Prevalence and Pattern of Musculoskeletal Pain Among Undergraduates from a Nigerian University

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SUMMARY

Musculoskeletal pain (MSP) is a common cause of severe long-term pain and physical disability affecting millions of people around the world. This study investigated the prevalence and pattern of MSP among Nigerian undergraduates.

A cross-sectional survey of undergraduates from three purposively selected halls of residence of the University of Ibadan, Nigeria was conducted over a period of 10 weeks using a standardized Nordic questionnaire and a pre-tested questionnaire. Data obtained were analysed using descriptive and inferential statistics.

Of the 600 questionnaires administered 532 (88.67%) were fully completed and found admissible for analysis. The mean age of the respondents was 23.4±2.34 years (range 17-34)]. Lifetime and point prevalence of MSP was 54.5% and 51.7% respectively. Lifetime occurrence of MSP was highest in the low back (55.1%) followed by the neck (53.8%). Duration of pain resulting from MSP was 1-7 days and it prevented normal daily activities in 20.7% of respondents. There was a significant association between lifetime prevalence of MSP and each of age group (p = 0.001), sex (p = 0.046), lecture duration (0.001), and extracurricular activity (p = 0.001). Self-medication (55.6%) was the most common health practice for MSP.

Musculoskeletal pain is a common disorder among Nigerian undergraduates. The low back and the neck were the most affected. MSP was perceived to be caused by prolonged poor postures assumed during lectures, and it predisposes to limitation of daily activities. Preventive strategies to reduce MSP among Nigerian undergraduates are necessary.

KEY WORDS: Musculoskeletal pain, university undergraduates, prevalence, pattern, Nigeria

INTRODUCTION

Musculoskeletal pain (MSP) is a common cause of severe long-term pain and physical disability (De Inocencio, 2004) affecting millions of people around the world (Woolf and Pfleger, 2003). MSP is known to be work-related with variations in the proportion of affectation among different occupational groups (Ayanniyi et al, 2016). University undergraduates, who are predominantly occupied with studying, are arguably a distinct "occupational" group. Emerging studies indicate that university students are a high-risk group for MSP due to their prolonged hours of school work and reading(Smith and Leggat, 2007; Ayanniyi et al, 2010). Undergraduate populations have been evaluated for specific MSPs and have been determined to

have a greater risk of developing MSP (Nyland and Grimmer, 2003; Rising et al, 2005; Ayanniyi et al, 2010) The school environment is thought to be a very important setting for the development of MSP (Rising et al, 2005; Smith and Leggat, 2007; Ayanniyi et al, 2010), as about 30% of school time is spent in prolonged sitting position (Nurul et al 2009).

In addition to school-related activities, high activity levels with consequent injuries have been implicated in the development of MSP among adolescents and young adults (De Inocencio, 2004). MSP in early ages is of public health importance, as literature reveals that occurrence of MSP in childhood and adolescence subsequently transitioned into adulthood (Brattberg, 2004; Hestbaek et al, 2006; Kamaleri et al, 2009). Considering the upsurge in MSP prevalence in adolescents and young adults, there is a need to conduct research to better understand the precipitating and perpetuating factors of MSP in order to be able to proffer effective solutions for its prevention and management (Hill and Keating, 2009; Kamper et al, 2016). At present in Nigeria, unlike in the Western world such as the United Kingdom and the United States of America, the problem of MSP in adolescents and young adults is yet to receive sufficient attention among researchers, despite emerging studies that implicate MSP among children and adolescents as a likely precursor of chronic pain in adulthood (Hestbaek et al, 2006; Jones et al, 2007). This study, therefore, investigated the prevalence and pattern of MSP among Nigerian university undergraduates.

MATERIAL AND METHODS
Participants
Participants for this study were undergraduates of the University of Ibadan who were resident in the university campus.

Methods
This was a cross-sectional survey study on the prevalence and pattern of musculoskeletal pain among undergraduates of the University of Ibadan.

