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PREVALENCE OF LOW BACK PAIN AND BACK ERGONOMICS AWARENESS AMONG TEACHERS OF SELECTED SECONDARY SCHOOLS IN KANO METROPOLIS

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ABSTRACT

Background: Low back pain (LBP) is regarded as the commonest musculoskeletal problem in the world which affects people across various strata of the society from lay men on the street to teachers as well as health care providers in health institutions. Therefore the purpose of this study is to determine the prevalence of low back pain and back education awareness among secondary school teachers in Kano Metropolis.

Methods: 200 questionnaires were distributed and only 157 were retrieved, one out of which 4 were invalid because of incomplete data so that only 153 were relevant and used for analysis giving a return rate of 76.5%. The study revealed that 96 out of 153 respondents have low back pain implying 62.7% prevalence. The level of back ergonomic awareness on the other hand was found to be moderate (43.1%).

Results: Based on the outcomes of the study, it was concluded that there is a high prevalence of low back pain among secondary school teachers in Kano metropolis. However, the level of back ergonomic awareness is moderate.

Conclusion: Therefore proper intervention to prevent exposure to LBP among school teachers should be enhanced and teachers should be well educated on the importance of ergonomic intervention in their working environments.

Keywords: prevalence, low back pain, Back ergonomics, Awareness, teachers, kano, metropolis

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INTRODUCTION

Low back pain (LBP) is one of the most common clinical disorders seen by health care practitioners today and it is often chronic and recurrent in nature.[1] It is regarded as the commonest musculoskeletal problem in the world which affects people across various strata of the society from lay men on the street to teachers as well as health care providers in health institutions.[2] LBP has been described as a condition in which patient feels incapacitating pain at the lower part of the back and is regarded as the most common cause of limitation of activity due to chronic condition in persons younger than 45 years of age; the age when an individual's physical activities reach its peak level.[3] Low back pain is so common that almost half of the adult population suffered from low back pain which last for more than 24hr at times during the year[4] and often causes lost work days.[5]

Reviews of the literature describing LBP point prevalence in the developed world have produced variable estimates of prevalence rates.[5] In a review of world prevalence data, there were lower rates of prevalence in developing countries than in developed countries, but did not determine whether differences reflect demographic, cultural or research method factors.[6] This necessitates the need for a continuing research in the field of LBP in the developing countries like Nigeria.

On the other hand, ergonomics deals with the application of information about human behavior, capabilities and limitations to the design of systems, machines, tools, tasks or jobs and environments for productive, safe and effective human use.[7,8] According to WHO, there are about 250 million cases of work-related injuries per year worldwide.[9]

The goal of ergonomics is to ensure a good fit between the workers and their job, thereby maximizing worker's comfort, safety and health, productivity and efficiency. Hence, determining the level of awareness of back education will help to ensure the safety and health of workers in various sectors of the society including the teaching profession.

A cross-sectional study carried out among school teachers in Salvador, Brazil shows that there was a high prevalence of musculoskeletal pain in lower limbs (41.1%), upper limbs (23.7%) and back (41.1%)[10]. It concluded that, the high percentage in the lower limbs was due to the affectation of the back spine.[10] Similarly a study in Malaysia has proven a 40.4% prevalence of LBP among school teachers.[11]

Low back pain does not only signify poor quality of individuals' life, but also showed decreased in labor productivity due to off-work, absenteeism and early retirement.[12] It had been observed that individuals who suffered from low back pain problems might develop major physical, social and mental disruptions, which could affect their occupations.[13] Physical impacts include the loss of physical function and deteriorated general health. Social impact included decreased participation in social activities. Psychosocial impacts are manifested through insomnia, irritability, anxiety and depression.[14]

Some European studies suggested that physical education teachers involved in high energy consumption have a high potential of developing acute and chronic injuries.[15] Physical education teachers were more often absent from work and also more likely to anticipate early retirement.[16] A study in Ireland showed that one of the leading causes for ill health retirement among school teachers was musculoskeletal problems, specifically LBP which contributed to 10% of the ill health retirement in the population.[17] Broad investigations have been made for the school environment with regards to children safety, with some of them suggesting an ergonomics improvement on the school furniture.[18] Hence, there is a need to study the problem of musculoskeletal pain essentially low back pain and back ergonomics among secondary school teachers.

