WORKPLACE DESIGN AND EMPLOYEE PRODUCTIVITY OF PHARMACEUTICAL COMPANIES IN NAIROBI COUNTY

JANE KEMUNTO

A RESEARCH PROJECT PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS UNIVERSITY OF NAIROBI

DECEMBER 2019

DECLARATION

This research project is my original work and has not been submitted for research to any other University, or college for the award of degree, diploma or certificate.

Signature: _____ Date: _____

JANE KEMUNTO

D61/5445/2017

This research project has been submitted for examination with my approval as the university supervisors

Signature: _____ Date: _____

MUNYAO MULWA

Department of Management Science

School of Business, University of Nairobi

ACKNOWLEDGEMENTS

My deepest gratitude goes to my family members, friends and colleagues whose support and guidance has made me reach this far in academics. In addition I thank my fellow students and lecturers of the University of Nairobi, whose knowledge and inspiration throughout my academic journey, led to my current accomplishments.

DEDICATION

I dedicate this project to my family for their continuous support and love.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

COMESA	Common Market for Eastern and Southern Africa
GDP	Gross Domestic Product
GSK	GlaxoSmithKline
PSK	Pharmaceutical Society of Kenya
SPSS	Statistical Package for Social Sciences
UNIDO	United Nations Industrial Development Organization

ABSTRACT

Employee productivity depends on the nature of work environment. However, the workplace design in most industry is unsafe and unhealthy and this includes also the pharmaceutical industry. These includes poorly designed workstations, unsuitable furniture, lack of ventilation, inappropriate lighting, excessive noise, insufficient safety measures in fire emergencies and lack of personal protective equipment. People working in such environment are prone to occupational disease and it impacts on employee's performance. A well designed office signals the values and objectives of the company and the use of design in office interiors communicates a company's values and identity. Good workplace design can make a big difference in staff satisfaction, attraction, motivation and retention. The study investigated workplace design and employee productivity for pharmaceutical companies in Nairobi County. The independent variables for the study were ventilation and air condition, office furniture, safety and fatigue. The study employed descriptive cross-sectional survey. The results were analyzed using social sciences (SPSS) computer software. The target population for this study were 54 pharmaceutical companies in Nairobi County. The study used both primary and secondary data. From the results of correlation analysis, there is a positive and statistically significant correlation between ventilation and air conditioning and employee productivity for pharmaceutical companies. The study also found out that there is a positive and significant correlation between office furniture and employee productivity. Safety was also found to have a positive and significant association with employee productivity for pharmaceutical companies. Fatigue had a negative and significant association with employee productivity. Ventilation and air condition, office furniture, safety and fatigue were found to be satisfactory in explaining 74.0% of employee productivity. Regression results showed that ventilation and air condition had a positive and statistically significant relationship with employee productivity for pharmaceutical companies, office furniture had positive and statistically significant relationship with employee productivity for pharmaceutical companies while safety has a positive and statistically significant relationship with employee productivity for pharmaceutical companies. Further, regression results showed that fatigue has a negative and statistically significant relationship with employee productivity for pharmaceutical companies. From the study findings, the study concludes that ventilation and air condition, office furniture, safety and employee fatigue significantly influences employee productivity. This study recommends for installation of ventilation and air conditioning equipment for proper air circulation. This study recommends for the acquisition and installation of office chairs, desks, cabinets and work stations that observes ergonomic office design. The study recommends proper and clear safety guidelines should be provided in the place of work. There should be a deliberate attempt to create safety awareness among employees through staff training. The study recommends for proper work schedules that do not harm employees. In most pharmaceutical companies, employees work for longer periods early in the morning to late night.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Organizations conducting their operations in the current competitive business environment ought to uphold their workforce's potential. The levels of motivation and performance of employees is greatly affected by a number of crucial factors in the employees workplace such as having an appropriate workplace design (El-Zeiny, 2013). Similarly, Saha (2016) reiterated that employees productivity level is proportionate to the work place design. Hence, it is of paramount importance to adopt a design that enhances employee motivation. According to Sohlman (2016), the productivity of an employee can be measured by the amount of productive time spent by an employee at the work place. This implies that an employer should be very keen to provide an enabling environment which will deter the employees from being distracted either mentally or physically.

The fact that an appropriate work place design impacts on employee motivation and overall productivity has prompted most business to make changes geared towards improving the work place. Office designs have been reported to influence various aspects about employees' namely mental capability, health, and overall productivity within the workforce. Business considers various attributes of an office design so as to make it favourable. Among the aspects that most businesses focus at are planning/office plan, lighting, furniture and the general organization of the office (Hansika & Amarathunga, 2016).

The current study delved into establishing how workplace design influence employee productivity in pharmaceutical companies in Nairobi County. Three theories where

selected to guide the study: Competitive theory, the two factor theory and Abraham Maslow Hierachy of Needs theory. The competitive theory insinuates that the firm's capacity is determined by the firm's specific core competences which are not accessible to the competitors which increase the profitability and performance of the firm (Prescott, 2011). In this study, workplace design was deemed as a core competence that the pharmaceutical industry can boost on in order to facilitate employee productivity and thereby competitive advantage. Secondly, the two-factor theory guided the study in understanding the influence of the extrinsic factors found in the working environment and how if they are perfect they can lead to boosted motivation and therefore increased employee productivity in the pharmaceutical sector in Nairobi County. Third, the Abraham Maslow need-based theory guided the study in understanding that there are other factors which influence employee's behaviour other than monetary factors. These factors include safety and health condition in the work place.

1.1.1 Workplace Design

The values and objectives of any organization can be deduced from the design of its premises. Similarly, the office interior design also speaks volumes about the organization's values and identity. It has been observed that a well-articulated office design enhances staff retention, satisfactions and overall productivity. As reported by Saha (2016), Commission for Architecture & Built Design and British Council for Offices pointed out that factors that could be considered minor as affect employee productivity to a great deal. These include lighting including access to adequate daylight.

Other aspects that play a big role when designing a work place design is the furniture. Hence, it is important that the management in any organization to do their homework and ensure that they choose the most suitable furniture. This is due to the fact that office furniture requires a lot of capital to purchase and depreciate in value. Thus, it is not something you purchase today and discard tomorrow. Hence, a wrong choice would be very detrimental (Keeling & Kallaus, 2010). The management of any organization should thus ensure thus ensure that they choose furniture that grants their employees comfort and does not affect their health negatively. The commonly used furniture that meets these requirements are ergonomic furniture. It is important to choose furniture that allow for easy movement depending on the available office space (Burke, 2011).

As stated by Dillon (2014), today's business environment is characterized by very high levels of competition. Additionally, the increasing growth of the real estate sector has affected the cost of offices to a great extent. The two aspects require that business owners strike a balance between the tow so at to retain talent in their organizations. These entails the ability to acquire appropriate office furniture and adopt the right design for the available office space. Managing to get the right mix of the three aspects enables businesses to offer a comfortable, safe, and stimulating work environment. Enhancing efficiency, functionality and flexibility also helps in retaining the best talent and ensuring that the employees contribute positively to the growth of the organization (Dillon, 2014).

1.1.2 Employee Productivity

The level of employee productivity is proportionate to organization performance. The employee productivity is dependent of the amount of productive time that the

employee gives to the organization which determines the amount of time that the employee spend doing work that contributes positively to the growth of the organization. To ensure that the employees are both mentally and physically fit to perform maximumly, businesses ought to provide an enabling environment which is coupled by adopting an appropriate design as well as acquiring appropriate furniture. Attaining the right mix of the two enhances employee productivity (Sohlman, 2016).

Past studies argue that the level of employee motivation and work place design owing to the fact that employee associate provision of requisite resources to perform their duties with concern from their employer (Raziq et al., 2015). As noted by Abdullah et al. (2013) employee consider provision of appropriate facilities as positive investment on them by their employer geared towards boosting their productivity. Bonenberger et al., (2014) as noted that provision of these resources and having an appropriate work place design impact on employee satisfaction positively.

A survey by Hughes and Bozionelos (2007) led to the realization that the workspace quality impacts employee's behaviour. Chandrasekar (2011) confirmed these assertions and stated that the productivity and health of workers was negatively affected by an insecure and unkempt workplace. Further, a survey by Hameed and Amjad (2009) alluded that relaxed and ergonomic office design enhances employee's productivity.

Hence, the management of businesses are today faced with a dilemma of ensuring that they adopt the right design which enhances employee productivity and retention. This is tied to the managerial prowess of the management. This also calls for ditching the traditional way of doing things and keeping in step with the changes in the business environment. This will ensure that employees fell part of the organization in-terms of

fulfilling its purpose as well as exploiting and growing potential (Vischer & Wifi, 2017).

1.1.3 Pharmaceutical Companies

The workplace design in most industry is unsafe and unhealthy and this includes also the pharmaceutical industry. The workplace is designed poorly with poor air conditioning facilities and ventilation, has inadequate lighting, noisy, and is deficient of safety measures such as fire extinguishers and personal protective equipment. This exposes the employees working for these pharmaceutical companies to health issues such as occupational disease which is detrimental to employee's performance (Chandrasekar, 2011). The simple premise behind the movement towards better working place designs is that comfortable people are more productive (Sehgal, 2012).

It is estimated that Kenya spends about 8% of its GDP solely on health. According to a report by the African countries supplying pharmaceutical products to the Common Market and COMESA, Kenya exported US$ 43,677 in 2014 (UNIDO, 2015). The Kenyan pharmaceutical sector is segmented into three (manufacturers, retailers and distributors) with each segment playing a main role to support the country's health sector which has approximately 4557 health facilities country wide (PSK, 2014).

The rapid growth of Kenya's pharmaceutical industry avails perfect opportunities for manufacturers and exporters to launch their products and services in the lucrative East African market for pharmaceuticals. However, in spite of the growth in production and exports, some vital challenges have to be dealt with to enable the pharmaceutical industry to progress in consolidating and expanding its impact in the East African region. Moreover, the demand for pharmaceutical products from Kenyan producers is around 25%, hence leaving more room for expansion. (Wamae & Kungu, 2014).

