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ORIGINAL RESEARCH

Association of Health-Related Quality of Life and Pain Medication Perception Among Chronic Low Back Pain Patients at Tertiary Care Hospital: A Cross-Sectional Study

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Purpose: Chronic low back pain (cLBP) is a commonly occurring and debilitating disorder that impacts health related quality of life (HRQOL) which in turn affects their perception toward pain medication. This study was carried on to assess the association between HRQOL and pain medication perceptions among cLBP patients. The study aims to enhance patient-centered care by identifying sociodemographic traits, common therapeutic drugs, and associations between HRQOL and pain medication perceptions.

Patients and Methods: A cross-sectional study design was employed, involving 350 patients diagnosed with cLBP the Orthopedics and Traumatology Outpatient Department of Dhulikhel Hospital (DH), Nepal. Data collection was performed via two structured of questionnaires; WHO Quality of Life-BREF (WHOQOL-BREF) for assessing HRQOL and the Pain Medication Attitude Questionnaire (PMAQ -14) for evaluating patients' perception of pain medication.

Results: The study revealed notable negative correlations between concerns over addiction, side-effects, tolerance, and withdrawal and both overall quality of life (OQOL) ($r_s = -0.273$, $r_s = -0.160$, $r_s = -0.287$ and $r_s = -0.304$) and physical health domain (PD) ($r_s = -0.265$, $r_s = -0.108$, $r_s = -0.307$ and $r_s = -0.272$). This suggests that greater concerns regarding these factors were linked to a lower quality of life (QoL). However, the perceived necessity for pain medication displayed a slight positive correlation with general health satisfaction (GHS) of QoL where ($r_s = 0.132$), whereas concerns such as scrutiny with Social Relationship Domain (SRD) ($r_s = -0.105$) and mistrust in doctor showed weaker and negligible associations.

Conclusion: This study revealed that transformed OQOL was moderate with physical and psychological domains being the most impaired. Among the four domain scores, the highest score was in the SRD, while PD scored the lowest. Participants have neither good nor bad perceptions of QoL and are dissatisfied with their health showing significant concerns about addiction, side effects, and withdrawal, while societal judgement was minimal.

Keywords: chronic low back pain, prescription patterns, quality of life, pain medication attitude

Introduction

The most frequent pain that people experience from musculoskeletal disorders and that affects public health is low back pain. The incidence of low back pain (LBP) is alarmingly increasing globally and it has a major impact on people's daily life and overall population.[1] According to the 2017 Global Burden of Disease Study (GBD), LBP affected 577 million people in 2017 is projected to reach 843 million by 2025 and is projected to reach 36.4% by 2050, with the highest growth in Asia and Africa.[2]

In Nepal, back pain is also a frequently reported problem; 71% of people had LBP annually and the prevalence of LBP condition ranges from 35% to 65% and is expected to expand over the coming decade.[3,4]

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Low back pain is defined as pain, muscle tension, or stiffness localized to the area below the posterior ribs and above the lower margins of the buttock, with or without sciatica, and is classified as chronic when it persists for 12 weeks or more.[5] Specific LBP may result from a medical condition, injury, infection, or structural deformity, whereas nonspecific LBP is diagnosed when no clear cause can be identified. Approximately 90% of LBP cases are nonspecific, with only 10% having a specific diagnosis.[6] On the basis of duration, LBP is categorized as chronic (lasting longer than 12 weeks), subacute (lasting 4–12 weeks), or acute (less than 4 weeks).[7] cLBP significantly impairs daily functioning, strains relationships, affects work performance, and contributes to emotional distress.[8]

The management of LBP involves pharmacological interventions, physiotherapy, lifestyle modifications, and psychosocial therapies. Common pain medications include NSAIDs, muscle relaxants, antidepressants, opioids and topical treatments.[9] The effectiveness of and adherence to these medications depend on patients perceptions of their safety, efficacy, and side effects.[10] Understanding patients' attitudes toward pain medication is essential for ensuring effective and acceptable treatment strategies. Poor perceptions can lead to inadequate use, worsening pain, and reduced QoL. Patient satisfaction with pain management is closely linked to timely medication administration and effective communication from health-care providers.[11] cLBP significantly affects HRQOL, often restricting individual's ability to function physically, socially, and emotionally, leading to an overall reduction in QoL. A study reported that 50% of participants complained of substantial physical activity restrictions due to LBP.[12] Exploring HRQOL among LBP patients can offer insights into the full spectrum of LBP's impact on life quality.

