



Original Article

Self-Reported Physical Activity Level and Associated Factors among Patients with Non-Specific Chronic Low Back Pain

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ABSTRACT

Background: Non-Specific chronic low back pain (NSCLBP) is a common musculoskeletal disorder that leads to impaired physical activity (PA) level and functional limitation, which might cause disability. This study evaluated the self-reported PA level and associated factors among NSCLBP patients.

Methods: This cross-sectional study involved 57 patients purposively recruited from the out-patient physiotherapy clinics of two tertiary hospitals. A self-structured questionnaire, long form of International Physical Activity Questionnaire, Roland Morris Disability Questionnaire and Modified Assessing Levels of Physical Activity and fitness (ALPHA) environmental questionnaires were administered to assess the patient's socio- demographic/clinical profile, PA level, disability level and environmental characteristics respectively. Pearson Chi-square and Spearman rank correlation were used to determine the associations between the variables of interest. Alpha level was set at $P < 0.05$.

Results: Males had a higher JRPA, TRPA and LTPA. Females had a higher DGPA. Age was significantly negatively moderately correlated with JRPA ($P=0.001$), TRPA ($P=0.016$), DGPA ($P=0.021$) and LTPA ($P=0.007$). Highest Educational level was significantly positively moderately correlated with JRPA ($P=0.001$) and LTPA ($P=0.002$). Pain intensity and disability had a significant negative weak correlation with TRPA ($P=0.001$) and LTPA ($P=0.048$), respectively, while sidewalks availability was significantly positively moderately correlated with LTPA ($P=0.001$). Crime safety at day ($P=0.001$) and at night ($P=0.024$) was significantly moderately negatively correlated with LTPA.

Conclusion: The PA level of NSCLBP patients was moderate and influenced by socio-demographic, clinical and environmental factors. These factors should be considered in the management of these patients to encourage and promote PA participation.

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Introduction

Non-Specific Chronic Low Back Pain (NSCLBP) is defined as chronic low back pain not attributed to a specific pathology which accounts for over 90% of low

back pain patients presenting to primary care [1]. This includes those low back pains that are not due to any specific or underlying disease that can be identified as the cause of the pain. It is believed that in some cases, it may be due to over-stretching of the ligaments or muscle [1]. Globally, this condition has been recognized as an escalating health issue, with low back pain reported to have a life time prevalence as high as 84% [1]. Evidence has shown that NSCLBP can cause frequent health

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service usage, long-term disability and absenteeism from work [2]. Individuals with non-specific low back pain often report impaired ability to perform daily activities. As such, indulging in regular physical activity has been constantly recommended to aid recovery and reduce disability [3]. Low Back Pain (LBP) can be classified by the duration of symptoms as: Acute (pain described to have a sudden onset), sub-acute (episodes that last up to three months and are the commonest presentation of low back pain) and chronic (chronic pain generally is defined as pain that has persisted beyond normal tissue healing time or more than three months) [2].

Physical activity (PA) is defined as any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level and enhances health [4]. The level of physical activity amongst individual can be classified as low, moderate and vigorous intensity activity. Vigorous intensity physical activity usually involves sports and exercises that make one sweat and go out of breath. Vigorous physical activity increases the body's metabolism to at least six times its resting level. Moderate intensity physical activity raises the heart beat leaving the person to feel warm and slightly out of breath. It increases the body's metabolism 3 to 6 times the resting metabolic level. Whereas low intensity is anything less than a total of 60 minutes of moderate intensity physical activity per week [4] It is generally accepted that PA confers benefits to psychosocial health, functional ability and general quality of life [5]. Hence, PA has been recommended over time in the control and management of chronic low back pain [3]. Similarly, PA is also known to promote a variety of health benefits including reductions in morbidity and mortality related to common chronic diseases as well as improvements in mental health, mood and physical functioning [6].

