International Journal of Education and Science Research Review
E-ISSN 2348-6457
Volume-9, Issue-3 May-June- 2022
P-ISSN 2349-1817
www.ijesrr.org Email- editor@ijesrr.org

PREVALENCE AND POTENTIAL DETERMINANTS OF MUSCULOSKELETAL DISEASE CLINICAL MANIFESTATIONS AMONG HEALTH CARE WORKERS IN AHMADU BELLO UNIVERSITY TEACHING HOSPITAL ZARIA (ABUTH)

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ABSTRACT

This study aims to determine the prevalence and potential determinants of musculoskeletal disease clinical manifestations (MSDCM) among health care workers in Ahmadu Bello University teaching hospital (ABUTH), Shika, Zaria.It was a cross sectional survey study, using simple frequency, percentage and mean.Availability sampling method was conducted among a sample size of 198 health care workers who willingly participated in the study. Structured Questionnaire was used as the instrument for data collection. Results revealed 100% cumulative life prevalence of musculoskeletal disease clinical manifestations. Treatment was sought by 73.3% of workers who experience the clinical manifestations of musculoskeletal diseases.70.3% required sick leave or absence from work as a result of negative impact of the disease. The potential determinants associated with the disease clinical manifestations were professionally categorized as lifting of patients or objects/equipments, increased frequency of lifting, standing for long on duty, movement of heavy equipments, and other factors like conducting deliveries among others. It was concluded that there was a high prevalence of musculoskeletal disease clinical manifestations among health workers in ABUTH.Many potential determinants were identified as mentioned above, that would necessitate a multidisciplinary approach in reducing the prevalence of musculoskeletal disease clinical manifestations and related costs of treatment. It was recommended that periodic training, sensitization through workshops and encouraging health care workers to employ safe handling techniques in the course of discharging their responsibilities. Creating a safe and conducive work environment by providing psychosocial supports to health care workers. Management should ensure the provision of adequate number of staff, as this will go a long way in reducing the prevalence of the disease.

KEY WORDS: *Musculoskeletal, disease, clinical manifestations, prevalence, potential determinants.*

LIMITATION OF THE STUDY

- The study is limited to prevalence and potential determinants of MSDCM and health care workers.
- This study is limited to health care workers in the cadres/fields of Nursing (70%), Attendants (10%), portals (10%), pharmacist (5%), and laboratory technician (5%).
- The period for data collection was limited during discharge of the work.
- Some health workers were too to respond or fill the questionnaire.

- Not all health care workers met accepted to fill the questionnaire and this was due to personal reasons.

METHOD: Cross sectional research design was adopted in which data was collected in the following units; Nursing (70%), Attendants (10%), portals (10%), pharmacist (5%), and laboratory technician (5%)with the help oftrained research assistants, a total of 230 questionnaires were distributed, in which 198 of them being fully completed and returned, and the data collected was tested for validity and reliability.

INTRODUCTION

The musculoskeletal system (also known as the locomotor system) is an organ system that gives animals (including humans) the ability to move, using the muscular and skeletal systems. It provides form, support, stability, and movement to the body. The musculoskeletal system is made up of the body's bones (the skeleton), muscles, cartilage, tendons, ligaments, joints, and other connective tissue that supports and binds tissues and organs together. The functions of these components are highly integrated, therefore, disease, or injury to one component adversely affects the others. It also provides protection to vital organs including the brain, heart and lungs. The diseases and injuries of musculoskeletal system are commonly implicated in disability and death; for example, the leading and most common cause of disability in the United States, is arthritis (centre for disease, prevention and control, 2005).Osteoporosis related fractures account for more than 432,000 hospitalization annually in U.S (National Osteoporosis foundation,2008).Nurses and other health care workers engage in high level physical activity, particularly weight bearing activity acts to stimulate bone disease symptoms like low back pains, tenderness, tightness and abnormal sensation. The pain may be dull, deep aches, and sharp cramps in nature. Musculoskeletal disorders are one of the most frequent health problems relating directly to work conditions (Roupa, 2008). Intensification of work, changes in work schedule and organization of work place, rising demand on employees, as well as new technologies lead to disease situations characterized by additional pressures and stress. As a result, more occupational or work related disease symptoms have appeared such as lower back pains. Musculoskeletal disorders account for about 4.3% of disability adjusted life years in the developed world, while accounting for approximately 1% in the developing world (Lopez, 2001). Work related complaints have become a major concern for employees, employer and the Government because of their negative impacts on the health and productivity of the employees (Fulton-Kehoe, 2000).In 2005, a total of 27 (23%) of EU workers reported work related muscular pains on the shoulders, neck and/or upper/lower limbs (EFILWC,2007). For non- fatal occupational injuries in the united states,18.6% of all new cases occurred in the health care and social assistance sectors; even top the list of non- fatal injuries and illnesses per year (U.S labor statistics,2005). Health care workers are exposed to several factors that can explain the heightened risk for illnesses and sick leave. For example, the awkward work posture and manual material handling by hospital staff lead to an increased risk for occupational musculoskeletal injuries (Waters, 2007).Currently, it is difficult to provide adequate prevention of work related diseases in health care workers because most reviews reporting on diseases and disorders are based on all health care workers and do not differentiate for physicians (Josh.2006, Bousquet, 2006). Physicians, Nurses and other health care workers are exposed to factors at work place that may cause a broad range of psychological, biological, physical and chemical disorders and diseases. One risk among health care workers is due to multiple physical exposures, e.g.in the