According to a report by Mureithi (2018), pharmaceutical companies in East Africa are facing stiff competition from imported medicines mainly from China, India and Bangladesh. Manufacturers in Kenya, Tanzania, Uganda, Rwanda and the only plant in Burundi have lamented that lack of locally available raw materials has pushed the industry to the edge, allowing foreign firms to dominate. He continued to add that none of the EAC nations has the active pharmaceutical ingredient, a key component in making drugs, leaving firms to rely on importation from India and China. To overcome this challenge, manufacturers are challenging the government to follow the footsteps of Ghana, Bangladesh, India and China where deliberate efforts including policies and laws to boost local drug manufacturing were put to work.

The choice of pharmaceutical companies was justified by the fact that the pharmaceutical companies provide services in the health sector which is a key sector in the economy. It actually among the sectors that current government Big Four Agenda focuses on. Additionally, there exists a gap as other studies seeking to establish the relationship between work place design and employee productivity have not focused on Pharmaceutical companies. The choice of Nairobi County was informed by the fact that most pharmaceutical companies are based in Nairobi County.

1.2 Research Problem

The appropriateness of an office design reflects the values and objectives of a company while the office interiors reflect the company's values and identity. The level of employee satisfaction, motivation, attraction and retention is dependent on the state of the workplace design. In a bid to enhance employees' productivity, it is important that businesses adopt functional, flexible, and efficient office designs. This

calls for proper strategic planning to fit into the present and future organization needs (Dilon, 2014).

The workplace design in most industries is unsafe and unhealthy. The workplace is designed poorly with poor air conditioning facilities and ventilation, has inadequate lighting, noisy, and is deficient of safety measures such as fire extinguishers and personal protective equipment. This exposes the employees working for these pharmaceutical companies to health issues such as occupational disease which is detrimental to employee's performance (Chandrasekar, 2011). The situation is the same for Pharmaceuticals companies in Kenya whereby employees are subjected to poor working conditions. In addition, there are no safety measures that have been put in place (Simonetti, Clark & Wamae, 2016).

There exists past studies that have focused on workplace design and employee productivity both globally and locally. Globally, a study by Saha (2016) sought to establish effect of workplace design on employee's productivity in selected IT companies in Pune region. Another study by Vischer and Wifi (2017) aimed at determining effect of workplace design on quality of life at work.

Locally, studies on workplace design are not extensive in regard to employee productivity in the pharmaceutical sector. For instance, a study by Linguli (2013) carried out a study to investigate the impact of work environment on employees' commitment and quality of work at Devki Limited- Ruiru. Another study by Nanzushi (2015) investigated the influence that workplace environment has on the performance of the employees among the mobile telecommunication companies in Nairobi City County. Similarly, Musembi (2012) examined influence of work environment on productivity of administrative staff. Studies relating workplace design and employee

productivity are limited. Hence, this filled this gap by establishing the influence of workplace design on employee productivity in pharmaceutical companies in Nairobi County.

1.3 Specific Objectives

i. To assess the quality of workplace design in pharmaceutical companies in Nairobi County.

ii. To establish the effects of workplace design on employee productivity in pharmaceutical companies in Nairobi County.

iii. To measure fatigue and quality of output in pharmaceutical companies in Nairobi County.

1.4 Value of the Study

This study's results may benefit various stakeholders. The parties include the management of pharmaceutical companies, the employees of pharmaceutical companies and other researchers and scholars. The results of this study may enable the management of pharmaceutical companies to evaluate their workplace design. The evaluation may enable the management to appreciate both the positive and the negative effects that workplace design can have on the productivity of the organization's employees. This may enable them to revise their operational policies which may give allowance to adoption of better designs which will foster employee productivity and hence boost their performance.

Secondly, the findings may help the employees working for the pharmaceutical companies to comprehend the significance of having the right kind of a workplace design on their productivity. This would help them to voice their need for better

workplace design, through the human resource departments, with an aim of improving their productivity and thus make a substantial impact on firm's performance.

Thirdly, the findings from this study may provide baseline data that may be used to conduct further research related to workplace design and employee productivity. Scholars and academicians may also be able examine any existing gaps in the outcome of this study and contribute to further research as well as validate the study's findings.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The section entailed previous studies that are correlated to the study's variables. The chapter encompasses the theoretical and empirical framework. A conceptual framework is also provided.

2.2 Theoretical Foundations of the Study

A theoretical framework seeks to explain a phenomenon of several interrelated concepts. It helps in establishing the existence of statistical relationship between variables (Defee *et al*, 2010). The theories behind this study include competitive theory, two factor theory and Maslow's theory of Hierarchy Needs.

2.2.1 Competitive Theory

The competitive theory argues that each business should run using a given set of procedures. This approach describes a business as an open system that freely interacts with the environment to acquire resources and increase outputs. According to this theory, the firm's capacity is determined by the firm's specific core competences which are not accessible to the competitors which increase the profitability and performance of the firm (Prescott, 2011).

The firm's competitive position is constantly changing in the current competitive environment due to emergence of new technologies, products competitors as well as new markets. Similarly, adaptability and flexibility are critical concepts towards the attainment of sustainable competitive advantage (Whetton, 2011). The competitive theory describes the influence the employees' productivity towards its performance improvement. Therefore, the role of this theory in evaluating the firm's

competitiveness in relation to the employees' productivity cannot be underestimated. The theory helps the firm to develop initiatives that it could take to meet the customer's expectation and to improve the general firm performance (Lovelock, 2011). This relevance of this theory is pinned on the fact that it shows the contribution of employee productivity to firm performance.

2.2.2 Two Factor Theory

The proponent of this theory was Herzbergin the year 1957. The theory outlines that there are two major factors that inform people's behaviour namely external and internal factors. External factors encompass the various attributes of an individual's work environment while the internal factors are the personal attributes of an individual. The theory also notes that the external factors are not within the control of the individual/employee but are determined by an organization's management. These factors include remuneration, office work design, furniture, type of leadership, organization culture and motivation framework. The external factors also play a major role in ensuring than an employee has a conducive working environment and feels safe. The theory is instrumental to the current study as puts emphasis on the significance of extrinsic factors which in the context of this study is the workplace design on employee productivity.

2.2.3 Abraham Maslows Theory of Hierarchy Needs

The proponent of this theory was Abraham Maslow. The theory postulates that peoples behaviour is has many facets influenced by both the internal and external work environment. According to Maslow (2011), the five major human needs include physiological needs, security needs, society needs, affirmation needs and self-actualizations needs. The physiology needs include food, air, water, clothing, shelter,

and sex; the security needs include safety and good health while the society needs encompass friendship, interaction, love. Further, the affirmation needs include recognition and respect while the self-actualization needs entail one's ability to perform optimally. Prior to the propositions of Maslow, most HR managers only considered monetary compensation as the sole factor informing employee motivation. Borrowing from the work of Maslow's manager can thus develop appropriate motivation tools for their employees.

2.3 Workplace Design

Owing to the most peoples nature of work, close to fifty percent spent most of their time indoors. This attribute to their mental heal and capabilities. Hence, having a good work environment would translate to improved performance. This encompasses both the interior design as well as the physical equipment such as furniture, lighting, ventilation and space. Past studies have reported that congested and unfavourable work environments result to high employee turnover (Hameed, 2011).

Dilani (2014) noted that the nature of lighting and other factors like ergonomic furniture affects the health and productivity of employees. This can be attributed to the fact that lighting affects the employee's physical, psychological and physiological health. Hence, existence of important though ignored features such as free air circulation, lighting, air conditioning, window impacts the perception of an employee towards their work place which in return informs their behaviors. These translate to either improved of poor satisfactions as well as productivity (Larsen, Adams, Deal, Kweon & Tyler, 2011). Another key aspect that has been associated with improved

productivity of the employees is safety. It has been reported that employees prefer safer environments both physically and mentally (Krishnan, 2017).

It is paramount that the management of any business take into consideration the employee's welfare. This would involve ensuring that they provide an environment which eliminates stress and fatigue stress. This involves adoption of the appropriate work place design and policies which ensure improved employee productivity (Islam, Mahraj, & Hasan, 2017).

2.4 Employee Productivity

Employee productivity is a measure of the efforts of the employees in the realization of an organization's goals and objectives (Sehgal, 2012). The office design adopted by an organization is vital in boosting employee productivity as it determines how comfortable the employees are to perform their duties (Amina & Shehla, 2010). As cited by EI-Zeiny (2013), the office environment stimulates employees' productivity either positively or negatively. Olalere (2014) also asserts that employee productivity is also dependent on the existing interior design.

It is known across ass sectors in the corporate world that appropriate workplace design translates to improved employee productivity. Hence, it is of paramount importance that the management of any organization design an office with the nature of the job in mind. This helps to ensure that all aspects that would help to increase employee productivity are taken into consideration from the onset. Employee productivity is a measure of timely completion of assigned tasks. The level of organization performance yields important information which is utilized by the top

management to make informed decisions with regard to the human resource planning and adoption of technology (Akhtar, 2014).

The dilemma for every business today is to strike a balance and manage to create an environment that enhances retention of appropriate talent. This is only possible when employees are motivated and satisfied. This is due to the fact that the work environment can yield either positive or negative effect on employee productivity, motivation and satisfaction. To enhance employee motivation most firms have adopted various strategies such as payment based on performance, involving employee in the company's operations, work-life balance, and information sharing, (Chandraseker, 2011).

2.5 Empirical Literature Review

Globally, Hameed (2011) sought to establish relationship between office design and commercial banks productivity. Five indicators of office design were considered. These include ergonometric furniture, availability of space in the office, noise, air conditioning and lighting. Results depicted that office design and productivity were related directly. Of most importance to the employee productivity was the lighting, followed by existence of space, then noise, ergonometric furniture and finally air conditioning.

Akhtar (2014) sought to examine how office interior design impact an employee's productivity. Results demonstrated that interior design was positively associated with employees' productivity. In a survey conducted by Hameed and Amjad (2011), comfortable and ergonomic design of offices motivates employees and results to a

substantial increase in their performance. Moloney (2011) confirmed the importance of ventilation and natural light to the productivity of workers. The study revealed a 3-18% increase in productivity in buildings with daylighting system.

Hansika and Amarathunga (2016) investigated influence of office design on employee productivity of banks located in North Western province, Sri Lanka. The study used simple random sampling technique to select 8 banks. Primary data was used in this study and was collected via questionnaires. Study results illustrated presence of a noteworthy relationship between office design and productivity of employees. Hence, it was concluded that banks in North Western province, Sri Lanka should design their offices carefully so as to benefit from improved employee productivity.

