Prevalence and Risk Factors of Low Back Pain among the Clinical Students of the College of Health Sciences in Bayero University Kano.

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Abstract

Background: Low Back Pain (LBP) is a common disorder that is identified to be the major cause of disability, affecting performance at work and general well-being. The aim of this study was to determine the prevalence and risk factors of low back pain among clinical students of the College of Health Sciences at Bayero University Kano. Method and Materials: A total of 191 clinical students were recruited in this study, the subjects were drawn from the College of Health Sciences at Bayero University Kano. A self-administered questionnaire was administered after which the physical characteristics of the participants were measured and recorded. Data collected was summarized using descriptive statistics and analyzed using inferential statistics of chi-square to test the association between the risk factor variables and low back pain. Results: The study determined the 12months prevalence, 1month prevalence, 7days prevalence, and point prevalence to be 44.4%, 28.9%, 22.5% and 48.1%   respectively among the clinical students and a significant association (p< 0.05) was found between Low back pain, age and course of study. Conclusion: Low back pain appears to be a common problem among college students. Therefore, the students should be aware of the risk factors, appropriate preventive measures and treatment of low back pain to reduce the risks of getting it.

Keywords: Low Back Pain, Risk factors, Bayero University Kano Clinical students
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Introduction

Low back pain (LBP) is a common disorder involving the muscles, ligaments, nerves and bones and the pain can vary from a dull constant ache to a sudden sharp feeling (National Institute of Neurological and Stroke NINS, 2015; Hulya, 2016). LBP can be classified by duration as acute (pain lasting less than 6 weeks), sub-acute (6-12 weeks), or chronic (more than 12 weeks) (Katz, 2006). According to Karakaya *et al* (2011), it can further be classified based on the underlying causes as mechanical, non-mechanical or referred pain (Lancent *et al*, 2013). There are many risk factors that can be associated with LBP such as age, gender, overweight, poor physical condition, poor posture, stress etc (Taspmar *et al*, 2013;   Sumaila *et al*, 2015).

LBP occur in people of all ages, from children to the elderly, and is said to be the most frequent reason for medical consultation. It was found to be a well-recognized cause of morbidity in the industrialized world (Picavet *et al*., 1999; Waheed, 2003). Other studies by Rotgoltz (1992) and Hignett (1996), reported that the occurrence of LBP in general population and occupational settings was getting higher. It was identified to be the major cause of disability affecting performance at work and general well-being (Lancent *et al*., 2013). At present LBP is mainly treated with analgesics, alternate

treatments including physical therapy and spinal surgery remain the last resort when all strategies have failed, but the outcomes are sometimes disappointing(Lancent *et al*., 2013; Sumaila *et al*., 2015).

Students often sit for prolonged periods and thus they are more prompt to have lower back problems. (Mckinley, 2010) Therefore, a large number of university students may experience low back pain (LBP) by the end of their academic careers as they are spending too much time sitting; taking lectures, reading, or working on computers (Mckinley, 2010). The risk of clinical students developing LBP can be associated with age, gender, overweight, poor physical condition, poor reading posture, stress, bag carrying, year of study, prolonged standing during clinical activities, smoking and exposure to specific educational activities (Taspmar *et al*, 2013; Onabajo *et al*., 2016). This study was conducted to determine the prevalence of LBP among the Clinical students of the College of Health Sciences at Bayero University Kano and also to consider the association of LBP with Risk factors.

Materials and Method
Research Design: The study was a cross-sectional survey aimed at evaluating the prevalence and risk factors of low back pain among clinical students of the College of Health Sciences at Bayero University Kano.

Population: The population of the study comprised all clinical students of the College of Health Sciences at Bayero University Kano i.e. those in the 4th, 5th and 6th year of their study. This is because of the fact that they are more exposed to the hazard than other categories of students.

Sample Size and Sampling Technique: A simple random sampling method was used to draw participants and all the clinical students were considered. A total of 191 clinical students were recruited from the College of Health Sciences at Bayero University Kano.

Inclusion Criteria/ Exclusion Criteria
All clinical students, that is those in the 4th, 5th and 6th year of study in the College of Health Sciences, Bayero University, Kano, were eligible to participate. Clinical students with associated medical conditions such as; respiratory, kidney, pelvic, gastrointestinal diseases, malignancy or any other systemic problem and pregnant clinical students were excluded from this study, as other pathological conditions may predispose them to the hazard away from their daily routines in the hospital.

Data Collection Instrument
A self-administered questionnaire that contained extracts from the questionnaire utilized in the study by Onabajo *et al*., (2016).

Data Collection Procedure
Ethical approval with a genuine reference was obtained from the ethical committee of the College of Health Sciences in BUK. The eligible students were approached during their free hours within their respective departments and the purpose of the study was explained to the participants in order to ensure maximum co-operation of the participants. Thereafter, the informed consent form was given out and later the questionnaires were distributed to the participants that consented, their physical characteristics (age, height and weight) were measured and recorded and questionnaires were retrieved after filling.

