Musculoskeletal Disorders among Emergency Nurses at the Komfo Anokye Teaching Hospital, Kumasi, Ghana

Kofi Baffoe-Sarpong[1], Emmanuel Ameyaw[2]* and Faisal Adomako Duku[1]

[1]Nursing and Midwifery Training College, Kumasi, Ghana

[2]Department of Child Health, School of Medicine and Dentistry, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

Abstract

Background: Musculoskeletal disorders are more common among nurses due to the tasks associated with their occupation.

The aim of this study was to evaluate musculoskeletal disorders among nurses working at the Accident and Emergency Department, Komfo Anokye Teaching Hospital, Kumasi.

Methods: A purposive, non-probability sampling technique was used in selecting 129 emergency nurses at Komfo Anokye Teaching Hospital for the study. Online questionnaire was sent to the nurses *via* email and their responses were received *via* Smart Survey link. The data collected was analyzed with the Statistical Package for the Social Sciences (SPSS) software version 22.

Results: Most of the respondents were between 29 years to 39 years of age. Females constituted 51.0% and 17.1% of the respondents had musculoskeletal disorders. The commonest anatomical region affected was lower back followed by upper back, neck and shoulder.

Conclusion: Musculoskeletal disorders are common among nurses working at the Accident and Emergency Department of Komfo Anokye Teaching Hospital.

Keywords: Musculoskeletal disorders; Low back pain; Nurses

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***Correspondence:**
*Emmanuel Ameyaw, Department of Child Health, Kwame Nkrumah University of Science and Technology, School of Medicine and Dentistry, Kumasi, Ghana,
E-mail: ekameyaw@yahoo.com*

Introduction

Musculoskeletal disorders comprise of a range of inflammatory and progressively deteriorating disorders, which include low back pain, upper limb disorders, neck and shoulder disorders, and hand-arm vibration syndrome, osteoarthritis of the hip and knee and consequences of trauma such as sprains, fractures and dislocations [1]. These disorders affect the muscles, tendons, ligaments, joints, bursa, peripheral nerves and supporting blood vessels [2] and consequently lead to aches and pains or discomfort [3].

The global point prevalence of low back pain was 9.4% and ranked highest in terms of disability and sixth in terms of overall burden. The overall burden of low back pain increased from 58.2 million in 1990 to 83.0 million in 2010 and aging positively correlated with increase prevalence and burden of the disorder [4].

In Vietnam, Hoang et al. [5] found a prevalence of MSDs to be 74.7% among nurses, with the two most common sites being the lower back (44.4%) and the neck (44.1%) pain. Thinkhamrop et al. [6] in 2015 found a prevalence of 47.8% of MSDs among state registered nurses in Thailand in a longitudinal cohort study.

Wanyonyi et al. [7] in a systemic review found out that the prevalence of work-related musculoskeletal disorders in some African countries range from 15% to 93.6%. The studies were mostly done in South Africa, Nigeria and East Africa. In Nigeria, Maduagwu et al. [8] found out that 71.68% of bank worker had musculoskeletal disorders, with 76.55% of them being males. The commonest affected body region was neck (56.64%) followed by low back (45.13%). In Zimbabwe the prevalence of MSDs among nurses was found to be 95.7%. Most nurses frequently complained of back pain especially in the lumber region [9]. Out of the 266 nurses interviewed in Uganda, one hundred and ninety nurses 199 (75%) had MSDs and low back pain was the commonest form of MSD found accounting for 58.7% [10].

In Ghana Boakye et al. [11] found that 69.4% of nurses and midwives had musculoskeletal

disorders, out of which 91.8% were females and the commonest disorder found among them was low back pain (72.0) followed by neck pain (39.8%). In another study among mining workers in Ghana, Tawiah et al. [12] found out that 85.5% had musculoskeletal disorders with 96.1% of them being males. The commonest disorder among the miners was low back pain (30%) followed by wrist/hand pain (16%).

The main aim of this study was to evaluate musculoskeletal disorders among nurses working at the Accident and Emergency (A and E) Centre at the Komfo Anokye Teaching Hospital (KATH), Kumasi.

Methods

Study site

The study was conducted at the Accident and Emergency (A and E) Department, Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana. KATH is a one thousand one hundred bed capacity facility. It is a Teaching Hospital for the School of Medicine and Dentistry (SMD), Kwame Nkrumah University of Science and Technology (KNUST). It also serves as a postgraduate training center for training specialists in all medical disciplines, by the Ghana College of Physicians and Surgeons and the West African College of Postgraduate Medicine. Most trauma and injury related cases from the Northern part and the middle belt of Ghana are referred to the A and E department, KATH.

Study design and population

This was a hospital based cross sectional study. The study population consisted of nurses who had one year or more working experience at the A and E after completing their training. The total number of registered nurses at the A and E were 193.

Sample size

A sample size of 129 respondents was calculated using an on line program, www.raosoft.com/samplesize.html [13]. Registered nurses with one year or more working experience at the A and E were selected and online survey link was sent to them through their e-mail addresses. All the respondents were sent the survey link by the nurse in-charge at the A and E department.