Despite the growing burden of cLBP, studies exploring pain perception and management strategies among Nepalese patients with cLBP are scarce. Existing research has focused primarily on developing and evaluating pain education programs, with limited emphasis on understanding patients' subjective pain perceptions and coping mechanisms.[13] cLBP significantly impacts HRQOL, but few studies in Nepal have explored its effects or the influence of clinical, demographic, and socioeconomic factors. This highlights the need for studies investigating HRQOL and pain medication perceptions among cLBP patients in tertiary care settings. This study uniquely offers novel insights for an individualized patient treatment by assessing a significant relationship between patient concerns regarding pain medication (such as addiction or side effects) and HRQOL domains among cLBP patients in Nepal. To address this gap, this study aims to examine how patients perceive pain medications and how these perceptions influence treatment and QoL.

Materials and Methods

Study Design, Study Site and Sample Size

This descriptive cross-sectional study was conducted from June to August 2024 at the Orthopedics and Traumatology Outpatient Department of Dhulikhel Hospital, Kathmandu University Hospital, Nepal. Convenience sampling was used to include patients diagnosed with cLBP persisting for more than 12 weeks during the study period.

Eligibility Criteria

Patients (≥18 years) treated in the Orthopedics and Traumatology Outpatient Department of Dhulikhel Hospital with cLBP persisting for at least 12 weeks, whether new or follow-up were included in the study.

Patients with acute or subacute low back pain, low back pain of non-musculoskeletal origins (e.g., gynecological, retroperitoneal, or abdominal causes), spine surgery within the preceding six months, chronic pain syndrome, depression, traumatic injuries, cancer-related pain, or those receiving medication on an "as needed" basis were excluded from the study. Additionally, patients who did not consent to participate were also excluded.

Ethical Approval and Informed Consent

Ethical approval for this study was granted by the Institutional Review Committee of the School of Medical Sciences at Kathmandu University (Approval No: KUSMS-IRC 161/24). Before enrolling in the study, potential participants were given a complete explanation of the procedures. Participation was voluntary, and individuals could withdraw at any time. Informed consent was acquired from an individual participant prior to the study. The study adhered to the ethical standards outlined in the Helsinki Declaration, ensuring patient data privacy and confidentiality.

Variables

The dependent variables included HRQOL and pain medication perception. Independent variables included patient demographics (such as age, sex, religion, marital status, level of education, current employment status, employment category, occupation, monthly income, and monthly income insufficiency), and clinical characteristics (current employment status with the pain experienced, presence of comorbidities and duration of low back pain).

Data Collection Tool

WHOQOL- BREF Questionnaire

As a generic self-reported HRQOL questionnaire, the WHOQOL-BREF instrument can be used by both "healthy" and "ill" people. The WHOQOL-100, the original 100-item tool, has been streamlined into this shorter version. The WHOQOL-BREF questionnaire can be given by an interviewer or by the respondent themselves. It took 10 to 15 minutes to complete the questionnaire, and administering the instrument did not require any training. Physical health (PHD), psychological health (PSD), environmental health (END), and social relationships (SRD) are the four categories into which 24 of the 26 items (questions/facets) in the WHOQOL-BREF assessment are categorized. Two distinct items assess a person's impression of their QoL and their level of satisfaction with their current health (general health score). A five-item Likert scale is used to rate the items, and the raw item score is represented by scores ranging from one to five. A higher score indicates a higher QoL because the domain scores are scaled in a positive direction.[14,15] The total score of 26 items ranges from 26 to 130. Three degrees of QoL can be distinguished from the scores: low (26.00–60.00), moderate (61.00–95.00), and high (96.00–130.00).[16]

The Pain Medication Attitude Questionnaire (PMAQ -14)

