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ASSESSMENT OF EMPLOYEE AWARENESS OF THE APPLICABILITY OF ERGONOMIC EXERCISES IN THE BANKING INSTITUTIONS IN NAIROBI, KENYA

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ABSTRACT

The purpose of this study was to investigate into Kenyan bank employees' awareness on the applicability of ergonomic exercises in the course of their work. It was hypothesized that there would be no significant differences in terms of gender and position of work in relation to the above. Subjects for the study included tellers, secretaries, clerks, and officers in banking institutions in Nairobi. 1,500 employees from five banks (National bank, Cooperative bank, Equity bank, Kenya Commercial bank and Family Finance) were targeted. A total of seventeen branches from the banks and 450 employees were selected randomly for the study. Questionnaires were administered to collect information related to the employees' awareness of the applicability of exercise in the banking institutions. 321 questionnaires were completed and returned. Qualitative methods of data analysis were utilized to analyze the data. Chi-square at $p = 0.05$ was run to test the hypothesis. Results indicated that most employees were not aware of the applicability of ergonomic exercises in the banking institutions. There was a significant gender difference ($\chi^2 = 752, n = 321, df = 5, p < 0.05$). Females (41.32%) were more aware of the applicability of ergonomic exercises than the males (35.71%). In addition there was a significant difference in terms of working position ($\chi^2 = 674, n = 321, df = 5, p < 0.05$). The tellers (51.90%) were the most unaware while the secretaries (67.74%) were the most aware. It was therefore recommended that the Kenya Bankers Association in partnership with the bank management initiate ergonomics training for their employees and make the banks ergonomically sound. In addition, more research to establish specific effects of exercises on specific musculoskeletal injuries, and the most effective duration for exercising were recommended.

INTRODUCTION

The banking institutions, like most other companies and institutions world over have embraced the use of computers at their places of work as a means of improving efficiency and productivity (Andersen *et al.*, 2006). As such, most of banking office work involves computer operations that are characterized by long periods of sitting and deep concentration. This however has led to the development of a culture of low physical activity among the employees, which would lead to the development and accumulation of fatigue due to lack of avenues to burst it as it forms (Graves, 1999; Kerin and Kerin, 2004; Khan and Siddiqui, 2005). Fatigue, if allowed to accumulate in the body would cause musculoskeletal injuries (MSIs) such as back pain, neck pain, eyestrains and

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carpal tunnel syndrome (Bernard, 1997; Pulat, 1992; Sanders and McCormic, 1993,). In addition, the near-static postures common among office workers intensify the harmful effects of repetitive tasks (Kohler, 1994; National Institute of Occupational Safety and Health, 1997; Graves 1999). Injuries in offices are increasing faster than in all other job categories combined. There was an unprecedented eightfold increase in Cumulative Trauma Disorders between 1982 (22,600 reported cases) and 1990 (185,400 reported cases), up from 21% of all injuries reported in 1982 to 56% in 1990 (Kohler, 1994). According to Bernard (1999), work-related musculoskeletal injuries comprised 18% of occupational illnesses in 1980 and increased to 65% in the late 1990s. Rapid and complete recovery from the musculoskeletal injuries is by no means certain and therefore, injury prevention is all-important in office safety. It is recommended that a suitable work routine should be planned so that essential relaxation can be provided to the employees through physical movement away from the desk and periodic stretching exercises during the day's work (NIOSH, 1997; Graves, 1999). These stretching exercises in the office are called ergonomic exercises and can greatly reduce the musculoskeletal injuries at the workstation (Office Ergonomics Research Committee, 1998). When muscles remain stationary for long, circulation decreases, muscles tire and tasks become more uncomfortable for the computer users. Micro-breaks and rest exercise breaks as well as eye breaks can be scheduled at specific intervals during the day (Daniels, 1996; (NIOSH, 2002). 30 to 60 second micro-breaks can be taken every 30 minutes. These do not take long and they do not require someone to move away from the desk (NIOSH, 2002; Grossman, 2006). These one to two minute exercise breaks incorporating movement and stretching help prevent the symptoms of work-related musculoskeletal injuries (Anderson and Anderson, 2002; Fenety and Walker, 2002; Grossman, 2006). "...An ounce of prevention is worth a pound of cure" (Anderson and Anderson, 2002).