Following empirical study Riaz, Shoaib and Sarfraz (2017) sought to establish the kind of relationship that existed between workplace design and employee's health and performance. The study focused on employees working in the software industry of Pakistan. The study utilized primary data gathered using a questionnaire. A multiple linear regression was utilized with an aim of establishing the existing relationship of the study variables. It was evident that employee's performance and health were impacted by the workplace design positively.

A study by Mendis (2016) delved into establishing the influence of workplace design on employee performance of companies in the garment manufacturing industries in Sri Lanka. The study particularly targeted 90 operational level employees using simple random sampling. The results demonstrated that workplace design impacts the

performance of the employee's positively. It was also evident that workplace design and employee performance were positively related.

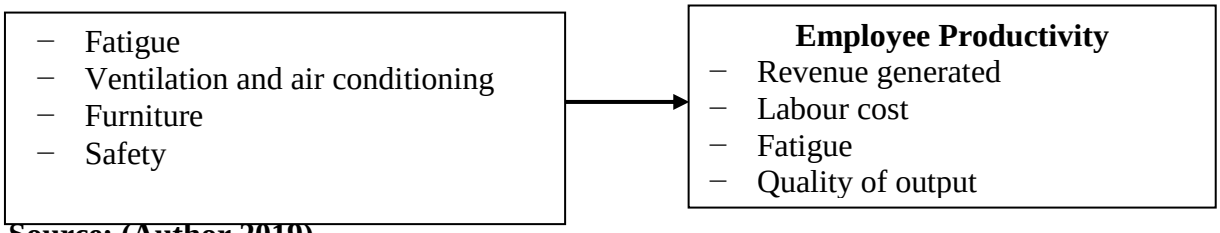
Kołodziej and Ligarski (2017) sought to determine the factors having impacts on the physical fatigue of employees and to analyse its influence on work on a production line. The study targeted 45 employees working in the three-shift work system. The results demonstrated that the employees in the third shift were reported higher levels of fatigue than the rest. Similarly, these group was the most sleep deprived requiring more sleeping hours.

Locally, Linguli (2013) related work environment and employees' level of commitment and work quality at Devki Limited- Ruiru. It was evident that a safe work environment was non-existent at Devki Limited. Additionally, there were scanty resource for completing of assigned tasks. Further, the results illustrated that the company had not formulated appropriate policies and procedures geared towards creating an enabling working environment for the employees.

A study by Charles and Katuse (2018) were interested in establishing the work environmental factors which impact employee job satisfaction among public institutions in Kenya. Among the factors that were established included training, improves employee commitment in development and thus better performance, job security and a healthy organization culture.

2.6 Conceptual Framework

The independent variables are lighting, colours, furniture and safety while the dependent variables are revenue generated and input used. These are as schematically represented in Figure 2.1.



Source: (Author 2019)

Figure 2.1: Conceptual Framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The section encompasses the research methodology. This entailed research design, population, sampling design, data sources and collection instrument and techniques of analysing the data.

3.2 Research Design

This study used descriptive cross-sectional survey to examine relationship between workplace design and employee productivity in Nairobi County's pharmaceutical companies. This research design was appropriate as it informed researcher about the phenomenon being investigated as well as outlined the nature of relationships between the study variables.

3.3 Target Population

The target population were 54 pharmaceutical companies found in Nairobi County. Data was collected from work force managers working for the pharmaceutical companies. Since the population was small a census was used.

3.4 Data Sources and Collection

Primary data was used and was collected using structured questionnaire. Questionnaires were administered to work force managers. The choice of the work force managers was due to the fact that they had requisite information about work productivity of the employees in the pharmaceutical companies. The questionnaires were self-administered using the drop and pick later method. On the other hand, this

study used a data collection template to collect secondary data on revenues and inputs for the year 2018.

3.5 Data Analysis

To start with, qualitative data collected was analysed using content analysis. Secondly, quantitative data was analysed using inferential statistics which entailed conducting a multiple linear regression. In addition, descriptive statistics were conducted which encompassed percentages and frequencies. The SPSS Software was used since it is user friendly.

The multiple linear regression models helped in demonstrating the relationship existing between independent variables and dependent variable that were explained in the model. This model further showed both the direction and strength existing in the relationship.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where:

Y = Employee Productivity

i. $\{\beta_i; i=1,2,3,4\}$ = coefficients for independent variables

ii. X_i for;

X_1 = Ventilation and Air Conditioning

X_2 = Office furniture

X_3 = Safety

X_4 = Fatigue

In the model *a* was constant term, β_1 to β_4 the coefficient measuring sensitivity of dependent variable (Y) to unit change in independent variables (X_1, X_2, X_3, X_4). ε was error term capturing unexplained model variations. Results were presented in form of pie charts, graphs and tables.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This section entails the research findings including response rate, company's profile information, the descriptive, correlation and regression analysis. Correlation and regression model were performed. The study's independent variables were ventilation and air condition, office furniture, safety and how workplace design issues affect employee productivity for pharmaceutical companies in Nairobi City County.

4.2 Response Rate

54 questionnaires were administered out of which 47 were filled properly and returned but some of work force managers returned them half-filled and thus were not included in the study. Table 4.1 shows these results.

Table 4.1: Response Rate

Response	**Frequency**	**Percent**
Returned	47	87.0%
Unreturned	7	13.0%
Total	**54**	**100%**

Source: Author 2019

From the 54 questionnaires administered, 47 of them were filled and returned representing 87.0 percent. Such a response rate was considered satisfactory to make study conclusions. As per Bailey (2000), the 87.0% response rate was adequate for the study as it was more than 50%. The procedures used in data collection could have led to such a good response rate. The process also involved use of research assistants who were competent, work force managers pre-notification and voluntary participation; dropping and picking of questionnaires creating ample time for filling; anonymity and

confidentiality assurance and making follow up calls for clarifying respondents' queries.

4.3 Organizational Factors

In order to examine workplace design and employees' productivity for Nairobi County pharmaceutical companies, it was considered important to establish the background information of the pharmaceutical companies which included main activity undertaken, products offered, number of employees, years in operation and type of your business entity. This was inspired by the need to investigate if there exists close relationships between organizational factors and ability to improve work place design. Table 4.2 shows these results.

Table 4.2: Organizational Factors

Organizational factors	**Frequency**	**Percent**
Main activity		
Agency	3	6.4
Manufacturing	5	10.6
Distribution	11	23.4
Retailers	19	40.4
Wholesalers	9	19.1
Total	**47**	**100.0**
Products Beauty products	12	25.5
Over-the-counter drugs	11	23.4
Veterinary products	3	6.4
Herbal products	2	4.3
Prescription drugs	16	34.0
Others	3	6.4
Total	**47**	**100.0**
Number of employees		
Below 50	19	40.4
Between 51 – 100	12	25.5
Between 101 – 200	9	19.1
Above 200	7	14.9
Total	**47**	**100.0**
Years of Operation		
Less than 2 years	10	21.3
3 to 5 years	17	36.2
5 to 10 years	12	25.5

More than 10 years	8	17.0
Total	**47**	**100.0**
Type of your business entity		
Sole proprietorship	7	14.9
Partnership	8	17.0
Limited Liability company	22	46.8
Corporations	10	21.3
Total	**47**	**100.0**

Source: Author 2019

Findings in the Table 4.2 indicate main activities of the pharmaceutical companies, where 40.4% of the pharmaceutical companies were retailers, 23.4 % were distributors, 19.1% wholesalers, and 10.6% were manufacturers while 6.4% were agency pharmaceutical companies. The results imply that pharmaceutical companies are segmented across various segments as indicated above to improve delivery of pharmaceutical products. Results further showed that 34.0% of the pharmaceutical companies specialized in distributing prescription drugs, 23.4% over the counter drugs, 25.5% beauty products, 6.4% veterinary products, 4.3% herbal products and 6.4% other products. The results imply that pharmaceutical companies are specialized in serving different areas and purposes.

Organizational factors result in Table 4.2 further indicated that most of companies 40.0% had less than 50 employees, 25.5% had 51–100 employees, 19.1% had 101–200 employees while 14.9% had over 200 employees. The results imply that most pharmaceutical companies are usually small and medium entities. It was also established that 36.2% of the pharmaceutical companies had operated for 3 to 5 years, 25.5% for 5 to 10 years, 21.3% for less than 2 years and 17.0% for more than 10 years. The results imply that majority of pharmaceutical companies are start-up organizations.

The profile of the pharmaceutical companies under study also revealed that most 46.8% of the pharmaceutical companies were limited liability companies, 21.3% were Corporations, 17.0% were partnership while 14.9% were sole proprietorship. The results imply that most pharmaceutical companies are registered under the category of limited liability companies. The Limited liability companies are a form of business entity for owners seeking the advantage to limit their own personal liability for company responsibilities and debts just like in a corporation.

4.4 Descriptive Analysis

The section contains descriptive statistics for ventilation and air condition, office furniture, safety and fatigue and how they affect employees' productivity for pharmaceutical companies. For interpretation purposes, strongly agree and agree and were merged and termed as agree, disagree and strongly disagree as disagree whereas neutral was interpreted alone.

4.4.1 Ventilation air Conditioning of Pharmaceutical Companies

The study's first objective was to assess quality of workplace design in Nairobi County pharmaceutical companies. Table 4.3 shows these results.

Table 4.3: Ventilation Air Conditioning of Pharmaceutical Companies

Ventilation and Air Conditioning	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Our office is properly ventilated.	40.4%	36.2%	4.3%	6.4%	12.8%	2.0	1.0
We have installed air conditioners in our office.	27.7%	38.3%	2.1%	25.9%	6.4%	2.2	1.3
We have ample space in our office to allow for air circulation.	25.5%	42.6%	8.5%	6.4%	17.0%	2.1	1.2

The windows in our company facilities allow for proper air circulation.	18.4%	40.4%	10.6%	4.3%	24.3%	2.4	1.4
Our company has planted plants within its premises to increase the amount of fresh air in circulation.	31.9%	44.7%	4.3%	4.3%	14.9%	2.1	1.1
Average						**2.3**	**1.2**

Source: Author 2019

The results of Table 4.3 above indicated that majority of respondents did not agree that office are properly ventilated, with a mean of 2.2 and 1.4 as the standard deviation implying that office ventilation was a problem in most pharmaceutical companies. Also it was indicated that majority of respondents did not agree that companies have installed air conditioners in the offices with 2.2 as the mean and 1.4 as the standard deviation implying that majority of them disagreed with this statement. Moreover, results showed that pharmaceutical companies did not have ample space in their offices to allow for air circulation (mean of 2.3, Std Dev. of 1.4) implying that proper office ventilation was a problem in most pharmaceutical companies.