Procedure
Ethical approval for this study was obtained from the University of Ibadan/University College Hospital (UI/UCH) Research Ethics Committee. Also, the approval of the administrative authorities of the selected halls of residence was obtained prior to commencement of the study. Signed

informed consent of the respondents was also obtained. The respondents were recruited from three purposively selected halls of residence in the University based on their peculiar characteristics. The halls were: Alexander Brown Hall, Queen Idia Hall, and Nnamdi Azikiwe Hall. Queen Idia (female) and Nnamdi Azikiwe (male) Halls were selected because they have a higher population of students than other halls of residence, while Alexander Brown Hall (male and female) was selected in order to include clinical medical students in the study. Participation in this study was delimited only to consented undergraduates of the University of Ibadan who were resident in the selected halls of residence.

The population of undergraduates in the selected halls was 2,901. A total sample of 514 participants was calculated for the study using the formula by Yamane (1967) and the level of precision for the study was set at 0.04. However, to allow for refusal to participate and incomplete or invalid returned questionnaire, 600 questionnaires were distributed.

Data Collection Procedure
Data were collected at the close of the day when the students could be met at the hall of residence between the hours of 16.00 – 20. 00 hr. Every even-numbered room was sampled and consenting undergraduate residents in the enumerated rooms were recruited into the study. A letter of instruction explaining the purpose and nature of the study was attached to the questionnaire. This also contained adequate instructions on how to fill the questionnaire.

The Standardized Nordic Questionnaire (SNQ) (Kuorinka et al, 1987) and a previously validated questionnaire by Ayanniyi et al (2010) were used as the survey instruments. The two-sectioned SNQ was used to obtain information on MSP. The first section comprises close-ended questions that seek information on the areas of the body affected by musculoskeletal problems. Completion of the SNQ is aided by a body diagram which indicates nine sites, namely neck, shoulders, upper back, elbows, low back, wrist/hands, hip/thighs, knees and ankles/feet. The second section of the questionnaire relates to the neck, the shoulder, and the lower back. The psychometric properties and clinical usability of the SNQ are well demonstrated in the literature (Kuorinka et al, 1987; Azuan et al, 2010). Similarly, the SNQ has been found usable in previous studies among Nigerians (Ayanniyi et al, 2010; Akinpelu et al, 2010). The second questionnaire by Ayanniyi et al

(2010) was used to obtain information on socio-demographic characteristics, present and past history of MSP, perceived causes of MSP and care-seeking behaviour of undergraduates with MSP. The questionnaire was tested for clarity and comprehensibility in a pilot study among 20 students selected from two faculties (Agriculture and Forestry; and the Social Sciences) of the same university. All areas of concern to the assessors were corrected and incorporated into the final questionnaire for the study.

The questionnaires were distributed to the respondents by hand and were self-administered. Completed questionnaires were collected immediately or after a week, where immediate collection was not possible. Data collection was completed within a 10-week time frame, in the year 2012.

The data obtained were stratified for in-depth analysis by level of study and distribution by faculty. The term "level of study" refers to the class of the respondents based on the year of admission into the university. Fresh students (newly admitted students) were referred to as 100 level students. Prevalence rates were also assessed as part of the study. Point prevalence was defined as the proportion of the surveyed participants that had MSP at the time of contact during the study. Period prevalence was the proportion of the surveyed population that had MSP at some time during a given period (e.g. 12-month prevalence and 7-days prevalence) up to the period of the study. Lifetime prevalence (LTP) is the proportion of the surveyed population that have experienced MSP at some point in their life up to the time of the survey (Rothman, 2012).

Data analysis
Descriptive statistics of frequency, percentage, and mean and standard deviation were used to summarize data. Inferential statistics of Chi-square was used to test the association between MSP and each of the socio-demographic and school-related variables. Data were analysed using the Statistical Package for Social Sciences (SPSS) for Windows, version 16. Alpha level was set at $p < 0.05$.