Studies have been conducted to establish the effect of exercises on musculoskeletal injuries. Kietrys et al., (2007) conducted a study on the effects of at-work exercises on computer operators. The resistance and stretching group differed from the control group with regard to their perception that the exercises were helpful in reducing discomfort in the back and neck ($p < 0.001$). They concluded that most subjects found the resistance and the stretching exercises easy to do; they performed them 1 to 2 times in a day, and said they reduced discomfort. Barredo and Mahon (2007) set out to review the strength of research evidence on the effects of exercise and rest breaks on musculoskeletal discomfort during computer tasks. They noted that evidence supports the use of exercise and rest breaks in reducing musculoskeletal discomfort in computer tasks. Balci, and Aghazadeh (2004), investigated three work-rest schedules: 60-min work/10-min rest, 30-min work/5-min rest, and for the third schedule, the participants received four breaks from each hour in addition to a 14-min break after 2 hours (three of the breaks were 30 sec long and the fourth was 3-min in length). Results indicated that the effect of work-rest schedule was significant on various perceived discomfort categories and the performance of the subjects. The 15/micro schedule was superior to the other schedules in terms of discomfort levels. The lowest levels of trapezius muscle tension for data entry and flexor carpi radialis for the cognitive tasks obtained with 15-min micro schedule. Fenety and Walker (2002) tested the hypothesis that doing regular, short-term (<10 days) exercises while at a workstation would decrease musculoskeletal discomfort and increase In-Chair Movement (ICM). They concluded that exercises done by video display unit operators while at a workstation resulted in short-term decreases in both musculoskeletal discomfort and postural immobility.

Methodology

Four hundred and fifty (30%) banking employees (clerks, tellers, secretaries and officers; officers including computer analysts, credit officers and other managerial staff) were randomly selected from five banking institutions in Nairobi, Kenya. Out of the 450 sampled respondents 321 (21%) questionnaires were completed, returned and analyzed. Subjects' responses were elicited using a validated questionnaire. The instrument focused on the bank employees' awareness of the applicability of ergonomic exercises in the banking institutions. The subjects were requested to respond to the options as were provided. The data was analyzed using the Statistical Package for Social Scientists (SPSS). Chi-square at 0.05 level of confidence was used to test the hypothesis.

Findings and Discussions

Responses of bank employees' possibility of stretching in the banking institutions during the official working hours were sought. Out of the 321 respondents, a considerably large proportion (154; 47.98%) were of the view that it would not be possible to engage in ergonomic exercises at the workplaces and during the official working hours. A smaller proportion (124; 38.63%) however held the view that it would be possible while a proportion of (43; 13.40%) had no idea whether it would be possible. It is therefore evident that most of the employees held the view that it would not be possible to engage in ergonomic exercises. In addition, a large percentage of the males (80; 51.95%) were not aware of the applicability of ergonomic exercises during the official working hours. In comparison, only 74 (44.31%) of the females were not aware. Smaller percentages of the males (55; 35.71%) and females (69; 41.32%) were aware of the applicability of ergonomic exercises. Only 24 (14.37%) females and 19 (12.34%) males had no idea on this issue. It is therefore evident that the males were most unaware of the applicability of ergonomic exercises during the official working hours. This observation could be attributed to lack of time to engage in exercises as a result of the tight and busy schedules at the banking institutions. It could also imply that the bank employees are not aware of exercises they could engage in during their official working hours. In addition, it is likely that the training they undergo during recruitment does not address the issue of ergonomic exercises. These results on the bases of gender could also indicate that the females had little time to spare for the exercises and thus did not think it would be possible to exercise. According to the outcome of the chi-square test ($X^2 = 752$, $n=321$, $df=5$, $p<0.05$) there was a significant difference amongst the male and female bank employees in terms of their engagement in ergonomic exercises during the official working hours. Contrary to this thought, studies have indicated that individuals throughout the day can easily schedule short periods of office exercises. Some activities can be easily performed by individuals at their desk and only could take a little time even as little as a minute or two. 30 to 60 second micro-breaks with few stretches can be taken every 30 minutes (Fenety and Walker, 2002). The one to two-minute exercise breaks incorporating movement and stretching help prevent the symptoms of work-related musculoskeletal injuries and therefore help maintain the body's health (Fenety and Walker, 2002). Balci, and Aghazadeh(2004), developed three exercise rest periods and tested their efficiency in the reduction of work-related injuries among employees. These schedules included 60 minutes work/10 min rest, 30 min work/ 5 min rest and four rests in an hour in addition to 14 min rest at the end of two hours. Another study that

showed the applicability of ergonomic exercises is one by Kietrys *et al.*, (2007) which incorporated computer users in a study that required them to participate in at-work exercises for a period of four weeks. The idea was also supported by Omer *et al.*, (2004) and Barredo and Mahon, (2007).

