

PREVALENCE AND IMPACTS OF LOW BACK PAIN AMONG PEASANT FARMERS IN SOUTH-WEST NIGERIA

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Abstract

Objectives: A relationship between low back pain (LBP) and poor postures has been previously established with a high prevalence observed in many occupations. This study aimed to investigate the prevalence of LBP, associated risk factors and impacts on farmers in South-West Nigeria. **Materials and Methods:** Six hundred and four farmers completed a 36-item closed-ended questionnaire which was translated to Yoruba language with content validity and back translation done afterwards. The questionnaire sought information on demographic data, 12-month prevalence, severity, history, causes and management of LBP, and its impacts on farm activities and the activities of daily living. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 17. Data was summarized using descriptive statistics of mean, range, frequency, standard deviation, percentage. Chi² and Mann-Whitney-U test were used to find association between variables. The level of significance was set at $\alpha = 0.05$. **Results:** The 12-month prevalence of LBP among the respondents was 74.4%. Low back pain was described as moderate in 53.4%. Prolonged bending (51.3%) was the most related risk factor. A considerable proportion (65.9%) of the respondents were unable to continue some of the previously enjoyed activities. Males had significantly higher ($p < 0.05$) prevalence, recurrence and duration of LBP than the females. **Conclusion:** There is a high prevalence of LBP among farmers in South-West Nigeria. Age, sex and years of involvement in farming have a significant influence on the prevalence of LBP.

Key words:

LBP, Prevalence, Impacts, Peasant Farmers, South-West Nigeria

INTRODUCTION

Low back pain is the most common musculoskeletal problem and currently one of the most widespread musculoskeletal problems affecting human population [1,2]. It is considered as one of the most common health problems in the industrialized world, with estimates of 60% to 85% of the population experiencing it at some point during their lives [3]. Low back pain has been defined as pain limited to the region between the lower margins of the 12th rib and gluteal folds [4–8]. It has also been described as a condition in which patient feels an incapacitating pain at the lower part of the back [9].

Low back pain of mechanical origin is usually perpetuated and aggravated by poor posture and patients with low back pain generally report an increase in pain intensity with movement towards lumbar lordosis which is the normal curvature of the lumbar region [10]. Consequently, poor posture that reduces the lumbar lordosis usually places the ligamentous structures of the back under stretch [11,12]. It is also believed that excessive periods spent in a poor posture may be contributory to the deterioration of the lower intervertebral discs with consequent pain in the low back [13].

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The four major musculoskeletal conditions leading to disability include osteoarthritis, rheumatoid arthritis, osteoporosis and low back pain [14]. The disability reported globally as a result of low back pain and loss of manpower, causing huge amounts of revenue loss has recently increased dramatically [15]. It has been estimated that over fifty billion dollars is spent annually on the diagnosis and treatment of back pain in the United States [16], while a hundred million dollars is spent annually in United Kingdom for the same purpose [17]. These figures are of great concern to physiotherapists and other healthcare professionals dealing with patients reporting low back pain. There is a global burden of disease of low back pain and suggestion that low back pain among Africans is rising and of concern [18]. Pain and loss of function associated with low back pain primarily leads to disability [14].

It has been established that there is a relationship between low back pain (LBP) and poor postures. It is one of the most commonly treated disorders in out-patient physiotherapy clinics worldwide [19] and has been found to have significant impact on functional ability, thereby restricting occupational activities with marked socio-economic repercussion [20]. Studies have shown high prevalence rates of LBP in office workers [21], hospital staff [8], nurses [6], bricklayers [22], standing workers, agricultural workers and carpenters [23], commercial and private automobile drivers [24], among commercial drivers and motorcyclists [25]. However, little is known about the prevalence of low back pain among farmers in the rural areas, particularly in Nigeria. This study therefore aimed to investigate the prevalence of low back pain, its associated risk factors and its impacts on farmers in Iwo, Osun State, South-West Nigeria.

MATERIAL AND METHODS

Six hundred and four farmers (368 males, 236 females) participated in the survey. They were recruited using a sample of convenience, from various farm settlements

across the rural communities in Iwo Local Government Area of Osun State, South West Nigeria.

Participants were requested to complete a 36-item closed-ended questionnaire which consisted of five sections. The copies of questionnaire were self administered to the participants by one of the researchers and two trained assistants through personal visitations. The questionnaire collected information on demographic data, 12-month prevalence of LBP prior to the study, severity of LBP, history of LBP, causes and management of LBP and its effect on farm activities and activities of daily living. The questionnaire was translated to Yoruba language and content validity and back translation was done afterwards in the Department of Linguistics, African and Asian Studies, University of Lagos.

The study was approved by the Research Grant and Experimentation Ethics Committee of College of Medicine of the University of Lagos. Consent of the participants was also sought and obtained.

