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Full Length Research Paper

Prevalence of Low Back Pain among Filling Stations Attendants in Lagos, Southwest Nigeria

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ABSTRACT

Low back pain is prevalent among workers of some certain industries and occupation, however little is known about its prevalence among filling stations attendants who are perceived to belong to the group that are exposed to high occupational risk. This study was designed to determine the prevalence and characteristics of LBP among selected filling stations attendants as well as their associated risk factors. The study design was a cross sectional descriptive survey. All subjects were evaluated using an adapted questionnaire used in a previous study titled: "Prevalence of Low Back Pain among Traffic Warden in Lagos state" using a purposive sampling technique. It is a 36-item questionnaire which sought information on demographic data, 12 months prevalence of LBP prior to the study, severity of LBP, history of LBP, causative factors and management of LBP and its effect on filling stations attendant's activities and activities of daily living. The intensity of the pain was assessed using a verbal rating scale. The data was analyzed using statistical package for social science (SPSS) version 20 and the level of significance was set at $p \leq 0.05$. Majority of the respondents 175 (61.40%) were below the age of 25 years, while 19 (6.66%) respondents were between the of age 35 and 64years. Among the participants, 247 (86.70%) were males while 38 (13.30%) were females. The prevalence of low back pain over a 12 month period was observed to be 84.60%. The pain intensity was described as moderate (71.23%), mild (17.54%) and severe (11.23%) using verbal rating scale. There was relationship between age (p=0.0001), gender (p=0.0001) and years of experience (p=0.0001) of the filling station attendants and prevalence of low back pain. A higher prevalence was identified among male compared to females. Majority (171, 60%) of the respondent reported that prolong standing was the activity that predispose them to LBP. It can be concluded that low back pain is prevalent among filling stations attendants. Higher prevalence was identified in males compared to female, although there was male preponderance. Age, gender and years of involvement in attendant work had significant influence on the prevalence of LBP.

Keywords: Low back pain, Prevalence, Filling station attendant, Major oil marketers

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INTRODUCTION

Low back pain (LBP) is the most prevalent musculoskeletal condition and the main cause of disability in developed nations, it is a common musculoskeletal disorder affecting 80% of people at some point in their lives (Louw *et al*, 2007). It is one of the most commonly treated disorders in out-patients Physiotherapy Clinics worldwide (Malluf *et al*, 2000) and has been found to have a significant impact on functional ability thereby restricting occupational activities with marked socioeconomic repercussion (Van Tulder, 2002). The low back supports most of the body's weight hence; it is susceptible to injury (Odebiyi *et al*., 2007).

A Study by Adegoke *et al*. (2008) highlighted the prevalence and risk factors of low back pain among physiotherapists in Nigeria. Other, studies have shown high prevalence rates of low back pain among office workers (Omokhodion and Sanya, 2003), hospital staff (Bejia *et al*., 2005), nurses (Govender, 2004), bricklayers and farmers (Omokhodion, 2002, Tella *et al*, 2013), commercial and private automobile drivers (Odebiyi *et al*, 2007), computer users (Adedoyin *et al* , 2004) commercial drivers and motorcyclist (Akinbo *et al*, 2008) and among secondary school students (Adegoke *et al*, 2015).

There appears to be a general assumption that LBP prevalence in Africa is lower than that reported in the developed nations (Omokhodion *et al*, 2003). A systematic review into the global prevalence of LBP identified that out of 56 included studies, only 8% were conducted in developing countries, with only 1% study conducted in Africa and lack of information on the prevalence of LBP in developing countries is therefore a significant shortcoming (Walker *et al*, 2000).

The lack of information on the prevalence of LBP in developing countries is a significant shortcoming (Walker *et al*, 2000), particularly as it is predicted that the greatest increase in LBP prevalence in the next decade will be in developing nations (WHO, 2003).