operation room because of new working techniques like laparoscopy (Stomber, 2010) or the duration of keeping awkward postures, or due to working distance during work (Conzett-Baumann, 2009).These factors may lead to different complaints of the musculoskeletal system that are known to be related to hospital work. Consequently, these may lead to musculoskeletal disorders. This systematic review aims at gaining insight into the prevalence and potential determinants of musculoskeletal complaints among health care workers. The agency for health care policy and research-AHCPR stated that lower back pain is prevalent, clinically complex and exerts a huge cost on both the patient and his/her family and the society at large. Anderson (2002) reported that low back pain is a common problem. It is estimated that 60-80% of people in the U.S will be affected by some form of low back pain during their lifetime. Nurses suffer musculoskeletal pains often than workers in other professions(Edgar,2011).A study conducted in Tanzania demonstrated a high prevalence of lower back pains among Nurses with 74%(Mwilila,2008).These findings are in line with results from a Nigerian study, which also reported a high prevalence of lower back pains(69%) among Nurses in one of its rural hospitals (Omokhodion and Ogunnowo,200).Also, in Kano, the annual prevalence of lower back pains among Nurses in Murtala Mohammed Specialist hospital was 71% (Sikiru and Shmaila,2001).This negative index could possibly be high in many other hospitals in the country.

LITERATURE REVIEW

GLOBAL PREVALENCE OF MUSCULOSKELETAL DISEASE CLINICAL MANIFESTATION COMPLAINTS

A recent analysis of global burden of disease (GBD) data showed that approximately 1.7 billion people globally suffer from musculoskeletal conditions (Cieza,A.,k.,Hanson,S.W., Chatterji, S., & Vos,.T,2020) which are responsible for considerable human, social and work-related burdens in terms of pains, distress at work, disability and quality of life. Musculoskeletal diseases in working population are the leading cause of morbidity and work related disability in the European Union and represent one of the most worrying work related health issues at present. A better understanding of the mechanisms responsible for the onset and progression of these disorders constitute a major public health challenge in order to improve on their prevention, management and prognosis. WHO (2010) stated that for many years, research has been largely devoted to risk factors and prognostic factors of musculoskeletal diseases, demonstrating regardless of the site studied, an increased risk related to cumulative biomechanical, psychosocial and organizational stress. The highest prevalence of musculoskeletal disease symptoms is in the lower back, legs and neck pains, is said to be a worldwide, disabling occupational hazard (Vuuren,2007 &Cieza et al,2020). Mac Donald (2007) indicated that a prevalence of 60-90% of individuals experience lower back pains during the course of their lives worldwide, while Maul (2003) also reported a lifetime prevalence of musculoskeletal disease symptoms to be more than 70% in developed countries. A medium quality study on musculoskeletal complaints reported a prevalence for hand and wrist pains to be 8-33% and 0% respectively;17% for shoulder pains and 9-28% for neck pains (Johnson,2005). Prevalence of low back pains was between 33 and 68% (Vuuren,2007).Occasionally reported prevalence of hand and wrist pains were 36 and 67% (Wolf,2000).Only Johnson (2005) examined the frequently reported prevalence for forearm pains (25 and 4%). Wolf (2000) found an occasionally reported prevalence of elbow pains to be 11%.Two studies reported