RESULTS
A total of 532 undergraduates out of 600 who fully completed and returned their questionnaires were included in this study. This yielded a response rate of 88.7% while 68 copies of the distributed questionnaires were not included in the study due to non-completion or non-return

by the respondents. The mean age of the respondents was 23.4 ± 2.54 years. The highest population of the respondents (191 (35.9%)) fell within the age range of 21 to 25 years. Table 1 shows the socio-demographic characteristics of the respondents.

Table 1. Socio-demographic characteristics of the respondents

Variables	Frequency	Percentage
Sex		
Male	302	56.8
Female	230	43.2
Age		
15-20 years	175	33.0
21-25 years	191	35.9
26-30 years	164	30.8
30 and above	2	0.4
Level of study		
100	79	14.8
200	96	14.3
300	95	17.9
400	130	24.4
500	93	17.5
600	59	11.1
Faculty		
Faculty of Science	45	8.5
Faculty of Agriculture	25	4.7
Faculty of Education	36	6.8
Faculty of Technology	38	7.1
Faculty of Arts	27	5.1
Faculty of Social Sciences	40	7.5
Faculty of Pharmacy	34	6.4
Faculty of Veterinary Medicine	34	6.4
Faculty of Public Health	22	4.1
Faculty of Law	20	3.8
Faculty of Basic Medical Sciences	18	3.4
Faculty of Dentistry	78	14.7
Faculty of Clinical Sciences	115	21.6
Religion		
Christianity	469	88.2
Islam	63	11.8
Others	0	0.0

Lifetime and point prevalence of MSP among the respondents in this study were 54.5% and 51.7% respectively (table 2). The anatomical pattern of MSP by gender and level of study is presented in table 3. The most common pain site was the neck (50.4%), followed by the low back (38.7%). The result of the 12-month prevalence of MSP by body region indicates that the low back (55.1%)

followed by the neck (53.8%) were the worst hit anatomical sites. There was no gender bias in the pattern of distribution of 12-month prevalence of MSP by body site. The 7-days prevalence of MSP indicates that hip/thigh (27.4%) followed by upper back pain (27.3%) were the most affected (table 4). Frequency distribution of perceived causes of musculoskeletal pain is presented in table 4. Posture assumed during lectures was the most reported (23.0%) as the cause of the respondents' MSP experience. Pain duration was for a total time of 1-7 days and prevented normal daily activities in 20.7% of the respondents (table 5).

Table 6 shows the 12-month and 7-days pattern of MSP in different body regions based on faculties. Students from the Faculty of Agriculture and Forestry had the highest rates of MSP affecting the neck (88.0%) and the low back (72.0%). The correlates of lifetime prevalence of MSP with socio-demographic and school-related activities are presented in table 7. There was significant association between lifetime prevalence of MSP and each of age (p = 0.001), sex (p = 0.046), lecture duration (0.001), and extracurricular activity (p = 0.001) but not with level of study (p = 0.479) or religion (p = 0.209). Furthermore, there was a significant association between lifetime prevalence of MSP and each of self-medication (p = 0.001) and utilization of physiotherapy (p = 0.001).

Table 2. Lifetime and point prevalence of musculoskeletal pain among the respondents(N=565)

Variables	All students		15-20yrs		21-25yrs		26-30yrs		31yrs and above	
	n	%	n	%	n	%	n	%	n	%
Lifetime prevalence	290	54.5	84	29.0	69	23.8	135	46.6	2	0.7
Point prevalence	275	51.7	74	29.4	74	29.4	126	45.8	1	0.4

KEY: N/n = Number,   % = Percentage,   Yrs = Age in years

Table 3. Anatomical pattern of musculoskeletal pain by gender, level of study and period prevalence rates