Data Analysis Procedure
Descriptive statistics was used to summarize the data using the mean, standard deviation, frequency and percentage. Inferential statistics of chi-square were used to test the association between the risk factor variables, sociodemographics and low back pain. P value of <0.05 was used. All statistical analyses were performed using the Statistical Package for Social Sciences (SPSS) version 20.0.

Results
200 questionnaires were distributed among the clinical students of the College of Health Sciences and 191 questionnaires were returned response rate was 93.5%. Out of the total 191 respondents, 187 were considered valid whereas the remaining 4

were not valid. Among these 187 clinical students,54.5% (n=102) were males and 44.5% (n=85) were females. The mean age of the participants was 23.8 years and they are averagely normal-weight individuals as shown in the tables 1.

The majority (83.96%) of the participants are not married as shown in Table 2, the distribution of students by course of study and year of study is summarized in Table 2.

Table 3 shows many (44.4%) of the participants have had low back pain for the last 12 months, 28.9% of the participants have had low back pain for the last 1 month and 22.5% of the participants reported having low back pain for the last 7 days. A significant

number (36.4%) of the students have not received treatment from any health professional while 11.8% of students have received treatment.

There is a statistically significant association between age and low back pain (p-value 0.030, x^2-26.843). There is no statistically significant association between gender (p-value 0.229, x^2 -1.446); BMI (p-value 0.346, x^2 -2.123) and low back pain (Table 4).

There is a statistically significant association between the course of the study (p-value 0.000, x^2-24.289) and low back pain. There is no statistically significant association between the year of study (p-value 0.190, x^2-4.759) and low back pain (Table 5).

Table 1: Physical characteristics of participants

Variables	Frequency (n)	Percentages (%)	Mean ± SD
Age (years)			23.8235 ±2.9175
Weight (kg)			56.5921 ±10.1953
Height (m)			1.6482 ±0.1069
BMI kg/m^2			20.8814 ±3.6030
Gender			
Male	102	54.5	
Female	85	45.5	
Total	187	100	

Key: BMI= body mass index   SD= standard deviation

Table 2: Frequency distributions of marital status, course of study and year of study

Variables	Frequency (n)	Percentages (%)
Marital status		
Married	30	16.0
Single	157	83.96
Course of study		
BDS	9	4.8
MBBS	69	36.9
MLS	24	12.8
NUR	27	14.4
OPT	8	4.3
PHY	30	16.0
RAD	20	10.7
Year of Study		
4th	88	47.1
5th	66	35.3
6th	33	17.6

KEY: BDS=Bachelor of Dental Surgery, MBBS=Bachelor of Medicine Bachelor of Surgery, MLS=Medical Laboratory sciences NUR=Nursing PHY=Physiotherapy, OPT=Optometry RAD=Radiography

Table 3: Low back pain prevalence for the past 12 months, 1 month and 7 days, duration of low back pain and treatment received

Variables	Frequency (n)	Percentages (%)
12 months		
Yes	83	44.4
No	104	55.6
1 month		
Yes	54	28.9
No	133	71.1
7 Days		
Yes	42	22.5
No	145	77.5
Duration of low back Episode		
0 days	104	55.6
1-7 days	48	25.7
8-30 days	12	6.4
More than 30 days	16	8.6
Everyday	7	3.7
Received treatment		
Not seen	68	36.4
Seen by health professionals	22	11.8

Table 4: Association between age, gender, BMI and low back pain

Variables	No	Yes	X^2	P -value
Age				
15-19	1	0	26.843	0.030*
20-24	60	67		
25-29	31	19		
30-34	4	3		
35-39	1	1		
Gender				
Male	57	45	1.446	0.229
Female	40	45		
BMI				
Underweight	12	18	2.123	0.346
Normal weight	78	65		
Overweight	7	7		

*Significant

Table 5: Association between course of study and low back pain

Variables	No	Yes	X^2	P -value
Course of study				
BDS	3	6	24.289	0.000*
MBBS	47	22		
MLS	12	12		
NUR	16	11		
OPT	6	2		
PHY	8	22		
RAD	5	15		
Year of Study				
4th	41	47	4.759	0.190
5th	34	32		
6th	22	11		

* **Significant KEY:** BDS=Bachelor of Dental Surgery, MBBS=Bachelor of Medicine Bachelor of surgery, MLS=Medical Laboratory sciences NUR=Nursing PHY=Physiotherapy, OPT=Optometry RAD=Radiography

Discussion

The study determined the 12-month prevalence to be 44.4%, the 1-month prevalence to be 28.9%, 7 days prevalence to be 22.5%and the point prevalence to be 48.1%. Similar to this has been shown by Arsh*et al.,* (2015) whose study reported that the Lifetime prevalence of low back pain among doctor of physiotherapy (DPT) students was 48.3%. 12-month, 1 month and 1-week prevalence reported by these71 students were 81.60%, 57.74%, and 39.43% respectively. Another study by Karakaya *et al,* (2011)revealed a 12-month prevalence of sub-acute and chronic low back pain in the sample group of medical students was 53.4% as compared to 60.7% in the sample group of physical education students. These data reveal a high prevalence of low back pain among students, which is rather alarming considering their young age.