The bank employees' views on the applicability of ergonomic exercises were further checked in terms of employees working position. It is clear that a larger proportion of the tellers (56; 51.9%) were not aware of the applicability of ergonomic exercises in the banking institutions during official working hours. They were followed by the clerks (48; 49.5%), the officers (40; 47.98%) and the secretaries were trailing. It is therefore evident that tellers were the most unaware followed by the clerks, the officers and the secretaries in that order. Chi-square test (X^2 674, $n=321$, $df=5$, $p<0.05$) indicated significant differences in the responses on the applicability of ergonomic exercises. This observation may be attributed the nature of work done by these employees. Since the tellers and the clerks are almost constantly in contact with the clients they could not find time for the exercises and therefore reported they would not be applicable to them. On the other hand the secretaries and the officers are often not in contact with the clients and therefore manage to engage themselves in the exercises during the official working hours. Based on the bank employees' frequency of responses, a higher proportion of them i.e. 128 (39.88%) indicated that they had no idea of the effect of engaging in ergonomic exercises during the official working hours would have on musculoskeletal injuries. A smaller proportion of the employees 124 (38.63%) indicated that the ergonomic exercises would help alleviate the effects of musculoskeletal injuries while the least proportion 69 (21.50%) indicated that ergonomic exercises would have no effect on musculoskeletal injuries. It is therefore clear that most of the bank employees were not aware of the efficacy of engagement in ergonomic exercises in the reduction of the effects of musculoskeletal injuries. It is also evident that there was a slight gender difference in the responses on whether engaging in ergonomic exercises would help reduce the effects of musculoskeletal injuries. A larger proportion of the females 67 (40.11%) had no idea on this issue compared to a frequency of 61 (39.61%) among the males. A proportion of 63 (40.91%) males and 61 (36.51%) females were for this idea. Smaller proportions of the males and females i.e. 30(19.48%) and 39 (23.40%) respectively reported that stretching during the official working hours would not have an effect on the musculoskeletal injuries. The male bank employees were more aware than the female bank employees. This observation could imply that the bank employees, more so the females, do not know the effects of exercise on the muscular and skeletal systems. Therefore, they would not be able to connect exercise and their work and thus the feeling that ergonomic exercises cannot prevent injury that may result from work. Contrary to the view that ergonomic exercises can not prevent, control or even reduce the occurrence and the severity of work-related musculoskeletal injuries, Balci, and Aghazadeh(2004), point out that rest breaks which can be combined with stretching can reduce various perceived discomfort categories and therefore influence the performance of the employees. Also Kietrys *et al.*, (2007) assessed adherence, pain and satisfaction after 4 weeks of at-work exercise and concluded that most subjects found the resistance and the stretching exercises easy to engage in; they performed them 1 to 2 times in a day, and noted a reduction in discomfort. Omer *et al.*, (2004) as well noted that mobilization, stretching, strengthening and relaxation exercises reduced pain and depression levels of CTD patients in the short term. According Fenety and Walker (2002) when subjects engaged in exercises, perceived discomfort were lower than when not exercising. Lastly, Barredo and Mahon (2007) reviewed the strength

of research evidence on the effects of exercise and rest breaks on musculoskeletal discomfort during computer tasks and compared the evidence with clinical guidelines. They noted that evidence supported the use of exercise and rest breaks in reducing musculoskeletal discomfort in computer tasks.

The employees' response on the effect of ergonomic exercises was further investigated in relation to the position occupied by the employees at the banking institutions. It is evident that the larger proportion of the tellers (52; 48.1%) had no idea about the efficacy of ergonomic exercises in the reduction of work-related injuries and illnesses compared to 31 (28.70%) who reported that ergonomic exercises can alleviate the effect of musculoskeletal injuries and 25 (23.1%) who thought the exercises would have no effect. The tellers were followed by the clerks 43 (44.3%), secretaries 13 (41.2%) and the officers 20 (23.1%) in lack of awareness. This could be attributed to the employees' perception of availability of free time to engage in the exercises. The tellers and the clerks would perceive impossibility in finding time to exercise due to their constant contact with the clients. On the other hand the secretaries and the officers would perceive a possibility in finding time for exercise since they enjoy some periods without the contact of their clients, thus allowing time for exercise.