Understanding prevalence and causality of LBP in developing nations such as Africa may assist understanding of global LBP causes and management (Gilgil *et al*, 2005) and will determine whether the factors differ in socio-cultural characteristics. Low back pain and disability does not progressively increase with age and does not correspond to age-related changes of disc degeneration (Govender, 2004). It is not clear why low back pain peaks at about fourth decades of life. The majority of the population suffering from low back pain copes with themselves without seeking medical treatment. Known occupational risk factors such as heavy lifting, twisting, pulling, pushing, bending, stooping, prolonged standing and awkward postures at work are associated with low back pain (Eriken *et al*, 2004). To our knowledge, no systematic review reporting on the prevalence of LBP on the African continent exists. However several scholarly articles have reported the prevalence of musculoskeletal disorder among computer users (Adedoyin *et al*, 2004) rural community dwellers (Akinpelu *et al*, 2010) rural hospital workers (Omokhodion *etal*,2000) office workers (Omokhodion *et al*,2003) and the prevalence of neck and upper repetitive stress injuries among bankers in Lagos Nigeria (Tella *et al*, 2011).

Therefore, this study is designed to investigate the prevalence of low back pain among filling station attendants working with Petroleum Major Marketers in three selected local government areas (LGA) in Lagos state.

MATERIALS AND METHODS

Prior to the commencement of the study, ethical approval was obtained from the Health Research and Ethics Committee of the Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos, and informed written consent was sought and obtained from all the participants. A total of 300 filling stations attendants both male and female between the ages of 25-64years participated in this study. The objectives of the study were clearly stated to all the participants and they were assured of the confidentiality of their responses.

Copies of the questionnaire were then distributed to the participants by the researcher through personal visits to various filling stations in selected Local Government Areas of Lagos State (Mushin, Oshodi-Isolo and IfakoIjiaye LGA). The purpose of the study was clearly explained to all the participants before administering the questionnaire. All participants were evaluated by a face-to-face interview technique using a questionnaire form that was adopted from previous study, Titled "Prevalence of Low Back Pain among Traffic Warden in Lagos state, Nigeria" by Akodu *et al*. (2014). The questionnaire consists of 36 open ended questions and was divided into five sections.

Section A sought information on subject's demographic data such age, sex, height, weight, marital status. Section B sought general information on history of low back pain, occupation and work load, characteristics, duration, aggravating, and relieving factors and knowledge of back care education. Section C consists of the psychological risk factors of low back pain. Section D was used to obtain information on how the participants manage their low back pain. Section E sought information on the effect of low back pain on work activities and activities of daily living. Following the administration of the questionnaire, a verbal rating scale (VRS) for pain intensity was administered.

Data Analysis: Statistical package for social science version 20.0 was used for data entry and analysis. Descriptive statistics of mean, frequency and percentages were used to summarize the data. Results were represented in tables and bar charts.

Chi square was utilized in exploring relationship between variables at alpha set at ≤ 0.05.

RESULTS

Demographic characteristic of respondent

A total of 300 questionnaires were administered on selected filling station attendants. While 285 copies were validly completed and returned (giving a response rate of 95.00%). Majority of the respondents 175 (61.40%) were below the age of 25 years, 91 (31.90%) were between the age of 25 and 34 while 19 (6.66%) respondents were between 35 and 64years. Among the participants, 247 (86.70%) were males while 38 (13.30%) were females.. Most of the respondents 191 (67.00%) were single, (Table1).

Table 1:
Demographic data of the respondents

Variables	Frequency (n)	Percentage (%)
Age (years)		
Below 25	175	61.40
25 -34	91	31.90
35 -44	13	4.60
45 -54	4	1.4
55 -64	2	0.7
Total	**285**	**100.00**
Gender		
Male	247	86.70
Female	38	13.30
Total	**285**	**100.00**
Educational status		
Primary education	22	7.72
Secondary education	172	60.35
Technical education	83	29.12
University education	8	2.81
Total	**285**	**100.00**
Marital status		
Single	191	67.0
Married	88	30.8
Divorced	1	0.4
Widow	3	1.1
Separated	2	0.7
Total	**285**	**100.00**

Prevalence of Low Back Pain
Out of 285 filling stations attendants that participated in this study, 241 (84.56%) reported experiencing low back pain (LBP) during the last 12 months preceding the study (Table 2).

Onset, Nature, Episodes, Frequency and duration of LBP among participants
One hundred and forty six (57.30%) reported that their pain had a gradual onset while 109 (42.90%) reported sudden onset of LBP. Eighty six (30.87%) of the filling stations attendants with low back pain described the nature of the pain as sharp. Report on duration of low back pain showed that 152 (59.60%) of the filling stations attendants was in acute stage (Table 3).
A total of 203 (71.23%) reported that the pain was localized at the low back, 78 (27.37%) had at mid back and 4 (1.40%) had at upper back. The severity of pain felt was rated using Verbal rating scale (VRS), out of the 285 participants. Two hundred and three (71.23%) had moderate pain, 50 (17.54%) had mild pain and 32 (11.23%) had severe pain.