Data analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 17. Data was summarized using descriptive statistics of mean, range, frequency, standard deviation, percentage. Chi² and Mann-Whitney-U test were used to find association between variables. The level of significance was set at alpha level of 0.05.

RESULTS

Four hundred and forty-seven (84%) of the participants responded that they had experience of low back pain (LBP) during the last 12 months preceding the study, out of whom 78.4% were male and 21.6% were female (Table 1). Three hundred and twenty-three (53.5%) participants reported gradual onset of their LBP while 20.5% had sudden onset (Table 1). Three hundred and twenty-two (53.3%) had multiple episodes

of LBP in the last 12 months, while 28.1% had experienced single episode (Table 1). Three hundred and twenty-eight (54.3%) of the farmers with LBP described the nature of their pain as dull, while 19.9% said it was sharp (Table 1).

More (53.4%) participants described their LBP as moderate while 23.1% described it as severe and required hospital visit. The most frequently reported LBP risk factor among the participants was prolonged bending (51.3%), followed by long years of farming (28%) (Figure 1). There was a significant relationship between years of farming and age and 12-month prevalence of LBP (Tables 2 and 3). There was significantly higher 12-month prevalence of LBP among males than females (Table 4). The point-prevalence of LBP among males was significantly higher compared to females (Table 4). There was significantly higher history of previous injuries among males than females (Table 4). Males had significantly higher ($p < 0.05$) prevalence, recurrence and duration of LBP than the females. The majority (54.1%) of participants had difficulty in doing farm work because of their LBP, while 103 (17.1%) had their sleep disturbed. Higher number of the respondents (48.7%) said they were prevented from participation in formerly practiced activities, such as sexual activities (83, 13.7%), attending parties (54, 8.9%), hunting (26, 4.3%), marketing (48, 8%) etc. they usually enjoyed (Table 5). Most (57.8%) respondents had been absent from farm due to LBP (Table 5).

Table 1. Onset, nature, episodes and duration of low back pain (LBP) in respondents

Variables	Respondents (N = 604)	
	n	%
Onset of LBP		
gradual onset	323	53.50
sudden onset	124	20.50
no response	157	26.00
total	604	100.00
Episodes of LBP		
single episode	126	28.10
multiple episode	322	53.30
no response	156	25.80
total	604	100.00
Nature of LBP		
dull pain	328	54.30
sharp pain	120	19.90
no response	156	25.80
total	604	100.00
Duration of LBP		
< 6 weeks	47	7.80
6–12 weeks	108	17.90
> 12 weeks	293	48.50
no response	156	25.80
total	604	100.00

Table 2. Years of involvement in farming and 12-month prevalence of low back pain (LBP) in the respondents

Involvement (years)	Respondents with previous history of LBP		Respondents with no previous history of LBP		Chi ²	p
	n	%	n	%		
1–10	6	20.00	24	80.00	122.11	0.00*
11–20	13	39.40	20	60.60		
21–30	43	58.90	30	41.10		
31–40	115	74.20	40	25.80		
41–50	141	81.00	34	19.00		

Table 2. Years of involvement in farming and 12-month prevalence of low back pain (LBP) in the respondents – cont.

Involvement (years)	Respondents with previous history of LBP		Respondents with no previous history of LBP		Chi ²	p
	n	%	n	%		
51–60	95	92.20	8	7.80		
61–70	34	97.10	1	2.90		

* Significant at p < 0.05.

Table 3. Association between age and 12-month prevalence of low back pain (LBP) in the respondents

Age (years)	Respondents with previous history of LBP		Respondents with no previous history of LBP		Chi ²	p
	n	%	N	%		
< 25	4	33.30	8	66.70	59.84	0.00*
25–34	28	40.00	42	60.00		
35–44	96	70.10	40	29.40		
45–54	141	80.10	35	19.90		
55–64	107	82.30	23	17.70		
65–74	54	90.00	6	10.00		
≥ 75	20	100.00	0	0.00		

* Significant at p < 0.05.

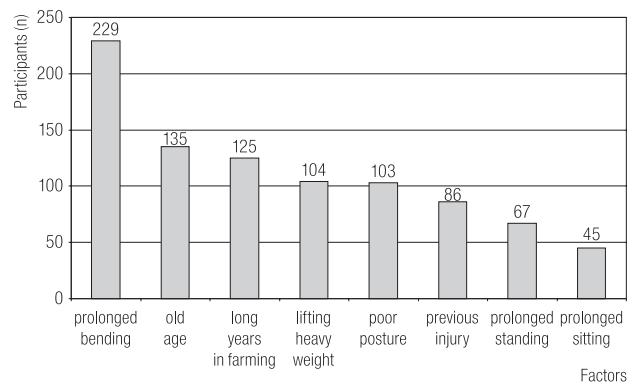
Table 4. Gender influence on the history of low back pain (LBP) in the respondents