Further, majority of respondents indicated that the windows in most pharmaceutical companies allow for proper air circulation (mean of 2.4, Std Dev. of 1.3). Majority of respondents disagreed that their companies had planted plants within its premises to increase the amount of fresh air in circulation (mean of 2.3Std Dev. of 1.4). From the descriptive results above, it is evident that proper ventilation in most pharmaceutical companies is a challenge affecting the productivity of employees. The average mean of 2.3 indicated that a great number of work force managers were in disagreement

with many of the questionnaire's statements. A standard deviation of 1.2 meant that the responses were clustered around the mean.

4.4.2 Office Furniture of Pharmaceutical Companies

The study aimed at assessing quality of workplace design of pharmaceutical companies in terms of office furniture. These results are showed in Table 4.4.

Table 4.4: Office Furniture of Pharmaceutical Companies

Office Furniture	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Our offices and workspaces are well designed	34.0%	31.9%	6.4%	17.0%	10.6%	2.4	1.4
We have the requisite furniture to perform our duties	31.9%	27.7%	8.5%	23.4%	8.5%	2.3	1.4
The layout of the offices and workspaces are good	38.3%	25.5%	8.5%	21.3%	6.4%	2.3	1.4
Our company has invested in egronomic furniture.	40.4%	31.9%	4.3%	21.3%	2.1%	2.1	1.2
Our office furniture is quality and considered high	36.2%	38.3%	4.3%	17.0%	4.3%	2.1	1.2
Average						**2.2**	**1.3**

Source: Author 2019

Findings from Table 4.4 showed that respondents disagreed that offices and workspaces were well designed, (mean of 2.4, Std Dev. of 1.4) implying that most pharmaceutical companies' work places were not well designed. Results further revealed that majority of them indicated that pharmaceutical companies did not have the requisite furniture to perform their duties (mean of 2.3, Std Dev. of 1.4) implying that majority of work force managers did not agree to the statement. The respondent

disagreed that the offices and workspaces layouts are good (mean of 2.3, Std Dev. of 1.4) implying that most pharmaceutical companies lacked proper layout of the offices and workspaces.

Further, respondents disagreed that their companies had invested in ergonomic furniture (mean of 2.1, Std Dev. of 1.2). The study also established that respondents disagreed that office furniture is quality and considered high (mean of 2.1, Std Dev. is 1.2). From the descriptive results above, it is evident that office furniture design was a challenge in most pharmaceutical companies .The average mean of responses was 2.2 which means that a great number of respondents were in disagreement to these statements. 1.3 was the standard deviation meaning that responses were clustered around mean response.

4.4.3 Safety of Pharmaceutical Companies

The study sought to assess safety and employee productivity. These findings are as presented in Table 4.5.

Table 4.5: Safety of Pharmaceutical Companies

Safety	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
There are sufficient safety measures in case of fire emergencies.	38.3%	29.8%	4.3%	14.9%	12.8%	2.3	1.4
We have personal protective equipment for work.	53.2%	14.9%	6.4%	8.5%	17.0%	2.2	1.6
We have good protective clothing in our work place	40.4%	19.1%	4.3%	25.5%	10.6%	2.4	1.5
Number of accidents in the organization are few	17.0%	14.9%	0.0%	27.7%	40.4%	3.6	1.6
I feel comfortable, safe and healthy when am at work.	38.3%	34.0%	2.1%	19.1%	6.4%	2.2	1.3

There exists a well stipulated health and safety policy in our company.	36.2%	48.9%	4.3%	4.3%	6.4%	2.0	1.1
The company has taken insurance covers for every employee to cater any emergencies that may arise.	44.7%	29.8%	0.0%	12.8%	12.8%	2.2	1.5
Average						**2.4**	**1.2**

Source: Author 2019

Table 4.5 showed that respondents disagreed that there were sufficient safety measures in case of fire emergencies (mean of 2.3, Std Dev. of 1.4) implying that most pharmaceutical companies lacked proper safety measures. Results further indicated that majority of the pharmaceutical companies did not have personal protective equipment for work (mean of 2.2, Std Dev. of 1.6). Moreover, respondents were in disagreement with the statement that all pharmaceutical companies had good protective clothing at work place (mean of 2.4, Std Dev. of 1.5). Moreover, majority of respondents agreed that the numbers of accidents in the organization were few (mean of 3.6, Std dev. of 1.6). The study also established that majority of the work force managers disagreed that employees feel comfortable, safe and healthy when at work (mean of 2.2, Std Dev. of 1.3). The results also showed that majority of the pharmaceutical companies disagreed that there exists a well stipulated health and safety policy in their companies (mean of 2.0, Std Dev. of 1.1).

Results further indicated that majority of the work force managers disagreed that pharmaceutical companies had taken insurance covers for every employee to cater any emergencies that may arise (mean of 2.2, Std dev. of 1.5). From the descriptive results above, it is evident that safety policies and guidelines were not followed in most of the pharmaceutical companies. The average mean of responses was found to be 2.4

meaning that a great number of respondents were in disagreement with the questionnaire's statements. 1.2 was the standard deviation which meant that responses were clustered around mean.

4.4.4 Fatigue among Employees of Pharmaceutical Companies

The level of fatigue among employees of the pharmaceutical companies was also probed. In figure 4.1, shows that most employees had fatigue as indicated by 49% of the work force managers. The fatigue level was not favourable to the productivity of an employee. Employees fatigue can hamper productivity of both an individual and firm, reduce the work flow speed, bring bottlenecks in other workstations. These results agree with Islam, Uddin and Hasan (2017) fatigue among employees led to low productivity among pharmaceutical companies in Bangladesh.

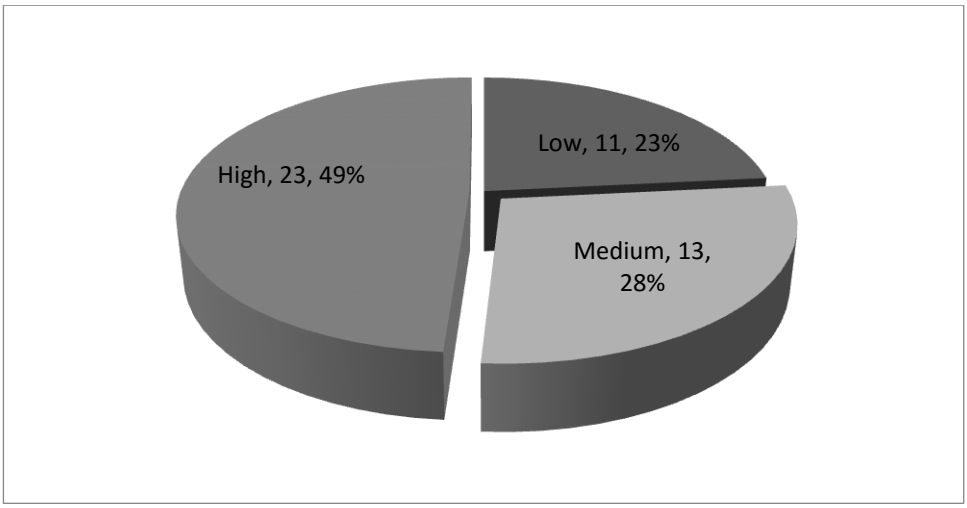


Figure 4.1: Level of Fatigue in this Company

Source: Author 2019

The study aimed at investigating the level of fatigue among employees in pharmaceutical companies. The results were presented in frequency and percentages. Table 4.6 below presents these results.

Table 4.6: Fatigue and Employee Productivity for Pharmaceutical Companies

Fatigue	[Frequency, Percentage]
Employees in our company portray tiredness when working	(41, 86.6%)
Employees in our company show signs of weakness when working	(36, 77.9%)
Employees in our company show signs of sleepiness when working	(31, 65.4%)
Employees in our company have low level of concentration.	(35, 72.8%)
Employees in our company are sluggish when working	(29, 60.7%)
Mean	**(34, 72.68%)**

Source: Author 2019

Findings from Table 4.6 showed that majority 86.6% of employees in pharmaceutical companies portrayed tiredness when working, 77.9% of employees in pharmaceutical companies showed signs of weakness. The results further showed that majority 65.4% of employees in the pharmaceutical companies show signs of sleepiness when working. It was also noted that 72.8% of the employees in the pharmaceutical companies experienced low level of concentration. Finally, it was also revealed that 60.7% of the employees in the pharmaceutical companies are sluggish when working. From the descriptive results above, it is evident that fatigue is a major problem affecting the productivity of employees in pharmaceutical companies. Fatigue may be attributed to complexities associated with the nature of work in the pharmaceutical industry. Employee fatigue may also be attributed to poor workplace designs.

4.4.5 Output Productivity of Pharmaceutical Companies

The study aimed at determining the level of output in the pharmaceutical companies. In figure 4.2, majority of employees 51% indicated that the quality of output in the pharmaceutical companies was good while 49% of the work force managers indicated bad.

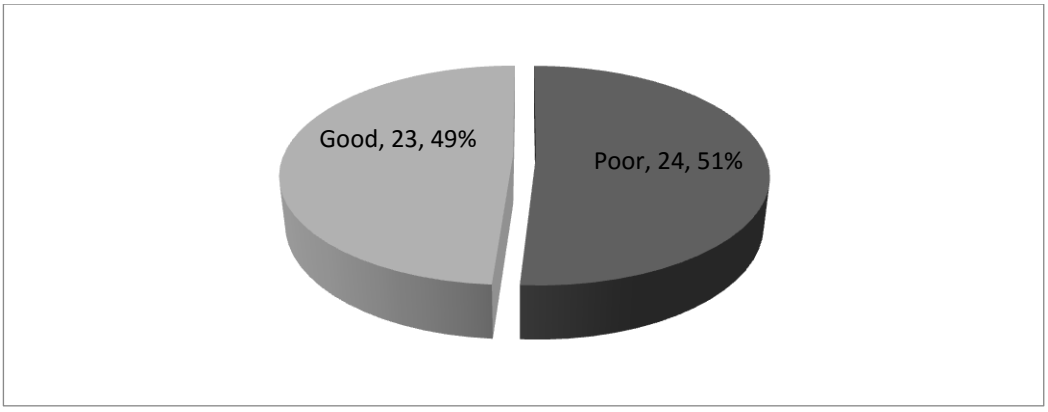


Figure 4.2: Output Productivity of Pharmaceutical Companies

Source: Author 2019

The study further sought to investigate the level of productivity output in pharmaceutical companies. Table 4.7 below shows these results.