Disability resulting from chronic pain has been noted to impair the PA level of patients with low back pain [7]. Prolonged reduction in the PA level may lead to a decrease in muscle mass, increase in body weight, increase in percentage body fat and a decrease in resting metabolic rate [8]. Also, low levels of PA among patients with chronic low back pain have been reported to be associated with certain life style factors, demographic characteristics and high levels of fear-avoidance beliefs [9]. Consequently, regular PA has been suggested as a potential measure for preventing and managing low back pain, as well as improving the functional ability of adults with non-specific chronic low back pain [3].

Based on the reported heightened occurrence of NSCLBP [1], PA programs should be inculcated in the management plan of patients with this condition. However, formulation and implementation of PA programs will not yield optimum result without the adequate understanding of the impact of NSCLBP on PA among patients, in addition to the socio-demographic, clinical profile and environmental characteristics which may influence their level of participation in PA. Therefore, this study focused on investigating the self-reported physical activity level and its associated factors among patients with NSCLBP.

Methods

Participants

57 patients (25 males, 32 females) were purposively selected and were recruited for the study as they report to the physiotherapy clinic. This was calculated with the Taroyamen's method of sample size calculation;

$$ss = N / (1 + Ne^2)$$

Where ss=sample size, N=population size, e=sampling error=0.05. For the purpose of this study, N=61. Inclusion criteria were: age range of 15-69 years (IPAQ age requirement), patients diagnosed of NSCLBP who were receiving physiotherapy treatment. Exclusion criteria include: pregnant females, neurologic complications associated with lumbar disc herniation, known psychiatric illness, patients who have undergone any back surgery in the last three months and patients with known structural back abnormality such as evidence of inflammatory, systemic, or neo-plastic disease.

Self-Structured Questionnaire

This was used to assess the socio-demographic characteristics and clinical profile of the participants. Socio-demographic characteristics such as age, marital status, employment status, educational status, financial status, smoking and alcohol status. Clinical profile status such as duration of LBP, number of physiotherapy treatment sessions, pain intensity and BMI.

Numerical RATING SCALE

This was used to rate the patients pain level. It has indicators from 0 to 10 categorizing pain into: no pain, mild pain, moderate pain and severe pain. This scale has an excellent reliability and validity for rating back pain [10].

Long form of the International Physical Activity Questionnaire (IPAQ)

This was used to assess the patients PA level. IPAQ comprises five domains of activity namely: leisure-time physical activity (LTPA), job-related physical activity (JRPA), transport-related physical activity (TRPA), domestic and gardening physical activity (DGPA). Items in the questionnaire were structured to provide separate domain specific scores for walking, moderate-intensity and vigorous-intensity activity. The Long Form of IPAQ has been used as a standardized measure to estimate habitual practice of PA of population from different countries and sociocultural context [11].

Roland Morris Low Back Disability Questionnaire (RMDQ) [12]

This was used to assess disability level. It consists of 24 items. Scores on this questionnaire ranged from 0 (indicating no disability) to 24 (indicating severe disability). The reliability and validity of this questionnaire have been reported in previous studies [13].

Modified Assessing Levels of Physical Activity and fitness (ALPHA) Environmental Questionnaire

This was used to assess the environmental perception

in relation to PA. The questionnaire contains 39 items grouped in 8 themes. Each item contains question which refers to: types of residences in your neighbourhood, distances to local facilities, walking infrastructure in your neighbourhood, how pleasant is your neighbourhood, neighbourhood safety, cycling and walking network, home environment and workplace or study environment. It is valid and reliable in assessing environmental factors related to PA [14].

A weighing scale, Stadiometer and Tape rule were used to measure the patients' weight (kg), height (cm) and waist circumference (cm). An Omron (Karada Scan HBF-375) was also used to determine the percentage body fat. It has been reported to be accurate for use in the estimation of body fat [15].

Procedure

An ethical approval was sought and obtained from the institutional Health Research and Ethics committee. The aim of the study and the procedures were explained to the patients who then read and signed the informed consent form.

Height and weight were then measured. To measure the height, the patients were instructed to stand bare-footed in an upright position on the platform of the stadiometer with the feet together. The readings were read off to the nearest 0.1 cm with the head in the Frankfort plane.