The PMAQ-14 was used to evaluate attitudes and beliefs toward painkillers. It is made up of fourteen items that measure opinions and concerns around painkillers. In terms of painkillers, the PMAQ-14 assesses seven attitudes and beliefs: "Addiction", "Need", "Scrutiny" from others on the use of painkillers, "Side effects", "Tolerance", "Mistrust of Doctors Prescribing painkillers", and "Withdrawal". The PMAQ-14 can help health-care professionals tailor education and treatment approaches to enhance therapeutic results and medication compliance. A 6-point numerical scale (0 being never true and 5 being always true) was used to rate the PMAQ-14 items. Each subscale was permitted to have one missing value. The mean score of the valid item scores was used to calculate the subscale scores.[17] The questionnaire was translated into Nepali and back-translated into English to ensure it was easily understood by participants while retaining the original meaning and context.

Data Collection Procedure

Patients visiting the Orthopedics and Traumatology OPD were approached, and their diagnosis of cLBP was confirmed through OPD cards before obtaining written informed consent. Written informed consent was obtained from each patient enrolled in the study, and face to face interviews were conducted using structured questionnaires provided as a Supplementary File (WHOQOL-BREF provided as Supplementary Table 1 and PMAQ-14 provided as Supplementary Table 2) and a proforma for socio-demographic and prescription details. The interviews followed a standardized format based on these tools, ensuring consistency in data collection and minimizing interviewer bias. No open-ended or qualitative interviews were conducted. A pilot study of 20 patients meeting the inclusion criteria was conducted before the actual study. Based on the findings, necessary corrections and adjustments were made to the proforma to improve clarity and accuracy.

The data collection process was performed as shown in the flow chart (Figure 1).

Statistical Analysis

The data were analyzed using Statistical Package For Social Science (SPSS) version 20. Descriptive statistics were used to summarize categorical variables as numbers and percentages, whereas continuous variables were reported as medians (Mds) and interquartile ranges (IQRs).

Inferential analysis was conducted to explore the relationships between variables. The associations between the reported WHOQOL-BREF scores and PMAQ-14 values were determined via the Spearman correlation coefficient. The