Table 4.7: Output Productivity of Pharmaceutical Companies

Output productivity	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
The products produced in our company measure up to the standards set for the industry.	12.8%	19.1%	6.4%	44.7%	17.0%	3.6	1.3
The production of outputs/ products in our company is timely.	27.7%	36.2%	8.5%	12.8%	14.9%	2.2	1.4
The quality of outputs in our company is consistent.	23.4%	31.9%	6.4%	14.9%	23.4%	2.4	1.5
Average						**2.7**	**1.4**

Source: Author 2019

Table 4.7 findings showed that respondents agreed that products produced in our company measure up to the standards set for the industry (mean of 3.6, Std Dev. is 1.3). Results showed that majority of respondents did not agree that production of outputs/ products in their company was timely (mean of 2.2, Std Dev 1.4). The respondents did not agree that the quality of outputs in the company is consistent with

mean for place is 2.4 and standard deviation is 1.5 implying that quality output was somehow a challenge in most pharmaceutical companies. The overall average mean of 2.7 depicts that the responses were neutral while the standard deviation of 1.4 depicts that the responses were clustered around the mean response. Table 4.8 shows descriptive results for labour costs and revenue generated by the pharmaceutical companies for the year 2018.

Table 4.8: Labour Costs and Revenue Generated

Financial indicator	Minimum	Maximum	Mean	Std. Deviation
Labour cost in KES '000	5,215.001	98,598.416	51,818.600	28,404.902
Revenue generated in KES '000	55,469.345	4,153,498.853	2,012,864.378	1,310,206.403

Source: Author 2019

The results show that the overall mean of labour cost was KES 51,818,600 which indicates the average labour costs for the pharmaceutical companies for the year 2018. The minimum and the maximum labour cost for the pharmaceutical companies for the year 2018 were KES 5,215,001 and KES 98,598,416 respectively. Its standard deviation was KES 28,404,902 which indicated that labour costs for the pharmaceutical companies varied throughout the measurement period.

The results show that the overall mean for revenue generated was KES 2,012,864,378 which indicates the average revenue generated for the pharmaceutical companies for the year 2018. The minimum and the maximum revenue generated for the pharmaceutical companies for the year 2018 were KES 55,469,345 and KES 4,153,498,853 respectively. Its standard deviation was KES 1,310,206,403 which

indicated that revenue generated for the pharmaceutical companies varied throughout the measurement period.

4.5 Correlation Analysis

A Preliminary analysis was conducted in order to determine if there were significant associations between ventilation and air condition, office furniture, safety, fatigue and employee productivity for Nairobi City County's pharmaceutical companies. The Pearson's product-moment correlation coefficient (r) was adopted in examining magnitude of correlation existing between study variables and also in showing the linear association's strength between regression variables.

The r values range between ±1. Whereby r= +0.7 and above indicated a very strong relationship; r=+0.5 to below 0.7 indicating a strong relationship; r=0.3-0.49 revealing moderate relationship while r=0.29 and below shows a weak relationship. Where r=0 shows that there is no relationship (Esther- Smith, Thorge & Love, 1999). The association between variables is significant if the calculated p value is less than 0.05 ($p<0.05$). These findings are showed in Table 4.9.

Table 4.9: Correlation Coefficients Matrix

		Employee productivity	Ventilation and Air Conditioning	Office Furniture	Safety	Fatigue
Employee productivity	Pearson Correlation	1.000				
	Sig. (2-tailed)					
Ventilation and Air Conditioning	Pearson Correlation	.610**	1.000			
	Sig. (2-tailed)	0.000				
Office Furniture	Pearson Correlation	.740**	.531**	1.000		
	Sig. (2-tailed)	0.000	0.000			

Safety	Pearson Correlation	.740**	.416**	.706**	1.000	
	Sig. (2-tailed)	0.000	0.004	0.000		
Fatigue	Pearson Correlation	-.511**	-0.177	-.368*	-.402**	1.000
	Sig. (2-tailed)	0.000	0.234	0.011	0.005	
** Correlation is significant at the 0.01 level (2-tailed).						
* Correlation is significant at the 0.05 level (2-tailed).						

Source: Author 2019

Table 4.9 results showed that there was a significant positive correlation between ventilation and air conditioning and employee productivity for pharmaceutical companies (r=.610, p=0.000<0.05). A quality pharmaceutical product depends on ventilation and air conditioning. Operator feels comfort when they obtain a well-designed ventilation and air conditioning system. Ventilation and air conditioning system design also influence architectural layouts with regard to items such as airlock positions, doorways and lobbies. Hence, Temperature, relative humidity and ventilation must be appropriate. The results agree with Zhang, Liu and Jiang (2011) that ventilation and air conditioning system is important in pharmaceutical sector to promote safety for human is.

The findings showed that there was a strong significant positive association between office furniture and employee productivity for pharmaceutical companies (r=.740, p=0.000<0.05). Office furniture encompasses desks, chairs, shelves and drawers which affect employee productivity and performance either positively or negatively. Hence, it is necessary that employers acquire the appropriate furniture preferably ergonometric which takes care of the physical health of the employee. The results do

not agree with Sultan and Zafar (2016) that office furniture does not have any impact on employees' productivity.

Results further indicated significant positive association between safety and employee productivity for pharmaceutical companies (r=.740, p=0.000<0.05). Safety in workplace is a major issue in pharmaceutical companies. Proper safety protocols can save lives, reduce accidents, reduce downtime and increase productivity. It is therefore important to ensure employees are always free from any health and safety hazards because employees who work in a good work environment are more productive. The results are in line with Islam and Islam (2017) that found that significant relation exists between safety and labour productivity of employees in pharmaceutical industry.

Results further indicated significant negative association between fatigue and employee productivity for pharmaceutical companies (r=-.5110, p=0.000<0.05). Fatigue can be described as lassitude or exhaustion of mental and physical strength/energy resulting from bodily labour or mental exertion. The employees' welfare is a critical issue to be considered by an organization's management. Too much stress related with job and such kind of job design that may cause fast fatigues among employees hampering the productivity of both the individual and the organization. Fatigue impacts on employees' capacity to clearly think, minimizes reaction time, reduces vigilance and attention, and affects short-term judgment, memory, and other functioning. The results are in line with Kołodziej and Ligarski (2017) who aimed at determining factors impacting on physical fatigue of employees and to analyse its impact on work on a production line the employees declared the

highest level of fatigue after work on third shift resulting to reduction in productivity of employee. The results agree with Islam, Uddin and Hasan (2017) fatigue among employees led to low productivity among pharmaceutical companies in Bangladesh.

4.6 Regression

This section contains inferential analysis for ventilation and air condition, office furniture, safety and fatigue and how workplace design issues affect employees productivity in pharmaceutical companies. Inferential statistics included model fitness, ANOVA and coefficients of regression. The Table 4.10 below presents these results.

Table 4.10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.860[a]	.740	.715	.38207
a. Predictors: (Constant), Fatigue, Ventilation and Air Condition, Safety, Office Furniture				

Source: Author 2019

Ventilation and air condition, office furniture, safety and fatigue were found to be satisfactory in explaining employee productivity for pharmaceutical companies. This is reflected by the R square of 74.0%. This thus meant that ventilation and air condition, office furniture, safety and fatigue explain 74.0% of the variance in dependent variable which is employee productivity for pharmaceutical companies. The productivity of an employee depends on the time a person is physically present in a job and also degree at which he is "mentally present" or functioning efficiently while present in a job. Organizations should address both of these things so as to maintain high productivity of employee, and such may happen via various strategies focusing on employee's workplace design. The office design that is good will directly

affect on employee morale and engagement with the business. The findings are showed in Table 4.11.

Table 4.11: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	17.448	4	4.362	29.881	.000[b]
	Residual	6.131	42	.146		
	Total	23.579	46			
a. Dependent Variable: Employee productivity						
b. Predictors: (Constant), fatigue, ventilation and air condition, safety, office furniture						

Source: Author 2019

The overall model was found to be statistically significant. Results further implied that ventilation and air condition, office furniture, safety and fatigue are good predictors of employee productivity for pharmaceutical companies. This was supported by the fact that an F statistic of 29.881 > the critical F-statistic of 3.21 and the reported p value (0.000) < conventional probability of 0.05 significance level. Findings for F calculated (29.881) was also compared against the F critical value ($F_{4, 42}$) of 3.21 calculated from the F tables. Since the F calculated was greater than F critical (29.881) > (3.21), the model is significant. An employee's workplace environment is a key determinant of the quality of their work and their level of productivity. How well the workplace engages an employee impacts their desire to learn skills and their level of motivation to perform. Regression of coefficient results is presented in Table 4.12. To interpret the regression coefficient results, calculated p

value is compared with 0.05 level of significance. If p value is less than 0.05, then the relationship between variables is significant otherwise insignificant.

Table 4.12: Regression of Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.940	.426		2.208	.033
	Ventilation and Air Condition	.303	.098	.289	3.101	.003
	Office Furniture	.256	.119	.259	2.146	.038
	Safety	.358	.118	.347	3.046	.004
	Fatigue	-.206	.080	-.225	-2.595	.013
a. Dependent Variable: Employee productivity						

Source: author 2019

Optimal Employee Productivity Model

$$\mathbf{Y= .940+ .303X_1+ .256X_2+ .358X_3+ -.206X_4}$$

Where

Y = Employee productivity

X_1 = Ventilation and Air Condition

X_2= Office Furniture

X_3 = Safety

X_4= Fatigue

The constant value of .940 means that in the absence of ventilation and air condition, office furniture, safety and fatigue, productivity of employees in pharmaceutical companies is positive. This implied that there were other variables enhancing

employee productivity which were not included in this model. The variables may include rewards, motivation and competence. Regression of coefficients showed that ventilation and air condition and employee productivity for pharmaceutical companies are positively and significantly related (β=.303, p=0.003). The regression of coefficient implies that if ventilation and air condition is improved by one unit, the employee productivity for pharmaceutical companies increase by .303 units. Proper ventilation in buildings is important as it helps reduce employee tiredness and refreshing air within the office setting. Ventilation is the most important in determining the quality of our indoor air. Proper design, operation and maintenance of the ventilation system is essential in providing indoor air that is free of harmful concentrations of pollutants in the office. The results are in line with Riaz, Shoaib and Sarfraz (2017) who sought to establish the kind of relationship that existed between workplace design and the health and performance of employee's. It was evident that the health and performance of the employee's was impacted by the workplace design positively.