The measurements of the weight were taken with the patients standing bare-footed on the center of the scale without support and weight evenly distributed on both feet. The readings were read off to the nearest 0.1 kg.

Body mass index (kg/m^2) was calculated by dividing the weight in kilograms (kg) with the height in square meters (m^2).

Waist circumference was measured with the subject standing, arms at the sides, feet together and abdomen relaxed, a horizontal measurement was taken at the narrowest part of the torso (above the umbilicus and below the xiphoid process) at the level of the navel, using a flexible tape measure and extendable to one decimal place. Hip circumference was measured with the subject standing erect with the feet together, a horizontal measurement was taken at the maximal circumference of the buttocks using a flexible tape measure and extendable to one decimal place. Waist to Hip ratio was calculated by dividing the waist circumference by the hip circumference.

Then patients filled information about their demographic and clinical profile in the self-structured questionnaire. Long form of IPAQ was administered to the patients to assess their PA level in the various domains. According to the guidelines for the data processing and analysis of IPAQ [16], computation of the total scores requires summation of the duration (in minutes) and frequency (in days) for all the types of activities in all domains. Domain specific scores were computed by summation of the scores for walking, moderate-intensity and vigorous-intensity activities within each specific domain while the total scores in the different domains were calculated to yield an overall grand total. The metabolic equivalent (MET)-minute was computed by multiplying the MET

score of an activity by the time in minutes. The PA level was expressed in MET-minutes/week. The PA level of the participants was categorized as moderate if the individual performs 3 or more days of vigorous-intensity activity of at least 20 minutes per day OR 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day OR 5 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum total PA of at least 600 MET-minutes/week. It was categorized as high if an individual performs vigorous-intensity activity on at least 3 days achieving a minimum total PA of at least 1500 MET-minutes/week OR 7 or more days of any combination of walking, moderate-intensity or vigorous-intensity activities achieving a minimum total PA of at least 3000 MET-minutes/week. However, patients who did not meet the criteria for moderate or high PA level were considered to have a low PA level.

RMDQ was administered to assess disability level of the patients. Scores on this questionnaire ranged from 0 (indicating no disability) to 24 (indicating severe disability). Patients responded by answering yes or no to indicate whether each statement represented a true description of their current disability owing to their condition. The number of items the participant ticked was summed and the score for the RMDQ was obtained.

The environmental perception of the patients in relation to PA was assessed using the 39 item modified long form of ALPHA Environmental Questionnaire.

Numerical rating scale was used to rate the patients pain level. 0 indicates no pain, 1-3 indicate mild pain, 4-6 indicate moderate pain and 7-10 indicate severe pain.

Body Fat Percentage was determined by a body fat analyzer. The participants measured height was inputted and the sex was selected in the machine. The participants were asked to stand bare footed on the platform of the machine with minimal clothing and the percentage of body fat was read, as calculated by the analyzer.

Data Analysis

Statistical analysis was performed using Statistical Package for Social Sciences (SPSS, Chicago, IL, USA). Descriptive statistics was used to summarize data obtained in the frequency and percentage tables. Pearson Chi-square was used to determine the association between the clinical profiles, perceived environmental characteristics and gender. Spearman's rank correlation matrix was used to determine the association of some selected socio-demographic characteristics, clinical profile and environmental characteristics with each domain of PA. Alpha level was set at $P < 0.05$.

Results

The 57 participants of this study comprised of 25 males (43.9%) and 32 females (56.1%) with an age range of 21 to 69 years, mean age of 48 ± 13.8 years and mean BMI of $27.4 \pm 5.2 \text{ kg}/\text{m}^2$. Table 1 below presents the socio-demographic characteristics of the patients. There was a significant difference in some of the socio-demographic