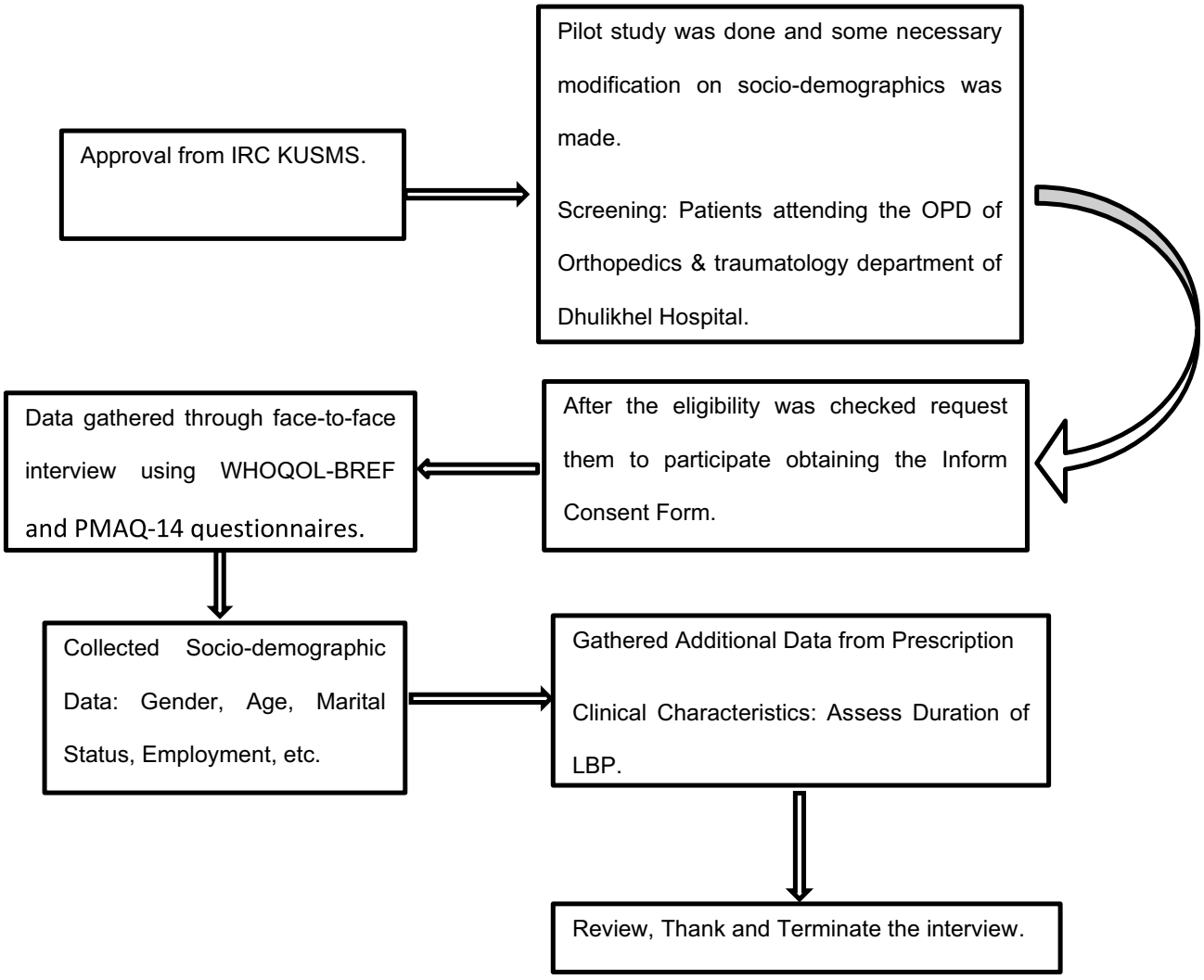

Figure 1 Study Flowchart.

statistical tests were conducted at 95% confidence intervals (CIs) and a significance level of $p < 0.05$ was used to determine significant differences.

Results

Baseline Characteristics of the Participants

The study recruited 460 participants, with 350 included in the final analysis after 110 participants were excluded because of incomplete or missing data. Majority of participants were female (73.1%), and the median age was 45 years (IQRs: 37.00–56.00). A significant portion of the sample had no formal education (38.3%) or only secondary education (37.1%). Only 12.6% had higher education. Approximately 76.9% were employed, with 44.3% working in agriculture followed by 17.7% as a housewives. Most participants (64.3%) earned between NRs. 1000–25,000 (USD 7.15–178.84) per month and 95.7% report insufficient income, co-morbidities were present in 32.9% of the respondents, with hypertension (14.9%) followed by thyroid disorders (7.7%) being the most common. Here, orthopedic related diseases refer to diseases such as hyperuricemia, rheumatoid arthritis, osteoarthritis, and knee degeneration. The median duration of cLBP was 18 months (IQRs: 6.00–36.00 months), with 44.9% experiencing cLBP for one to three years followed by 30.6% for less than one year. Table 1 presents the demographic and clinical characteristics of the 350 enrolled patients.

Table 1 Demographics Details of cLBP (n = 350)

Characteristics	Frequency (Percentages), n (%)
OQOL (Median IQRs)	78 (73.00–84.00)
Age (Median IQRs)	45 (37.00–56.00)
18–25	18 (5.1)
26–35	61 (17.4)
36–45	101 (28.9)
46–55	81 (23.1)
56–64	48 (13.7)
65–74	30 (8.6)
≥75	11 (3.1)
Gender	
Male	94 (26.9)
Female	256 (73.1)
Religion	
Hindu	323 (92.3)
Buddhist	17 (4.9)
Christian	10 (2.9)
Marital Status	
Single	20 (5.7)
Married	308 (88.0)
Widow\Divorced\Separated	22 (6.3)
Level of Education	
No Formal Education	134 (38.3)
Elementary School	42 (12.0)
Secondary School	130 (37.1)
Higher School	44 (12.6)
Current Employment Status	
Unemployed	81 (23.1)
Employed	269 (76.9)
Occupation Category	
Government Officer	25 (7.1)
Private	25 (7.1)
Business	61 (17.4)
Agriculture	155 (44.3)
Housewife	62 (17.7)
Student	9 (2.6)
Other	13 (3.7)

(*Continued*)

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Table 1 (Continued).