12-months prevalence

Sex	Neck %	Shoulder %	Elbow %	Wrist %	Upper back %	Low back %	Hips %	Knee %	Ankle %
Male	59.3	55.3	6.0	26.5	46.4	60.0	44.4	14.2	12.6
Female	46.5	46.3	10.8	38.2	30.0	47.8	27.0	27.8	23.5
Level of study	Neck %	Shoulder %	Elbow %	Wrist %	Upper back %	Low back %	Hips %	Knee %	Ankle %
100	53.2	49.1	6.3	21.5	44.3	51.9	36.7	17.7	19.0
200	65.8	52.6	7.9	32.9	53.9	60.5	48.7	18.4	15.8
300	61.1	50.5	7.4	21.1	48.4	56.8	51.6	18.9	17.9
400	53.1	42.3	6.9	31.5	34.6	57.7	40.0	17.7	10.8
500	50.5	49.5	11.8	41.9	31.2	51.6	41.5	30.1	23.7
600	33.9	32.2	8.5	44.1	22.0	49.2	15.3	16.9	20.3

7-days prevalence

Sex	Neck %	Shoulder %	Elbow %	Wrist %	Upper back %	Low back %	Hips %	Knee %	Ankle %
Male	12.6	39.1	0.7	4.6	39.4	15.6	39.4	5.0	5.0
Female	15.3	10.0	2.6	7.4	11.3	19.6	11.7	8.7	8.7
Level of study	Neck %	Shoulder %	Elbow %	Wrist %	Upper back %	Low back %	Hips %	Knee %	Ankle %
100	12.7	31.6	0.0	3.8	29.1	11.4	31.6	6.3	12.7
200	14.5	40.8	1.3	6.6	40.8	18.4	40.8	10.5	7.9
300	14.7	29.5	3.2	8.4	32.6	12.6	34.7	7.4	3.2
400	11.5	28.5	2.3	3.1	27.7	19.2	31.5	4.6	3.8
500	14.0	11.8	1.1	6.5	17.2	16.1	8.6	6.5	5.4
600	16.9	15.3	0.0	8.4	13.6	28.8	13.6	5.1	10.2

Key: % = Percentage

Table 4. Frequency distribution on perceived causes of musculoskeletal pain

Variable	Frequency	Percentage
Seats without back support used during lecture	110	20.7
Prolonged reading	34	6.4
Using the computer	22	4.1
Posture assumed during lectures	122	23.0
Posture assumed during practical/ clinical hours	72	13.5
Prolonged sitting	88	16.5
Prolonged standing	103	19.4
Other	37	7.0
No response	54	10.2

The association between point prevalence of MSP and each socio-demographic and school-related activity is presented in table 8. There is significant association between point prevalence of MSP and each of age (p = 0.001), sex (p = 0.001), and lecture duration (0.001), but not with level of study (p = 0.060), religion (p = 0.087) and extracurricular activity (p = 0.347). Similarly, there was significant association between point prevalence of MSP and each of self-medication (p = 0.001) and drug use (p=0.024) but not with the utilization of physiotherapy (p = 0.539). Self-medication (55.6%) was the most common health practice for MSP. This was followed by respondents who sought medical intervention (34.2%), those who received physiotherapy (15.2%), while 7.1% of the respondents used alternate home preparations medicine to manage their MSP.

Table 5. Duration of musculoskeletal pain and limitation of daily activities in the body region for 12 months prior to study

Body region	Days	Experience pain Frequency (%)	Limitation of Work Frequency (%)
Low back	0 days	73 (13.7)	241 (45.3)
	1-7 days	206 (38.7)	131 (24.6)
	8-30 days	107 (20.1)	2 (0.4)
	More than 30 days but not everyday	23 (4.3)	21 (3.9)
	Everyday	4 (0.8)	1 (0.2)
	No response	119 (22.4)	136 (25.6)
Neck	0 days	220 (41.4)	249 (46.8)
	1-7 days	268 (50.4)	110 (20.7)
	8-30 days	13 (2.4)	2 (0.4)
	More than 30 days but not everyday	20 (3.8)	2 (0.4)
	Everyday	10 (1.9)	9 (1.7)
	No response	1 (0.2)	160 (30.1)
Shoulder	0 days	239 (44.9)	249 (46.8)
	1-7 days	69 (13.0)	68 (12.8)
	8-30 days	3 (0.6)	4 (0.8)
	More than 30 days but not everyday	3 (0.6)	1 (0.2)
	Everyday	218 (41.0)	210 (39.5)

