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ORIGINAL RESEARCH

Low Back Pain and Its Risk Factors Among Nurses Working in East Bale, Bale, and West Arsi Zone Government Hospitals, Oromia Region, South East Ethiopia, 2021 –Multicenter Cross-Sectional Study

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Background: Hospital nursing staff are particularly susceptible to low back pain (LBP) a widespread health issue worldwide. There was little available data on the prevalence of LBP and risk factors related to it in this population.

Objective: Assessed the prevalence of LBP and risk factors in nurses working in South-East Ethiopia's Oromia region in the East Bale, Bale, and West Arsi zone government hospitals.

Methods: A cross-sectional study was carried out within an institution in the East Bale, Bale, and West Arsi zone government hospitals; 440 nurses were chosen to use a process of systematic random sampling, and data was gathered between June 1 and July 30, 2021. Using pre-designed questionnaires, I interrogated participants. After being verified as complete, the gathered data was entered into Epi-data version 3.1 and exported to SPSS version 25 for analysis. Bi variate and multivariate logistic regressions with 95% confidence intervals and crude and adjusted odd ratios were generated and interpreted as necessary. To deem a result statistically significant, a p-value of 0.05 or lower was required.

Results: A total of 427 nurses engaged in the interview out of the 440 participants that wanted to take part in the study, yielding a response rate of 97.1%. Low back pain was 42.6% more common over a year [95% CI: (0.384, 0.476)]. According to the multivariate analysis, females [AOR = 1.791; 95% CI: (1.121, 2.861)], age higher than forty [AOR=2.388, 95% CI: (1.315, 4.337)], age grouped 31–40 years [(AOR=2.064, 95% CI: 1.233, 3.455)], divorced [(AOR=10.288, 95% CI: (3.063, 34.553)], married [(AOR=1.676 (1.675, 16.999)].

Conclusion: The study suggests that implementing preventive measures and offering ergonomic training can help reduce LBP among nurses in these hospitals.

Keywords: low back pain, nurse, hospitals

Introduction

Low back pain (LBP) is characterized as pain, muscle tension, or stiffness that is felt in the region of the back above the gluteal folds and below the twelve ribs. (A pronounced folds that marks the upper limit of the thigh from the lower limit of the buttock; it correlates with the lower border of the gluteus Maximus muscle the furrow between the buttock and thigh). LBP is described by the National Institute for Occupational Safety and Health as either chronic or acute pain in the lumbosacral, buttock, or upper leg area.[1]

The low back, which is a key contributor to musculoskeletal issues in people of all ages,[2,3] and is brought on by a muscle or ligament injury, can produce leg discomfort or not[4] The majority of instances are non-specific, but in around 10% of cases, a specific reason can be identified. Frequent causes include inappropriate lifting, poor posture, lack of regular exercise, a fracture, a ruptured disc, or arthritis. Other risk factors consist of working hours, prolonged standing, frequent

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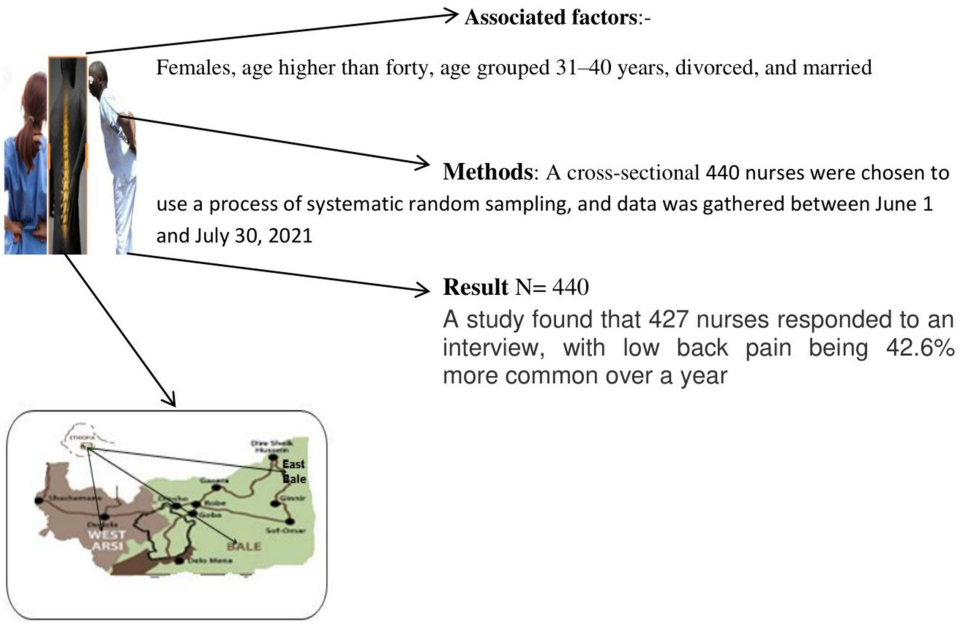
Graphical Abstract



