Prevalence of Work-Related Musculoskeletal Disorders among Primary Health Care Workers in Minna, Niger State

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Abstract

Work related musculoskeletal disorders are conditions that health care providers are themselves highly prone to from their daily activities of handling patient care. This study was conducted among primary healthcare workers in Minna, Niger State to determine the prevalence of musculoskeletal disorders (MSDs) resulting from performing occupational duties in PHC centers. The objective of this study was to investigate the proportion of healthcare workers affected by work-related musculoskeletal disorders and the most common disorder affecting this category of people. The NMQ was used to gather information from respondents. A total of 334 workers of the PHC centers were selected through purposive sampling which comprised of clinicians with the exception of administrative and other support staff. After analysis of data lower back pain showed the highest prevalence (41%) followed by shoulder pain (18%) and neck (14%). The majority of PHC workers in Minna metropolis are affected with low back pain. It is the most common WRMSD among clinicians. This is also in alignment with the global menace of low back pain as one of the most common reasons for individual work absenteeism. High-quality experimental studies, such as randomized controlled trials (RCTs), are needed to investigate specific etiological factors responsible for these disorders and objective means to quantify the level of discomfort from these disorders.

Keywords: Work-related musculoskeletal disorders, Low back pain, prevalence, Healthcare worker, clinicians, primary health care centers, Minna metropolis, Niger State.

Introduction

Work-related musculoskeletal disorders (WRMSDs), referred also as work-related repetitive stress (overuse) injuries, have accounted for a significant proportion of work injuries and workers' compensation claims in Western industrialized nations since the late 1980s [1]. The negative effect of work on an individual can impact the musculoskeletal system causing joint disorders [2]. Work-related musculoskeletal disorders (WRMSDs) are the most common work-related health conditions affecting health care workers globally. These are a wide range of degenerative and inflammatory conditions affecting peripheral nerves, joints, ligaments, tendons, and muscles [3]. However, in the 1970s, more active epidemiological research on the correlation between these conditions and occupation started, which resulted in increased international scientific literature research. Presently, more than five thousand scientific

papers have been published on workplace ergonomics and WRMSDs [4].

Musculoskeletal disorders (MSDs) have been described as the most notorious and common causes of severe long-term pain and physical disability that affect hundreds of millions of people across different health sectors [5]. In the workplace, health care professionals are at risk of sustaining musculoskeletal disorders during their work routine [6]. Research has suggested that health care workers are particularly susceptible to WRMDs because of the nature of their profession which is often repetitive, labor intensive, and involves direct or indirect contact with patients [7]. The relationship between musculoskeletal disorders (MSDs) and work-related factors remains the subject of much debate and continues to represent a major challenge for workers and their employers in almost every sector [8].

WRMDs affect millions of workers across the globe, and employers themselves spend billions of euros in Europe because of them [9]. Approximately 30% of all MSDs registered in the world are WRMSDs and make up for approximately 34% of the loss of working days [10]. [11] Reported that almost 24% of workers from the European Union (EU) suffer from back pain and 22% complain of muscle pain. The lifetime prevalence of WRMDs among health care workers has been reported to be 68% in the United Kingdom, 55% in Australia, and 85% in Turkey. Work-related musculoskeletal disorders (MSDs) constitute a significant proportion of occupational morbidity, lost workdays, and costs.

According to the US Bureau of Labor Statistics, there were 388 060 MSD cases in 2012, accounting for 34% of all injury and illness cases. Neck, back, and upper-extremity work-related MSDs represent 27% of all workers' compensation claims in Washington State – 36% of the claims result in four or more lost workdays and more than 43% of all costs [12]. Knee disorders occurred often among lower-extremity disorders, accounting for 65% of lower-extremity MSDs and 5% of total body MSDs [13]. Low back pain is the most common WRMD among doctors, physical therapists, pharmacists, and nurses [10], with career and annual prevalence of low back pain among physiotherapists in the United Kingdom reported as 68% [11]. In the United States, the prevalence of low back pain among Nurses ranges from 45% to 62%. Other health problems range from minor pains and disturbances to more serious health conditions that require absence from work or treatment. In severe cases, they can lead to disability and the need for premature retirement [14].

