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Original Article

An Analysis of Work-Related Musculoskeletal Disorders Among Butchers in Kano Metropolis, Nigeria

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ABSTRACT

Background: Butchering is often associated with high rates of work-related musculoskeletal disorders (WRMSDs). However, published work on the prevalence of WRMSDs among butchers in Nigeria is scarce. This is important because meat processing practices differ across geographical and cultural locations. This study was therefore aimed at analyzing WRMSDs among butchers in Kano metropolis.
Methods: Sociodemographic and work-settings information was obtained from 102 male cattle butchers (age, 37.49 ± 11.68 years) through survey. Information on the prevalence and pattern of musculoskeletal disorders was obtained from the respondents using the Standardized Nordic Questionnaire. Additional information on health seeking practices was also obtained using a pro forma. Associations between the prevalence of WRMSDs and each of the sociodemographic data and work settings were explored using Chi-square analysis. The level of significance was set at $p < 0.05$.
Results: The 12-month and point prevalence rates of WRMSDs among butchers in this study were 88.2% and 74.5%, respectively. Whereas lower back complaints (66.7%) were the overall and lower body quadrant's most commonly reported WRMSDs among the butchers surveyed, wrist/hand complaints were the leading upper quadrant's (45.1%) most commonly reported WRMSDs among the respondents. There were significant associations between age and majority of WRMSDs in the body regions. Only 23.3% of the 90 individuals who had WRMSD visited the hospital to seek redress for their WRMSD.
Conclusion: The prevalence of WRMSDs is high among butchers in Kano Metropolis. Few individuals with WRMSD utilize healthcare facilities. Age is a major risk factor in this setting.
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1. Introduction

Work-related musculoskeletal disorders (WRMSDs) refer to a gamut of inflammatory and degenerative disorders initiated or aggravated largely by the performance of work or associated work settings [1,2]. It is the major cause of pain, disability, absenteeism, reduced productivity, and heavy financial costs among workers worldwide [2–4]. Although not fatal, WRMSDs have the potential of developing into serious injuries in the musculoskeletal system if ignored [5]. Most WRMSDs are accumulative disorders resulting from protracted exposure to loads of varied intensity at work [5]. Risk factors often cited for musculoskeletal disorders in the workplace include rapid work pace and repetitive motion, forceful exertions, nonneutral body postures, and vibration [6,7]. Although it is unclear as to what extent musculoskeletal disorders are caused by work, their impact on work is huge. Compelling evidence shows that physiological and individual factors play a role in the development of WRMSDs [7–11].

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WRMSDs affect various occupations ranging from blue collar to white collar workers [3,12–15]. Blue collar workers, often faced with higher physical work demands, are reported to experience more WRMSDs than white collar workers [10,16,17]. Although WRMSDs have been widely reported in most blue collar occupations, meat butchers have not been extensively studied.

The schedule of a typical meat processing industry worker often involves a series of events such as slaughtering, boning, cutting, and packing. These activities involve the frequent use of forceful exertions, rapid work pace, repetitive motions, and nonneutral body postures sustained over a long period [18,19]. As physical work demand is a risk factor for WRMSDs, workers with high physical work demands are expected to have increased prevalence of musculoskeletal disorders [20]. Studies suggest that butchers are likely to experience one occupational hazard or another. Such hazards include infections, lung cancer, and knife injuries [21–23]. Omokhodion and Adebayo [21] highlighted musculoskeletal disorders as one of the major occupational hazards faced by butchers in the workplace. However, information on the prevalence, pattern, and risk factors of WRMSDs among butchers in these settings is not readily available. This may become more relevant in developing countries (e.g., Nigeria), where the meat processing industry is not so well organized. In the developed world, there is a chain of organized, skilled labor in the meat processing industry including job specifications such as butchers, meat processer, and packagers [18]. Conversely, in Nigeria, there is no such organized labor; the man who butchers the animal is usually the one who processes, packages, and sells the meat. This further predisposes butchers in this environment to higher degrees of WRMSDs. This study was therefore aimed at determining the prevalence and risk factors of WRMSDs among butchers working in selected abattoirs in Kano metropolis, Nigeria.