Key: % = Percentage

Table 6. 12-month and 7-days pattern of MSP in different body region based on faculties

Faculties	Neck %	Shoulder %	Elbow %	Wrist %	Upper back %	Low back %	Hips %	Knee %	Ankle %
12-month									
Science	60.0	48.9	8.9	20.0	44.4	57.8	55.3	11.1	20.0
Agric.	88.0	60.2	8.0	24.0	68.0	72.0	56.0	16.0	16.0
Education	58.3	52.8	0.0	36.1	44.4	66.7	41.7	13.9	13.9
Technology	50.0	40.1	10.5	36.8	28.9	52.6	42.1	26.3	21.1
Art	74.1	63.0	14.8	40.7	66.7	74.1	55.6	7.4	22.2
Social Sciences	60.0	55.0	7.5	25.0	50.0	55.0	45.0	27.5	12.5
Pharmacy	61.8	61.8	5.9	5.9	61.8	67.6	55.9	20.6	5.9
Vet.	55.9	55.9	2.9	11.8	47.1	61.8	41.2	14.7	11.8
Public Health	81.8	59.1	4.5	9.1	68.2	54.5	68.2	13.6	13.6
Law	35.0	30.0	5.0	35.0	25.0	40.0	25.0	20.0	10.0
Basic Medical Sciences	61.1	44.4	0.0	33.3	55.6	50.0	38.9	27.8	22.2
Dentistry	42.3	34.6	6.4	46.2	12.8	50.0	11.5	21.8	19.2
Clinical Sciences	38.3	35.7	13.9	41.7	26.1	44.3	21.7	25.2	21.7

Faculties	Neck	Shoulder	Elbow	Wrist	Upper back	Low back	Hips	Knee	Ankle
	%	%	%	%	%	%	%	%	%
7-days									
Science	13.3	31.1	0.0	0.0	35.6	13.3	37.8	4.4	13.3
Agric.	4.0	52.0	4.0	4.0	56.0	12.0	48.0	4.0	4.0
Education	25.0	33.3	0.0	8.3	27.8	13.9	33.3	0.0	8.3
Technology	13.2	21.1	0.0	7.9	23.7	13.2	28.9	0.0	7.9
Art	14.8	48.1	11.1	11.1	48.1	18.5	48.1	7.4	11.1
Social Sciences	7.5	32.5	2.1	5.0	37.5	22.5	37.5	20.0	2.5
Pharmacy	2.9	52.9	2.5	0.0	55.9	11.8	55.9	11.8	2.9
Vet	11.8	38.2	2.9	2.9	35.3	8.8	41.2	0.0	2.9
Public Health	9.1	50.0	0.0	0.0	50.0	4.5	50.0	0.0	5.0
Law	5.0	15.0	0.0	20.0	10.0	20.0	20.0	0.0	0.0
Basic Medical Sciences	16.7	22.2	0.0	5.6	27.8	16.7	16.7	16.7	5.6
Dentistry	20.5	5.1	0.0	6.4	2.6	21.8	3.8	6.4	6.4
Clinical Sciences	15.7	13.0	0.0	7.0	14.8	23.5	10.4	8.7	7.8

Key: MSP = Musculoskeletal Pain, % = Percentage

Table 7. Association between lifetime prevalence of MSP and each of age, sex, level of study, religion, lecture duration, and extracurricular activity