The issue of safety and health has become the main agenda in Nigeria so as to ensure a safe working environment that does not pose a risk to employees. These risks lead to employees working in environments that are not comfortable and therefore contribute to the high burden of WRMSDs [15]. The statistics indicate that more than 70% of the hospitals in developing countries do not have enough staff. Long working hours with inadequate staffing increase health care workers' risk of developing conditions, such as musculoskeletal disorder, hypertension, and depression [16].

However, the correlation between WRMSDs and the workers in poorly funded, and inadequately equipped primary health care centers (PHC) in low- and middle-income countries (LMIC) such as Nigeria, has very little epidemiological research [17]. Reported that the adoption of the Health for All strategy by World Health Organization (WHO) was followed by what has become recognized as a landmark meeting, which was jointly organized by the WHO and UNICEF, which held at Alma Ata, in Kazakhstan. The meeting resulted in the Declaration of Alma Ata on primary health care (PHC). Similar to the Ottawa Charter that followed, the Declaration has proved to be an inspirational statement, highlighting the need to reorient health systems in many countries

towards the provision of primary healthcare services for the citizens [18].

Primary health care was defined as: "Essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination" [19].

Presently, most of the PHC facilities in Nigeria lack the capacity to provide essential health-care services, in addition to having issues such as poor staffing, inadequate equipment, poor distribution of health workers, poor quality of health-care services, poor condition of infrastructure, and lack of essential drug supply [20]. In part, problems with the implementation of PHC in Nigeria are related to the hand over in 1980s to the local government administration, which is the weakest level of government in Nigeria, that is till date struggling to achieve autonomy to run its own affairs and receive allocation directly from the federation account [21]. Since the concept was first published in 1978, various countries have attained different levels of progress in implementing the strategy [22].

There is presently no study that has investigated the prevalence of such reality. It is against this background that this study is relevant. Therefore, the purpose of this study is to investigate the prevalence of WRMSDs affecting the PHC workers in Minna, Niger State.

Methodology

Study Area

The study was conducted in Minna, the capital city of Niger state which is in the middle belt region of Nigeria. Minna, the capital of Niger State is situated between latitude 09°36'45"N and longitude 06°31'12"E and is not an exception to the failing state of its PHC

centers. Minna is a city with an estimated population of 304,113 as of the 2007 population census which is in Middle Belt Nigeria. It is the capital of Niger State, one of Nigeria's 36 federal states. It consists of 2 major ethnic groups: the Nupe and the Gwari. There isn't much data reporting the state of the PHC focal centers in Minna. However, poor staffing, inadequate equipment, poor distribution of health workers, poor quality of health-care services, poor condition of infrastructure, and lack of essential drug supply are also factors affecting the welfare of workers in these facilities in Minna [23]. With eleven PHC centers dispersed around the capital city to serve a population of over 300,000 people, PHC workers are highly likely going to be stressed, overburdened and at high risk of developing WRMSD.

A cross sectional was adopted was for this study and the population for this study were staffs like Physicians, Community health officers, Nurses, Nurse aids, Pharmacies, pharmacy technicians, Medical Laboratory Scientist, laboratory technicians, medical record officers, porters, cleaners, administrative staff and security guards.

Sample Technique

Purposive sampling, also known as judgmental, selective or subjective sampling was employed in this study. The populations of PHC workers were divided into two homogeneous clusters of clinicians, and non-clinicians such as administrative staff, and hospital support staff, cleaners, and security guards. The sample size included only the homogeneous cluster of clinicians such as physicians, nurses, laboratory technologists and technicians, pharmacists and pharmacy technicians, community health officers, medical health record officers, midwives.

Research Instrument

Data for this study was collected from primary and secondary sources. The primary

source of data collected was mainly the use of the Nordic musculoskeletal questionnaire (NMQ) which was designed to elicit information on musculoskeletal disorders and other demographic characteristics. The NMQ can be used as a questionnaire or as a structured interview [24].

The Nordic Musculoskeletal Questionnaire (NMQ) was developed from a project funded by the Nordic Council of Ministers [25]. The secondary source of data collections were textbooks, journals, and scholarly materials.

Method of Data Collection

This study is based on the two possible sources of data which are the primary and secondary source.

