1-----2-----3-----4-----5-----6-----7</p> <p>Not very significant; the outcome of my work are not likely to have important effects on other people. Moderate significant Highly significant; the outcomes of my work can affect other people in very important ways.</p>	
15.	To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing – aside from any “feedback” co-workers or supervisors may provide?
<p>1-----2-----3-----4-----5-----6-----7</p> <p>Very little; the job itself is set up so that I could work forever without finding out how well I am doing. Moderately; sometimes doing the job provides “feedback to me; sometimes it does not. Very much; the job is set up so that I get almost constant “feedback” as I work out how well I am doing.</p>	

SECTION 2								
Listed below are a number of statements which could be used to describe a job. Please indicate in the space provided whether each statement is an accurate or inaccurate description of your job.		Very inaccurate	Mostly inaccurate	Slightly inaccurate	Uncertain	Slightly accurate	Mostly accurate	Very accurate
16.	The job requires me to use a number of complex or high-level skills.	1	2	3	4	5	6	7
17.	The job requires cooperative work with others.	1	2	3	4	5	6	7
18.	Just doing the work required by the job provides many chances for me to figure out how well I am doing.	1	2	3	4	5	6	7
19.	The job is arranged so that I do not have the chance to do an entire piece of work from beginning to end.	1	2	3	4	5	6	7
20.	Just doing the work provides me with opportunities to figure out how well I am doing.	1	2	3	4	5	6	7
21.	The job is quite simple and repetitive.	1	2	3	4	5	6	7
22.	The job can be done adequately by a person working alone without talking to or checking with others.	1	2	3	4	5	6	7
23.	The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing in my work.	1	2	3	4	5	6	7
24.	This job is one where a lot of other people can be affected by how well the work gets done.	1	2	3	4	5	6	7
25.	The job denies me any chance to use my personal initiative or judgement in carrying out the work.	1	2	3	4	5	6	7
26.	Supervisors often let me know how well they think I am performing the job.	1	2	3	4	5	6	7
27.	The job provides me with an opportunity to complete the pieces of work I begin.	1	2	3	4	5	6	7
28.	The job itself provides very few clues about whether or not I am performing well.	1	2	3	4	5	6	7
29.	The job gives me considerable opportunity for independence and freedom in how I do the work.	1	2	3	4	5	6	7
30.	The job itself is not very significant or important in the broader scheme of things.	1	2	3	4	5	6	7

SOCIAL SUPPORT		Don't have any such person	Not at all	Very little chance	Somewhat	Very much
Please indicate in the space provided whether each statement is an accurate or inadequate description of your job.						
31.	How much do each of these people go out of their way to do things to make your work life easier for you?					
	A. Your immediate supervisor	1	2	3	4	5
	B. Co-workers	1	2	3	4	5
32.	How easy is it to talk to each of the following people?					
	A. Your immediate supervisor	1	2	3	4	5
	B. Co-workers	1	2	3	4	5
33.	How much can each of these people be relied on when things get tough at work?					
	A. Immediate supervisor	1	2	3	4	5
	B. Co-workers	1	2	3	4	5
34.	How much is each of the following people willing to listen to your personal problems?					
	A. Immediate supervisor	1	2	3	4	5
	B. Co-workers	1	2	3	4	5

JOB DEMAND Please indicate in the space provided how often the following statements occur.		Never	Rarely	Sometimes	Often	Extremely often
35.	To what extent does your job require you to work fast?	1	2	3	4	5
36.	To what extent does your job require you to work hard?	1	2	3	4	5
37.	To what extent does your job require a great deal of work to be done?	1	2	3	4	5
38.	To what extent is there insufficient time for you to do your job?	1	2	3	4	5
39.	To what extent is there excessive work in your job?	1	2	3	4	5
40.	To what extent do you feel there is insufficient time for you to finish your work?	1	2	3	4	5
41.	To what extent are you faced with conflicting demands in your job?	1	2	3	4	5

PERFORMANCE MONITORING Please indicate in the space provided how often the following statements occur.		Rarely or never	Occasionally	Often	Very often	Constantly
42.	Performance is monitored electronically.	1	2	3	4	5
43.	Performance is monitored by line eavesdropping.	1	2	3	4	5
44.	Performance is monitored by recording the duration of calls and time lags between calls.	1	2	3	4	5
45.	Log in and log out times are monitored.	1	2	3	4	5