Variable	Lifetime		x^2	P
	Yes n (%)	No n (%)		
Age				
15-20 years	84 (29.0)	91 (37.6)	81.834	0.001*
21-25 years	69 (23.8)	122 (50.4)		
26-30 years	135 (46.6)	29 (12.0)		
31 and above	2 (0.7)	0 (0.0)		
Sex				
Male	176 (60.7)	126 (52.1)	3.997	0.046*
Female	114 (39.3)	116 (47.4)		
Level of Study				
100	45 (15.5)	34 (14.0)	4.509	0.479
200	43 (14.8)	33 (13.6)		
300	56 (19.3)	39 (16.1)		
400	74 (25.5)	56 (23.1)		
500	44 (15.2)	49 (20.2)		
600	28 (9.7)	31 (12.8)		
Religion				
Christianity	251 (82.2)	218 (90.1)	1.575	0.209
Islam	39 (13.4)	24 (9.9)		
Lecture Duration (hrs)				
1 to < 10	30 (10.3)	34 (12.0)	82.344	0.001*
10 to < 20	41 (14.1)	89 (36.8)		
20 to < 30	63 (21.7)	73 (30.2)		
30 to < 40	34 (11.7)	21 (8.2)		
40 to < 50	116 (40.0)	23 (9.5)		
50 and above	6 (2.1)	2 (0.8)		
Extracurricular Activity	73 (25.3)	215 (74.7)	11.098	0.001*
Care-seeking Behaviour				
Self-medication	212 (82.5)	45 (17.5)	47.855	0.001*
Drugs	111 (44.0)	141 (56.0)	0.023	0.879
Physiotherapy	34 (13.5)	217 (86.5)	16.307	0.001*
Other	9 (39.1)	14 (60.9)	0.263	0.608

$\alpha = 0.05$

Key: n = Number, % = Percentage, * = Significant

Table 8. Association between Point prevalence of MSP and each of age, sex, level of study, religion, lecture duration, and extracurricular activity

Variable	Lifetime		x^2	P
	Yes n (%)	No n (%)		
Age				
15-20 years	74 (26.9)	101 (39.5)	60.066	0.001*
21-25 years	74 (26.9)	116 (45.3)		
26-30 years	126 (45.8)	38 (14.8)		
31 and above	1 (0.4)	1 (0.1)		
Sex				
Male	174 (67.3)	127 (49.6)	10.081	0.001*
Female	101 (36.7)	129 (50.4)		
Level of Study				
100	40 (14.5)	39 (15.2)	10.615	0.060
200	41 (14.9)	35 (13.7)		
300	57 (20.7)	38 (14.8)		
400	74 (26.9)	56 (21.9)		
500	37 (13.5)	56 (21.9)		
600	26 (9.5)	32 (12.5)		
Religion				
Christianity	236 (85.8)	232 (90.6)	2.930	0.087
Islam	39 (14.2)	24 (9.6)		
Lecture Duration (hrs)				
1 to < 10	24 (8.7)	40 (15.6)	93.398	0.001*
10 to < 20	54 (19.6)	76 (29.7)		
20 to < 30	42 (15.3)	94 (36.7)		
30 to < 40	34 (12.4)	20 (7.8)		
40 to < 50	116 (42.2)	23 (9.0)		
50 and above	5 (1.8)	3 (1.2)		
Extracurricular Activity	91 (33.2)	183 (66.8)	0.886	0.347
Care-seeking Behaviour				
Self-medication	196 (80.7)	47 (19.3)	30.719	0.001*
Drugs	94 (39.2)	114 (60.8)	5.082	0.024*
Physiotherapy	50 (20.9)	189 (79.1)	0.377	0.377
Other	22 (61.1)	14 (38.9)	7.887	0.006*

$\alpha = 0.05$

Key: n = Number, % = Percentage, * = Significant

DISCUSSION

This study investigated the prevalence and pattern of MSP among Nigerian undergraduates. The majority of the undergraduates in this study were between 21-25 years of age. It is usual for undergraduates all over the world to fall within the age bracket of 18 – 22 years, though some could be considerably older or younger (Egbochuku and Akpan, 2006). The age bracket of respondents in this study is similar to that reported by Stanford University (2011) which put the average age of American undergraduates at between 18–20 years. The data for Nigeria is less precise, however, most of the undergraduates in Nigerian universities are in their adolescent years (Egbochuku and Akpan, 2006).