Information was also sought about the times that the employees engaged in ergonomic exercises. A majority (197; 61.37%) of the bank employees did not engage in the exercises at all. Smaller proportions however indicated participation. A proportion of 61 (19%) of the employees reported that they exercised only once in a day, these were followed by those who exercised three times i.e. 58 (18.07%) while the list proportion (5 ;1.56%) engaged in the exercises more than thrice. It is therefore evident that most of the employees do not engage in ergonomic exercises while carrying out their daily office tasks. This could be attributed to the fact that the employees are not aware of the applicability of such exercises during the official working hours. Contrary to the belief of many that it would not be possible to engage in exercises while operating the computers at the work places, studies have demonstrated that it would be possible and suggested the number of times this could be done. A study conducted by Kietrys *et al.*, (2007) showed the effectiveness of exercising between once and twice in a day throughout the week. Balci, and Aghazadeh,(2004)evaluated the efficiency of different exercise rest breaks. Among the three, that is 60 min work/10 min break, 30 min work/ 5 min rest, and the 15 min micro breaks, the 15 min micro break schedule proved the most effective in reduction of the occurrence of MSIs among the computer users. These studies have demonstrated that exercising more than once in a day can reduce the occurrence of the MSIs.

Summary of the Findings

- i. Most of the bank employees were not aware of the applicability of ergonomic exercises in the banking institutions as well as its efficiency in the control of musculoskeletal injuries. Of the 321 respondents investigated 154 (47.98%) were not aware while 124 (38.63%) were aware. There was a significant difference between the male and female bank employees in terms of their engagement in ergonomic exercises during the official working hours. Majority of the male bank employees (80; 51.95%) were not aware of the applicability of ergonomic exercises in the banking institutions compared to (74; 44.31%) female bank employees who were not aware. The male bank employees were less engaged than the female bank employees. In addition there was a significant difference

amongst the clerks, tellers, secretaries and officers in terms of their engagement in ergonomic exercises. It was found out that most of the tellers (56; 51.90%) and the clerks (48; 49.5%) were not aware of the applicability of ergonomic exercises. On the other hand, most of the secretaries (21; 67.74%), and the officers (42; 49.41%) were aware.

- ii. Most of the bank employees (128; 39.88%) had no idea if engaging in ergonomic exercises would reduce the occurrence of work-related musculoskeletal injuries. A smaller proportion (124; 38.63%) was aware. There was a slight difference between the male and female bank employees in terms of their views on the efficacy of ergonomic exercises in reduction of work-related risk factors. More female bank employees (67; 40.11%) than male (61; 39.61%) had no idea whether engagement in ergonomic exercises during the official working hours would reduce the occurrence of work-related injuries and illnesses. There was a difference among the different cadre of bank employees in their views on the effects of engaging in ergonomic exercises on work-related musculoskeletal injuries and illnesses. Majority of the tellers (52; 48.10%) had no idea. They were followed in number by the clerks (43; 44.30%), the secretaries (13; 41.20%), and the officers (20; 23.10%).
- iii. Majority of the bank employees (197; 61.37%) did not engage in ergonomic exercises. Small proportions of 61 (19%), 58 (18.07%), and 5 (1.56%) of the employees exercised once, thrice and more than thrice respectively in a day.

Conclusions

- i. Most of the bank employees are not aware of the applicability of ergonomic exercises in the banking institutions as well as its efficiency in the control of musculoskeletal injuries. There is a significant difference between the male and female bank employees in terms of their engagement in ergonomic exercises during the official working hours where a majority of the male bank employees are not aware of the applicability of ergonomic exercises. In addition there is a significant difference amongst the clerks, tellers, secretaries and officers in terms of their engagement in ergonomic exercises. It was found out that most of the tellers and the clerks are not aware of the applicability of ergonomic exercises. On the other hand, most of the secretaries and the officers are aware.
- ii. Most of the bank employees have no idea engaging in ergonomic exercises would reduce the occurrence of work-related musculoskeletal injuries. However a small proportion is aware. More female bank employees have no idea whether engagement in ergonomic exercises during the official working hours would reduce the occurrence of work-related injuries and illnesses. In addition a difference existed among the different cadre of bank employees in their views on the effects of engaging in ergonomic exercises on work-related musculoskeletal injuries and illnesses. Majority of the tellers have no idea followed by the clerks, the secretaries and the officers.
- iii. Majority of the bank employees do not engage in ergonomic exercises. Small proportions of the employees however, exercise once, more than thrice and thrice in a day.

Recommendations

- i. The Kenya Bankers Association in partnership with bank management officers should initiate an in-service education program for the bank employees to enlighten them on

- exercise ergonomics. The banks should hire the services of fitness and health as well as ergonomics and exercise ergonomics experts.
- ii. There is need to establish the most effective ergonomic exercises and duration for ergonomic training in order to achieve utmost benefits. This would facilitate training and enhance unison.

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