The results also revealed that office furniture and employee productivity for pharmaceutical companies have a positive and significant relationship (β=.256, p=0.038). The regression of coefficient implies improving state of office furniture by one unit, leads to an increase in employee productivity for pharmaceutical companies increase by .256 units. Office setting is a widely acceptable means of providing an enabling environment that best facilitates employees' performance and general productivity. Comfortable and ergonomic office design motivates the employees and increases their performance substantially. Every office has unique furniture and spatial arrangements. Good office design has a positive effect on employees' productivity. The results are in line with Hameed (2009) that office design is very

vital in terms of increasing employees' productivity. The results are also in line with Amofa, Yawson and Okronipa (2016) that physical office environment have both positive and negative association with employees' productivity.

Safety and employee productivity for pharmaceutical companies have a positive and significant relationship (β=.358, p=0.004). The regression of coefficient implies that improving safety in work place by one unit, leads to increased employee productivity for pharmaceutical companies increase by .358 units. The results are in line with Islam and Islam (2017) that found that significant relation exists between safety and labor productivity of employees in pharmaceutical industry.

Fatigue and employee productivity for pharmaceutical companies have a negative and significant relationship (β=-.206, p=0.013). The regression of coefficient implies that when employee fatigue raises one unit, employee productivity for pharmaceutical companies decline by -.206 units. Fatigue can indirectly affect employees' personal relationships and family life. Employers may experience decreased productivity and quality of work and increased illness and injury costs. The results are in line with Gabriel, Peretemode and Dinges (2018) that fatigue reduces employee's productivity.

4.7 Discussion of Research Findings

The study revealed that ventilation and air condition, office furniture, safety and fatigue explain 74.0% of dependent variable variations which is employee productivity for pharmaceutical companies. The level of employee productivity is proportionate to organization performance. The employee productivity is dependent of the amount of productive time that the employee gives to the organization which determines the amount of time that the employee spend doing work that contributes

positively to the growth of the organization. To ensure that the employees are both mentally and physically fit to perform maximumly, businesses ought to provide an enabling environment which is coupled by adopting an appropriate design as well as acquiring appropriate furniture. Attaining the right mix of the two enhances employee productivity. The optimal model of the study indicated that in the absence of ventilation and air condition, office furniture, safety and fatigue, productivity of employees in pharmaceutical companies is positive. This implies that there are other factors that enhance employee productivity though not included in the model. The factors may include rewards, motivation and competence.

Regression of coefficients showed that ventilation and air condition and employee productivity for pharmaceutical companies are positively and significantly related. The regression of coefficient implies that if ventilation and air condition is improved by one unit, the employee productivity for pharmaceutical companies increase by same units. Proper ventilation in buildings is important as it helps reduce employee tiredness and refreshing air within the office setting. Ventilation is the most important in determining the quality of our indoor air. Proper design, operation and maintenance of the ventilation system is essential in providing indoor air that is free of harmful concentrations of pollutants in the office. The results are in line with Riaz, Shoaib and Sarfraz (2017) who sought to establish the kind of relationship that existed between workplace design and the health and performance of employee's. It was evident that the health and performance of the employee's was impacted by the workplace design positively.

It was noted that office furniture and employee productivity for pharmaceutical companies have a positive and significant relationship. Office setting is a widely acceptable means of providing an enabling environment that best facilitates

employees' performance and general productivity. Comfortable and ergonomic office design motivates the employees and increases their performance substantially. Every office has unique furniture and spatial arrangements. Good office design has a positive effect on employees' productivity. The results are in line with Hameed (2009) that office design is very vital in terms of increasing employees' productivity. The results are also in line with Amofa, Yawson and Okronipa (2016) that physical office environment have both positive and negative association with employees' productivity.

Safety had the highest effect on productivity of employee in pharmaceutical companies having a positive and significant relationship. The workplace Safety standards can boost productivity, lead to a decrease in accidents and break downs, reduce workers' risks and benefit the firm and the country also financially. These results are in line with Islam and Islam (2017) that established that there exists significant relation between safety and labor productivity of employees in the pharmaceutical sector.

The results also showed that fatigue and employee productivity for pharmaceutical companies have a negative and significant relationship. Fatigue can indirectly affect employees' personal relationships and family life. Employers may experience decreased productivity and quality of work and increased illness and injury costs. The results are in line with Gabriel, Peretemode and Dinges (2018) that fatigue reduces employees' productivity.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The section makes previous findings summary, conclusions and limitations encountered during this research. The chapter makes highlight of policy recommendations which those who make policies, those who employ and those employed can apply in improving productivity of work. Finally the chapter makes presentation of suggestion for further research that can be vital for the future researchers.

5.2 Summary of Findings

The study investigated workplace design and employee productivity for Nairobi County pharmaceutical companies. This study's independent variables were ventilation and air condition, office furniture, safety and fatigue. The study employed descriptive cross-sectional survey. The results were analysed using social sciences (SPSS) computer software.

Correlation analysis results show existence of a positively and significantly association between ventilation and air conditioning and employee productivity for pharmaceutical companies. The study also found out existence of positive and also significant correlation between office furniture and productivity of the employees. Safety was found to be having positive and significant correlation with productivity of employees for pharmaceutical companies. Fatigue had negative and significant correlation with productivity of employees.

Summary made revelation of independent variables: Ventilation and air condition, office furniture, safety and fatigue explain 74.0% variance in the dependent variable implying that other factors not included in this model account for 26.0% of changes in employee productivity for pharmaceutical companies. The model fitness is appropriate as at 95% level of confidence the F-value is 29.881. This is an indicator that the model used in this study is statistically significant.

Regression results revealed ventilation and air condition having a positive and statistically significant relationship with productivity of employees for pharmaceutical companies, office furniture had positive, statistically significant relationship with productivity of employee for pharmaceutical companies. Safety had positive and statistically significant relationship with productivity of employees for pharmaceutical companies. Further, regression results revealed fatigue having negative and statistically significant relationship with employees' productivity for pharmaceutical companies.

5.3 Conclusion

From this study's findings, researcher makes conclusion that ventilation and air condition significantly influences employee productivity.Quality pharmaceutical products places dependence on ventilations and air conditionings. Operators feel comfortable at obtaining a well-designed ventilation and air conditioning system. It was also concluded that office furniture affects employee productivity in pharmaceutical companies. Office ergonomics of furniture is critical in ensuring comfortability in office or work place. Comfortable and also ergonomic office designs bring motivation to an employee and boosts performance substantially.

On basis of research finding, it can also be concluded safety affects employee productivity in pharmaceutical companies. Safety in workplace is a major issue. Proper safety protocol saves lives, minimises the number of accidents, minimise downtime and boosts on productivity. Therefore ensuring employee's safety in regards to health and other hazards is vital since a good working environment leads to improved productivity of employees.

Finally, it can be concluded that fatigue has negative influence on employee productivity. Too much stress related with job and such kind of job design that may cause fast fatigues among employees hampering the productivity of both the individual and the organization. Fatigue influences on employees' capacity to think properly, reduces reaction time, minimizes vigilance and attention, and affects judgment, short-term memory and other functioning.

5.4 Recommendations

The study established that ventilation and air condition affects employee productivity for pharmaceutical companies. This study recommends for installation of ventilation and air conditioning equipment for proper air circulation. The ventilation and air conditioning equipment should be ascertained for effectiveness and functionality by occupation health and safety officers.

Office furniture was found to have positive effect on employees' productivity for pharmaceutical companies. This study recommends for the acquisition and installation of office chairs, desks, cabinets and work stations that observes ergonomic office design. Consultation with occupation health and safety officers and employees should be conducted and their views on the nature of office furniture considered during

acquisition and installation. Office designs that are ergonomic and comfortable motivate employees and boosts on performance.

Safety had the greatest impact on employee productivity. Recommendations of study are that proper and clear safety guidelines should be provided in the place of work. There should be a deliberate attempt to create safety awareness among employees through staff training. Provision of safety calls for multiagency corporation among various stakeholders, thus to enhance work safety of employees, the management of pharmaceutical companies should work collaboratively with security agencies, government and officers from occupation health and safety in an attempt to improve work safety.

Finally, it was found that employee fatigue negatively affects employee productivity. The study recommends for proper work schedules that do not harm employees. In most pharmaceutical companies, employees work for longer periods early in the morning to late night. In some cases, some pharmaceutical companies work for 24 hours with no adequate employees for rotational. For a pharmaceutical company that want to operate for 24 hours, it advised that there are adequate employees who will work rotationally. Moreover, employees are encouraged to take some rests in between work, walk for some minutes so as to reduce fatigue.

5.5 Limitations of the Study

This study focused on pharmaceutical companies. Work and employee productivity vary across various organizations and the findings may not be generalized to other

professions. Some professions demand proper work environment, enough rest and periodic employee rotation.

The researcher relied much on multiple linear regression model. Since regression models are undermined by disadvantages like erroneous and misleading results when value of variables change, generalization of finding results with certainty for the researcher becomes impossible. Incase there is data addition to the functional regression model, projected relationship might not be there between two or more variables.

5.6 Suggestions for Further Research

Professions like medical, audit and airline control are highly sensitive, and require proper work environment. Further research should be conducted in these professions to compare level of employee fatigue with employees in the pharmaceutical sector.

The researcher relied much on multiple linear regression model. Further research should entail comprehensive approach combining both quantitative and qualitative data. Use of interview may be employed to dig more on the state of employees' productivity by interviewing employees at the pharmaceutical companies. The use of in-depth interview technique facilitates deeper understanding of the topic by conducting open conversation with study work force managers. It also allows triangulation of findings by complementing quantitative data collected via questionnaire.

REFERENCES

Abdullah, A.A. & Wan, L. H. (2013). Relationships of non-monetary incentives, job satisfaction and employee job performance. *International Review of Management and Business Research. 2*(4), 1085-1091.

