Assessment of the Role of Strategic Ergonomics on Employee Performance in the Health Sector in Kenya: A Study of Health Workers in Nakuru County

Evelyn Wanjiru Kahare
Jomo Kenyatta University of Agriculture and Technology, P.O Box 62000-00200 Nairobi, Kenya
School of Human Resource Development

Abstract: The main objective of the research study is to assess the role of strategic ergonomics on employee performance in public and private health care facilities in Nakuru County. The researcher has used descriptive research design with an objective of gathering data on workplace ergonomics. The completed questionnaires were coded and entries made into the Statistical Package for Social Sciences (SPSS Version 21). The study used descriptive analysis techniques to analyze the data. Descriptive statistics were computed using frequencies and standard deviation. Chi-squares were used to analyze relationship between ergonomics in private and public hospitals in enhancing staff performance. The study concluded that physical, behavioral, management support and management awareness on ergonomics as critical components of performance. Behavioral and management support on implementation of ergonomics in the workplace having strongest influence.

Keywords: Ergonomics, Workplace, Health workers, Strategic management, Performance

1. Introduction

1.1 Background of the study

Ergonomics is used by organizations as a strategic tool to attract and retain the talent of its employees. The goal of ergonomics is to provide maximum productivity with minimal cost. Ergonomics is a science concerned with the ‘fit’ between people and their work. It puts people first, taking account of their capabilities and limitations. According to the Washington State Department of Labor and Industries (2002) ergonomics improvements to the work environment are primarily used to create a safer and more healthful work environment. Better outcomes and increased productivity is assumed to be the result of better workplace environment. Various literature pertain to the study of multiple offices and office buildings indicated that the factors such as dissatisfaction, cluttered workplaces and the physical environment play a major role in the loss of employees’ productivity (Carnevale, 1992; Clements-Croome 1997).

Among Kenya’s Millennium Development Goals (MDGs), sections 4, 5, 6 (reduction of child mortality, improvement in maternal health, lower HIV/AIDS and major disease incidence) deal with health and in such a complex and fast changing environment, managers be they administrators, human resource managers, financial managers in the hospital are faced with a multitude of decisions every day. In organizations where there is lack of proper ergonomics a number of employee malpractices are likely to occur such as: the absenteeism and turnover rates amongst employees are usually very high. These circumstances are affecting the performance of the employees greatly, in the form of delay in work completion, frustration and effect on personal growth. (Sekar C, 2011)

1.2 Statement of the Problem

Despite the government’s effort to improve its services towards the public through appraisals, performance contracting, trainings, the performance still remains below par. Public sector organizations are experiencing incredible pressures to become more efficient, while simultaneously maintaining a high level of responsiveness to public constituents. These pressures are translated into intense demands placed on public sector employees and their collective performance. The government has put in place measures to enhance the quality of working environment of employees such as policies that spells out the ideal work environment and design; enactment of the Employee Act 2007 that spells out a number of welfare issues: health and safety policies that spells out the office resources, working tools and even the HIV policy at the workplace. All these measures were geared towards enhancing the quality of work layout, ergonomics and environment. This is in contrast to what is happening and there are still challenges being experienced and health workers are still not satisfied with the prevailing working conditions. It is not known whether strategic workplace ergonomics in health sector has effect on performance. This study intends to assess whether public and private health facility ergonomics in health sector has effect on performance. Identifying the influence that workplace ergonomics and environment has on performance of an employee will help improve recruitment, retention and organizational results. Assessing and improving the workplace ergonomics could increase staff performance and productivity while reducing burnout, absenteeism and turnover rates among health workers.
1.3 Research objectives

To assess the role of strategic ergonomics on employee performance in public and private health care facilities in Nakuru County.

1.3.1 Specific objectives:

a) To determine the influence of the physical component of environment on health care workers performance in Nakuru county

b) To determine the influence of behavioral component of environment on health care workers performance in Nakuru county

c) To analyze the management level of awareness of strategic workplace ergonomics on health care workers performance in Nakuru county

d) To analyze the level of management support in implementation of strategic workplace ergonomics for health care workers in Nakuru county

1.4 Research hypotheses

\[ H_0: \mu_1 = \mu_2: \] The physical component of environment has no significant influence on performance of health care workers in Nakuru County

\[ H_{02}: \mu_1 = \mu_2: \] The behavioral component of environment has no significant influence on performance of health care workers in Nakuru County

\[ H_{03}: \mu_1 = \mu_2: \] The management level of awareness on strategic workplace ergonomics does not significantly affect health care workers performance in Nakuru County

\[ H_{04}: \mu_1 = \mu_2: \] Management support does not significantly affect implementation of strategic workplace ergonomics for health care workers in Nakuru County

2. Literature Review

2.1 Theoretical Framework

Ergonomics is a science concerned with the ‘fit’ between people and their work. It puts people first, taking account of their capabilities and limitations. Ergonomics aims to make sure that tasks, equipment, information and the environment fit each worker (Roelofsen P, 2002). By assessing people’s abilities and limitations, their jobs, equipment, working environment, and interaction between them, it is possible to design safe, effective and productive work systems.