Characteristics	Frequency (Percentages), n (%)
Monthly Income (Nepalese Rupees.)	
None	69 (19.7)
< 25,000	225 (64.3)
25,001–45,000	33 (9.4)
45,001–65,000	15 (4.3)
65,001–85,000	3 (0.9)
> 85,001	5 (1.4)
Monthly Income Sufficiency	
Insufficient	335 (95.7)
Sufficient	15 (4.3)
Clinical Characteristics **Current employment status with the pain that you experience**	
No	135 (38.6)
Yes	215 (61.4)
Presence of co-morbidities	
No	235 (67.1)
Yes	115 (32.9)
Hypertension	52 (14.9)
Thyroid Disorder	27 (7.7)
Diabetes	14 (4.0)
Dyslipidemia + Diabetes	16 (4.6)
COPD	6 (1.7)
Dermatological Disease	2 (0.6)
Orthopedics related co-morbidities	23 (6.6)
Others	15 (4.3)
Duration of LBP **Median (IQRs)** **Pain duration** <1 year 1–3 year 4–6 year > 7 years	3 months–22 years 18 (6.00–36.00) months 107 (30.6) 157 (44.9) 42 (12.0) 44 (12.6)

Abbreviations: cLBP, Chronic Low Back Pain; OQOL, Overall Quality of Life; Md, Median; IQRs, Inter Quartile Ranges; COPD, Chronic Obstructive Pulmonary Disease; LBP, Low Back Pain.

Medication Prescribed for Pain Management

Table 2 highlights the prescribing patterns of medication for the management of cLBP. The most frequently prescribed medications were NSAIDs with Etoricoxib (54.3%) followed by Aceclofenac (28.6%) being the most common.[18] Topical analgesics (24.9%), Gabapentin (33.7%), and Deflazacort (6.6%) were also widely used. Anticonvulsants such as Duloxetine (3.7%) followed by Amitriptyline (2.9%) were prescribed in a small proportion of patients. Additionally, proton pump inhibitors (PPIs) Pantoprazole (36.6%) followed by Lansoprazole (4.6%) were also prescribed.

Table 2 Medication Prescribed by Physicians for Pain Management

Drug Therapeutics Class	Medications	n (%)
NSAIDS	Etoricoxib	190 (54.3)
	Aceclofenac	100 (28.6)
	Naproxen	23 (6.6)
	Paracetamol	1 (0.3)
	Diclofenac	1 (0.3)
	Diclofenac SR	1 (0.3)
Topical Analgesic	Diclofenac+ Methyl Salicylate	87 (24.9)
Steroid (oral)	Methyl Prednisolone	22 (6.3)
	Deflazacort	23 (6.6)
Injection Steroid	Triamcinolone Acetonide	1 (0.3)
Gabapentinoids/Anti-Convulsants	Gabapentin	118 (33.7)
	Pregabalin	27 (7.7)
	Pregabalin + Methylcobalamine	12 (3.4)
Anti-depressants	Amitriptyline	10 (2.9)
	Duloxetine	13 (3.7)
Proton Pump Inhibitor	Pantoprazole	128 (36.6)
	Esmoprazole	5 (1.4)
	Lansoprazole	16 (4.6)
	Rabeprazole	15 (4.3)
	Omeprazole	1 (0.3)
Muscle Relaxants/Analgesic and CNS stimulant	Tizanidine	61 (17.4)
	Paracetamol + Chlorzoxazone	39 (11.1)
	Dicyclomine + Paracetamol	2 (0.6)
Calcium and Vitamins	Yes	260 (74.3)
Other Supplements	Levocarnitine	16 (4.6)
	Co-enzyme Q10	10 (2.9)
	B Complex	2 (0.6)

(*Continued*)

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Table 2 (Continued).