Table 2:
Prevalence of Low Back Pain (LBP) among the respondents

Variables	Frequency (n)	Percentage (%)
LBP experienced from onset		
YES	250	78.95
NO	34	12.28
LBP experienced in the past 12 months		
YES	247	86.70
NO	38	13.30
Educational status		
YES	241	84.56
NO	44	15.44
First time experienced LBP		
< 1year ago	151	15.44
1 – 4 years ago	73	29
5 – 10years ago	17	6.7
Admitted as a result of LBP		
YES	240	84.21
NO	45	15.79
Total	**285**	**100**

Table 3:
Onset, nature, episode, frequency and distribution of LBP among participants

Variables	Frequency (n)	Percentage (%)
Onset of LBP		
Gradual onset	146	57.30
Sudden onset	109	42.90
Episodes of LBP		
Single episode	64	22.46
Multiple episode	191	74.90
Nature of LBP		
Dull pain	169	66.30
Sharp pain	86	30.78
Duration of LBP		
Below 6 weeks	152	59.6
Between 6 and 12 weeks	103	36.14
Frequency of LBP		
Almost every day	6	25.90
Once a month	114	44.70
Once a week	74	29.0
Once in 2 or 3 months	**1**	0.4

Predisposing factors to LBP reported by Respondents

The activities indicated as possible causes of LBP were prolonged standing (171, 60.00%), prolonged bending 4 (1.40%), hand above the shoulder 2(0.7%), prolonged sitting (50, 10.50%), long working hour more than 8 hours daily (10, 3.51%), lifting heavy weight more than 5kg during working (15 5.27%), working with vibrating tools 23(8.10%), repetitive movement (10, 3.51%) (Table 4).

Effect of low back pain and activities of daily living on respondents

One hundred and seventy-four (61.05%) had difficulty in discharging their duty at work because of their LBP, while 106 (37.19% had difficulty in performing household function, 110 (38.60%) had difficulty in performing activities while 86 (30.18%) had their sleep disturbed due to the LBP (Table 5).

Table 4:
Risk Factors that predispose the respondent to LBP

Variables	Frequency (n)	Percentage (%)
Prolonged standing	171	60.00
Prolong bending	02	0.70
Prolonged sitting during	10	3.51
Long working hours (more than 8 hours daily)	15	5.27
Lifting heavy weight (more than 5kg during working)	23	8.10
Working with vibrating tools repetitive movement	10	3.51

Table 5:
Effect of low back pain and activities of daily living on respondents

Variables	Frequency (n)	Percentage (%)
Difficulty in doing attendant work		
YES	174	61.05
NO	111	38.95
Difficulty in performing household function		
YES	106	37.19
NO	179	62.81
Difficulty in activities previously enjoyed		
YES	110	38.60
NO	86	25.90
Sleep disturbance		
YES	199	69.82
NO	166	58.25
Absent from attendant work		
YES	119	41.75
NO	194	68.07
Frequency of LBP		
YES	91	31.93
NO		
Number of days absent		
YES	194	68.07
NO	91	31.93

Association between Age, Gender, Years of experience as a filling station attendant, Hours of spent as an attendant and 12 months prevalence of LBP among respondents

Table 6 shows the relationship between age and prevalence of low back pain with participants' age below 25 years having the highest level of prevalence. A p-value of 0.0001 shows that there was a significant relationship between age and 12 months prevalence of low back pain. The p-value of 0.0001, 0.0001, 0.0001 shows that there was a significant relationship between gender, years of experience, the hours spent by filling station attendants and prevalence of low back pain

Table 6:
Relationship between Age, Gender, Years of attendants, Hours of attendant work and 12 months prevalence of LBP among respondents

Variables	YES	NO	TOTAL
Age			
Below 25	135	40	175
25 -34	87	4	91
35 -44	9	4	13
45 -54	2	2	4
55 -64	2	0	2
Chi-square= 23.61; p=0.0001			
Gender			
Male	230	17	247
Female	25	13	38
Chi-square= 23.61; p=0.0001			
Years of experience as a filling station attendants			
1	7	2	9
2	12	7	19
3	4	2	6
4	2	0	2
5	1	1	0
Chi-square= 23.61; p=0.0001			
Hours spent by filling station attendants			
1	17	2	19
2	27	0	27
3	190	51	99

DISCUSSION

This study was designed to determine the prevalence of low back pain (LBP) as an occupational hazard among filling station attendants predisposing factors and the association between age, gender, hours spent and years of experience as a filling station attendant.