2.2 Conceptual Review

The conceptualized framework defines the set of workplace elements that are perceived to impacts on employee performance. The elements such as furniture, noise level, temperature which are essentially independent variables impacting on employee performance, the dependent variable.

2.3 Summary of Literature Review

The importance of hospital ergonomics has been largely ignored by scholars and entrepreneurs for a long time. Workplace ergonomics has great influence on organizations’ working efficiency and thus it requires a new context for strategic management in proper strategic workplace layout. Assessing health workers abilities, limitations, their jobs, equipment, working environment, and interaction between them, it is possible to design safe, effective and productive work systems. How well health workers get along with the organization influence their error rate, level of innovation and collaboration with other employees, absenteeism and the time period they stay in the job. Workplace ergonomics aspects have significant implications for the behavior of the people who come from the organizational community which is made up of the organization’s managers and employees, its customers and suppliers, the members of local communities, and also others who have to interact with or within the organization.

2.4 Research gap

Researchers in Kenya have over the year’s demonstrated little interest in the subject of ergonomics. Extensive research has been conducted into the ergonomics of hospitalization globally, with most studies attempting to identify the extent to which hospital administrators should allow hospital personnel latitude in developing strategies to reconcile an acceptable workload with good quality of care but in Kenya hospital ergonomics is quite a grey area especially in the public sector. A paper by Demet Leblebici PhD, Candidate, Okan University, Turkey presents the analysis of working environment of a foreign private bank in Turkey and examines the relationship between the workplace physical conditions and employee’s productivity. His study was in the banking industry and didn’t utilize the hospital set-up. These considerations lay the groundwork for further, specific research.
3. Research Methodology

3.1 Research Design

The researcher used both qualitative and quantitative approaches. The diagnostic feature of this quantitative research is that the techniques used will generate numerical data, which will then be collected and analyzed mathematically. Gray (2009) also stated that quantitative research follows the deductive approach that moves towards hypothesis testing through empirical research. The benefit of this approach is that it can facilitate replication (Gill & Johnson, 2010); furthermore, the emphasis will be on quantifiable observations that lend themselves to statistical analysis (Saunders et al, 2009).

3.2 Research Instruments

The study used primary data collected using semi-structured questionnaires with both close-ended and open-ended questions. Questionnaires were advantageous as the responses were gathered in a standardized way, more objective and certainly more focused than interviews. It was relatively quick to collect information using a questionnaire although in some situations it takes a long time not only to design but also to apply and analyze; and, potential information can be collected from a large portion of a group. The questionnaire was administered through drop and pick-later method to the sampled population.

3.3 Data Analysis

The completed questionnaires were coded and entries made into the Statistical Package for Social Sciences (SPSS Version 21). The study used descriptive analysis techniques to analyze the data. Descriptive statistics was computed using frequencies and percentages. The study also made use of measures of central tendency which included means and standard deviation to measure the extent to which the variables are practiced in private and public hospitals.

4. Results And Discussion

4.1 Physical Components of Working Environment

The results of the study were as shown in table 4.1. The working environment has good general design and office décor. The working area has spatial arrangement and furnishing. The working area is spacious and comfortable to work in. The workplace arrangement allows for ease of communication and collaboration. Office furniture are in good state and suitable for working. The office equipment are in good condition and functioning state. The rooms have ambient temperature. The working environment has quality lighting to facilitate your work. The data was relatively dispersed. The average standard deviation for the data was above 1 meaning the data was relatively dispersed. The average mean of 3.18 is noteworthy, that respondents agreed specifically to the arguments that the working environment lighting quality facilitated their work productivity which returned a mean of 3.00 (Neutral) which was depicted by average mean of 3.18. This drew the assertion that the working environment lighting quality returned a mean of 3.18. This drew the assertion that the respondents generally held no opinion in regard to the physical component of working environment. It is noteworthy, that respondents agreed specifically to the arguments that the working environment lighting quality facilitated their work productivity which returned a mean of 3.93 (agree). The average standard deviation for the data was above 1 meaning the data was relatively dispersed. The results of the study were as shown in table 4.1.