bending, lifting equipment, moving/transferring patients, and other factors.[5,6] Lifestyle, psychological, and social factors were also linked to LBP.[7]

In 65% of all countries worldwide, LBP is one of the main causes of disability and the primary cause of years spent with a handicap.[8,9] In addition, there was a 54% increase in the number of years with a disability between 1990 and 2015, with the highest increases occurring in low- and middle-income nations.[10] In the general population, LBP prevalence varies between 15% and 45% globally.[11]

Nursing staff suffers the most from LBP, which is one of the fundamental issues.[12–15]

The frequency of LBP among nurses, however, varies from 40% to 90% worldwide.[16–18]

The frequency of LBP among nurses in Africa ranges from 44.1% to 82.7%, according reviews done between 2000 and 2018.[19]

Out of it, female African nurses are more likely than male nurses to get LBP.

Disability-adjusted life years (DALY) increased by 54% globally between 1990 and 2015 as a result of LBP, which has a huge negative impact on society by lowering quality of life. Back discomfort among nurses is on the rise and is the leading cause of early retirement for nurses, with a higher percentage of DALYs associated with back pain being reported in the Middle East, Africa, and Asia where there are resource constraints and a lack of knowledge of health and social systems.[20,21] This could be due to the fact that LBP among nurses is not typically recognized and that nurses view it as a routine in their daily activities, for which they fail to promptly care for their backs or seek treatment.[22] Moreover, LBP is the most frequent reason for early retirement; absenteeism, job changes, and a decrease in work speed among the working population, particularly for nurses, whose mental demands at work have a significant impact on their work-ability and quality of life.[22,23]

LBP may result from work-related issues include poor posture, such as bending or twisting positions.[24] According to studies, nurses with LBP had to undergo medical or surgical procedures, some had to change jobs, and others had planned to leave the nursing profession. Furthermore, as nurses' health deteriorated, it could have an impact on how well patients are cared for and, ultimately, their health,[25] as well as have a significant financial impact on individuals, families, communities, and the nation as a whole.[26] Although there was a substantial amount of heterogeneity among the research conducted around the world, LBP is still very common among nurses,[27] and 72.2% of nurses reported having LBP,

according to a study done in Ethiopia.[28] The primary researcher attempted to pinpoint a few factors related to LBP, but they neglected some crucial elements that had not been considered before, such as backpack overload.[29]

Low back pain was a topic with little information available, and no prior research had been done in the study area. Other topics included depression, working relationships with supervisors and coworkers, and types of sitting material.[30–33] As a result, the study's findings by including suggested variables and using a sufficient sample size provide and fill the gaps related to low back pain. Thus, the objective of this study is to determine the prevalence of LBP and risk factors among nurses working in East Bale, Bale, and West Arsi zone government hospitals.

Materials and Procedures

Study Location, Methodology, and Time Frame

From June 1 to July 30, a government hospital in East Bale, Bale, and West Arsi Zone conducted an institution-based cross-sectional study on low back pain and its contributing factors. Eleven operational government hospitals are located in such zones. There are five operational primary hospitals, four general hospitals, and two referral hospitals. Four hundred and forty nurses are also currently employed in such facilities.[34]

Population

All nurses employed by public hospitals in the East Bale, Bale, and West Arsi zones were taken into account as a source population. On the other hand, the entire staff of nurses employed by a few particular government hospitals in the East Bale, Bale, and West Arsi zones at the time of data collection was taken into account as the study population. Nurses who were pregnant at the time of the study's data collection and those who were on maternity or sick leave at that time were not included.

Sample Size Estimation and Sampling Methodology

Using a single population proportion formula, the first objective sample size was determined. From a survey conducted in Ethiopia's Harari region and Dire Dawa municipal administration, 38.1% of LBP was taken.[35] In order to determine the sample size, the following assumptions were made: confidence level = 95%, margin of error (D) = 5% and standard normal deviation (Z = 1.96). The sample size for goal one was 398 when a 10% non-response rate was added.

