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# Drug Prescribing Pattern for Patients with Low Back Pain in A Tertiary Hospital in Khulna, Bangladesh: A Cross-sectional Study

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**Abstract**

**Background and objective:** Low back pain (LBP) is a leading cause of disability worldwide, including a significant portion of the Bangladeshi population; however, comprehensive epidemiological and drug utilization data are lacking. This study aimed to explore the prevalence and prescribing patterns for LBP in the population of Khulna region of Bangladesh. **Methods:** A cross-sectional study was conducted from January 2024 to December 2024 in the outpatient department (OPD) of Orthopaedics at Gazi Medical College Hospital (GMCH), Khulna. A total of 300 patients of all age groups and both genders were included in the study. Data regarding demographics and prescribed drugs were recorded and analyzed. **Results:** Among the total 300 LBP cases, there were 100 males and 200 females. The majority of the respondents belonged to the age groups of 31-45 years. Lornoxicam and aceclofenac were the mostly used NSAIDs for pain relief [in 88 (29%) and 88 (28%) of patients, respectively]. Tolperisone was the most commonly prescribed muscle relaxant [91 (30%)]. About 30% of the patients were given anxiolytic drugs, and almost every patient received esomeprazole [297 (99.0%)] for its gastroprotective effect. About three-fourth of the patients (74.0%) received calcium supplement. Vitamin B complex and vitamin D were prescribed to 136 (45.0%) and 114 (38.0%) patients, respectively. For controlling neuropathic pain, pregabalin was used in more than half of the patients [175 (58.0%)]. **Conclusion:** This study provides key information regarding the drug utilization pattern in the treatment of low back pain. Appropriate steps should be taken to develop a rational and uniform treatment guideline to minimize the disease burden in the society.

**Keywords:** Drugs, Prescription pattern, Low back pain.

## Introduction

A worldwide public health issue, low back pain (LBP) impacts people of all ages, occupations, and socioeconomic backgrounds. This musculoskeletal condition affects up to 84% of adults at some point in their lives.[1] One Globally, low back pain is a major contributor to disability and absenteeism from work, which has serious negative effects on the economy and lowers productivity.[2]

Many patients continue to receive supportive therapy[3], even though LBP is frequently benign and self-limiting.[4] However, some patients may experience a significant personal burden. The goal of preventing chronicity and lowering personal hardship is a major motivator for treatment. The trends in pharmacological treatment are noteworthy, and a number of national and international standards and recommendations have been created to ensure that patients receiving pharmacological treatment receive high-quality care. But there is a lot of disputes among the various recommendations[5], and different people follow guidelines differently.[6] Prescription practices therefore fluctuate among nations and healthcare environments.[7]

Prescription monitoring and medication usage studies aid in analyzing current trends in prescription patterns, which aids in identifying issues and giving prescribers' feedback. This will raise awareness of the illogical use of medications. To enhance prescription quality and encourage logical prescription patterns, it is imperative to conduct a thorough investigation into the factors influencing the doctor's prescribing habits.[8] "Rational

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use of medicines requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community," according to the World Health Organization's official definition of rational prescription.[9]

Research on drug prescription patterns may assist practitioners in staying up to date with the latest trends and, eventually, provide better patient care to individuals as a result of the emergence of novel drugs and a wider range of clinical presentations of low back pain. The objective of conducting a prescribing pattern study is to monitor, evaluate, and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care cost-effective and rational.[10] The data regarding the pattern of drugs used for LBP in Bangladesh. Considering these facts, the present study aims to assess the drug use pattern for LBP in the Khulna region of the country.

## Materials and methods

This cross-sectional study was conducted from January 2024 to December 2024 on 300 patients affected with low back pain visiting the OPD of Orthopaedics at GMCH, Khulna. The study subjects were selected by a consecutive type of non-probability sampling. All patients of either sex and all age groups having low back pain (both old and new cases) who were willing to participate in the study were included. Patients having other coexisting musculoskeletal diseases were excluded from the study.

Ethical clearance was obtained from the Institutional Ethical Review Board (IERB) of Gazi Medical College. After getting proper consent, data were collected by face-to-face conversation regarding the patients' demographic information, clinical features and drugs prescribed to the patients with LBP. The data were analyzed with a computer using Jamovi Open Statistical Software (version 2.6.26 for Windows). Quantitative data were expressed by mean ± standard deviation (SD); qualitative data were expressed by frequency tables and graphs.

## Results

This study was conducted on 300 patients with low back pain. Their demographic characteristics and types of occupation are described below and presented in Table 01.