4.2 Behavioral component of working environment

The results of the study were as shown in table 4.2. The respondents agreed specifically to the arguments that the working environment lighting quality facilitated their work productivity which returned a mean of 3.00 (Neutral) which was depicted by average mean of 3.18. This drew the assertion that the respondents generally held no opinion in regard to the physical component of working environment. It is noteworthy, that respondents agreed specifically to the arguments that the working environment lighting quality facilitated their work productivity which returned a mean of 3.93 (agree). The average standard deviation for the data was above 1 meaning the data was relatively dispersed. The results of the study were as shown in table 4.1.

Concerning the behavioral component of working environment the findings indicated that responses were between a mean of 3.06 and 3.42. With an average mean of 3.12.
3.22 the respondents were divided with slightly more than half arguments that the behavioral component of working environment facilitated their work productivity with a mean of 3.22, close to neutral. In regard to standard deviation of the average which was less than 1 (.8618) implied that the data was not relatively dispersed with exception of current office of respondent being safe and secure and work environment being quiet enough for patient confidentiality having standard deviation greater than 1.

4.3 Management’s level of awareness of workplace ergonomics

The results of the study were as shown in table 4.3.

<table>
<thead>
<tr>
<th>4.3: Management’s level of awareness of workplace ergonomics</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace ergonomics practiced in your facility</td>
<td>81</td>
<td>1</td>
<td>5</td>
<td>2.91</td>
<td>1.086</td>
<td>1.180</td>
</tr>
<tr>
<td>In your honest opinion does the management take into the consideration your strategic workplace ergonomics</td>
<td>81</td>
<td>1</td>
<td>5</td>
<td>2.74</td>
<td>1.263</td>
<td>1.594</td>
</tr>
<tr>
<td>Average</td>
<td>81</td>
<td>1.0</td>
<td>4.5</td>
<td>2.83</td>
<td>1.040</td>
<td>1.082</td>
</tr>
</tbody>
</table>

Valid N (list wise) = 81

The findings on management level of awareness of workplace ergonomics indicated that the management does not take into consideration the strategic workplace ergonomics. However the respondents were neutral on whether ergonomics were practiced in their facility. The standard deviations of all responses as shown in Table 4.8 are greater than 1.000 as can be seen from average. This implies the responses though normally distributed the data values were relatively dispersed. Interpretatively, there were some respondents who held extreme opinions in regard to management taking into consideration of strategic workplace ergonomics with a standard deviation of 1.263.

4.4 Management support on implementation of workplace ergonomics

Concerning the management support on implementation of workplace ergonomics the findings indicated that responses disagreed that their management routinely train them on workplace ergonomics which returned a mean of 2.32 (Disagree). However there was indifference in regard to management provision of appropriate working tools for effective carrying out of respondent work. With an average standard deviation of 1.170 for the data meant the data was relatively dispersed. The results of the study were as shown in table 4.4.

<table>
<thead>
<tr>
<th>4.4: Management support on implementation of workplace ergonomics</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management routinely train you on the importance of workplace ergonomics</td>
<td>81</td>
<td>1</td>
<td>5</td>
<td>2.32</td>
<td>1.273</td>
<td>1.621</td>
</tr>
<tr>
<td>The management provide appropriate working tools to effectively carry out your duties</td>
<td>81</td>
<td>1</td>
<td>5</td>
<td>3.20</td>
<td>1.209</td>
<td>1.460</td>
</tr>
<tr>
<td>Average</td>
<td>81</td>
<td>1.0</td>
<td>5.0</td>
<td>2.759</td>
<td>1.170</td>
<td>1.369</td>
</tr>
</tbody>
</table>

Valid N (list wise) = 81

Discussion

4.5 Relationship between physical components of working environment and employee performance.

The researcher sought to investigate whether or not the physical components of working environment contributed towards employee performance guided by the following hypothesis.

H₀: µ₁ = µ₂: The physical component of environment has no influence on performance of health care workers in Nakuru County
H₁: µ₁ ≠ µ₂: The physical component of environment has influence on performance of health care workers in Nakuru County

The findings are illustrated in Table 4.10 and 4.5.

<table>
<thead>
<tr>
<th>Table 4.11: Physical components of working environment test statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical components of working environment</td>
</tr>
<tr>
<td>Chi-Square</td>
</tr>
<tr>
<td>Df</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
</tr>
</tbody>
</table>

a. 0 cells (0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.2.

Results showed that the test statistic was statistically significant: \( \chi^2(4) = 36.222, p < .05 \). Therefore, the researcher rejected the null hypothesis and concluded that there was a statistically significant difference between physical component of working environment and employee performance. The physical working environment plays a crucial role in enhancing employee’s performance in health facility and should not be ignored.