Using the epi-info 7 menu option, the sample size for the LBP components found in various types of literature was determined, taking into account the following assumptions: confidence level 95%, power = 80%, exposed-unexposed ratio of 1:1, and 10% non-response rate. By adding a 10% non-response rate and comparing the sample sizes for objectives one and two, 398 and 400, respectively, the lead investigator arrived at his decision. Hence, 440 people were chosen for this study's second objective sample size, which was 440.

All government hospitals Included in the study were the following hospitals in the East Bale, Bale, and West Arsi zones: Madda Walabu University Goba Referral Hospital, Robe General Hospital, Dello-Mena General Hospital, Ginnir General Hospital, Madda Walabu Primary Hospital, Shashemene Comprehensive Specialized Hospital, Melka Oda General Hospital, Dodola General Hospital, Arsi Negele Primary Hospital, Kokosa Primary Hospital, and Loke Primary Hospital.

The list of nurses from each hospital served as a sampling frame as a systematic random selection technique was utilized to choose study participants from all government hospitals in the zones. In this way, a proportional sample of the study population was drawn from each of the 11 hospitals, allowing all 11 institutions to participate in the study.

This information was used to determine the proportionate number of study subjects for each hospital by selecting a certain number of nurses from each hospital.

Finally using sampling interval k = 2. Through 1 to 2, among two, one was randomly selected by lottery method, and the first corner nurse on the beginning day of data collection was taken as a first sample, and then taking every other nurse was carried out until getting the desired sample size.

Operational Definitions

Acute low back pain: - face-to-face Interview. It was done Low Back Pain from the start three months no more.

Low back pain that lasts longer than 3 months or the normal time for tissue healing is considered chronic.

Mild pain - a face-to-face interview was conducted with someone who has low back pain to determine whether they had any pain sensations and to identify their pain level using a visual analogue scale.

Moderate pain - face-to-face Interview was done on Low Back Pain he/she got if they exist of pain feeling to identify a visual Analog scale (VAS) using pain the size visual Analog scale on mild Pain/4–6/ if he/she shows.

Severe pain - face-to-face Interview was done on Low Back Pain he/she got if they exist of pain feeling to identify a visual Analog scale (VAS) using pain the size visual Analog scale on severe Pain/7–10/ if he/she shows.

The habit of physical exercise: Physical activity that is planned, organized, and repeated to condition the body.[36]

Awkward-position: - any position which makes portion of the body bends or twists away from a comfortable position.[37]

BMI ranges from 18.5 to 30.0, with 18.5 being underweight, 18.5–24.9 being normal, 25.0–29.9 being overweight, and 30.0 being obese.[38]

Types of sitting material: chairs with adjustable backrests, backrests, and sitting surfaces.[33]

Backpack overload: - is a bag you wear on your back, with straps over your shoulder, and supplies can strain the back and cause low back pain.[39,40]

Visual Analog Scale (VAS); - is a psychometric response scale. It is a tool that measures pain on a scale of 0 to 10 according to its intensity or frequency. Indicators of pain range from 0 (no pain), 1–3 (mild pain), 4–6 (moderate pain), to 7–10 (severe pain).[41]

Data Collection Methods and Tools

Based on reviewed literature and modified from similar studies, data were gathered utilizing a pretested interview delivered questionnaire.[35,42–44] The method used to gather this information was divided into six areas, including socio demographic, personal, and behavioral aspects, occupational and ergo metric factors, psychological and psycho social factors, environmental factors, and prevalence of LBP and associated traits.

A face-to-face interviewer administered a questionnaire, which was organized and validated, and a visual analogue scale[41] was used to determine the degree of pain.

Data Quality Control

To preserve consistency, the tool was created in English and verified for grammatically erroneous words.

The supervisors and data collectors received two days of training on consent, confidentiality, and the rights of the study participants in addition to the objectives, contents, and data gathering method. To test the applicability, clarity, relevance, and feasibility of the study tool to detect the sequence of quotations to maintain consistency and estimate the time needed to complete the tools, the pretest was conducted on 44 Nurses (10% of the total number of Nurses of the study participants outside of the study area) at Arsi zone, Kersa primary hospital. The final version was created after the necessary revisions were made.