Akhtar, N., (2014). Relationship between office interior design and employees' productivity. *Journal of Asian Business Strategy, 4*(5), 58.

Amar, A. (2012). Motivating knowledge workers to innovate: A model integrating motivation dynamics and antecedents. *Emerald Group Publishing Limited. European Journal of Innovation Management 7*, 89-101.

Amina, H., & Shehla, A. (2010). *Impact of office design on employee's productivity. A case study of banking Organizations of Abbottabad, Pakistan* (n.d.). Retrieved from http://www.scientificjournals.or/journ als 2009/articles/1460.pdf.

Amofa, A. K., Yawson, M. T. A and Okronipa, G. A. (2016) The Effect Of The Physical Office Environment On Employee Productivity: The Case Of Some Selected Banks In The Sekondi-Takoradi Metropolis, Ghana. Africa Development and Resources Research Institute Journal, Ghana: Vol. 25, No. 4 (3). Pp. 24- 36, ISSN: 2343-6662, 29th February, 2016.]

Bailyn, L., Fletcher, J. K., & Kolb, D. (2014). Unexpected connections: Considering employees' personal lives can revitalize your business. *Sloan Management Review*, *38*(4).

Bonenberger, M., Aikins, M., Akweongo, P., & Wyss, K. (2014). *The effects of health worker motivation and job satisfaction on turnover in Ghana:* A cross-sectional study. DOI: 10.1186/1478-449

British Council for Offices, (2014). *BCO Guide to Specification* 2.

Burke, M. E. (2011). Knowledge sharing in emerging economies. *Library Review*, *60*(1), 5-14.

Chandrasekar, K. (2011). Workplace environment and its impact on organizational performance in public sector organizations. *International journal of enterprise computing and business systems, 1*(1), 1-19.

Charles, K. M., & Katuse, P. (2018). Work Environmental Factors Affecting Employee Job Satisfaction in Public Institutions in the Energy Sector in Kenya: A Case of Rural Electrification Authority, Nairobi. *Journal of Human Resource & Leadership, 2*(4), 59-76.

Dilani, A. (2014). New paradigm of design and health. *Health promotion through environmental design*, 1525.

Dillon, A. (2014). *Designing usable electronic text: Ergonomic aspects of human information usage*. CRC press.

El-Zeiny, R. M. A. (2013). Interior design of workplace and performance relationship: private sector corporations in Egypt. *Asian Journal of Environment-Behaviour Studies*, *4*(14), 49-62.

Evans, G. W., & Johnson, D. (2000). Stress and open-office noise. *Journal of applied psychology*, *85*(5), 779.

Gabriel, J. M. O., Peretemode, M., & Dinges, D. (2018). Industrial Fatigue: A Workman's Great Enemy, Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 20, Issue 10. Ver. II (October. 2018), PP 09-14

Gray, J. (2011). Brain systems that mediate both emotion and cognition. *Cognition and Emotion. 4,* 269-88.

Hameed, A., & Amjad, S. (2009). Impact of office design on employees productivity: a case study of banking organizations of Abbottabad, Pakistan.

Hameed, A., & Amjad, S. (2011). Impact of office design on employees' productivity: a case study of banking organizations of Abbottabad, Pakistan. *Journal of public affairs, administration and management*, 2 (1).

Hansika, W. & Amarathunga, P.A. (2016). Impact of Office Design on Employees' Productivity; a Case Study of Banking Organizations of North Western Province in Sri Lanka. *13th International Conference on Business Management.*

Herzberg, F., (1957). The two-factor theory. *Work and the nature of man*, *4*.

Hoskin, J. T. (2016). *The Effects of Feedback, Praise, and Monetary Incentives on Staff Performance and Job Satisfaction in Home Health Facilities*. Southern Illinois University Carbondale.

Hughes, J., & Bozionelos, N. (2007). Work-life balance as source of job dissatisfaction and withdrawal attitudes: An exploratory study on the views of male workers. *Personnel Review*, *36*(1), 145-154.

Islam, M. S., & Islam, T. (2017). Safety in Workplace and Its Effect on Labor Productivity: A Case Study for Pharmaceutical Industry. International Conference on Mechanical, Industrial and Materials Engineering 2017 (ICMIME2017) 28-30 December, 2017, RUET, Rajshahi, Bangladesh

Islam, S. Uddin, M. & Hasan, R. (2017). Measuring and Analyzing Job Stress and Fatigue among Workers and Its Impact on Employee Productivity in a Pharmaceutical Factory: A Case Study, *International Conference on Mechanical, Industrial and Materials Engineering* 2017 (ICMIME2017) 28-30 December, 2017, RUET, Rajshahi, Bangladesh.

Islam, S., Mahraj, U. & Hasan, M.R. (2017). Measuring and Analyzing Job Stress and Fatigue among Workers and Its Impact on Employee Productivity in a Pharmaceutical Factory: A Case Study. *International Conference on Mechanical, Industrial and Materials Engineering*

Keeling, B. L., & Kallaus, N. F. (2010). *Administrative office management*. Thomson South-Western.

Kołodziej, S., & Ligarski, M. J. (2017). The Influence of Physical Fatigue on Work on a Production Line. *Acta Technologica Agriculturae*, *20*(3), 63-68.

Koolhaas, R., Petermann, S., Truby, S., Robilant, M., & Westcott, J. (2014). *Elements.* Marsilio

Krishnan, S., Hizam, S. M., Saffian, A. K. M., Baharun, N. A. S., & Azman, N. (2017). Safety at Workplace Enhance Productivity. *Human Resource Management Research, 7*(1), 33-37.

Labor laws (2010). *Employment Act*. Government Printers, Nairobi.

Larsen, L., Adams, J., Deal, B., Kweon, B. S., & Tyler, E. (2011). Plants in the workplace: The effects of plant density on productivity, attitudes, and perceptions. *Environment and Behavior, 30*(3), 261-281.

Larsson, A., & Gard, G., (2013). How Can the Rehabilitation Planning Process at the Workplace Be Improved? A Qualitative Study from Employers' Perspective. *Journal of Occupational Rehabilitation, 13*(3), pp. 169-181.

Linguli, L. M. (2013). *Influence of work environment on employees' quality of worklife and commitment at Devki Steel Mills Limited-Ruiru*. Unpublished Master of Business Administration. Nairobi: University of Nairobi.

Lovelock, N. (2011). *The manager's guide to competitive marketing strategies*. London: Thorogood.

Maslow, A. (2011). Hierarchy of needs: A theory of human motivation. *www. all-about-psychology. com*.

Mendis, M. V. S. (2016). Workplace design and job performance: A study of operational level employees in the apparel industry of sri lanka. *International Journal of Scientific and Research Publications*, *6*(12), 148-153.

Moloney, C. (2011). *Workplace productivity and LEED building*. Retrieved from http://www.green-building.com/content

Mureithi, F. (2018). Medical imports from Asia choking local industry. Retrieved from https://www.the-star.co.ke/news/2018/10/13/medical-imports-from-asia-choking-local-industry_c1833073

Musembi, A. (2012). *The impact of the work environment on the productivity of administrative staff*. Unpublished Thesis (University of Nairobi).

Njururi, E. M. (2016). *Determinants of Employee Productivity in Private Limited Companies in Kenya A Case Study of Equatorial Nut Processors Ltd* (Doctoral dissertation, United States International University-Africa).

Olalere, B. P. (2014). Evaluation and redesigning of a file retrieving system in a village medical center. *The International Journal of Engineering and Science (IJES), 3*(6), 28-35.

Pharmaceutical Society of Kenya, (2010). *Kenya pharmaceutical industry*. Nairobi, Kenya.

Prescott, J. E. (2011). Sequence patterns of firms' acquisition and alliance behaviour and their performance implications. *Journal of Management Studies*, *48*(5), 1044-1070.

Psarra, S. (2014). Stairway to Heaven. *Lobby, 1*, p.112-114

Raziq, A., & Maulabakhsh, R. (2015). Impact of working environment on job satisfaction. *Procedia Economics and Finance*, *23*, 717-725.

Riaz, A., Shoaib, U., & Sarfraz, M. S. (2017). Workplace Design and Employee's Performance and Health in Software Industry of Pakistan. *International Journal of Advanced Computer Science and Applications*, *8*(5), 542-548.

Saha, S. (2016). A Study on Impact of Workplace Design on Employee's Productivity in Selected IT Companies in Pune Region. *International Journal of Business and General Management, 5*(1), 2319-2267.

Sehgal, S. (2012). Relationship between work environment and productivity. *International Journal of Engineering Research and Applications, 2*(4), 1992-1995.

Simonetti, R., Clark, N., & Wamae, W. (2016). Pharmaceuticals in Kenya: The Evolution of Technological Capabilities. In Making Medicines in Africa (pp. 25-44). Palgrave Macmillan, London.

Sohlman, M. (2016). *Employees' perspectives of the current work environment at the JAMK School of Health and Social Studies*.

Sultan, M. F. & Zafar, M. R. (2016). Office Design and its impact on employees' productivity: Evidence from Islamic Banks of Karachi, International Journal of Scientific and Research Publications, 6(6), 335-342

UNIDO, (2011). *Pharmaceutical sector profile report*. Viena, USA.

Vischer, J. C., & Wifi, M. (2017). *The effect of workplace design on quality of life at work. In Handbook of Environmental Psychology and Quality of Life Research* (pp. 387-400). Springer, Cham.

Wamae, W., & Kungu, J. K. (2014). *Pharmaceutical Manufacturing in Kenya: Key trends and Developments*.

Whetten, D. (2011). Modeling-as-theorizing: A systematic methodology for theory development. *Essential skills for management research, 45*.

Zhang, L., Liu, X., & Jiang, Y. (2011). Heating, Ventilation and Air-Conditioning (HVAC) Systems.

APPENDICES

Appendix I: Introduction Letter

Date……..

Dear Sir,

RE: VOLUNTARY PARTICIPATION IN DATA COLLECTION

My name is Jane Kemunto a post graduate student from the University of Nairobi. I am conducting a study on the influence of workplace design on employee productivity in pharmaceutical companies in Nairobi County. Your feedback and views will help in compiling my research. The data collected is for research purposes only and it takes the form of a survey which should take no more than 15 minutes of your time. All responses received are anonymous and information collected will not be distributed to any other party.

Thank you for taking time to complete this survey.