METHODOLOGY

This study was aimed at determining the prevalence of low back pain and back education awareness among secondary school teachers in Kano metropolis.

Research Design

A descriptive survey research design was used in this study.

Population of the study

The population of the study consists of male and female secondary school teachers aged 21-50 years employed in selected secondary schools in Kano Metropolis.

Sample Size and Sampling Technique

A total of 200 apparently healthy secondary school teachers were recruited to participate in the study. The participants were recruited using judgmental sampling technique based on the inclusion/ exclusion criteria.

Participants were considered eligible if they meet the following criteria:

- Secondary school teachers between the ages of 21-50 years
- Teachers with at least 3 years working experience and above.

Participants were not considered eligible if they do not meet the following criteria:

- Teachers with obvious disabilities (such as exaggerated lumbar lordosis, scoliosis, ankylosing spondylitis etc.) significant enough to compromise their participation in the study
- Teachers who decline participation based on any cultural or religious ground
- Teachers with less than 3years working experience
- Teachers with history of back trauma or surgery
- Teachers with pathological conditions like osteomyelitis, tuberculosis of the spine etc.

Data Collection Instrument

- A modified Nordic Musculoskeletal Questionnaire was used to assess prevalence and degree of work affectation of LBP together with a structured Questionnaire to assess the level of back education awareness. This questionnaire was used as an assessment tool for work related musculoskeletal disorders (WRMSDs) in different body regions.[19] Reliability: 0.61 (Cronbach's Alpha). Validity: 0.71.

Data Collection Procedure

Prior to the commencement of the study, approval was sought from the Kano State Senior Secondary Schools Management Board (KSSSSMB). This become necessary because the schools are under the board and acknowledgment of the board eased interaction with the various schools' managements.

The data collection procedure consists of self-administration of the questionnaire. After approval was granted, the questionnaire and a cover letter stating the goals and respondent rights were then distributed conveniently to each of the teacher who consented to participate in the study. The questionnaires were retrieved after three days from the head or principal of each selected secondary school.

Data Analysis Procedure

Participant's characteristics were summarized using descriptive statistics of mean, standard deviation, frequency and percentages. All analyses were performed using Microsoft Excel and Statistical Package for Social Sciences (SPSS Version 16.0).

RESULT

Presented and described below are the tables and figures of results obtained in this study:

Table1: Socio-demographic data distribution of participants

	N	n (%)
Age		
21-30	71	46.4
31-40	65	42.5
41-50	17	11.1
Total	153	100
Sex		
Male	95	62.1
Female	58	37.9
Total	153	100
Marital status		
Single	50	32.7
Married	103	67.3
Total	153	100
Duration of teaching (hours/week)		
5-9	44	28.8
10-14	28	18
15-19	62	40.5
20-24	9	5.9
25+	10	6.5
Total	153	100
Teaching experience (years)		
3-8		
9-14	102	66.7
15-20	42	27.5
Total	9	5.9
	153	100

n = frequency % = percentage

Table 1 above shows the age range of the respondents, with 21-30 having highest percentage of the respondents (46.4%), while 31-40 age range were 42.5% and only 11.1% were aged above 40 years. 37.9% of the participants are single while 62.1% are married. 66.7% of the participants have working experience of 3-8 years, 27.5% between 9-14years 9% of between 15-20 years. 40.5% of the participant work within the range of 15-19 hours/week, 28.8% for 5-9 hours/week, 18% for 10-14 hours/week and 12.4% for above 20 hours/week.

Table2: Back Pain prevalence, severity, and the degree of affectation of work/leisure activities

Variables	N	n (%)
Back pain prevalence		
Yes	96	62.7
No	57	37.3
Total	153	100
Back pain severity		
Mild	17	17.7
Moderate	65	67.7
Severe	14	14.6
Total	96	100
Work Affectation		
Mild	17	17.7
Moderate	75	78.1
Severe	4	4.2
Total	96	100

n = frequency % = percentage

Table 2 above presents the prevalence of low back pain, its severity and the degree of work/leisure activity affectation across the respondents. It indicates that 62.7% of the respondents experienced low back pain in one way or the other during their career. Of the total respondents with low back pain, 67.7% are moderately affected and 14.6% severely affected while only 17.7% are mildly affected. On overall, the table also shows that low back pain moderately affects the leisure/work activities of 78.1% of the respondents, while 4.2% were severely affected and only 17.7% were mildly affected.