Data collection

Data were collected electronically using a structured questionnaire. The link to the online questionnaires was sent to the respondents *via* e-mail through the nurse in-charge at the A and E. The participants responded to the questionnaire either during their break periods or they stayed further after closing from their daily duties. This was to ensure that the regular work was not interrupted and also the use the regular internet facility at the hospital to avoid excuses that the respondents may not have private internet access at home. A period of four weeks was allotted for data collection. Two reminder mails were sent to the respondents.

The questionnaire had an informed consent form as the introductory page which explained the aim of the study and the possible benefits of the study and risks to respondents, as well as the right to withdraw from the study at any time, or to refuse to answer any questions they were not comfortable with, without any consequences to them. They were also assured of confidentiality of the information they provided. The respondents were made anonymous so that nobody could identify them. Each respondent was given a study identification number.

The questionnaire consisted of short questions which were easy to understand and took between 10 min to 15 min on average to complete. To avoid multiple responses to a questionnaire the link to the survey was attached to the participant's e-mail addresses only. In that case they could not forward it to any other person and they also could not respond to it again once that has been done already.

More than 50% of the completed questionnaires were received in the Smart Survey account within one week of mailing the online survey link to the nurse and by the end of the four weeks a total number of 125 (96.89%) respondents had submitted their responses. However, 7 (5.42%) were incomplete and so were discarded. The remaining 118 (91.47%) were used for analysis.

Data analysis

The statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 22. Fisher's exact and Chi-square (x^2) tests were used to compare proportions between two or more independent nominal and ordinal variables in order to determine any association between them, while univariate analysis with point estimates were presented in frequencies and percentages.

The Kruskal-Wallis one-way ANOVA, which is a non-parametric test, was also used for statistical analysis of ordinal (ranked) data. It assumed that the data were not normally distributed.

Ethical clearance

The authorization to conduct the study was obtained from Research and Development Unit, the Head of Department of the Accident and Emergency and the Medical Director of KATH. Ethical clearance was obtained from the Committee on Human Research, Publication and Ethics (CHRPE) of the KNUST, Kumasi, Ghana. A written Informed Consent Form (ICF) detailing the study purpose, benefit, and possible risks to participants was provided. All participants signed ICF before they were enrolled into the study.

Results

A total number of 125 (96.89%) respondents, out of 129, submitted their responses. However, 7 (5.42%) were incomplete and so could not be processed. The remaining 118 (91.47%) were used for analysis.

Figure 1 shows the age distribution of respondents. Majority of respondents (55.1%) were between 29 to 39 years of age, followed by 40 to 50 years group, which accounted for 22.9%, then the 18 to 28 years group forming 15.3%, and finally the 51 to 60 years group also forming 6.8%.
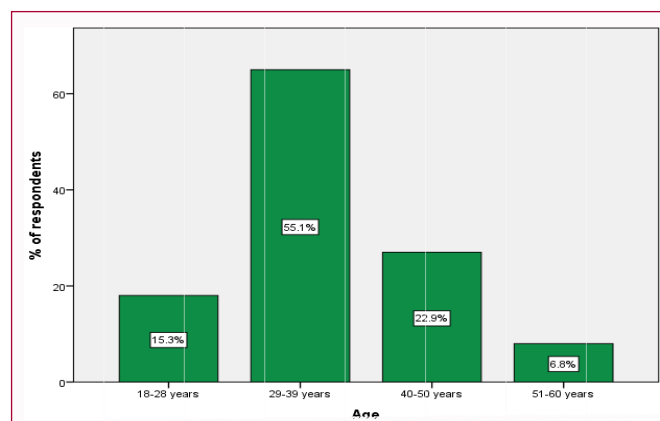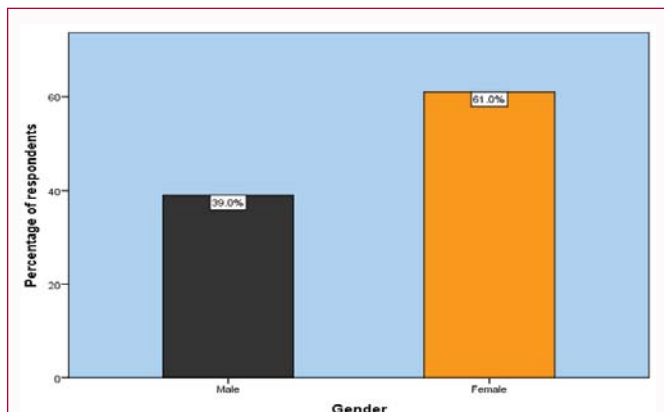