PHYSICAL WORK ENVIRONMENT		Very dissatisfied	Moderately dissatisfied	Not sure	Moderately satisfied	Very satisfied
Please indicate in the space provided to what extent you are dissatisfied or satisfied with your physical work environment.						
46.	The general temperature	1	2	3	4	5
47.	The air quality	1	2	3	4	5
48.	The draught levels	1	2	3	4	5
49.	The ventilation	1	2	3	4	5
50.	The lighting	1	2	3	4	5
51.	Amount of workspace	1	2	3	4	5
52.	Reflection and glare on computer screen	1	2	3	4	5
53.	Background noise levels	1	2	3	4	5
54.	Noises coming through headsets	1	2	3	4	5
55.	General cleanliness of workstations	1	2	3	4	5
56.	Condition of keyboards	1	2	3	4	5
57.	Condition of computer mice	1	2	3	4	5
58.	General suitability of work surfaces	1	2	3	4	5
59.	Height of work surfaces	1	2	3	4	5
60.	Adjustability of chairs	1	2	3	4	5
61.	Adjustability of screens	1	2	3	4	5
62.	Condition of chairs	1	2	3	4	5

PHYSICAL WORK ENVIRONMENT		Very dissatisfied	Moderately dissatisfied	Not sure	Moderately satisfied	Very satisfied
63.	Maintenance standards of chairs	1	2	3	4	5
64.	Storage space for the information needed to do your work	1	2	3	4	5
65.	Storage space for personal items	1	2	3	4	5
66.	Space on desks so that the computer screen can be correctly positioned	1	2	3	4	5
67.	Space between you and your nearest colleagues	1	2	3	4	5
68.	The overall layout of the call centre area	1	2	3	4	5

EMOTIONAL WELLBEING Based on Oldenburg Burnout Inventory		Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
Please indicate to what extent you agree or disagree with the following statements.						
69.	I always find new and interesting aspects in my work	1	2	3	4	5
70.	There are days when I feel tired before I arrive at work	1	2	3	4	5
71.	It happens more and more often that I talk about my work in a negative way	1	2	3	4	5
72.	After work, I tend to need more time than in the past in order to relax and feel better	1	2	3	4	5
73.	I can tolerate the pressure of my work very well	1	2	3	4	5
74.	Lately, I tend to think less at work and do my job almost mechanically	1	2	3	4	5
75.	I find my work to be a positive challenge	1	2	3	4	5
76.	During my work, I often feel emotionally drained	1	2	3	4	5
77.	Over time, one can become disconnected from this type of work	1	2	3	4	5
78.	After working, I have enough energy for my leisure activities	1	2	3	4	5
79.	Sometimes I feel sickened by my work tasks	1	2	3	4	5
80.	After my work, I usually feel worn out and weary	1	2	3	4	5
81.	This is the only type of work that I can imagine myself doing	1	2	3	4	5
82.	Usually, I can manage the amount of my work well	1	2	3	4	5
83.	I feel more and more engaged in my work	1	2	3	4	5
84.	When I work, I usually feel energised	1	2	3	4	5

VOCAL HEALTH		Never	Occasionally	Some of the time	Most of the time	All of the time
Please indicate whether you have experienced the following health-related problems over the previous few weeks						
85.	Hoarse voice	1	2	3	4	5
86.	Change in pitch	1	2	3	4	5
87.	Discomfort in the throat	1	2	3	4	5
88.	Loss of voice	1	2	3	4	5

OPTICAL HEALTH		Never	Occasionally	Some of the time	Most of the time	All of the time
Please indicate whether you have experienced the following health-related problems over the previous few weeks						
89.	Headaches	1	2	3	4	5
90.	Irritated, sore or red eyes	1	2	3	4	5
91.	Difficulties focusing, e.g., blurred vision	1	2	3	4	5
92.	Visual fatigue/tired eyes	1	2	3	4	5
93.	Dizziness	1	2	3	4	5
94.	Overall eye discomfort	1	2	3	4	5
95.	Loss of voice	1	2	3	4	5