There is a high lifetime (54.5%) and point (51.7%) prevalence of MSP among Nigerian undergraduates with higher preponderance among male students. The higher preponderance of male students suffering from MSP as found in this study may be a reflection of such variables associated with higher involvement of male students in high-level physical activities than their female counterparts or other variables outside the present study. However, this finding is at variance with previous findings among a similar population in a similar setting with respect to the prevalence of neck pain (Ayanniyi et al 2010). The pattern of lifetime MSP by body site affected indicates that the low back (55.1%), followed by the neck (53.8%) were the most affected anatomical parts, while the least affected site was the elbow (8.1%). Nyland and Grimmer (2003), in a study among physiotherapy students at the University of South Australia found a lifetime prevalence of 69% for LBP while Hayes et al (2009) reported an overall of 57.9% for 12-months prevalence of LBP among Dental Hygiene students in Australia. The higher prevalence of MSP affecting the low back in the present study is consistent with previous studies in the general population (Jorgensen et al, 1991; Kilbom et al, 1996). The common occupational related back pain among workers is attributed to prolonged and static (motionless) muscle contraction and the repetitive use of muscles (Kilbom et al, 1996).

In the present study, a higher prevalence of neck pain was found among undergraduates than those previously reported by Ayanniyi et al (2010), who found a lifetime prevalence of 34.9% among Nigerian undergraduates; and Lorusso et al (2010) who reported 16% lifetime prevalence of neck pain among Italian X-ray technology students. However, this is consistent with the finding by Gamperiene and Stigum (1999). Point prevalence of MSP shows that the

hip/thigh (27.4%) followed by the upper back (27.3%) were the most affected body parts. This is contrary to the finding by Harutunian et al (2011) with a higher prevalence of MSP in the upper back (40.5%) among Dentistry post-graduate students compared with the present study.

Large proportions of students with MSP in this study were in the higher levels of study (200-400 level). This may imply that the higher the level in the university, the higher the risk of MSP. Vikat et al (2000), in a study exploring neck or shoulder pain and low-back pain (LBP) in Finnish adolescents found that students in higher academic classes had higher rates of MSP. This may imply that the higher levels of study in the university make more demand on the musculoskeletal system or that the higher levels are periods when accumulated non-symptomatic musculoskeletal disorders begin to manifest. However, many fresh students (100 level students) also reported experiencing an increase in MSP. This is consistent with the finding by Uchakin et al (2001) who suggest that academic stress in first-year students causes an alteration in the health status of freshmen, thereby making them susceptible to ill health.

Students from the Faculty of Agriculture and Forestry in this study had the highest lifetime prevalence of MSP with the neck (88.0%) and the low back (72.0%) as the most affected body parts. The high lifetime prevalence of low back among the Agriculture and Forestry students in this study is higher compared to an earlier report by Eva et al (2007) who found a 15.7% prevalence of MSP among farm workers high school students in Starr Country, Texas. The prevalence of neck pain and LBP among the Agriculture and Forestry students in this study may be attributed to the lack or limited availability and use of ergonomically-designed farm implements and mechanized farming in the University of Ibadan.