2. Materials and methods

2.1. Participants

Our study, which was designed as a descriptive cross-sectional study, explored WRMSDs among butchers in Kano Metropolis, Nigeria. The ancient city of Kano, a densely populated cosmopolitan city, is home to $>$ 3 million residents. The major occupations among Kano residents are trading, farming, and cattle rearing. Meat sold in the markets of Kano is obtained from one major abattoir, and a few other slaughterhouses within the metropolis, all of which are duly registered and regulated by the Kano state ministry of agriculture. All eligible and consenting butchers ($N = 167$) who attended a 1-day WRMSD prevention program, organized for and well attended by members of the Association of butchers in Kano Metropolis, were invited to participate in the study. The workshop was facilitated by two of the researchers (K.B. and T.T.M.).

2.2. Instrument

Information on the prevalence and pattern of musculoskeletal disorders was obtained from participants using the Standardized Nordic Questionnaire (SNQ) [24]. The SNQ included a drawing with nine anatomical regions clearly marked. Respondents were asked if they “ever had trouble in the past 12 months (ache, pain, or discomfort)” around five different upper quadrant body regions (neck, shoulder, elbow, wrist/hand, and upper back) and four different lower quadrant body regions (lower back, hip/thigh, knee, and ankle/feet). Furthermore, respondents who had such troubles in the past 12 months were asked if such troubles prevented them from doing their normal work (at home or away from home). Other information such as sociodemographic characteristics (such as age, sex, highest educational attainment, years of working experience, and marital status), work settings (nature of work, working hours per day, working days per week, posture often adopted at work), WRMSDs on any body part/region in the past 12 months and 7 days, respectively, health seeking behavior of individuals who presented with WRMSDs in the past 12 months, and mode of seeking redress for their work-related musculoskeletal symptoms were obtained from respondents using a pro forma. The English version of the SNQ and the other information garnered questions are presented in Appendix 1.

2.3. Procedure

A letter of introduction, giving details of the study and asking for permission to conduct the study, was obtained from the Department of Physiotherapy, Bayero University, Kano, Nigeria and presented to the chairman of the Association of butchers in Kano Metropolis prior to the commencement of the study. Full-time butchers, with no less than 1 year working experience, aged $\geq$ 18 years, were eligible, and those who gave their informed consent participated in the study. Individuals who were no longer actively involved in butchering or slaughtering cows, who were involved in other occupations that could also predispose to WRMSDs (e.g., farmers, commercial drivers, automobile mechanics, or bricklayers), with a history of musculoskeletal disorder (such as kyphosis, scoliosis), rheumatoid arthritis, previous musculoskeletal surgeries (such as joint replacement), and inflammatory disease were excluded from the study. At this stage, 11 participants were excluded from the study as a result of not meeting the inclusion criteria. The purpose of the study was explained to the recruited butchers in simple terms. Thereafter, informed consent of willing participants were sought and obtained from participants prior to the commencement of the study. The questionnaire was self-administered to participants who were literate in the English language. All the questionnaires were administered by one of the authors (B.K.). Individuals who could not write in English, but understood Hausa, were interviewed using the instrument. At the time this study was being conducted, the Hausa version of the SNQ was not available. In order to overcome this limitation, the individuals who understood Hausa language alone were interviewed by B.K. Standardization of interpretation was maintained by asking respondents the Hausa equivalent of the English SNQ and additional questions. It was ensured that questions were asked in a nonleading manner. This study was reviewed and approved by the Faculty of Allied Health Sciences, Bayero University, Kano Institutional Review Board.

2.4. Data analysis

Data was analyzed using IBM SPSS Statistics 20.0 (IBM Corp., Armonk, NY, USA). Data were summarized using descriptive statistics (mean, standard deviation, and frequency of distribution). Associations between the prevalence of WRMSDs and each of sociodemographic factors and work settings of butchers were analyzed using Chi-square test. The alpha level was set at 0.05.

3. Results

3.1. Sociodemographic data

A total of 156 questionnaires were distributed among the butchers surveyed, of which 125 were returned (80.1% response

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