4.6 Relationship between behavioral component of working environment and employee performance

The study further objected to find out the relationship between relevance behavioral components of working environment to employee performance guided by the following hypothesis.
**H₀² : µ₁ = µ₂:** The behavioral component of environment has no influence on performance of health care workers in Nakuru County

**H₁² : µ₁ ≠ µ₂:** The behavioral component of environment has influence on performance of health care workers in Nakuru County

The findings are as shown in Table 4.6.

**Table 4.6:** Behavioral component of working environment test statistics

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>Behavioral component of working environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.741a</td>
<td></td>
</tr>
<tr>
<td>Df</td>
<td>4</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. 0 cells (0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.2.

Results in table 4.13 above showed that the test statistic was statistically significant: \( \chi^2(4) = 34.741, p < .05 \). Therefore, the researcher rejected the null hypothesis and concludes that there was a statistically significant difference between behavioral components of working environment to employee performance. Behaviour of employees cannot be overlooked if performances in health institutions are to be enhanced.

**4.7 Relationship between management’s level of awareness of workplace ergonomics and employee performance**

The researcher opted to find the relationship between management’s level of awareness of workplace ergonomics and employee performance guided by the following hypothesis.

**H₀³ : µ₁ = µ₂:** The management level of awareness on strategic workplace ergonomics does not affect health care workers performance in Nakuru County

**H₁³ : µ₁ ≠ µ₂:** The management level of awareness on strategic workplace ergonomics does affect health care workers performance in Nakuru County

The findings are as shown in Table 4.7.

**Table 4.7:** Management’s level of awareness of workplace ergonomics test statistics

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>Management’s level of awareness of workplace ergonomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.642a</td>
<td></td>
</tr>
<tr>
<td>Df</td>
<td>4</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. 0 cells (0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.2.

Results above showed that the test statistic was statistically significant: \( \chi^2(4) = 22.642, p < .05 \). Therefore, the researcher rejected the null hypothesis and concluded that there was a statistically significant difference between management’s level of awareness of workplace ergonomics and employee performance. Management need to be aware and sensitive to workplace ergonomics as this will translate into taking actions that will enhance health workers performance.

**4.8 Relationship between management support on implementation of workplace ergonomics and employee performance**

The researcher sought to establish the relationship between management support on implementation of workplace ergonomics and employee performance guided by the following hypothesis.

**H₀⁴ : µ₁ = µ₂:** The managements support on implementation of workplace ergonomics does not affect health care workers performance in Nakuru County.

**H₁⁴ : µ₁ ≠ µ₂:** The managements support on implementation of workplace ergonomics does affect health care workers performance in Nakuru County.

The findings are as shown in Table 4.8.

**Table 4.8:** Management support on implementation of workplace ergonomics test statistics

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>Management support on implementation of workplace ergonomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.284a</td>
<td></td>
</tr>
<tr>
<td>Df</td>
<td>4</td>
</tr>
<tr>
<td>Asymp. Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. 0 cells (0%) have expected frequencies less than 5. The minimum expected cell frequency is 16.2.

**5. Summary, Conclusions & Recommendations**

**5.1 Summary**

a) **Physical component of environment and performance of health care workers**

The first hypothesis was to assess the physical component of environment influence on performance of health care workers in Nakuru County. Descriptive statistics indicated that the respondents averagely held no opinion in regard to physical component of working environment with results inclined towards the mean of 3.00 (Neutral) which was depicted by average mean of 3.18 with average standard deviation for the data being above 1 meaning the opinions were relatively dispersed. Inferential statistics indicated that the test statistic was statistically significant: \( \chi^2(4) = 36.222, p < .05 \). Therefore, the researcher rejected the null hypothesis and concluded that there was a statistically significant difference between physical component of working environment and employee performance. The physical working environment played a crucial role in enhancing employee’s performance in health facility and should not be ignored.
b) Behavioral component of environment influence on performance of health care workers in Nakuru County

The second hypothesis was to assess extent to which the behavioral component of environment has influence on performance of health care workers in Nakuru County. Descriptive statistics indicated an average mean of 3.22 indicating the respondents were divided with slightly more than half arguments that the behavioral component of working environment facilitated their work productivity. In regard to standard deviation of the average which was less than 1 (.8618) implied that the data was not relatively dispersed with exception of current officer of respondent being safe and secure and work environment being quiet enough for patient confidentiality having standard deviation greater than 1. Inferential statistics indicated the test statistic was statistically significant: $\chi^2(4) = 34.741$, $p < .05$. Therefore, the researcher rejected the null hypothesis and concluded that there was a statistically significant difference between behavioral components of working environment to employee performance. Behaviour of employees cannot be overlooked if performances in health institutions are to be enhanced.