Analysis of Data

The data were all coded, cleaned, and reviewed for accuracy, consistency, and clarity. Epi data version 3.1 was used to enter the data, and then SPSS version 25 was used to analyse it. The association between each independent variable and the dependent variables was evaluated using binary logistic regression. Candidates for multivariate logistics regression include variables with a p-value in the bi-variate logistic regression that is less than 0.2. In multi-variable logistic regression, a variable is said to have a statistically significant correlation if its p-value is less than 0.05 with a 95% confidence range. See Table 1 and Figure 1 for outcome summary.

Table 1 Factors Associated to Low Back Pain Among Nurses Employed by Government Hospitals in the East Bale, Bale, and West Arsi Zones in 2021 Were Analysed Using Bivariate and Multivariate Logistic Regression (N = 427)

Variables	Low Back Pain		COR	AOR
	Yes (%)	No (%)		
Age				
21–30	67 (34.2%)	129 (65.8)	1	
31–40	66 (48.5%)	70 (51.5%)	1.815 (1.160, 2.840)*	2.064 (1.233, 3.455)^
≥41	49 (51.6%)	46 (48.4%)	2.051 (1.245, 3.378)*	2.388 (1.315, 4.337)^
Sex				
Male	59 (35.5%)	107 (64.5%)	1	
Female	123 (47.1%)	138 (52.9%)	1.616 (1.083, 2.412)*	1.791 (1.121, 2.861)^
Marital status				
Single	47 (30.7%)	106 (69.3%)		
Married	118 (46.6%)	135 (53.4%)	1.971 (1.291, 3.009)*	1.676 (1.039, 2.702)^
Divorced	17 (%)	4 (19)	9.585 (3.059, 6.336)*	10.288 (3.063, 34.553)^
Smoke cigarette				
Yes	25 (67.6%)	12 (32.4)	3.092 (1.509, 6.336)*	
No	157 (40.3%)	233 (59.7%)	1	
Habit of physical exercise				
Yes	35 (33.3%)	70 (66.7%)	0.595 (0.375, 0.944)*	0.525 (0.305, 0.904)^
No	147 (45.7%)	175 (54.3%)	1	1
Body mass index				
Under weight (<18.5kg/m2)	9 (47.4%)	10 (52.6%)	1	1
Healthy (18.5–24.9kg/m2)	91 (33.6%)	180 (66.4%)	0.562 (0.220, 3.059)*	
Overweight (25–29.9kg/m2)	18 (37.5%)	30 (62.5%)	0.667 (0.228, 1.95)*	
Obese (>30kg/m2)	64 (71.9%)	25 (28.1%)	2.844 (1.034, 7.827)*	
Work experience				
1–5 yrs	69 (34.3%)	132 (65.7%)	1	
6–10 yrs	64 (50.4%)	63 (49.6%)	1.943 (1.235, 3.059)*	
≥11 yrs	49 (49.5%)	50 (50.5%)	1.875 (1.149, 3.06)*	
Job required prolonged sitting				
Yes	43 (53.1%)	38 (46.9%)	1.778 (1.127, 2.805)	
No	139 (40.2%)	207 (59.8%)	1	
Working in awkward posture (bending, twisting, long time standing)				
Yes	123 (47.9%)	134 (52.1%)	1.727 (1.158, 2.575)*	
No	59 (34.7%)	111 (65.3%)	1	

(*Continued*)

Table 1 (Continued).

Variables	Low Back Pain		COR	AOR
	Yes (%)	No (%)		
Pushing and pulling				
Yes	125 (48.3%)	134 (51.7%)	1.778 (1.127, 2.805)*	
No	57 (33.9%)	111 (66.1%)	1	
Work shift				
Day only	10 (21.3%)	37 (78.7%)	1	
Day and night	172 (45.3%)	208 (54.7%)	3.06 (1.479, 6.331)*	2.644 (1.199, 5.833)^
Felt little pleasure in doing things for the past one month				
Yes	34 (55.7)	27 (44.3)	1.855 (1.074, 3.204)	Yes
No	148 (40.4)	218 (59.6)	1	No
Types of sitting material				
Chair	43 (58.1)	31 (41, 9)	3.930 (1.391, 11.108)	5.33 6 (1.675, 16.999)^
Adjustable chair with lumbar support	6 (26.1%)	17 (73.9%)	1	1

Notes: *p-value <0.05, 1 = reference, ^p-value<0.001.
Abbreviations: CI, Confidence Interval; COR, Crude Odds Ratio; AOR, Adjusted Odds Ratio.