Yours Sincerely,

JANE KEMUNTO

Appendix II: Questionnaire

Kindly answer the following questions as honestly and accurately as possible. The information given will be treated with a lot of confidentiality. Please do not write your name anywhere on this questionnaire. You are encouraged to give your honest opinion.

PART 1: BACKGROUND INFORMATION OF THE FIRM

1. What are the main activities of your firm? (tick)

   Agency ( ) Manufacturing ( ) Distribution ( )

   Retailers ( ) Wholesalers ( )

2. What products do you deal with as a business enterprise? (tick)

   Beauty products ( ) Over-the-counter drugs ( )

   Veterinary products ( ) Herbal products ( )

   Prescription drugs ( ) Others ( )

3. Number of employees

   a. Below 50 ( )
   b. Between 51 - 100 ( )
   c. Between 101 – 200 ( )
   d. Above 200 ( )

4. How many years have your firm been in operation?

   a. Less than 2 years ( )
   b. 3 to 5 years ( )
   c. 5 to 10 years ( )
   d. More than 10 years ( )

5. What is the type of your business entity?

   a. Sole proprietorship ( )
   b. Partnership ( )
   c. Limited Liability company ( )
   d. Corporation ( )

PART 2: Work Place Design

a. Ventilation and Air Conditioning

This Section is concerned with assessing the state of ventilation and air conditioning in your company. Please mark (x) in the box which best describes your opinion.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Our office is properly ventilated.					
We have installed air conditioners in our office.					
We have ample space in our office to allow for air circulation.					
The windows in our company facilities allow for proper air circulation.					
Our company has planted plants within its premises to increase the amount of fresh air in circulation.					

b. Office Furniture

This Section is concerned with assessing the state of office furniture in your company. Please mark (x) in the box which best describes your opinion.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Our offices and workspaces are well designed					
We have the requisite furniture to perform our duties					
The layout of the offices and workspaces are good					
Our company has invested in egronomic furniture.					
Our office furniture is quality and considered high					

c. Safety

This Section is concerned with assessing the state of office safety in your company. Please mark (x) in the box which best describes your opinion.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There are insufficient safety measures in case of fire emergencies.					
We have personal protective equipment for work.					
We have good protective clothings in our work place					
Number of accidents in the organization are few					
I feel comfortable, safe and healthy when am at work.					
There exists a well stipulated health and safety policy in our company.					
The company has taken insurance covers for every employee to cater any emergencies that may arise.					

d. Fatigue

How can you describe the level of fatigue in your company?

Low ( ) Medium ( ) High ( )

Please give your feedback with regard to the following attributes of work place fatigue. (Tick all that apply)

Attributes of Fatigue	
Employees in our company portray tiredness when working	
Employees in our company show sigh of weakness when working	
Employees in our company show sigh of sleepiness when working	
Employees in our company have low level of concentration.	
Employees in our company are sluggish when working	

e. Quality of Output

How can you describe the quality of output in your company?

Poor ( ) Good ( )

Please give your feedback with regard to the following attributes of quality of output. (Tick all that apply)

Quality of Output	
The products produced in our company measure up to the standards set for the industry.	
The production of outputs/ products in our company is timely.	
The quality of outputs in our company is consistent.	

Appendix III: Secondary Data Collection Template

Item	Pharmaceutical Company	Labour cost in KES	Revenue generated in KES
1	AB Pharmaceuticals Ltd	36,279,304	1,072,905,414
2	Ace Pharmaceuticals Ltd	81,455,616	2,584,395,554
3	Adcock Ingram East Africa Ltd	62,054,992	129,582,554
4	Africa Medec Limited	22,054,168	162,099,292
5	Alpha Medical Manufacturers - Nairobi	15,496,792	1,911,076,440
6	Ansell Pharmaceuticals Ltd	81,044,305	1,184,291,065
7	Aventis Pasteur SA East Africa - Nairobi	53,862,780	1,157,017,961
8	Bayer East Africa Limited - Nairobi	10,132,897	863,992,819
9	Beta Healthcare (Shelys Pharmaceuticals) - Nairobi	5,986,639	2,786,417,119
10	Biotech Pharma Ltd	13,849,866	1,389,291,673
11	British Pharmaceuticals Ltd	6,229,001	1,135,002,943
12	C Mehta (A) Limited	54,752,550	2,460,026,682
13	Cadila Pharmaceuticals (EA) Ltd	35,349,266	2,866,615,226
14	Cendco Pharmaceuticals Ltd	17,164,693	4,153,498,756
15	Cistein Pharmaceuticals	62,193,301	3,080,559,324
16	Citylink Pharmacy Ltd	31,404,623	2,287,255,854
17	Cosmos Limited - Nairobi	20,267,397	111,184,234
18	Dannes Pharmacy Ltd	7,731,578	3,040,724,988
19	Dapco Pharmaceuticals Kenya Ltd	50,185,116	2,282,247,682
20	Dawa Pharmaceuticals Limited - Nairobi	37,526,577	4,074,230,082
21	Didy Pharmaceutical - Nairobi	87,860,387	1,426,067,746
22	Diversey Lever - Nairobi	91,799,369	2,472,999,098
23	Eli-Lilly (Suisse) SA - Nairobi	48,512,708	2,938,364,569
24	Elys Chemical Industries Ltd - Nairobi	35,146,187	3,437,464,508
25	Galaxy Pharmaceuticals Ltd	90,033,719	3,280,116,756
26	Glaxo SmithKline - Nairobi	97,602,183	3,768,594,885
27	Glenmark Pharmaceuticals Ltd	63,554,299	1,988,577,698
28	Global Net-Medical Ltd	60,549,023	2,280,422,649
29	Haripharma Pharmaceuticals	60,367,235	1,885,924,368
30	Harley's Limited	16,903,025	3,054,395,178
31	Hartlane Pharmaceuticals Ltd	70,078,532	381,655,395
32	High Chem East Africa Ltd - Nairobi	78,295,245	4,151,665,393
33	Highchem Pharmaceuticals Ltd	77,690,034	236,653,733
34	Hightech Pharmaceuticals & Research Ltd	41,534,508	55,468,966
35	Kentons Ltd	38,398,469	2,745,854,188
36	Laborex Kenya Ltd	41,181,723	3,482,577,243
37	Limeridge Pharma Ltd	32,407,179	3,234,575,966
38	Mac's Pharmaceutical Ltd - Nairobi	57,969,697	163,093,458
39	Manhar Brothers (Kenya) Ltd - Nairobi	63,598,941	1,804,446,796

40	Max Pharmaceuticals Ltd	72,517,568	3,836,430,870
41	Maxim Pharmaceuticals Ltd	66,354,347	3,839,292,003
42	Medipoint Pharmaceuticals Ltd	81,226,149	3,705,908,388
43	Nextgen Pharmaceuticals (K) Ltd	80,885,555	3,851,287,043
44	Nilson Pharmaceuticals Ltd	40,133,325	345,138,313
45	Novartis Rhone Poulenic Ltd - Nairobi	21,125,209	1,630,026,448
46	Novelty Manufacturers Ltd - Nairobi	90,655,568	128,834,245
47	Pfizer Corp (Agency) - Nairobi	5,215,001	724,253,511

Appendix IV: Observation Guide

Please give your feedback with regard to the existence of the following attributes of work place design in your company. (Tick all that apply)

Attributes of work place design	**Tick if Present**
Ventilation and air conditioning	
Ergonometric furniture	
Safety features such as fire extinguisher and emergency doors	
Good Sanitation area	
Spatial arrangement of office furniture	
Noise	
Appropriate colours	

Appendix V: List of Pharmaceutical Companies in Kenya

1. AB Pharmaceuticals Ltd
2. Ace Pharmaceuticals Ltd
3. Adcock Ingram East Africa Ltd
4. Africa Medec Limited
5. Alpha Medical Manufacturers – Nairobi
6. Ansell Pharmaceuticals Ltd
7. Aventis Pasteur SA East Africa – Nairobi
8. Bayer East Africa Limited – Nairobi
9. Beta Healthcare (Shelys Pharmaceuticals) – Nairobi
10. Biotech Pharma Ltd
11. British Pharmaceuticals Ltd
12. C Mehta (A) Limited
13. Cadila Pharmaceuticals (EA) Ltd
14. Cendco Pharmaceuticals Ltd
15. Cistein Pharmaceuticals
16. Citylink Pharmacy Ltd
17. Cosmos Limited – Nairobi
18. Dannes Pharmacy Ltd
19. Dapco Pharmaceuticals Kenya Ltd
20. Dawa Pharmaceuticals Limited – Nairobi
21. Didy Pharmaceutical – Nairobi
22. Diversey Lever – Nairobi
23. Eli-Lilly (Suisse) SA – Nairobi
24. Elys Chemical Industries Ltd – Nairobi
25. Galaxy Pharmaceuticals Ltd
26. Glaxo SmithKline – Nairobi
27. Glenmark Pharmaceuticals Ltd
28. Global Net-Medical Ltd
29. Haripharma Pharmaceuticals

30. Harley's Limited
31. Hartlane Pharmaceuticals Ltd
32. High Chem East Africa Ltd – Nairobi
33. Highchem Pharmaceuticals Ltd
34. Hightech Pharmaceuticals & Research Ltd
35. Kentons Ltd
36. Laborex Kenya Ltd
37. Limeridge Pharma Ltd
38. Mac's Pharmaceutical Ltd – Nairobi
39. Manhar Brothers (Kenya) Ltd – Nairobi
40. Max Pharmaceuticals Ltd
41. Maxim Pharmaceuticals Ltd
42. Medipoint Pharmaceuticals Ltd
43. Nextgen Pharmaceuticals (K) Ltd
44. Nilson Pharmaceuticals Ltd
45. Novartis Rhone Poulenic Ltd – Nairobi
46. Novelty Manufacturers Ltd – Nairobi
47. Pfizer Corp (Agency) – Nairobi
48. Pharmaceutical Manufacturing Co (K) Ltd – Nairobi
49. Pharmaceutical Products Limited – Nairobi
50. Phillips Pharmaceuticals Limited – Nairobi
51. PSM Pharmaceuticals Ltd
52. Regal Pharmaceutical Ltd – Nairobi
53. Transchem Pharmaceuticals Ltd
54. Universal Pharmaceutical Limited – Nairobi

Source: Pharmacy and Poisons Board (2018)