Table 1: Socio-Demographic characteristics of patients with NSCLBP

Variables	Number of participants (%)		
	Total	Male	Female
Age (Years)			
Less than 30	11(19.3)	9(36.0)	2(6.2)
30 to 39	1(1.8)	1(4.0)	0(0)
40 to 49	13(22.3)	5(20.0)	8(25.0)
50 to 59	19(33.3)	5(20.0)	14(43.8)
60 and above	13(22.8)	5(20.0)	8(25.0)
Marital Status			
Unmarried	13(22.8)	11(44.0)	2(6.2)
Married	35(61.4)	12(48)	23(71.9)
Divorced	2(8.0)	0(0)	2(3.5)
Separated	1(1.8)	1(3.1)	0(0)
Widowed	6(10.5)	0(0)	6(18.8)
Years of Working Experience			
Less than 1	18(31.6)	9(36.0)	9(28.1)
1 to 9	11(19.3)	5(20.0)	6(18.8)
10 to 19	12(21.1)	7(28.0)	5(15.6)
20 to 29	6(10.5)	1(4.0)	5(15.6)
30 and above	10(17.5)	3(12.0)	7(21.9)
Current Employment Status			
Government Employed	24(42.1)	5(20.0)	19(59.4)
Private Sector	2(3.5)	2(8.0)	0(0)
Self Employed	13(22.8)	9(36.0)	4(12.5)
Retired	5(8.8)	3(12.0)	2(6.2)
Unemployed	13(22.8)	6(24.0)	7(21.9)
Educational Status			
No Formal Education	5(8.8)	0(0)	5(15.6)
Primary Education	7(12.3)	1(4.0)	6(18.8)
Secondary Education	9(15.8)	6(24.0)	3(9.4)
Tertiary Education	36(63.2)	18(72.0)	18(56.2)
Family or Household Size			
Less than 3	11(19.3)	9(36.0)	2(6.2)
3 to 5	20(35.1)	6(24.0)	14(43.8)
6 to 8	19(33.3)	4(16.0)	15(46.9)
9 to 11	6(10.5)	5(20.0)	1(3.1)
12 and above	1(1.8)	1(4.0)	0(0)
Current Family/Residential Arrangement			
Living alone	15(26.3)	13(52.0)	2(6.2)
Living with spouse alone	3(5.3)	2(8.0)	1(3.1)
Living with spouse and children	23(40.4)	6(24.0)	17(53.1)
Living with spouse and/or children and other relations	16(28.1)	4(16.0)	12(37.5)
Average Monthly Income (Naira)			
Less than 18,000	16(28.1)	7(28.0)	9(28.1)
18,000 to less than 50,000	15(26.3)	9(30.0)	6(18.8)
50,000 to less than 150,000	16(28.1)	3(12.0)	13(40.6)
150,000 to less than 250,000	4(7.0)	2(8.0)	2(6.2)
250,000 and above	6(10.5)	4(16.0)	2(6.2)
Tobacco Smoking			
Current smoker	1(1.8)	0(0)	1(3.1)
Former smoker	6(10.5)	6(24.0)	0(0)
None smoker	50(87.7)	19(76.0)	31(96.9)
Alcohol Status	21(36.8)	14(56.0)	7(21.9)
Currently takes alcohol			
Formerly takes alcohol	4(7.0)	2(8.0)	2(6.2)
None at all	32(56.1)	9(36.0)	23(71.9)

#: percentage

characteristics between genders (Table 2 below).

The PA level of the patients was presented in Table 3 below

There was an association between the clinical profile characteristics of patients with NSCLBP and gender (see Table 4 below).

Self-reported Perceived Environmental Characteristics of Patients with NSCLBP and its association with gender were presented in Table 5 below.

Also, there was an association of some domains of PA with some selected socio-demographic, clinical profile and perceived environmental characteristics (see Table 6 below).

Discussion

The PA level of patients with NSCLBP was influenced by some socio-demographic, clinical and perceived environmental characteristics.