Results

Socio-Demographic

In this study, 427 of the 440 nurses that were enrolled took part, having a response rate of 97.1%. Two hundred and sixty-two (61.1%) of the 427 participants were female, and the mean age of the respondents was 33.26 (9.134) years, with a minimum age of 21 and a maximum age of 62. One hundred ninety-six (45.7%) of the participants were under the age of 21; 136 (31.9%) were between the ages of 31 and 40; 95 (22.2%) were over the age of 41; 253 (59.3%) of the nurses

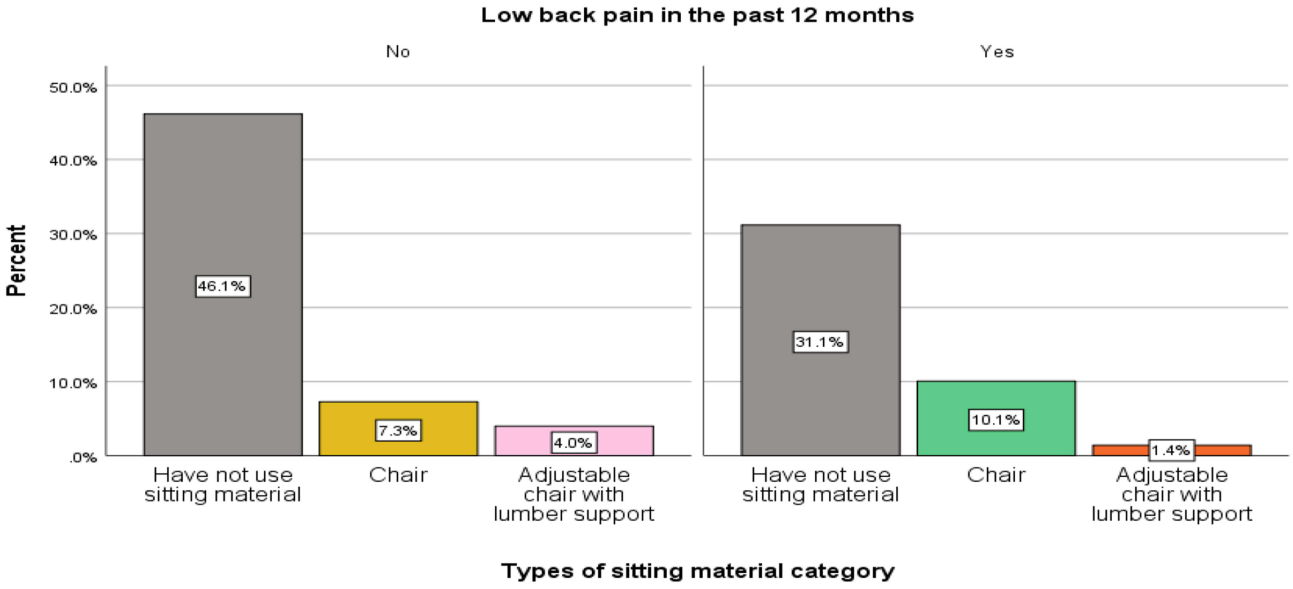


Figure 1 Distribution of LBP among sitting material users.

were married; 153 (35.8%) were single; and 21 (4.9%) were divorced. Among the respondents, 196 (45.9%) identified as Orthodox, while the remaining 181 (42.6%) and 46 (10.8%) identified as Muslims and Protestants, respectively. About three-quarters, or 316 (74%) had bachelor's degrees in science, with the remaining graduates holding diplomas, or 106 (24.8%) and 5 (1.2%) having master's degrees in science.

Personal and Behavioral Factors

Three-fourths, 322 (75.4%) of participants have no habit of physical exercise. The majority of participants, 390 (91.3%), were nonsmokers. Three hundred and sixty-one (84.5%) of participants did not chew chat. Almost all participants, 419 (98.1%), had never consumed alcohol. Two hundred seventy-one (63.5%) of participants were healthy BMI. Eighty-nine (20.8%) of participants were obese, 89 (20.8%) of participants were overweight, and 19 (4.4%) of participants were underweight.