an annual prevalence for shoulder pains to be 38-58% (Szeto,2009).Two medium-quality and three high-quality studies reported a prevalence of back pains:Failde (2000) found a prevalence for low back pains of 80%, while Cunningham (2006) reported a point prevalence for low back pains of 24%, with an annual prevalence of 33% and a lifetime prevalence of 67%.Comparatively,three other studies showed a prevalence between 44 and 68% (Karahan,2009).Wolf (2000) reported an occasional prevalence of low back pains of 33%.Szeto (2009) also presented an annual prevalence of 29 and 53% (upper back pains).In Africa, the findings are not different from those in the developed countries. Results from a systematic review done in Africa concluded that it was equally a disabling problem and on the rise, with a year prevalence of 72% and a lifetime prevalence of 74% (Louw, 2007).On the contrary, Omokhodion (2002) reported that the prevalence of lower back pains is thought to be still less in the lower income countries, although this might not be the case. The author further argues that it is the degree at which lower back pains is readily addressed in both settings that determine its prevalence. Considering the major health challenges faced by the low income countries, lower back pains may rather not be seen as a priority as it might be the case in the developed countries. A number of studies have been done worldwide on occupational musculoskeletal disease symptoms complaints and health care workers were found to be the most vulnerable (Louw,2007). Also, Louw (2007) revealed a high prevalence (69%) of musculoskeletal diseases among health care workers in Aminu Kano teaching hospital, Kano, Nigeria.

COMMON PREDISPOSING/RISK FACTORS FOR MUSCULOSKELETAL DISEASE CLINICAL MANIFESTATIONS

Performing the same task repeatedly was related to the presence of symptoms in many areas and calls into question the wisdom of practicing in such a way. Concepts such as job rotation and variety in work are commonly applied in industry to avoid overloading any anatomical area, either by sustained posture or repetitive actions. Repeated muscle contractions and static loading are known to be risk factors in the development of cumulative trauma disorders.Kroema (2009) stated that provision of alternating work, which allows breaks in otherwise repetitive or maintained activities, is essential in the prevention of such disorders. Thus, physical therapists should ensure that they vary their techniques in order to place varying stresses on different anatomical areas. Within specialty areas, therapists need to have at their disposal a variety of treatment tools. Results from most of the literatures about musculoskeletal diseases have not managed to identify their causes, but rather their characteristics work settings that are associated with increased work related pressures among health care workers, have been attributed to the development of lumbar pains as well as other muscular pains in the body, fatigue as well as disrupting sleeping patterns to the employee (Roupa,2008).69% of nurses who suffer low back pains were exposed to heavy manual workload (Bejia,2005). However, there are some frequently reported risk factors which are related to both working and non working individuals. These include type of work such as heavy manual work, repetitive bending, twisting, lifting, pulling and pushing, forceful movements, static postures like prolong sitting and awkward postures (Roffey,2010).In contrast, Yip(2002) reports a 30-50% of self-reported lower back pains among nurses in Hong Kong, that was associated with house chores and consequently lead to daily activity limitation. Roffey (2010) stated that lower back pains could be due to injury of the neuromusculoskeletal system affecting the lumbar spine such as muscles, ligaments, nerves, discs as well as the vertebrae.Beijia

(2005) added that advanced age was a risk factor of musculoskeletal disease occurrence due to the possibility of degenerative process that accompany old age. Some findings suggest that a number of diseases occur as a result of old age, thus making the older employee a less productive as far as physically demanding task is concerned (Szeto, 2009).Silveri and Spinasanta (2009) posited that poor muscle strength and flexibility can lead to poor postures which may further lead to dysfunction of respective muscles and joints in the back resulting to back pains. In addition, soft injury in the spine such as sprain or strain on the muscles due to overload, ligaments and joints due to poor postures of the spine and prolapsed disc, due to improper lifting as well as poor posture of the back, have been suggested as other common causes. Musculoskeletal diseases such as osteoporosis, rheumatoid arthritis, and osteoarthritis which can result to fracture, is sometimes secondary to kidney diseases (Roffey, 2010). Traditional/complementary treatment approaches of musculoskeletal disease symptoms include: Acupuncture, Herbal medicine, Magnetic therapy, Movement and Nutritional therapy. On the other hand, modern/conventional treatment approach involves: Anesthesiologic, Neurostimulatory, Pharmacological, and Psychological/mind-body therapy respectively. Massage therapy was found to be effective in reducing pain, stress hormones and symptoms associated with chronic low back pain (Roffey, 2010).