The high proportion of female patients in the study in relation to male may be due to the fact that more females visit the hospital for health care services than males. Although, it is known that males and females equally develop LBP, yet more joints are affected in females than males [17]. Also more number of the patients in this study was found to be in the middle class. A small proportion of them reported to have an average monthly

Table 2: Comparison of socio-demographic characteristics based on gender

Variable	Mean±SD	t-value	P value
Age			
Male	44.22±15.97	-1.601	0.115
Female	49.75±11.95		
Marital Status			
Male	2.67±0.78	-3.359	0.002*
Female	4.19±2.56		
Years of working experience			
Male	10.41±11.03	-1.580	0.119
Female	15.58±15.80		
Current employment status			
Male	3.03±1.38	2.315	0.024*
Female	2.17±1.66		
Highest educational level			
Male	3.56±0.71	1.926	0.058
Female	3.11±1.14		
Family/household size			
Male	2.47±1.24	0.327	0.744
Female	2.39±0.73		
Current family/Residential Arrangements			
Male	2.19±1.20	-3.580	0.001*
Female	3.11±0.92		
Average monthly income			
Male	5.28±3.67	-0.140	0.889
Female	5.39±2.50		
Tobacco smoking status			
Male	2.75±0.44	-2.068	0.043*
Female	2.94±0.33		
Alcohol Status			
Male	1.75±0.92	-3.824	0.000*
Female	2.55±0.81		

SD: Standard deviation; *: Significant at p<0.05

Table 3: Physical Activity Level of Male and Female patients with NSCLBP

Variables	Minimum	Maximum	1st Quartile	Median	3rd Quartile
Job-Related PA					
Male	0.00	5940.00	0.00	1116.00	3012.00
Female	0.00	24990.00	0.00	560.00	4950.00
Difference	0.00	19050.00		556.00	1938.00
Total	0.00	30930.00	0.00	1676.00	7962.00
Transportation PA					
Male	0.00	19152.00	0.00	264.00	834.00
Female	0.00	693.00	0.00	165.00	255.75
Difference	0.00	18459.00	0.00	99.00	578.25
Total	0.00	18459.00	0.00	429.00	1089.75
Domestic/Garden PA					
Male	0.00	1185.00	0.00	90.00	510.00
Female	0.00	10080.00	33.75	540.00	885.00
Difference	0.00	8895.00	33.75	450.00	375.00
Total	0.00	11265.00	33.75	630.00	1395.00
Leisure-Time PA					
Male	0.00	4986.00	57.75	594.00	1860.75
Female	0.00	372.00	0.00	0.00	114.75
Difference	0.00	4614.00	57.75	594.00	1746.00
Total	0.00	5358.00	57.75	594.00	1975.50
Total PA					
Male	0.00	21252.00	587.25	4356.00	6249.75
Female	0.00	25950.00	860.25	2306.00	6549.75
Difference	0.00	4698.00	273.00	2050.00	300.00
Total	0.00	47202.00	1447.50	6662.00	12799.50

Table 4: Clinical profile characteristics of patients with NSCLBP and its association with gender

Variables	Number of participants (%)			X2	P value
	Total	Male	Female		
Duration of LBP (months)					
Less than 12	12(21.1)	11(44.0)	1(3.1)	18.557	0.002*
12 to 36	18(31.6)	9(36.0)	9(28.1)		
37 to 72	11(19.3)	2(8.0)	9(28.1)		
73 to 108	7(12.3)	1(4.0)	6(18.8)		
109 and above	9(15.8)	2(8.0)	7(21.9)		
No of Physiotherapy Treatment Received Per Week					
Once	18(31.6)	9(36.0)	9(28.1)	3.483	0.323
Twice	31(54.4)	14(56.0)	17(53.1)		
Three times	4(7.0)	2(8.0)	2(6.2)		
Four times					
Five times	4(7.0)	0(0.0)	4(12.5)		
Pain Intensity					
Mild pain	9(15.8)	5(20.0)	4(12.5)	2.489	0.288
Moderate pain	28(48.1)	14(56.0)	14(43.8)		
Severe pain	20(35.1)	6(24.0)	14(43.8)		
BMI (Kg/M2)					
Underweight	2(2.5)	0(0)	2(6.2)	7.539	0.057
Normal	17(29.8)	10(40.0)	7(21.9)		
Overweight	20(35.1)	11(44.0)	9(28.1)		
Obese	18(31.6)	4(16.0)	14(43.8)		