1. **Primary Source of Data:** The primary data for this study consist of raw data generated from responses to Nordic musculoskeletal questionnaire by the respondents.
2. **Secondary Source of Data:** The secondary data includes information obtained through the review of literature from journals, and other periodicals.

Method of Data Analysis

Data collected was analyzed using frequencies and percentages to measure the formulated study aims and objectives using statistical package for social sciences. Haven gathered the responses from the open-ended questions through the administration of questionnaire, the collected data was analyzed and tabulated using Microsoft excel package and PSPP for windows 64-bits.

Results

This section deals with the presentation and analysis of the results obtained from the open-ended questionnaires. The results gathered were presented according to the order in which they were arranged in the Nordic questionnaire. Frequencies and percentages were used to analyze the demographic information of the respondents in section A as well as the Body Parts Symptoms Survey (BPSS) diagram in section B of the questionnaire.

Results: Section A of Questionnaire

The results from the study below showed that only 37% of the primary health care workers are university graduates. The remaining 63% have other forms of post-secondary school certificates in health sciences such as diplomas. The majority (33%) of respondents are between the ages of 26-30. Based on the results, the study revealed that 64% of the respondents are males with 36% being female clinicians. However, only 69% of them were married.

In keeping with the research question, the percentage distributions and overall status of WRMSDs among primary health care workers in Minna are Neck pain (14%), shoulder pain (18%), chest (0), low back pain (41%), upper back pain (11%), hip pain (5%), knee pain (10%), ankle pain (1%). Furthermore, from the date above, low back pain has the highest occurrence, hence, it is the most common WRMSDs affecting primary health care clinicians in Minna, Niger State.

Table 1. Gender of Respondents

Gender of Respondents	Frequency	Percentage
Male	228	64.0
Female	106	36.0
Total	334	100.0

Table 2. Age Range of Respondents

Age range	Frequency	Percentage
15-20years	30	9.0
21-25years	80	24.0
26-30years	110	33.0
31-35years	75	23.0
above 35years	39	11.0
Total	334	100.0

Table 3. Marital Status of Respondents

Marital Status of Respondents	Frequency	Percentage
Single	105	31.0
Married	229	69.0
Total	334	100.0

Table 4. In a week

Working hours	Frequency	Percentage
0-12	88	26
12-24	246	74
Total	334	100

Table 5. At least 3 Months Duration of Pain

Pain has been present for at least 3 months	Frequency	Percentage
Yes	270	80
No	64	20
Total	334	100

Table 6. Pain Preventing performance of Activities of Daily Living (ADL)

Has pain prevented performance of ADL	Frequency	Percentage
Yes	40	12
No	294	88
Total	334	100

Table 7. Pain Preventing Leisure Activities

Has pain prevented performance of ADL	Frequency	Percentage
Yes	40	12
No	294	88
Total	334	100

Based on the objectives of the study, the results reported that low back pain, with a prevalence rate of 41% was the most common WRMSDs closely followed by shoulder joint pain (18%), then neck pain with a 14% prevalence. The prevalence range of WRMSDs is between 1-41% with the least prevailing condition being ankle pain while low back pain is the most endemic. Furthermore, 74% of PHC workers in Minna metropolis work between 12-24hrs weekly, 80% reported that joint pain was present for more than 3 months, while all the respondents reported that pain was only present unilaterally (i.e., one sided). It is interesting to

report that besides the lack of bilateral affectation, 88% of respondents were not prevented from performing either their activities of daily living or clinical work even in the presence of pain. Only 22% showed that leisure time and work were impaired by pain and discomfort.

Finally, there was no history of chest pain among all the respondents, as such, it can be concluded that while low back pain is the most common disorder, musculoskeletal conditions associated with the chest region are very rare among PHC workers in Minna.

Discussion

This study investigated the prevalence of work-related musculoskeletal conditions affecting primary health care clinicians working within focal centers in Minna, Niger State. The key findings of this study showed that the prevalence of low back pain among respondents is high (41%). There is a global recognition of low back pain as a major health problem with an estimated lifetime prevalence of 60-84% and an epidemic status worldwide. Epidemiological reports indicate that seventy to eighty percent of people in western society have at least one episode of LBP in a lifetime. According to [26], 88% of Nigerians aged above 60 years have had at least one episode of LBP in their lifetime. The results of this study have shown that primary health care workers in Minna are not an exception. LBP remains one of the most frequent reasons for visiting a general practitioner or physical therapist.