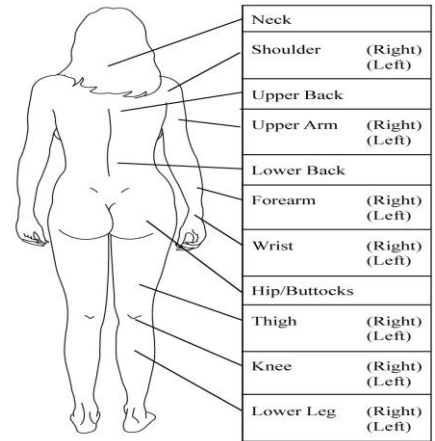
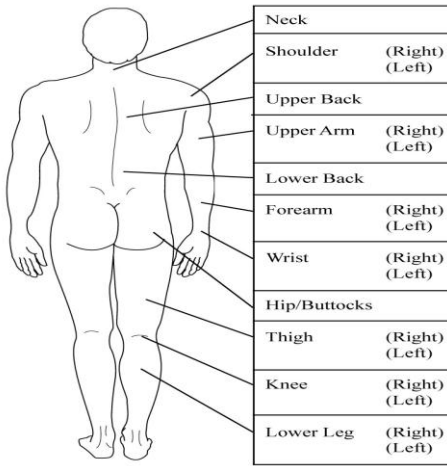
AUDITORY HEALTH		Never or rarely	Occasionally	Often	Very often	Constantly
Please indicate whether you have experienced the following health-related problems over the previous few weeks						
95.	Do you increase your headset volume in order to hear a customer?	1	2	3	4	5
96.	Do you experience unacceptably loud noises through your headset?	1	2	3	4	5
97.	Do you experience dulled hearing or reduced hearing after wearing your headset?	1	2	3	4	5

GENERAL HEALTH		Never	Occasionally	Sometimes	Fairly often	Very often
This portion of the questionnaire contains items that are related to general health that can be stress related. These items are not necessarily related to severe physical illness but are things that people experience in their day-to-day lives.						
How often have you experienced any of the following during the past month?						
98.	Your face became hot when you were not in a hot room or exercising.	1	2	3	4	5
99.	You perspired excessively when you were not in a hot room or exercising.	1	2	3	4	5
100.	Your mouth became dry.	1	2	3	4	5
101.	Your muscles felt tight and tense.	1	2	3	4	5
102.	You were bothered by a headache.	1	2	3	4	5
103.	You felt as if the blood were rushing to your head.	1	2	3	4	5
104.	You felt a lump in your throat or a choked-up feeling.	1	2	3	4	5
105.	Your hands trembled enough to bother you.	1	2	3	4	5
106.	You were bothered by shortness of breath when you were not working hard or exercising.	1	2	3	4	5
107.	You were bothered by your heart beating loudly.	1	2	3	4	5
108.	Your hands sweated so that you felt damp and clammy.	1	2	3	4	5
109.	You had spells of dizziness	1	2	3	4	5
110.	You were bothered by having an upset stomach or a stomach ache.	1	2	3	4	5
111.	You were bothered by your heart beating.	1	2	3	4	5

GENERAL HEALTH		Never	Occasionally	Sometimes	Fairly often	Very often
		1	2	3	4	5
112.	You were in ill health which affected your work.	1	2	3	4	5
113.	You had a loss of appetite.	1	2	3	4	5
114.	You had trouble sleeping at night.	1	2	3	4	5

MUSCULOSKELETAL

The diagrams below show the approximate position of the body parts referred to in the questionnaire. Please answer by ticking the appropriate box.



	During the last work week how often did you experience ache, pain, discomfort in:					If you experienced ache, pain, discomfort, how uncomfortable was this?			If you experienced ache, pain, discomfort, did this interfere with your ability to work?		
	Never	1-2 times last week	3-4 times last week	Once every day	Several times every day	Slightly uncomfortable	Moderately uncomfortable	Very uncomfortable	Not at all	Slightly interfered	Substantially interfered
Neck											
Shoulder											
Upper Back											
Upper Arm											
Lower Back											
Forearm											
Wrist											
Hip/Buttocks											
Thigh											
Knee											
Lower Leg											

APPENDIX D: COVER LETTER TO PARTICIPANTS



Dear Call Centre Agent

I am a Business Administration master's student at the Cape Peninsula University of Technology. As part of the master's degree I am required to conduct a research study at a company or companies.

I am currently doing research on "**The impact of the workplace environment on the emotional and physical wellbeing of call centre agents in the Cape Metropole**" and would be grateful if you would assist me by completing the questionnaire online.

This survey will allow the researcher to determine the effects that the working environment (physical environment and work characteristics) have on the call centre agent's wellbeing. The purpose of this survey is to identify whether there is a direct relationship between the physical working environment, work characteristics and wellbeing.

All responses are completely anonymous, as no names or identity numbers are required and all information given will be treated confidentially. The results of the survey will be used solely for academic purposes and will not impact your current job in any way or form.

To complete the survey, you need to do the following:

Copy and Paste this link <https://www.surveymonkey.com/s/9M2WQKH> into the address bar in your browser (i.e. Internet Explorer).

Press enter, which will take you to the questions of the survey.

Answer the sections by clicking on the most appropriate answer (in your personal view).

All questions are compulsory.

Click on **NEXT** to move to the following section.