Key: * Indicates Significant at $p < 0.05$. BMI=Body Mass Index. LBP= Low back pain X2=Pearson Chi square. %= percentage

Table 5: Self-reported Perceived Environmental Characteristics of Patients with NSCLBP and its association with gender

Variables	Number of participants (%)			X2	P value
	Total	Male	Female		
Detached House Residence					
None/A few	43(89.6)	21(91.3)	22(88.0)	0.140	0.708
Some	5(10.4)	2(8.7)	3(12.0)		
Semi-Detached House Residence					
None/A few	48(84.2)	21(84.0)	27(84.4)	3.225	0.199
Some	7(12.3)	2(8.0)	5(15.6)		
Most/All	2(3.5)	2(8.0)	0(0)		
Apartment Buildings or Blocks of Flats Residence					
None/A few	15(26.3)	6(24.0)	9(28.1)	0.975	0.614
Some	1(1.8)	0(0)	1(3.1)		
Most/All	41(71.9)	19(76.0)	22(68.8)		
Accessibility of Local shop(s) in the neighbourhood					
10 Minutes or less	55(96.5)	23(92.0)	32(100.0)	2.653	0.265
More than 10 minutes to 30 minutes	1(1.80)	1(4.0)	0(0)		
More than 30 minutes	1(1.8)	1(4.0)	0(0)		
Accessibility of Supermarket /public market in the neighbourhood					
10 minutes or less	30(54.5)	15(60.0)	15(50.0)	4.976	0.083
More than 10 minutes to 30 minutes	11(20.0)	7(28.0)	4(13.3)		
More than 30 minutes	14(25.4)	3(12.0)	11(36.7)		
Accessibility of Local services (bank, post office, or library) in the neighbourhood					
10 minutes or less	55(96.5)	23(92.0)	32(100.0)	2.653	0.265
More than 10 minutes to 30 minutes	1(1.8)	1(4.0)	0(0)		
More than 30 minutes	1(1.8)	1(4.0)	0(0)		
Accessibility of Restaurant in the neighbourhood					
10 minutes or less	40(70.2)	21(84.0)	19(59.4)	4.479	0.106
More than 10 minutes to 30 minutes	10(17.5)	3(12.0)	7(21.9)		
More than 30 minutes	7(12.3)	1(4.0)	6(18.8)		
Accessibility of Bus Stop in the neighbourhood					
10 minutes or less	41(71.9)	21(84.0)	20(62.5)	3.484	0.175
More than 10 minutes to 30 minutes	10(17.5)	3(12.0)	7(21.9)		
More than 30 minutes	6(10.5)	1(4.0)	5(15.6)		
Accessibility of Sport and leisure facility					
10 minutes or less	11(19.3)	9(36.0)	2(6.2)	8.474	0.014*
More than 10 minutes to 30 minutes	5(8.8)	1(4.0)	4(12.5)		
More than 30 minutes	41(71.9)	15(60.0)	26(81.2)		

KEY:=Time taken to trek from home to the nearest business/facilities in the neighbourhood. *Indicates Significant at $p < 0.05$. %=Percentage. X2=Pearson Chi-square

Table 6: Association between some selected socio-demographic, clinical profile and perceived environmental characteristics with the domains of PA