The prevalence rates in this study is in agreement with the findings of a previous study by (Bakhtiary *et al*., 2005) which stated that about 80-90% of the population will suffer low back pain at one point in their life time. This finding is similar to the result of this study which stated that 84.6% of the filling station attendant had experienced low back pain.

In this present study, the 12 months prevalence of LBP among the respondents was 84.6% and this suggest that low back pain is prevalent among this group of subjects. This finding is in agreement with the result of the study of Akodu *et al*. (2014) who observed high prevalence of low back pain (69.5%) among traffic warden's in Lagos state Nigeria. It also agrees with the study of Ogunnowo *et al*. (2000) who observed a high prevalence of low back pain (69%) among nursing staff with prolonged standing as one of the contributing factors to low back pain in nursing staffs. A similar trend was observed in a study by Panada *et al* (2011) among rice farmers in Thailand with a 12 months prevalence of 60% and the study by Adegoke *et al*. 2008 among physiotherapists in Nigeria with a prevalence of 69.8%. This may be because the respondents in these studies have similar characteristics with the respondents in this study because of their nature of work which involves prolong standing, bending and lifting heavy weight.

In this study there was significant relationship between age and 12 months prevalence of LBP among filling station attendant with age group <25 and between 25 and 34 years having the highest level of prevalence. This is contrary to the result of the study carried out by Panada *et al.* (2011) who reported that age had no significant relationship with low back pain, but it is in agreement with the result of the study by Omokhodion (2002) which found an associated between low back pain and age. It is also in agreement with the result of the study by Anderson (1999), who reported a significant relationship between LBP and increasing age, with the prevalence being highest between ages 35 – 55 years. This is probably due to the normal degenerative changes associated with aging.

It was found out from this study that majority (80%) of the respondents in this study reported prolonged standing as the major cause of the low back pain they were experiencing. This is in agreement with the result of the study of Akodu *et al*. (2014) who reported that

80.7% of the respondents identified prolong standing as the their major cause of low back pain . But contrary to the result of the study carried out by Ogunnowo *et al* (2000) as only 11% of the respondent reported prolonged standing as what they perceived to be the cause of their low back pain. This is due to the fact that the subjects in this study engage in more hours of standing than the subjects that participated in the study carried out by Ogunnowo *et al*, (2000).

According to Ogunnowo *et al* (2000) low back pain was more prevalent among female workers and Panada *et al*, (2011) also stated this fact owing it to poorer physical fitness in women However the result of this study is contrary to this report with male subjects having a higher prevalence of low back pain. This finding also agrees with result of the study of Akodu *et al*. 2014 where male subjects have higher prevalence of low back pain.

Majority of the respondents in this study rated their level of pain as moderate using the Verbal rating scale. This is in support of the result of the study of Akodu *et al*. (2014) but contrary to that of Ogunnowo *et al*. (2000) in which majority of the subjects reported their level of pain as mild. This could be due to the fact that the respondents in the study had no luxury of sitting down during duty hours due to job environment constrictions. This study showed that many filling stations attendants have difficulty in doing their job (61.05%) due to LBP and they were aware of the causes of their LBP with majority of the respondents (60.00%) suggesting prolonged standing as the major cause.

As regards treatment of LBP**,** 65.6% of the filling station attendant took some time during duty to relieve their low back pain. This is in support of the report given as a means of treatment in the study carried out by Ogunnowo *et al* (2002) with 29% of the subjects doing the same.

Conclusion

There is a high prevalence of low back pain among filling station attendants in Lagos State. The majority of the respondents in this study attributed their low back pain to prolong standing and for most of these respondents, the level of pain was moderate. Age, gender and years of involvement in attendant work had significant influence on the prevalence of LBP.

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