This study shows a significant association between age and lower back pain which is in line with the study by Lim *et al.,* (2013) who found that the prevalence of lower back pain among university Tunku Abdul Rahman students whose age 20 was 26.7% and age 21 was 18.7%. According to Nyland and Grimmer (2013) who investigated whether low back pain was a problem for undergraduate physiotherapy students, being aged 20or 21 years was a significant contributor to the prevalence of lower back pain, thus, predisposing to the increased risk of lower back pain for the fourth year students compared with students in the first year.

On the other hand, this study found that an association do exist between the course of study and low back pain in the clinical students, physiotherapy and MBBS constituted 24.4% of the study participants with low back pain, similar findings were reported by Waheed*,* (2003)that 83% physical therapy students in Israel suffer from some type of MSK complaints in the last 1-year. According to Rozenfe*et al.,* (2010), 1-year prevalence of low back pain among them was 49%. Falavigna *et al.,* (2011), report in their

study that physiotherapy students in Brazil were 2.51 times more likely to suffer from low back pain as compared to other medical students. The lifetime prevalence of low back pain in Brazilian physical therapy students was 82%, while 12-month and point prevalences were 73% and 19% respectively. The same study shows that the lifetime prevalence of low back pain in Brazilian medical students was 73% while 12-month and point prevalence were 59% and 9% respectively. They also concluded that those students who studied 5 or more semesters of their undergraduate course, had a 2.55 times more chance to suffer from low back pain because those students were more involved in practical activities (Falavigna *et al.,* 2011). In a study by Karachi *et al.,* (2007), 60% of physical therapy students suffer from some type of low back pain after 1-year of clinical activities. Approximately 32% after 1-week and 43% after 1 month of clinical duties report low back pain. According to Alshagga (2013), the lifetime prevalence of low back pain among physiotherapy students at Witwatersrand University South Africa was 35.6%. According to her study, there were important relations between low back pain and hours of practical work while hours spent in theoretical learning did not play an important role in developing low back pain in physiotherapy. And Falavigna*et al.,* (2010) evaluated the association between undergraduate physiotherapy students and low back pain. The results show that 77.9% of the students had low back pain at some point in their lives, 66.8% in the last year and 14.4% of them reported they were suffering from low back pain at the moment of answering the questionnaire. Physiotherapy students reported a higher prevalence of low back pain when compared with the medical students in all measures. Karakaya*et al.,* (2011).Also, the 12-month prevalence of sub-acute and chronic low back pain in the sample group of medical students was 53.4% as compared to 60.7% in the sample group of physical education students. These data reveal a high prevalence of low back pain among students, which is

rather alarming considering their young age, A similar finding has been shown by Alshagga*et al.,*(2013) assessed the prevalence, body distributions and factors associated with musculoskeletal pain among medical students in a private Malaysian medical college. They found that low back pain among medical students was relatively high, thus, further clinical assessment is needed in-depth study of ergonomics.

The study found no significant association between the specific educational level and low back pain. This may be because the study participants are from different departments which is in contrast with the study by Nyland and Grimmer (2013) reported that sitting in bad posture for long hours in class for lectures and clinical practice for more than 20 hours per week, predispose physiotherapy students to low back pain. In Students between the ages of 20 and 21 years, low back pain was more common. In contrast, Onabajo *et al.,* (2016) show that the students engaged in, only treating patients and having techniques practised on self were significantly associated with 7 days and 1 month low back pain prevalence, respectively.

The study also reveals that there is no significant association between BMI and low back pain. This may be because most of the study participants are within the normal BMI. This is contrary to the findings of a study by Katz (2006) that reports an Increased weight and height a risk factors for low back pain. Some studies are showing the relationship between obesity and low back pain among university students (Deyo*et al.,* 1989; Rubin, 2007). Primary school students (Sumaila *et al*, 2015). A study by Hulya *et al* (2016), revealed that low back pain was not affected by the value of BMI because BMI values of students with and without low back pain were within normal intervals. However, the relationship between changes in weight in the past 6 months and low back pain was found to be statistically significant.

The study also shows no significant association between gender and low back pain. This may be because most of the study participants were males. This is not Consistent with the study by Korovessis *et al* (2015)who revealed that the factor of gender was against the females for the severity and frequency of low back pain and that there was a relationship between physical activity and low back pain. The incidence and severity of low back pain were higher in female students (91.3%) than in male students (Korovessis *et al*., 2015; Sumaila *et al*., 2015).

There was no significant association between the year of study and low back pain. This could be because the students developed coping strategies as they move from one level to another. This finding is not in line with the study by Arsh*et al.,* (2015) which reveals that the tendency towards increasing low back pain prevalence was identified from 1st year to the final year. Increased low back pain prevalence among 3rd year, 4th year and final-year students was noticed as compared to 1st and 2nd-year students. Also reported by the study by Nayland and Grimmer (2003), low back pain prevalence among final year (4th year) students was higher than 1st year students which shows that low back pain is more common among final year students.

Conclusion
A relatively high prevalence of low back pain was found. Low back pain was found to be associated with age and course of study among clinical students of the College of Health Sciences at Bayero University Kano.

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