Among the study subjects, 100 (33.0%) were male and 200 (67.0%) were female. The mean age of the patients was 41.8±13.5 years. The majority of the respondents belonged to the age group of 31-45 years, each consisting of 130 (43.2%) patients. Among the study subjects, 192 (64.0%) came from rural areas and 108 (36.0%) came from urban areas. Also, most of the patients [212 (71.0%)] came from middle-class families. Most of the respondents were housewives [195 (65.0%)].

**Table 01: Demographic characteristics and occupational distribution of the study subjects**

| Demographic characteristics | Patients (n = 300) |
|---|---|
| **Gender** | |
| Male | 100 (33.0%) |
| Female | 200 (67.0%) |
| **Age group** | 41.8 ± 13.5 years* |
| 16-30 years | 76 (25.0%) |
| 31-45 years | 130 (43.0%) |
| 46-60 years | 67 (22.0%) |
| 61-75 years | 25 (8.0%) |
| 76-90 years | 2 (1.0%) |
| **Locality** | |
| Rural | 192 (64.0%) |
| Urban | 108 (36.0%) |
| **Socioeconomic condition** | |
| Lower class | 84 (28.0%) |
| Middle class | 212 (71.0%) |
| Upper class | 4 (1.0%) |
| **Occupation** | |
| Housewife | 195 (65.0%) |
| Labourer | 47 (16.0%) |
| Farmer | 24 (8.0%) |
| Businessman | 9 (3.0%) |
| Student | 13 (4.0%) |
| Service holder | 10 (3.0%) |
| No occupation | 2 (1.0%) |

*Mean ± SD of Age

**Figure 01** shows the non-steroidal antiinflammatory drugs (NSAIDs) drugs prescribed for pain relief in the LBP cases. Lornoxicam and aceclofenac were the mostly used NSAIDs for pain relief [in 88 (29%) and 88 (28%) of patients, respectively]. Considering gender variation, aceclofenac was the most frequent for males, and lornoxicam was the most frequent for females.

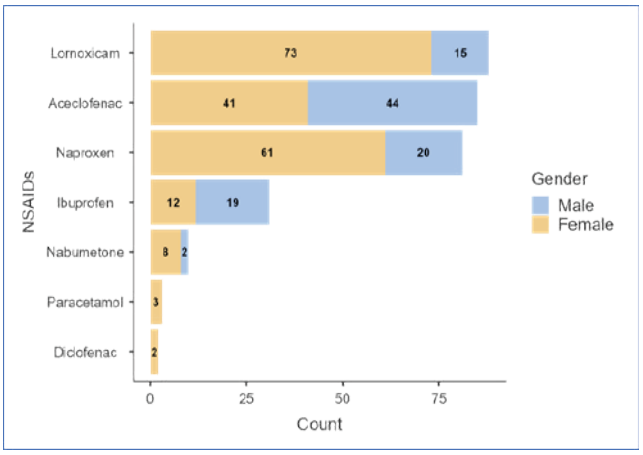


**Figure 01: NSAIDs prescribed to the patients**

**Figure 02** shows the types of muscle relaxants prescribed for the patients with LBP. Here, 119 (40%) patients were not given any muscle relaxant, and tolperisone was the most commonly prescribed drug [91 (30%)] in this category.

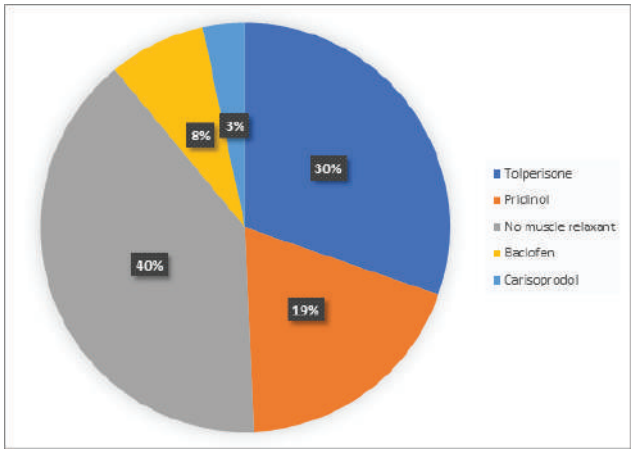


**Figure 02: Muscle relaxants prescribed to the patients**

**Table 02** shows the frequencies of other categories of drugs used in the study patients. It is documented that, almost three-fourth of the patients [222 (74.0%)] received calcium supplement. Vitamin B complex and vitamin D were prescribed to 136 (45.0%) and 114 (38.0%) patients, respectively. For controlling neuropathic pain, pregabalin was used in more than half of the patients [175 (58.0%)]. About 30% of the patients were given anxiolytic drugs: diazepam in 49 (16.0%) and amitriptyline in 45 (15.0%) of cases. Almost every patient received esomeprazole [297 (99.0%)] for its gastroprotective effect.