Occupational and Ergonometric Factor

The work experience of study participants was 201 (47.1%) 1–5 years, 127 (29.7%) 6–10 years, and 99 (23.2%) more than eleven years of work experience in the nursing profession, respectively. The study revealed that nurses from Medical ward 32 (7.5%), and Operation room 28 (6.6%) reported the peak prevalence of LBP, while nurses working in the office reported the lowest prevalence 12 (0.9%).

More than half of the participants, 262 (61.4%) have worked for one year in a Medical ward, surgical ward, pediatrics, Gyn and obs ward, and Operation room. A total of 330 individuals, or 77.5%, had never worked a job that required them to sit for an extended period of time. Among the remaining participants, 97 (22.7%) had. In terms of using sitting materials, 74 participants (17.4%) utilized chairs, 23 (5.4%) used adjustable chairs with lumbar support, and 330 (77.2%) did not use sitting material.

The majority of participants, 352 (82.4%), had never backpacked overload and 75 (17.6%) of participants were backpacking overload. More than half of 257 (60.2%) of participants were working in an awkward posture, and 170 (39.8%) participants were not working in an awkward posture. More than half of the participants (60.7%) practiced pushing and pulling during nursing activities. The majority of participants (74.9%) Has no understanding of the use of back ergonomics (proper back posture during work).

Three hundred twenty-four (75.9%) of participants never believed nursing activities at night aggravated LBP, while 103 (24.1%) of participants believed nursing activities at night aggravated LBP. More than half of the participants 234 (54.8%) of participants were caring for their patients for more than eight hours, 120 (28.1%) of participants were caring for their patients for eight hours, and 73 (17.1%) of participants were caring for their patients for less than eight hours. The majority of participants 291 (68.1%) took less than thirty minutes of rest in between patient care, 136 (31.9%) took more than or equal to thirty minutes of rest, and the majority of participants 380 (89%) worked in hospitals day and night shift.

Psychological, Environmental, and Psycho-Social Factors

Two hundred fifty (58.5%) participants had positive working ties with colleagues and supervisors while 177 (41.5%) individuals had strained working relationships with their supervisors and coworkers. More than half, 252 (59%) of the participants, reported mental stress at work and more than half, 309 (72.4%) of the participants thought they had a heavy workload. Two hundred and twenty-six (52.9%) of the participants felt fatigued or had little energy. The majority of participants, 314 (73.5%) of participants had not been bothered by feeling helpless, while 113 (26.5%) participants were reported bothered by feeling helpless. The majority of participants, 312 (73.1%), were asked for assistance when performing patient care, while 115 (26.9%) participants were not asked for assistance when performing patient care. Nearly all participants (99.1%) did not employ assistive technology when performing patient-handling tasks. One hundred seventy-three (40.5%) of the participants experienced a staffing shortfall in their department or unit, while 254 (59.5%) of the participants did not.

Low Back Pain Prevalence and Associated Features

There were 427 nurses, and 182 (42.6%, 95% CI: (0.384, 0.476)) reported having low back pain. The remaining 245 (57.38%) reported having no low back pain.

Many reported having low back pain. The chronic of LBP was reported by 107 nurses (58.79%) to be less than three months in 75 nurses (41.21%), who claimed that it was chronic. While the discomfort was low on the visual analogue scale (VAS), 60 individuals (32.97%) claimed that their LBP was caused by carrying heavy objects. Fifty-six (30.7%), 15 (8.2%), and 111 (60.9%) people had moderate pain, respectively. Out of the 182 (42.6%) participants who had LBP, 94 (51.6%) of them responded that their pain was radiating to their lower extremities, mainly to their legs and feet 66 (36.26%), and the majority of the LBP occurrences 173 (95%) of participants were occurrences after being a nurse.

Walking reduced LBP in the participants by more than half, 98 (53.8%), followed by lying on one's back 33 (18.3%), sleeping on one's side 24 (13.18%), and sitting 19 (10.43%).

Risk factors for LBP among nurses employed by public hospitals in the East Bale, Bale, and West Arsi zones.