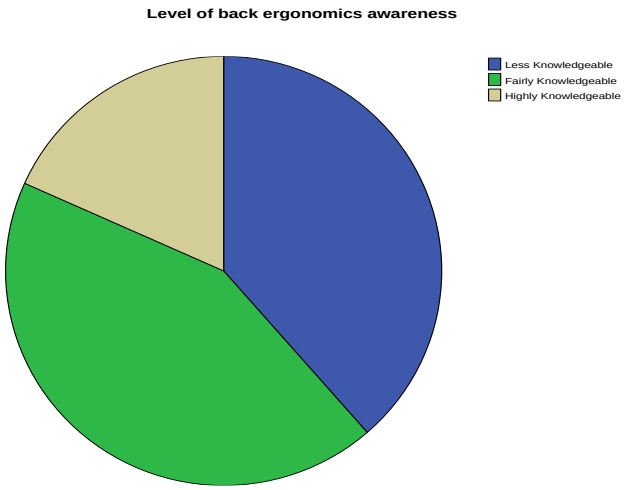
Table3: Specific times of back pain onset

Time of occurrence	n	n (%)
Less than 7days ago	11	11.5
1-12 month ago	83	86.5
More than a year ago	2	2.1
Total	96	100

n = frequency % = percentage

Table 3 above shows the sets of time ranges within which symptoms of back pain was experienced by the study respondents. 83 out of the 96 (86.5%) participants with back pain report a year prevalence. Only 2.1% of the respondents report having low back pain for more than a year ago and 11.5% participants report an acute case for not more than 7 days before carrying out this study. Hence, the overall back pain prevalence within a year among the total respondents is 54.2%.

Figure1: A pie chart showing the percentage of back ergonomic awareness among study participant



The above figure shows the summary of the result for knowledge of back ergonomics among the study participants; 43.1% shown to be fairly knowledgeable, 18.3% of the study participants are found to be highly knowledgeable and 38.6% of the participants are found to be less knowledgeable.

DISCUSSION

The main objective of this study was to find out the prevalence of low back pain among secondary school teachers in Kano Metropolis. The results of the study show that LBP is common in school teachers in Kano metropolis. The study revealed that there was high prevalence of 62.7 out of 100 study participants. This is in line with a study in Shanghai China which revealed a prevalence of 40%.[20] Similarly, another study found that 43.8-74.9% of Turkish school teachers have experienced low back pain during their carrier.[21,22] Also in Brazil and Malaysia, 41.1% and 40.4% respectively of elementary school teachers were reported to have low back pain.[23,24]

Work activities that involve heavy lifting, awkward postures, bending, twisting or stooping, prolonged sitting or standing and repetitive motions may contribute to the development of musculoskeletal disorder.[25] Activities of sustained sitting of frequent reading, marking of assignment and sitting in front of computer, standing up teaching in class, repetitively overhead writing on board are also unsafe act and favorable to the development of LBP found in teachers.[24] The work of teachers involves a considerable physical load, established by the educator remaining in the orthostatic position during up to 95% of activities, with varied levels of flexion of the backbone.[24,25]

The study also revealed that majority of the participants teaches for between 15-19 hours in a week. Long working hours has been reported to be a risk factor of developing musculoskeletal disorders.[26,27] Low back pain was more severe in teachers with above 25-hour weekly schedule, although not all differences observed were statistically determine as significant. Such characteristics suggest that the long and probably, intense workday could contribute to the occurrence of the event. Teachers' overworking has been mentioned in other studies, both for preschool and college teachers.[28]

In this study, it was observed that out of the 96 participants that have low back pain, 26 (27.1%) sought medical advice and only 6 of them sought the services of physiotherapists. This is important to note because, only 17.7% respondents report that their pain only mildly affects their work efficiency. Meanwhile the remaining 62% report a moderate to severe affectation. If they are not advised on their life style, work environments and ergonomics, they may become predisposed to injury. For instance, a study observed that chronic postural strain gives rise to joint instability and predisposes one to injuries.[29]

On the other hand, this study has also found the percentage level of ergonomic awareness among secondary school teachers to be moderately average. However, results of the awareness level among the study participants showed that 38.6% of the respondents were less knowledgeable about back ergonomics but 18.3% of the study participants were found to be highly knowledgeable.