c) Management level of awareness on strategic workplace ergonomics effect on health care workers performance in Nakuru County

The third hypothesis was to assess the extents to which the management level of awareness on strategic workplace ergonomics, affect health care workers performance in Nakuru County. Descriptive statistics indicated the respondents were neutral on whether ergonomics were practiced in their facility. The standard deviations of all responses as shown in Table 4.8 are greater than 1.000 as can be seen from average. This implies the responses though normally distributed the data values were relatively dispersed. Interpretatively, there were some respondents who held extreme opinions in regard to management taking into consideration of strategic workplace ergonomics with a standard deviation of 1.263. Inferential statistics showed the test statistic was statistically significant: $\chi^2(4) = 22.642$, $p < .05$. Therefore, the researcher rejected the null hypothesis and concludes that there was a statistically significant difference between management’s level of awareness of workplace ergonomics and employee performance. Management need to be aware and sensitive to workplace ergonomics as this will translate into taking actions that will enhance health workers performance.

d) Management support in enhancing implementation of strategic workplace ergonomics for health care workers in Nakuru County

The fourth hypothesis was to assess the extent to which the managements support enhances implementation of strategic workplace ergonomics for health care workers in Nakuru County. Descriptive statistics indicated that responses disagreed that their management routinely train them on workplace ergonomics which returned a mean of 2.32 (Disagree). However there was indifference in regard to management provision of appropriate working tools for effective carrying out of respondent work. With an average standard deviation of 1.170 for the data meant the data was relatively dispersed. Inferential statistics showed that the test statistic was statistically significant: $\chi^2(4) = 21.284$, $p < .05$. Therefore, the researcher rejected the null hypothesis and concluded that there was a statistically significant difference between management support on implementation of workplace ergonomics and employee performance. Management support on implementation of workplace ergonomics was importance as it facilitated employee performance.

5.2 Conclusions

After incisively summarizing the study findings, the researcher was able to draw several pertinent conclusions which touched on the entire hypothesis.

a) Physical component of environment

The physical working environment played a crucial role in enhancing employee’s performance in health facility and should not be ignored. All rounded physical environment acts as a source of encourage to health personnel in their dispensation of duty.

b) Management level of awareness on strategic workplace ergonomics

Management need to be aware and sensitive to workplace ergonomics as this will translate into taking actions that will enhance health workers performance. Employers should be responsible to provide a safe and healthful workplace for their workers as this CAN HELP avoid lost workday, injury and illness hence productive health workers.

b) Management support in implementation of strategic workplace ergonomics

Management support on implementation of workplace ergonomics was importance as it facilitated employee performance. A strong commitment by management is critical to the overall success of an ergonomic process. Management should define clear goals and objectives for the ergonomic process, discuss them with their workers, assign responsibilities to designated staff members, and communicate clearly with the workforce.

5.4 Recommendations

a) Physical component of environment

The health institution are recommended not to ignore the combined effect of physical component of environment, managements support on implementation of strategic workplace ergonomics and management level of awareness
on strategic workplace ergonomics. If this is implemented as a bundle can go a long way in enhancing productivity

Behavioral component of working environment

Health institutions are recommended to emphasize on behavioral component of working environment of employee. This significantly enhances employee’s performance though not markedly large.

a) Management level of awareness on strategic workplace ergonomics

Management of health institutions are recommended to adopt a participatory ergonomic approach. Workers should be directly involved in worksite assessments, solution development and implementation is the essence of a successful ergonomic process.

b) Managements support in implementation of strategic workplace ergonomics

Health Management teams are recommended to continuously carry out Progress Evaluation. Mechanism for this should be established and a corrective action procedures put in place to periodically assess the effectiveness of the ergonomic process and to ensure its continuous improvement and long-term success are achieved.

5.5 Recommendation for Further Study

The researcher recommends future research to use time series data to compare public and private hospital ergonomics and its effect on staff performance. Time series data will enhance future researchers consider important parameters like staff experiences with time.

References


Author Profile

Evelyn Wanjiru Kahare received a degree in Bachelor of Pharmacy (University of Nairobi) in Kenya in 2011. She joined Jomo Kenyatta University of Agriculture and Technology in 2012 to pursue Masters in Business Administration (Strategic Management). She is a holder of Senior Management Course and a TOT Of Referral strategy in Kenya. Currently she is a regional pharmacist in Nakuru

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