In multi-variable analysis, nurses beyond the age of 40 had an AOR of 2.388 (95% CI: (1.315, 4.337)) that was twice as high as that of younger nurses, while nurses between the ages of 31 and 40 had an AOR of 2.064 (95% CI: (1.233, 3.455) that was twice as high as that of younger nurses. There was an almost two-fold increase in the incidence of LBP among female nurses compared to male nurses (AOR = 1.791, 95% CI: (1.121, 2.861)). The risk of LBP was ten times higher in divorced nurses than in single nurses (AOR = 10.288, 95% CI: 3.063, 34.553), and it was almost two times higher in married nurses (AOR= 1.676, 95% CI: ((1.039, 2.702)) than in single nurses. Participants who exercised regularly had a nearly one-to-one increased risk of developing LBP compared to persons who did not exercise regularly (AOR = 0.525, 95% CI: (0.305, 0.904)). AOR = 2.644, 95% CI: (1.199, 5.833): Participants who worked both day and night shifts had an almost threefold increased risk of LBP compared to individuals who had only worked the day shift. Participants who sat on the chair [(AOR=5.336, 95% CI: (1.675, 16.999)] were five times more likely to experience LBP than participants who sat on the adjustable chair with lumbar/back support.

Discussion

The study examines low back pain (LBP) frequency and risk variables among nurses in East Bale, Bale, and West Arsi zones. Participants aged 31–40, with higher odds of being female, divorced, and working out. Sitting on a chair and working shifts were significantly associated with LBP.

In this study, the prevalence of LBP over a 12-month period was 42.6%. This was consistent with what nurses in Jeddah, Saudi Arabia, and Taiwan had discovered.[45–47] It falls short of research from Ibadan, Nigeria, Jordan, Jeddah, Saudi Arabia, Egypt, Zigazig Hospital, Bangladesh, Iran, and Southeast Asia, though.[43,48–55] The current LBP results are also consistent with Addis Ababa's Adama Hospital Medical College Ethiopia's studies,[28,56] are greater than Dire Dawa City Administration's study in the Harari region,[35] nevertheless are lower than Addis Ababa's study in the Bole sub-city of Ethiopia.[57] The difference was caused by the working conditions or settings and sample size. For instance, the studies from Nigeria and Egypt were conducted in a single hospital setting, but this study was conducted in eleven public hospitals.

Nursing professionals over the age of forty had a higher prevalence of LBP than those under the age of thirty-one, with rates of 48.5% and 51.6%, respectively. This viewpoint was backed up by.[18,25,58–60] They discovered that elderly nurses had a higher prevalence of LBP compared to younger nurses. This is a result of ageing, which is typically accompanied by a decline in athletic capacity and muscle power, which causes discomfort as a side effect of musculoskeletal disorder. Muscle strain, muscle atrophy, and muscle weakening that come with advancing age will cause the person to feel discomfort as they age[61] Age and LBP were unrelated, according to an another study done among nurses who worked in operating rooms in Taifu, Saudi Arabia. Contrarily, other studies revealed that the younger age group was a risk factor for LBP in nursing populations.[62,63] This study discovered that LBP was more common in females (67.58%) than in males. This was in line with the results of earlier studies,[27,64–66] which had previously demonstrated that women were more frequently affected by LBP symptoms. Sikiru[58] and Bener et al[64] a greater risk of LBP was found in female nurses. Although the cause of the preponderance of female nurses with LBP is unknown, it

may be related to anatomical, physiological, and structural differences between males and females, the impact of hormonal changes, gynecological issues, giving birth to children, and homemade activities,[67–69] which was consistent with other studies.[70,71] Researchers argued that women differ from men in terms of structure, anatomy, and physiology and those women are more sensitive to pain and have lower pain thresholds than men do.[66,72] These factors increase the risk of LBP in women more so than in men. Sex was not a major predictor of LBP prevalence, according to certain research,[45,71,73,74] which did not find any significant relationships between LBP prevalence and gender.

It was agreed upon by the study done by,[75] which indicated a greater frequency of LBP among married nurses (86.5%), that there was a significant correlation between LBP and marital status. About half of the nurses (46.6%) claimed that married nurses had a higher rate of LBP than single nurses. Married nurses may have larger families and more kids, which would explain the higher prevalence. Nevertheless, marital status was not taken into account in Rwanda, Candombe military hospitals, and Nigerian hospitals (78% in Rwanda, in Candombe,[76] and 73% in Nigeria). Other studies also found no correlation between marital status and low back pain.

The risk factors for LBP are still poorly recognized despite the significant frequency of LBP among nurses. LBP is thought to be a multi-factorial illness with a variety of potential underlying causes.