Figure 1: Age of respondents.
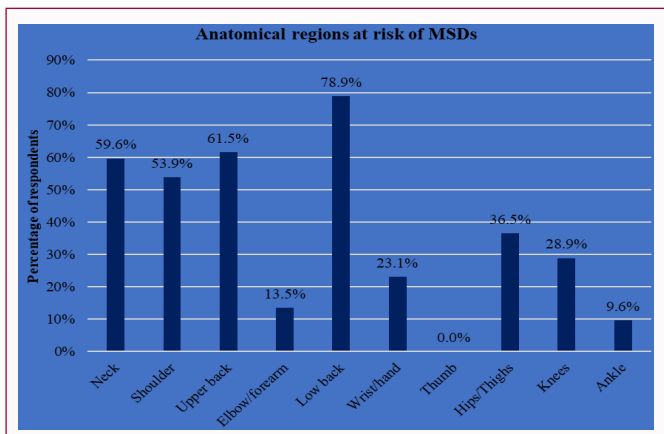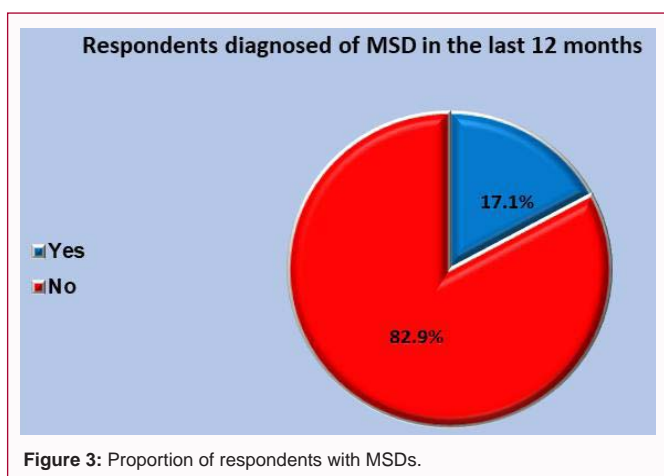
Figure 2: Gender of Respondents.

Figure 3: Proportion of respondents with MSDs.

Figure 2 depicts the distribution of gender of respondents. Majority (61.0%) of them were females.

According to Figure 3, 17.1% of the respondents were identified with musculoskeletal disorders.

Figure 4 depicts body parts of respondents affected with MSDs.

Figure 4: Body parts of respondents affected with MSDs.

Low back pain was the commonest (78.9%), with upper back, neck and shoulder pains following with 61.5%, 59.6% and 53.9% respectively.

Table 1 shows association between age of the respondents and the development of musculoskeletal disorders. When the data was subjected to both the Pearson Chi-Square test (t=16.270, df=3, p=0.001) and the Fisher's Exact Test (t=13.286, p=0.001).

Table 2 depicts association between gender of respondents and the development of MSD. There was a statistically significant association between the two variables at p<0.05 (p = 0.001).

Discussion

Musculoskeletal disorders are common among all walks of people all over the world, of all ages and gender. Our study found 17.1% of respondents having musculoskeletal disorders. In one study in Accra, Ghana, 69.4% of nurses and midwives were found to have musculoskeletal disorders [11]. Abledu et al. [14] in another study also in Ghana found 70.1% of nursing students had musculoskeletal disorders. Tawiah et al. [12] found 85.5% of mining workers in Ghana had musculoskeletal disorders.

Most of the respondents (61.0%) were females. This is consistent

Table 1: Chi-square test result for relationship between age and diagnosis of MSD.

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	16.270[a]	3	0.001	0.001		
Likelihood Ratio	13.155	3	0.004	0.005		
Fisher's Exact Test	13.286			0.002		
Linear-by-Linear Association	11.233[b]	1	0.001	0.001	0.001	0.001
N of Valid Cases	117					

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.37.
b. The standardized statistic is -3.352.

Table 2: Chi-square test result for the relationship between gender of respondents and the diagnosis of MSD.

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	15.629[a]	1	0	0	0	
Continuity Correction[b]	13.705	1	0			
Likelihood Ratio	22.6	1	0	0	0	
Fisher's Exact Test				0	0	
Linear-by-Linear Association	15.496[c]	1	0	0	0	0
N of Valid Cases	117					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.86.
b. Computed only for a 2 × 2 table
c. The standardized statistic is -3.936.

with Boakye et al. [11] and Abledu et al. [14] studies which were done among nurses and midwives. This is because the nursing and midwifery profession in Ghana is dominated by females. The gender predilection contradicts the study by Tawiah et al. [12] which was done among mining workers which rather had more males than females. This is because the mining work is more energy and physique demanding and hence male dominant.

Lower back was the commonest anatomical region affected followed by upper back, neck and shoulder. This is similar to findings in other studies [5,8,10,11,15]. This is because the daily routine of most professions entail staff bending to execute duties, lifting and holding of objects and implements. Devices of vital aid such as hoists which help nurses in lifting patients and objects are basically not available in hospitals in Ghana and many other African countries. So mostly patients who need to be lifted are lifted by nurses without using aids and this could account for high MSDs among nurses especially in developing countries.

Conclusion

The results from this study shows that a high percentage of nurses working at the A and E department suffer from musculoskeletal disorders. The parts of the body mostly affected are low back, upper back, neck and shoulders.

Avenues for Further Research

A study to look at factors associated with musculoskeletal disorders among nurses.

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