Variable	Job-Related PA	Transportation	Domestic PA	Leisure-Time PA
Age in years	r=-0.547** P=0.001	r=-0.317* P=0.016	r=-0.305* P=0.021	r=-0.354** P=0.048
Highest Educational Level	r=0.512** P=0.001	r=0.152 P=0.258	r=0.671 P=0.215	r=0.444** P=0.002
Family/Household size	r=-0.094 P=0.486	r=-0.234 P=0.079	r=0.037 P=0.784	r=-0.186 P=0.166
Average Monthly Income	r=0.147 P=0.275	r=-0.175 P=0.194	r=-0.122 P=0.368	r=0.135 P=0.316
BMI	r=-0.035 P=0.794	r=-0.053 P=0.695	r=0.064 P=0.635	r=-0.165 P=0.220
Waist-Hip Ratio	r=-0.158 P=0.242	r=-0.232 P=0.083	r=-0.001 P=0.997	r=0.029 P=0.828
Percentage Body Fat	r=-0.056 P=0.677	r=-0.013 P=0.922	r=0.043 P=0.751	r=-0.189 P=0.159
Intensity of Pain	r=-0.158 P=0.240	r=-0.463** P=0.001	r=-0.002 P=0.988	r=-0.184 P=0.171
Disability Index	r=-0.129 P=0.337	r=-0.192 P=0.152	r=-0.256 P=0.055	r=-0.263* P=0.048
Sidewalks availability	r=0.231 P=0.084	r=0.248 P=0.063	r=0.140 P=0.298	r=0.551 P=0.001
Traffic Safety a	r=-0.001 P=0.996	r=0.134 P=0.320	r=0.226 P=0.091	r=0.098 P=0.469
Crime Safety at Day b	r=0.186 P=0.165	r=-0.013 P=0.922	r=0.047 P=0.730	r=-0.505** P=0.001
Crime safety at Night c	r=0.101 P=0.453	r=0.102 P=0.448	r=0.106 P=0.433	r=-0.299* P=0.024

**=Significant at $p < 0.01$ (2-tailed). *= Significant at $p < 0.05$ (2-tailed). PA=Physical Activity

r=Spearman correlation coefficient. a=Walking is dangerous in the neighbourhood due to traffic. b= Walking is dangerous in the neighbourhood due to the level of crime at day. c=Walking is dangerous in the neighbourhood due to the level of crime at night

income less than the minimum wage while a lesser percentage was found to be among the rich class. This is in agreement with the study by Sheikh and Abdul [18] on the clinical pattern of chronic low backache. They found out that 75% of low backaches were among subjects of middle class, 20% of the patients were poor and 5% of the subjects were rich. They opined that the rich may possibly have opted more for private clinics for treatments whereas the poor patients may not have had access and expenses to reach the multidisciplinary hospitals, thus are less in number. Several studies have also shown that middle class individuals with chronic LBP attended more to hospitals [19].

The findings of this study also showed that duration of low back pain is contingent on being a female. This implies that more females tend to report a longer duration of low back pain than the males. This could be as a result of menstruation, osteoporosis mainly in post-menopausal women or pregnancy [20] especially among multiparous women and as well as their tasking and stretched household and child care. Greater number of the female patients was found to be overweight or obese when compared with the males. This may also have contributed to prolonged duration of LBP reported by the females. It could be suggested that there may be

interplay between BMI and chronic LBP. An increase in body mass index may increase the intradiscal pressure of the lumbar vertebrae particularly the L4 and L5 intervertebral disc into prolapse and herniation. For patients that have low back pain, large BMI may retard the rate of healing because of the weight bearing on the compromising structure [21].

The findings of this study revealed that self-reported assess to sports and leisure facilities, location of stores within easy walking distance of home, availability of sidewalks, and perception of attractive buildings/homes in the neighbourhood were contingent on sex. This means that the perception of the environmental variables was contingent on being male. This may explain why the male respondents recorded a higher level of leisure time physical activity, whereas the females recorded a higher leisure-time physical inactivity. Meanwhile, 'location of stores within easy walking distance of home was contingent on being a female. This is expected since the females are mostly the ones with the role of home keeping, child care and shopping, thus they should be disposed to better perception of the location of stores within their neighbourhood. Moreover, all the female respondents were found to perceive stores to be located within easy walking distance of home and may have

contributed to the increased domestic and garden physical activity among the females reported in this study. Based on the findings of this study, inference can thus be made from the proportions of males and females that perceived availability of sidewalks and attractive buildings/homes to explicate the variance in the physical activity engaged by both sex at leisure-time and in active transportation.