Once you have completed all the sections, click on **DONE**, and your responses will be received automatically.

The survey should take approximately 10–15 minutes to complete.

The researcher accepts that by following the link and completing the survey, you are providing consent to participate in this research.

Should you have any questions pertaining to the research, please feel free to contact me via my email address millern@cput.ac.za or on 021 4603189 (between 08:00 – 16:00).

Your feedback is appreciated. Thank you for your willingness to participate in this survey.

Kind regards

Noleen Miller
MTech: Business Administration student
CPUT

APPENDIX E: STATISTICIAN CERTIFICATE

APPENDIX F: ANOVA TABLES

Table 4.27: ANOVA for Physical Wellbeing

Source	Dependent Variable	df	F	Sig.
Skill Variety	Vocal Health	1	.066	.797
	Optical Health	1	4.541	.034
	Auditory Health	1	.375	.541
	Anxiety	1	.298	.586
	Acute Stress	1	2.373	.125
	Physical and Behavioural Stress Symptoms	1	1.695	.195
	Musculoskeletal Disorder	1	.319	.573
	Musculoskeletal Disorder	1	.005	.945
Job Feedback	Vocal Health	1	2.456	.119
	Optical Health	1	3.574	.060
	Auditory Health	1	.894	.346
	Anxiety	1	.233	.630
	Acute Stress	1	.281	.596
	Physical and Behavioural Stress Symptoms	1	.626	.430
	Musculoskeletal Disorder	1	.005	.945
	Musculoskeletal Disorder	1	.005	.945
Task Identity	Vocal Health	1	.006	.941
	Optical Health	1	.053	.818
	Auditory Health	1	.028	.868
	Anxiety	1	4.092	.045
	Acute Stress	1	.522	.471
	Physical and Behavioural Stress Symptoms	1	2.156	.144
	Musculoskeletal Disorder	1	.792	.375
	Musculoskeletal Disorder	1	.792	.375
Agency Feedback	Vocal Health	1	.033	.856
	Optical Health	1	.017	.896
	Auditory Health	1	.252	.616
	Anxiety	1	.057	.812
	Acute Stress	1	.063	.801
	Physical and Behavioural Stress Symptoms	1	.141	.707
	Musculoskeletal Disorder	1	.008	.929
	Musculoskeletal Disorder	1	.008	.929
Task Significance	Vocal Health	1	.369	.544
	Optical Health	1	.041	.839
	Auditory Health	1	.317	.574
	Anxiety	1	.702	.403
	Acute Stress	1	.703	.403
	Physical and Behavioural Stress Symptoms	1	.237	.627
	Musculoskeletal Disorder	1	.736	.392
	Musculoskeletal Disorder	1	.736	.392
Autonomy	Vocal Health	1	.559	.456
	Optical Health	1	.629	.429
	Auditory Health	1	.006	.939
	Anxiety	1	.002	.969
	Acute Stress	1	.409	.523
	Physical and Behavioural Stress Symptoms	1	1.342	.248
	Musculoskeletal Disorder	1	.029	.864
	Musculoskeletal Disorder	1	.029	.864
Supervisory Support	Vocal Health	1	.269	.605
	Optical Health	1	5.760	.017
	Auditory Health	1	1.174	.280
	Anxiety	1	.799	.372
	Acute Stress	1	.296	.587

	Physical and Behavioural Stress Symptoms	1	1.147	.285
	Musculoskeletal Disorder	1	1.020	.314
Co-worker Support	Vocal Health	1	.005	.945
	Optical Health	1	.052	.819
	Auditory Health	1	.032	.858
	Anxiety	1	.528	.468
	Acute Stress	1	.038	.845
	Physical and Behavioural Stress Symptoms	1	1.006	.317
	Musculoskeletal Disorder	1	1.282	.259
Job Demand	Vocal Health	1	5.986	.015
	Optical Health	1	7.828	.006
	Auditory Health	1	5.455	.021
	Anxiety	1	3.810	.052
	Acute Stress	1	3.754	.054
	Physical and Behavioural Stress Symptoms	1	4.280	.040
	Musculoskeletal Disorder	1	3.378	.068
Performance Monitoring	Vocal Health	1	2.982	.086
	Optical Health	1	.005	.944
	Auditory Health	1	12.093	.001
	Anxiety	1	.068	.794
	Acute Stress	1	.331	.566
	Physical and Behavioural Stress Symptoms	1	.925	.337
	Musculoskeletal Disorder	1	.147	.702
Workstation	Vocal Health	1	.904	.343
	Optical Health	1	.544	.462
	Auditory Health	1	11.014	.001
	Anxiety	1	.281	.597
	Acute Stress	1	.622	.431
	Physical and Behavioural Stress Symptoms	1	.417	.519
	Musculoskeletal Disorder	1	.064	.800
Temperature and Air Quality	Vocal Health	1	1.232	.268
	Optical Health	1	2.978	.086
	Auditory Health	1	1.832	.178
	Anxiety	1	.153	.696
	Acute Stress	1	.924	.338
	Physical and Behavioural Stress Symptoms	1	.000	.991
	Musculoskeletal Disorder	1	.692	.406
Workspace and office layout	Vocal Health	1	2.689	.103
	Optical Health	1	1.562	.213
	Auditory Health	1	.110	.741
	Anxiety	1	.910	.341
	Acute Stress	1	.185	.668
	Physical and Behavioural Stress Symptoms	1	.280	.597
	Musculoskeletal Disorder	1	.962	.328
Maintenance and adjustability of chairs and screens	Vocal Health	1	1.705	.193
	Optical Health	1	.005	.944
	Auditory Health	1	.383	.537
	Anxiety	1	2.302	.131
	Acute Stress	1	.983	.323