DATA ANALYSIS

The data was analyzed using simple frequency, percentage, and mean, and mean statistical method. A total of 230 questionnaires were distributed, with 198 of them being fully completed and returned.

Table 1: Socio-demographic characteristics

Socio-demographic	Frequency (f)	Percentage (%)
Sex		
Male	68	34.4
Female	130	65.6
Total	198	100
Age		
<20	2	1
21 – 30	68	34.3
31 – 40	104	52.5
Above 40	24	12.2
Marital status		
Single	48	24.2
Married	120	60.7
Divorce	12	6.1
Widow	18	9.1
Duration/ years of service		
1 – 10	63	31.8
11 – 20	85	42.9
21 – 30	36	18.1

Above 30	14	7.0
Respondent's weight		
< 40	0	0
41 – 60	68	34.4
Above 60	130	65.6

The results shows that majority of the respondents (52.5%) are between the age of 31 – 40 years, majority of the respondents (60.7%) are married, most of the respondents (42.9%) are within 11 – 20 years of service and majority of the respondents (65.6%) weighted more than 60kg.

Table 2: Prevalence of musculoskeletal disease clinical manifestations

Clinical manifestations	Frequency (f)	Percentage (%)
Do you experience any musculoskeletal disease clinical manifestation?		
Yes	136	68.6
No	62	31.2
Total	198	100
Which MDCM do you experience?		
Pain	157	40.1
Muscle Fatique	95	24.2
Stiffness	37	9.4
Discomfort	79	20.2
Burning	23	5.8
Tingling	55	27.8
Bio mechanic strain	31	15.6
Loss of function	2	1.2
Partial numbness	11	5.5
Decrease grip strength	32	16.1
Decrease range of motion	15	7.5
Deformity	0	0
Total	505	100
What Region of the body is affected?		
Head/Neck	31	8.5
Shoulder	29	7.9
Upper limbs	42	21.2
Thoracic spine	26	7.1
Lower back	168	46.3
Lower limbs	84	42.4
Total	338	100
Frequencies of the symptoms		
Once	27	13.6

Occasionally	53	26.7
More often	49	24.7
Always	69	34.8
Total	198	100
Did the symptoms have any effects to your work?		
Yes	196	98.9
No	2	1.1
Total	198	100
How does it affect your work?		
Decrease in function	48	24.2
Absenteeism	35	17.6
Psychological stress	115	58.1
Total	198	100
How do you cope/manage the condition?		
Drugs/medication	401	20.7
Relaxation/ sick leave	64	32.3
Therapeutic massage	25	12.6
Diversion therapy (Reading/TV/Radio)	16	8
Exercise (muscle strengthening & stretching)	34	17.2
Chiropractic care (spinal manipulation)	18	9.1
Total	198	100

The results shows that majority of the respondents (68.6%) developed musculoskeletal symptoms, Most of the respondents (40.1%) experiences pain more often among the symptoms, mostly around the lower back region (46.3%), and most of the respondents (34.8%) came up with the symptoms always, most of the respondents (32%) managed the symptoms with relaxation technique.

Table 3: Potential determinants of musculoskeletal disease clinical manifestations

A likert scale of 1 -4 intervals was used to determine the mean value of the responses, any mean score greater than 3 was considered as a potential determinant of musculoskeletal disease clinical manifestations while mean value less than 3 was considered as not potential determinant of musculoskeletal disease symptoms among health care workers in ABUTH.

Potential determinants	No of statistics	mean value	Remark
Prolong standing	198	3.6	Accepted
Prolong sitting	198	2.6	Rejected
Awkward posture	198	3.5	Accepted
Lifting heavy equipment	198	3.4	Accepted
Lifting patient	198	3.4	Accepted
Assisting patient to ambulate	198	2.9	Rejected
Moving a long distance	198	3.0	Accepted
Carrying out patient's procedure	198	3.1	Accepted

Conducting delivery	198	2.8	Rejected
Taking vital signs	198	2.5	Rejected
Aggregate mean		**3.0**	

According to the table above, the majority of respondents (3.6) agreed that prolonged standing, awkward posture, and lifting heavy equipment and patients are the most likely determinants of musculoskeletal disease symptoms.