The findings on predisposing factors for MSP in this study implicated the use of seats without back support. A larger proportion of the students who used seats without back support during lectures indicated that the posture assumed during lectures was a perceived cause of MSP than those who used seats with back support during lectures. Previous studies have implicated the use of seats without back support as a risk factor for MSP (Schroder, 1997; Ayanniyi et al, 2010). Most of the students in this study perceived their MSP to be multifactorial in origin. This is consistent with the finding of Siivola et al (2004). The posture assumed during lectures was perceived as a cause of MSP (22.9%) in this study. Previous studies also

implicated awkward postures usually assumed by most workers as the cause of MSP, especially LBP and pain in other parts of the body (Pope et al, 2002). Prolonged standing was also indicated as a perceived cause of MSP in this study. This may be connected to some types of school work which can only be performed standing, such as laboratory work and cadaver dissection among students in the Faculty of Basic Medical Sciences. A significant association between lifetime prevalence of MSP and each of age, sex and lecture duration was found among the respondents in this study. However, religion and extracurricular activity did not significantly influence the prevalence of MSP among the respondents. This is contrary to the findings by Ayanniyi et al (2010) with respect to MSP affecting the neck.

The normal daily activities of some of the respondents were limited by MSP for between one to seven days. This finding is in agreement with those of Rosecrance and Cook (1998) who reported that work-related MSP is a leading cause of lost time from work, with a resultant loss of productivity, significant human suffering and worker disability. The commonest health seeking behaviour to alleviate musculoskeletal pain among the respondents was self-medication (55.6%). This is consistent with the previous finding among adolescents suffering from LBP where self-medication (27%) was the predominant means of management (Ayanniyi et al, 2011). This may be due to unrestricted access to off-the-shelf analgesic drugs to manage musculoskeletal pain. It may also be a reflection of the perception of the respondents concerning their MSP as not being serious enough to warrant the attention of health care professionals. It is important to point out that there is a very close similarity in our findings with respect to point prevalence and seven days prevalence, therefore it could be assumed that point prevalence to some extent is already included in the findings with respect to seven days prevalence. Hence seven days prevalence may take precedence over point prevalence. Overall, it is amazing that over 50% of undergraduates in their twenties have MSP. Therefore, it is necessary that in-depth studies should be carried out to discover the reasons behind such occurrences.

Limitations

This study had a number of limitations. The questionnaires did not address the respondent's perspective as to whether their MSP actually worsened after starting their undergraduate programme. This is very important as their responses could have been compared with empirical research findings. Equally, the section of the questionnaire that addressed extracurricular activities was not sufficiently broken down into specific sports and activities to provide more insight into this aspect of campus life. Recall bias may also have affected the responses. This is not unexpected with a questionnaire survey. However, in order to minimize recall bias, the respondents were instructed to depend on their best memory recall. Also, the outcome of this study may not necessarily confirm the actual presence and severity of the underlying musculoskeletal disorders in view of the fact that the study was a self-reported cross-sectional survey. However, the high prevalence of MSP may point to the possibility of an underlying disorder. Caution should also be exercised in postulations on the mechanism responsible for MSP in terms of school and pain since there is no control study to verify such an assumption specifically.

Further/future Research Focus

A number of studies can be elicited from this work. It is important to know the perception of undergraduates about the specific burden their academic activities impose on them compared with other issues surrounding university education in Nigeria in particular. It could also be useful to compare findings between privately-owned institutions and government-owned institutions with respect to the problem of MSP among undergraduates.

Implications of the Findings

It can be inferred from this study that MSP is a common occurrence among undergraduates of the University of Ibadan. Therefore, there is a need for the university authorities to address the problem among the undergraduates by deliberately instituting holistic approaches that will encompass both preventive and effective management of the problem.

CONCLUSION

Musculoskeletal pain is a common disorder among Nigerian undergraduates with lifetime and point prevalence of 54.50% and 51.7% respectively. The low back followed by the neck are the most affected anatomical sites by MSP in undergraduates. MSP is perceived to be caused largely by prolonged poor postures assumed during lectures, and it limits daily activities. Age, sex, lecture duration, and

extracurricular activity were significant correlates of occurrence of MSP. Preventive strategies to reduce MSP among Nigerian undergraduates are necessary.

Declaration of interest

Acknowledgement

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