The median total PA of patients with NSCLBP reported in this study is slightly below three thousand MET-Minute/Week, which is equivalent to approximately two and a half hour of moderate or one and a quarter hour of vigorous PA, five days a week. This suggests that majority of the patients for this study attained the level of at least 30 minutes of moderate PA five days a week, which has been considered as the lowest level of PA for achieving health benefits [5]. This is consistent with the Avoidance Endurance Model [22] which implies that individuals with NSCLBP participate in PA in spite of the disabling effect of their condition. However, this finding is inconsistent with the assumptions of the fear avoidance belief as shown by some studies, which expects people with chronic low back pain to reduce their participation in PA due to fear of pain that may accompany reoccurrence or fear of exacerbation of pain [23].

The increased PA level observed in the male patients is in accordance with a previous study which also observed an increase in the PA level of the male participants compared to the females [24]. The patterns of PA observed in this study were considerably different for males and females in the different domains of PA. This finding is consistent with Jurakic et al. [25] who observed that males engaged in more PA at work, while females reported more PA in the domestic and garden domain. However, these results suggest that it is necessary to examine the different domains of PA if gender differences in the patterns of PA are to be considered.

The negative correlation observed between age and all the domains of PA is consistent with the findings of Trost et al. [26]. However, the study did not consider the different domains of PA in their test of association. This is not surprising because it is expected that as one advances in age, there will be a reduction in the PA level. This finding is inconsistent with the findings of Simmons et al. [27] who reported no correlation between age and PA level despite the fact that the different domains of PA were considered in their study. They attributed their observation to the restricted age range (30 – 50 years) that was used in their study and the objective assessment of the PA level.

The increased participation in LTPA as the educational level of the patients increased is in agreement with the study conducted by Jurakic et al. [25] who were of the opinion that people with lower educational level and lower income often perform more physically demanding work and as such may not have enough time and financial resources for LTPA. Similarly, people with higher educational level have more sedentary jobs and tend to participate more in PA probably due to their greater knowledge about its health benefits. A relationship between educational level and LTPA was

also observed in another study involving healthy subjects [28]. The observed increased participation in JRPA as the educational level of the patients increased may be attributed to the fact that individuals are more likely to be employed as they acquire a higher educational level unlike individuals with lower educational level that has lesser job opportunities.

The negative correlation observed between pain intensity and TRPA implies that the participants of this study were less involved in TRPA as a result of the nature of pain and the disabling effect associated with their condition. However, a systematic review carried out by Hendrick et al. [29] found no relationship between pain intensity and PA in patients with NSCLBP, though the study failed to provide empirical elucidation for the association between pain intensity and the different domains of PA. The negative association observed between disability and DRPA is in agreement with Motl et al. [30] who in their study linked increased disability to a decrease in the level of PA.

The observed moderate correlation between LTPA and environmental characteristics such as sidewalks availability, more crime safety at day and more crime safety at night in the neighborhood implies that participants of this study who perceived the availability of sidewalks and lesser crime level at all times of the day will tend to be more physically active in their leisure time. Similarly, studies conducted in healthy populations have reported a positive association between participation in LTPA, sidewalks availability and neighborhood perceived safety level. [31] This is expected because there is the tendency of individuals to be engaged more in leisure activities when they perceive safety in their environment.

There was no significant association between family/household size, average monthly income, body mass index, waist-hip ratio, and percentage body fat and traffic safety in the neighborhood with any of the domains of physical activity.

Conclusion

The PA level of patients with NSCLBP was influenced by some socio-demographic, clinical and perceived environmental characteristics. These factors should therefore be taken into account in the assessment and management of patients NSCLBP so as to ensure the promotion of their PA level. It is recommended that a longitudinal study involving objective assessment of physical activity level and environmental characteristics of individuals with non-specific low back pain in comparison with healthy subjects should be conducted to ascertain the fluctuations in their physical activity level as well as how the environmental variables over time influence particular types and aims of physical activity.

Limitation of the Study

The use of IPAQ – a self-reported questionnaire in the assessment of complex nature of physical activity may not have revealed the exact level of physical activity of

the participants who may have exaggerated their physical activity level. Also, the modified ALPHA environmental data questionnaire used required the participants to report about their environment based on their perception. This may have involved attribution bias.

Conflict of interest: None declared.

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