DISCUSSION OF FINDINGS

The study's goal was to determine the number of health care workers who have musculoskeletal disease clinical manifestations, the region of the symptoms, the frequency of the symptoms, how they cope with or manage the symptoms, and potential determinants. In this study, the point prevalence of health care workers with musculoskeletal disease symptoms was measured to be 100 percent for the entire year. The majority of respondents (40.1 percent) developed pain, and the pain was mostly (46.3 percent) in the lower back. This finding is similar to those of Oghumike (2005), Shmaila (2009), and Mwihla (2009), who found a high prevalence of low back pain among hospital care workers in Tanzania, Nigeria, and Ethiopia (59.7 percent, 71 percent, and 73.7 percent, respectively). Another researcher, Omokhodion (2002), concluded in his study of Nigerian nurses that low back pain is common among nurses and other health care workers. In Switzerland, health care workers had a 60 – 80 percent prevalence of low back and upper limb pain compared to the rest of the developed world (Maul, 2003). According to the study's findings, the majority of respondents (65.6 percent) are female, between the ages of 21 and 40, with work experience ranging from 11 to 20 years, and weigh more than 60 kilogrammes. The study found that all of the respondents (100%) had experienced the symptoms at some point, indicating that there is a strong relationship between musculoskeletal disease and age, gender, and length of service. This is similar to a study conducted in Tunisia and Tanzania by Bejia (2005) and Mwihla (2008), which discovered that being female health workers was significantly associated with MSDCM occurrence, indicating that females had a higher prevalence of musculoskeletal symptoms than their male colleagues, possibly due to differences in body physics. Most of the respondents (34.8 percent) have the symptoms more frequently, which is similar to the findings of Joshi (2006), who discovered that there is a prevalence of musculoskeletal complaints of wrist pain, shoulder pain, neck pain, and lower back pain among health care workers, as well as other findings conducted by Wolf (2000), Johnson (2005), Szeto (2009), Failde (2000), and Karahan (2009) who found similar results in their respective research. The majority of respondents (32.3 percent) take sick leave and 20.7 percent take drugs to cope with the symptoms, which is consistent with a study conducted by Beija (2005), which found that the majority of health care workers who suffer from MSDCM had ever taken sick leave to manage the symptoms. According to the study, factors that predispose health care workers to MSCM in the workplace include prolonged standing (3.6), awkward posture (3.5), and lifting of heavy equipment and patients. This is consistent with the findings of Beija (20045), who discovered that 69.9% of health care workers suffering from MSDCM were exposed to heavy manual workloads such as lifting heavy equipments. Similarly, Roffey (2010) identified heavy manual work repetitive bending, twisting, lifting, pulling, pushing, forceful movement, static posture such as prolonged standing, and awkward posture as risk factors for MSDCM among health workers.

SUMMARY

The study was conducted to determine the prevalence and potential determinants of MSDCM in Ahmadu Bello University Teaching Hospital (ABUTH), the goal was to determine the number of health care workers with MSDCM, the common symptoms, management, and potential determinants were ruled out, relevant literature was reviewed, the method was a cross-sectional survey design, availability sampling was used, the sample was 230 respondents, and the response rate was 80%, (198 respondents). The study found that the majority of respondents had MSDS in one form or the other, with lifting of patients, awkward posture, and prolonged standing being major potential determinants of MSDCM among health care workers at ABUTH Zaria.

CONCLUSION

It can be concluded that all respondents suffered from MSDCM, particularly pain in the lower back and lower limbs. The majority of respondents who suffered from MSDCM sought treatment to alleviate their symptoms, and the majority of respondents believed that the various potential determinants are the primary causes of MSDCM among health care workers.

RECOMMENDATIONS

Based on the findings of this study, Management should ensure that the following recommendations are implemented.

- Creating a safe and conducive working environment for the health care workers
- Provide a modern machine to move and lift the patient.
- Organizing workshops and seminar on equipment safe handling techniques
- Reducing the work load while providing minimal incentives to motivate health care workers
- Hospital management should promote leisure time physical activities among health care workers to maintain a healthy and competitive staff.
- Employ un-skills laborers for transferring and lifting of patients.
- Hospital management should employ more workers to reduce the working hours.
- Workers with early symptoms of musculoskeletal disease should have access to sick leave.

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