Variables	Respondents (N = 604)		Mean rank	Sum of mean	Mann- Whitney-U	Z-Score	p
	sex	n					
12-month prevalence of LBP	male	272	287.93	105 384.00	105 384.00	-2.941	0.003*
	female	176	320.15	74 916.00			
Point-prevalence of LBP	male	272	287.80	105 912.00	105 912.00	-3.620	< 0.001*
	female	176	324.23	76 194.00			
Recurrent LBP	male	270	230.74	66 684.00	33 892.00	-1.462	0.144
	female	174	213.16	33 892.00			
Previous back injury	male	272	307.01	109 908.00	66 213.00	-2.878	0.004*
	female	176	281.76	66 213.00			
Frequency of LBP	male	272	230.20	66 527.50	34 048.50	-1.364	0.172
	female	174	214.14	34 048.50			
Duration of LBP	male	270	221.00	63 868.50	63 868.50	-0.919	0.358
	female	176	230.00	36 707.50			

* Significant at p < 0.05.

Table 5. Impacts of low back pain on respondents

Variables	Respondents (N = 604)	
	n	%
Stop work and rest		
yes	395	65.40
no	51	8.40
no response	158	26.20
Difficulty in doing farm work		
yes	327	54.10
no	119	19.70
no response	158	26.20
Disturbance of sleep		
yes	103	17.10
no	343	56.50
no response	158	26.20
Difficulty in practicing formerly enjoyed activities		
yes	294	48.70
no	152	25.20
no response	158	26.20
Reported activities		
sexual activities	83	13.70
attending parties	54	8.90
friend visit and chatting	50	8.30
hunting	26	4.30
marketing	48	8.00
snail picking	7	1.20
tale telling	26	4.30
no response	310	51.30
Absent from farm		
yes	349	57.80
no	97	16.10
no response	158	26.20
Absence (days)		
< 5	74	12.30
5–10	145	24.00
> 10	130	21.50
no response	255	42.20

**Fig. 1.** Predisposing factors associated with low back pain in the respondents

DISCUSSION

The finding that the prevalence of low back pain among farmers in south West Nigeria is very high (74.4%) shows that manual farming predisposes to occurrence of low back pain. This observed high prevalence rate corroborates the findings of previous authors from different parts of the country who reported a prevalence range between 66% and 85% among farmers [22,26,27]. This high prevalence of low back pain can be attributed to the considerable intensity of the physical activities required for farming combined with awkward postures in which those activities are being carried out.

The finding that both age and years of farming of the participants had significant influence on the prevalence of low back pain among the farmers shows that long exposure to manual farming predisposes to onset of low back pain. This agrees with findings of Fabunmi et al. [27] and Asuzu [22] who had earlier observed association between the number of years of farming and age and the prevalence of low back pain among Nigerian farmers. The increase in prevalence of low back pain as years of farming increase may be due to accumulation of repetitive strain of the muscles and ligaments of the back consequent to inconvenient posture assumed during farm activities. The high prevalence of low back pain among male farmers may be due to the fact that they are more involved in heavy manual physical activities than their

female counterparts [28,29]. However, this finding disagrees with those of previous studies which concluded that LBP was more frequent among females [28,29]. This difference may be due to cultural and environmental differences.

This work was conducted in Nigeria while those of Haus et al. [28] and Thorbjornsson [29] were conducted in other countries. The farming jobs performed by Nigerian males are more physically demanding than those done by females, who are regarded as weaker gender and expected to support the males' major effort. This may explain the higher prevalence of low back pain observed among the males. Prolonged bending was observed to constitute a major risk factor of low back pain among farmers. This agrees with the causes of low back pain reported by other authors [9,30–32], who attributed low back pain to repeated strain on the back due to frequent bending at work.

Low back pain is a major public health concern, because it interferes with, or completely prevents farmers from, performing their farming duties and adversely affects their sexual activity. Steps should be taken as early as possible to prevent LBP development. The farmers' population should be made aware of the various alternative postures that are possible during farming activities. Government should also assist the farmers in reducing their physical effort through mechanization of the farming work. Loans should also be made available to local farmers to enable them to hire hands to assist them in their farming work. Low back pain is a major occupational health hazard among farmers. This will go a long way in preventing LBP among farmers.

CONCLUSION

There is a high prevalence of low back pain among farmers in South-West Nigeria and this is more predominant in male compared to female respondents. Age, sex and years of involvement in farming have a significant influence on the prevalence of low back pain.

RECOMMENDATIONS

1. The farmers should be provided with reliable knowledge on back care and low back pain prevention in order to minimize LBP frequency.
2. Ergonomics should be implemented in the design of farm tools to prevent excessive bending that has been identified as a major cause of LBP among farmers.
3. Government should encourage farmers to switch to mechanized farming by acquiring more advanced farm equipments that would make their work easier and faster without traumatizing their back.

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