A variety of risk factors for LBP among nurses were examined in the current study on the topic. Religion, education level, chewing gum, and drinking alcohol currently, working in a department or unit, length of time spent in a department or unit, carrying too much luggage and knowledge of proper back ergonomics (adopting good posture while working) may all have played a role in becoming important risk factors for LBP. Do you think that nursing at night made your LBP worse? Relationships with coworkers and superiors, mental tension, the discomfort of feeling helpless, requesting for aid while doing patient handling activities, using assistive equipment when performing patient handling activities, a staffing shortage in your working department or unit, the extent to which the pain is chronic, how intense it is, where it radiates, whether it affects the lower extremities. In the bi-variate or multivariate analysis, there was no evidence of a significant relationship between the occurrence of LBP and factors that primarily relieve back pain in people's activities.

Significant correlations between the feeling of LBP and the habit of exercising have also been found. Similar to studies from Finland and Tunisia, nurses who regularly exercised had a higher risk of experiencing low back pain.[61,75,77]

The risk factors for LBP are still poorly recognized despite the significant frequency of LBP among nurses.[78–84] LBP is thought to be a multi-factorial illness with a variety of potential underlying causes.[85–87]

Researchers came to the conclusion that LBP may result from a lack of awareness, comprehension, or application of ergonomics' fundamental concepts and guidelines.[88] Also, it is critical to customize the chair's sitting surface height to each user's unique bio-mechanical needs in order to allow for comfortable use of the surface without hurting the spine.[89,90] The use of a chair with back support or a chair with an adjustable sitting surface, however, did not appear to be significantly associated with the prevalence of LBP in prior research.[90] It was shown that using chairs with back supports could lower the incidence of LBP.[91,92]

Limitation

Data Collector did not conduct any medical examinations. As a result, subject and information bias cannot be totally eliminated. Furthermore, the participants' claimed existence of LBP in the previous year was fully dependent on their memory, raising the risk of over- or under-reporting LBP due to the recall challenge. The exposure to risk factors and outcomes were assessed simultaneously because it was a cross-sectional study. The thesis's findings thus only demonstrated a correlation between exposure and the development of LBP; no evidence of a causative link could be shown.

Conclusion

In East Bale, Bale, and West Arsi zones government hospitals, the prevalence of low back pain among nurses was higher than average (compared to 35), and the majority of the risk factors contributing to this high prevalence were controllable.

As a result, steps can be done to encourage individuals to avoid those risk factors, which may enhance their health and quality of life.

By offering training, facilities, and a few hours set aside for sports and exercise, nurses should be encouraged to engage in the necessary amount of physical activity.

Moreover, nurses may experience less LBP if ergonomics are taught to them and they are given comfortable ergonomic chairs.

Abbreviations

AOR, Adjusted Odds Ratio; CI, Confidence Interval; CLBP, Chronic Low Back Pain; DALYS, Disability Adjusted Life Years; GBD, Global Burden of Disease Study; KM, Kilometer; LBP, Low Back Pain; MSDS, Musculoskeletal Disorders; MWUGRH, Madda Walabu University Goba Referral Hospital; SPSS, Statistical Package for Social Science; USA, United States of America; YLDS, Years Lived with Disability; WHO, World Health Organization; VAS, Visual Analog Scale.

Data Sharing Statement

The primary author has a dataset with all the necessary information, which is available upon request that is supported by sufficient evidence.

Ethics approval and consent to participants

Prior to data collection, this study received approval from the Madda Walabu University Goba Referral Hospital's human ethics committee, and on June 6th, 2021, the project was given ethical approval number 01/6/740. In a letter to the participants, the researchers outlined the study's objectives and research design while also assuring them that their privacy would be safeguarded and that their involvement in the study was completely voluntary.

All study participants provided their informed permission before being enrolled. Each stage and technique was carried out in compliance with the pertinent rules and regulations. The participants were also told they may stop participating in the study whenever they wanted, without having to give a reason. The declaration of Helsinki was followed in every step of the study's protocols. Participants engaged voluntarily. There was assurance of confidentiality and anonymity, and by leaving off their identifications.

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Author Contributions

DA was involved in the conceptualization, methodology, investigation, acquisition of funds, data curation, validation, as well as the manuscript draft preparation. AT and ZF assisted in the interpretation of data, and editing, reviewing the manuscript. TM, SM, and AD helped in the analysis/coding, interpretation of data, and supervision. All authors contributed to data analysis, drafting or revising the article, have agreed on the journal to which the article will be submitted, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work.

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