	Physical and Behavioural Stress Symptoms	1	.610	.436
	Musculoskeletal Disorder	1	1.511	.221
Storage	Vocal Health	1	1.871	.173
	Optical Health	1	2.835	.094
	Auditory Health	1	3.315	.070
	Anxiety	1	.994	.320
	Acute Stress	1	2.631	.106
	Physical and Behavioural Stress Symptoms	1	3.133	.078
	Musculoskeletal Disorder	1	1.812	.180
Error	Vocal Health	187		
	Optical Health	187		
	Auditory Health	187		
	Anxiety	187		
	Acute Stress	187		
	Physical and Behavioural Stress Symptoms	187		
	Musculoskeletal Disorder	187		
	Musculoskeletal Disorder	202		

Source: Statistical Consultant, CPUT, 2013

APPENDIX G: PEARSON CORRELATION TABLE

	SV	JF	TI	AF	TS	A	SS	CS	JD	PM	W	TAQ	WOL	MCC	S	E	D	VH	OH	AH	ANX	AS	PBSS	MSD	
SV	1	.26**	.25**		.42**	.56**	.18**	.18**	.17*						.14*	-.29**	-.59**		-.22**			-.22**	-.20**		
JF	.26**	1	.37**	.5**	.27**	.44**	.31**	.23**			.20**	.14*	.20**		.25**	-.28**	-.27**								-.14*
TI	.25**	.37**	1	.23**	.30**	.39**			-.14*				.17*			-.23**	-.23**				-.22**	-.15*	-.19**	-.15*	
AF		.5**	.23**	1		.20**	.42**	.14*	-.24**	.23**	.22**	.15*	.16*		.18*	-.17*									
TS	.42**	.27**	.30**		1	.47**	.17**	.14*		-.22**	.15*	.19**			.13*	-.27**	-.37**		-.14*		-.15*	-.21**			-.16*
A	.56**	.44**	.39**	.20**	.47**	1	.29**	.32**		-.21**	.27**		.25**	.17*	.32**	-.39**	-.52**	-.14*	-.24**	-.16*	-.20**	-.28**	-.27**	-.21**	
SS	.18**	.31**		.42**	.17**	.29**	1	.35**			.16*	.19**			.19**	-.31**	-.29**		-.23**			-.15*	-.19**	-.18*	
CS	.18**	.23**		.14*	.14*	.32**	.35**	1	-.16*		.18**	.17*	.25**			-.22**	-.30**				-.16*	-.15*	-.21**	-.21**	
JD	.17*	-.11	-.14*	-.24**				-.16*	1		-.22**		-.32**	-.19**	-.21**	.37**		.19**	.21**	.24**	.23**	.19**	.21**	.24**	
PM			-.1	.23**	-.22**	-.21**				1			-.15*					.19**		.29**					
W		.20**		.22**	.15*	.27**	.16*	.18**	-.22**		1	.43**	.58**	.59**	.53**	-.21**		-.22**	-.25**	-.30**	-.19**	-.28**	-.18*	-.25**	
TAQ		.14*		.15*	.19**		.19**	.17*			.43**	1	.44**	.38**	.38**		-.24**	-.15*	-.2**			-.22**		-.23**	
WOL		.20**	.17*	.16*		.25**		.25**	-.32**	-.15*	.58**	.44**	1	.41**	.54**	-.25**	-.21**		-.15*	-.19**	-.25**	-.24**	-.23**	-.31**	