While future research is needed, this study can inform other practitioners in Nigeria about how to manage similar occupational environment through the use of evidence-based approaches. Occupational factors are responsible for a wide range of changes in the body systems of clinicians, as such, proper education and measures should be taken to control negative consequences to the health worker [27]. Prolonged, repetitive, or awkward movements and poor handling of health care

instruments and gadgets could be responsible for earning shoulder pain a second place as the next prevailing WRMSD. In Nigeria, the issue of safety and health has become the main agenda in order to ensure a safe working environment that does not pose a risk to employees. These risks lead to employees working in environments that are not comfortable and therefore contribute to the high burden of WRMSDs. The statistics indicate that more than 70% of the hospitals in developing countries do not have enough staff. Long working hours with inadequate staffing increase health care worker's risk of developing musculoskeletal disorders [16].

One limitation of this study is that only the point prevalence of disorders was recorded. It is inherent in the nature of the survey design used in this study to only investigate the prevailing numbers of workers affected but the research design cannot investigate any cause and effect regarding the area of study. That is, the study could not describe the specific causes of the joint disorders affecting the respondents. Similarly, there was no objective way to quantify the pain level using tools like numeric pain rating scale or the visual analog scale for pain rating.

However, the correlation of WRMSDs and the workers in poorly funded, and inadequately equipped primary health care centers (PHC) in low- and middle-income countries (LMIC) such as Nigeria, has very little epidemiological research. As evidenced in some ergonomic studies, the health sector in Nigeria has not adapted to the changing technological advances and has a significantly low infrastructural support for health care workers, thereby multiplying the risk for work related health problems [16]. The PHC centers in Minna are no exceptions to these negative factors bedeviling the health sector in the country as shown in this study. Moreover, there is no available data reported on the state of WRMSDs in any segment of the health care delivery system in Niger state, therefore, there

is need to begin at the local government level which is the scope of this study. PHC centers are under the jurisdiction of the local government area which are usually crippled by the exodus of professionals due to disparity in remuneration among other arms of government. Similarly, the budget allocation to these PHC centers is usually nothing to write home about thereby causing a ripple effect on staff wellbeing, infrastructure, and general development.

Despite the need for further research, the information provided by this study may be useful for physicians and health professionals in managing similar patients in Nigeria with LBP through evidence-based approaches. For example, combining aerobic exercises with other modes of therapy by PTs, especially when a patient has a poor level of fitness, cannot be overemphasized, and is clearly an issue in low- and middle-income countries [28]. People are usually too busy trying to make ends meet and they hardly have time for healthy workouts and physical fitness. Healthcare professionals in geriatric specialties, acute care, women's health, and almost any subspecialty of medicine can utilize the systemic conditioning of patients through a structured aerobic program to support the overall wellbeing of individuals suffering from musculoskeletal conditions while employing other evidence-based approaches [29]. PTs in Nigeria can use the established conditioning effects of aerobic training to improve cardiovascular endurance in patients, which may help address reconditioning that is common in patients with musculoskeletal conditions [14].

Long-term observational studies are needed to assess long-term outcomes, prognoses, and recovery from chronic LBP using aerobic exercises as an adjunct to traditional modes of management. Additionally, the has not been research on the economic benefits and costs of a walking program even my healthcare workers as a cheap alternative for keeping fit and avoiding stress [30].

In summary, the prevalence of low back pain among workers in PHC is high (41%) and LBP remains the most common disorder present across all respondents and is solely attributable to clinical practice.

Conclusion

The majority of PHC workers in Minna metropolis are mainly affected with low back pain. It is the most common WRMSD among clinicians. This is also in alignment with the global menace of low back pain as one of the most common reasons for individual work absenteeism. The prevailing WRMSDs among PHC clinicians are mostly low back pain, shoulder pain, neck and knee pain.

Acknowledgment

Conflict of Interest

The authors declare there is no conflict of interest in the course of producing this article.

Recommendations

Government should eliminate duplication of activities of health care centers so as to alleviate over burdening individual facilities. Any condition outside the scope of practice of PHC centers should be referred out to avoid straining the workforce of the focal centers.

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