This obviously is in contrast with the notion that high prevalence of LBP might have been due to a low level of ergonomic awareness. Therefore, within the limit of this study, knowledge of back ergonomics does not infer a less LBP prevalence among school teachers (An occupational group among which there appears to be a high prevalence of LBP).

CONCLUSIONS

Based on the outcomes of this study, the following conclusions are made:

- There is a high prevalence of low back pain among secondary school teachers in Kano metropolis.
- The level of back ergonomic awareness is moderate among secondary school teachers in Kano metropolis.

Recommendations

Based on the results and the conclusions of the present study, the following recommendation may be beneficial:

- Proper intervention to prevent exposure to LBP among school teachers should be enhanced and teachers should be well educated on the importance of ergonomic intervention in their working environments.
- Further studies should be carried out on similar topic eliminating the aforementioned limitations of this study.

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Appendix I
QUESTIONNAIRE

SECTION A: Bio-Data

1. Age: [ ] year
2. Sex: [ ]
3. Marital status: Single [ ] Married [ ]
4. Teaching experience: [ ] year(s)
5. Duration of teaching: [ ] hours per week.

SECTION B: Enquiries about Low Back Pain

Tick in the box that best describe your condition:

I. Have you ever had trouble with your back at any time during your career? YES [ ] NO [ ]
If YES, answer the following:

1. For how long ago?
a) Less than 7 days ago b) 30 days ago c) About a year ago d) More than a year ago
2. Have you ever been hospitalized because of low back trouble?
YES [ ] NO [ ]
3. Have you at any time been prevented from doing your normal work or leisure activity (at home or away from home) because of the trouble?
YES [ ] NO [ ]
4. Have you ever had to change jobs or duties because of the low back trouble?
YES [ ] NO [ ]
5. Have you ever had to change jobs or duties because of the low back trouble?
YES [ ] NO [ ]

6. What is the total length of time you have had low back trouble?
   a) Less than 24hrs b) 1-7 days c) 8-30 days d) More than 30 days but not every day
7. Has low back trouble caused you to reduce your activity?
   (a)Work activities Yes [ ] NO [ ]
   (b)Leisure activity Yes [ ] NO [ ]
8. What is the total length of time that low back trouble has prevented you from doing your normal work?
   a) Less than 24hrs b) 1-7 days c) 8-30 days d) More than 30 days but not every day
   e) Everyday

II. Have you seek medical assistance for your low back trouble?
   Yes [ ] NO[ ]
   If yes, who have you been seeing for your low back trouble?
   Doctor [ ] Physiotherapist [ ] None of the above [ ]
   Others (specify) .....

SECTION C: Enquiries about Back Ergonomics Awareness

Tick in the box that best describes your condition:

1. Are you aware that sitting for a long period of time in a single spot can lead to low back pain?
   YES[ ] NO [ ]
2. Are you aware that a chair that do not fit you or adjust appropriately can result in back pain
   YES [ ] NO [ ]
3. Are you aware that leaning forward from your back rest throughout the day can lead to pain at the back? YES[ ] NO [ ]
4. Do you know that standing up, stretching trunk backward, and taking a few steps around after sitting down for about an hour helps prevent the development of low back pain? YES [ ] NO [ ]
5. Do you know that standing for a long period of time on a same spot can cause low back pain?
   YES[ ] NO [ ]
6. Do you know that lifting heavy loads with your back bent or bowed out can cause the development of low back pain? YES[ ] NO [ ]
7. Do you know that contact of the body with a hard surface or edge such as the corner of a table or tool; can lead to pain or discomfort. YES[ ] NO [ ].
8. Do you mind your back when carrying out daily living activities?
   a) Always b) Occasionally c) Rarely d) Not at all
9. Does your association organize public lectures on how to take care of your back? YES [ ] NO [ ]

Thank you for your cooperation.