**Table 02: Frequencies of different categories of drugs used for the LBP patients**

| Categories of drugs | Patients (n = 300) |
|---|---|
| **Vitamins and minerals** | |
| Calcium supplement | 222 (74.0%) |
| Vitamin B Complex | 136 (45.0%) |
| Vitamin D supplement | 114 (38.0%) |
| **Drugs for neuropathic pain** | |
| Pregabalin | 175 (58.0%) |
| Mirogabalin | 63 (21.0%) |
| **Anxiolytic drugs** | |
| Diazepam | 49 (16.0%) |
| Amitriptyline | 45 (15.0%) |
| **Proton pump inhibitor** | |
| Esomeprazole | 297 (99.0%) |

## Discussion

The prevalence of LBP is rising in worldwide, becoming a significant public health concern. While the understanding of the epidemiology of LBP is advancing, research in developing countries remains limited. The prevalence of LBP varies across studies, possibly due to factors such as social dynamics, economic disparities, study populations, and methodologies.[11]

The mean age of the study patients was 41.8 years, and LBP was more prevalent among individuals aged 31-45 years. Similar findings were observed in the research conducted by Eyichukwu and Ogugua[12] and Omoke and Amaraegbulam[13] noted a peak age incidence of LBP in the 31–40-year and 42–50-year age groups, respectively.

Previous studies have shown diverse patterns of sex distribution in LBP, likely influenced by socioeconomic factors, study demographics, occupations, and research methods. In this study, LBP was more prevalent among females (67.0%), consistent with some previous research.[12,14] Research suggests that women who have given birth when compared to those who are yet to give birth may face a higher risk of chronic LBP as they age, contributing to the observed higher prevalence of LBP among females in the study.[15]

Most of the study patients were housewives (65.0%) and labourer (16.0%). Study by Ogunbode Omokhodion et al.[16] associated LBP with occupational activities, bending, and poor posture. In Thailand, rice farmers experienced increased LBP from slouched sitting, forward bending, and lifting.[17] Sedentary habits contribute to LBP development in most patients in this study. Certain sedentary

occupations, such as office jobs and long-distance travel, can contribute to LBP from prolonged sitting.[18]

Considering NSAIDs prescribed for pain relief in the LBP cases, lornoxicam and aceclofenac were the mostly used NSAIDs for pain relief [in 88 (29%) and 88 (28%) of patients, respectively] in our study. Also, regarding gender variation, aceclofenac was the most frequent for males, and lornoxicam was the most frequent for females. These findings are similar to pain medication prescription rates from studies conducted in the US and The Netherlands.[6,19]

In our study, tolperisone was the most commonly prescribed muscle relaxant [91 (30%)]. For controlling neuropathic pain, pregabalin was used in more than half of the patients [175 (58.0%)]. About 30% of the patients were given anxiolytic drugs: diazepam in 49 (16.0%) and amitriptyline in 45 (15.0%) of cases. Co-medication use, especially the use of muscle relaxants or antidepressants, is common among patients with LBP and their use is mentioned in many guidelines.[5,20]

Almost every patient in our study [297 (99.0%)] received esomeprazole, a proton pump inhibitor (PPI) agent for its gastroprotective effect. PPI are recommended in many guidelines to prevent NSAID associated gastrointestinal bleedings[21] but data on the dose and duration of NSAID treatments would be necessary to finally judge the appropriateness of this finding.

It is found in our study documented, almost three-fourth of the patients [222 (74.0%)] received calcium supplement. Vitamin B complex and vitamin D were prescribed to 136 (45.0%) and 114 (38.0%) patients, respectively. In their study, Khanikar et al. reported that 64% of patients got calcium and vitamin D supplements. But contrary to our findings, only 7% of patients received vitamin B complex.[22]

### Limitations of the study

The limitation of our study was that the period of our study should have been longer so that we could have included a greater number of patients and analyzed their prescriptions to get better results and observations. Furthermore, because it is conducted within a hospital setting, the applicability of the data to the broader population may be limited.

## Conclusion

Low back pain is a frequent catalyst for work absenteeism and functional disability, posing a significant public health concern. Drug utilization studies like this will help in examining the recent trend of prescription patterns and providing feedback to physicians. Thereby, awareness can be created about the irrational use of drugs as well. It is an inevitable need to investigate thoroughly the factors affecting the prescribing patterns of the doctors to improve the prescription quality and promote rational use of drugs.

**Conflict of interest:** None declared.

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