Drug Therapeutics Class	Medications	n (%)
Other Orthopedics Medication	Alendronate	13 (3.7)
	Diacerein	5 (1.4)
	Methotrexate + Hydroxychloroquine	1 (0.3)
	Febuxostat	4 (1.1)
	Other	7 (2.0)

Notes: Descriptive analysis to calculate frequency was conducted using SPSS 20. N (%) refers to the frequency and percentage of prescribed medicines.
Abbreviations: NSAIDS, Nonsteroidal Anti-Inflammatory Drugs; Diclofenac SR, Diclofenac Sustained Release; Co-enzyme Q10, Co-enzyme quinone 10; B Complex, Vitamin B Complex.

Muscle relaxants Tizanidine (17.4%) were commonly included in treatment regimens. Calcium and vitamin supplements were also given to 74.3% of patients, with other supplements such as Levocarnitine (4.6%) and Coenzyme Q10 (2.9%). Other orthopedic medications including Alendronate (3.7%) were also used by a smaller portion of patients.

HRQOL of cLBP Patients

The median transformed OQOL score of cLBP patients at DH was 78.00 (73.00–84.00). The median GHS score was 3.00 (IQRs: 2.00–3.00), which was lower than the perceived QoL score of 3.00 (IQRs: 3.00–4.00). Among the four domain scores, SRD had the highest median score of 66.67 (IQRs: 58.33–66.67), while the physical domain had the lowest median score of 42.86 (IQRs: 35.71–50.00), as shown in Figure 2. When assessing HRQOL using Q1 and Q2, 5.7% of patients reported poor perceived Quality of Life (PQOL), while 39.7% were dissatisfied with their GHS (Figure 3).

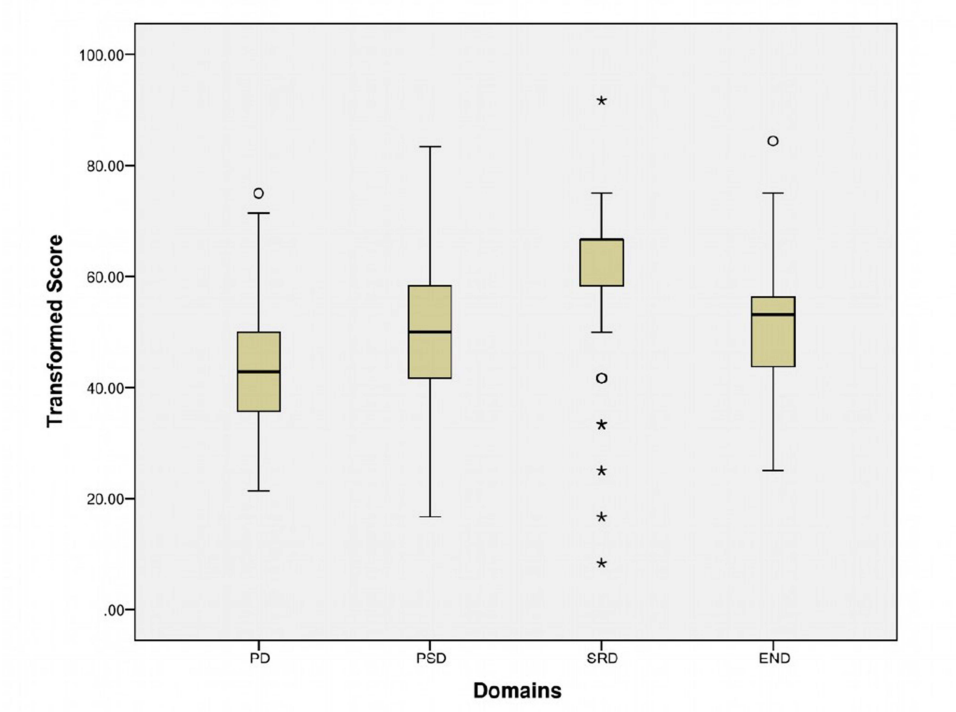

Figure 2 Boxplot displaying the QoL domain scores of cLBP patients showing the median domain score with interquartile range (IQR) as follows: physical health domain score: 42.86 (35.71–50.00); psychological domain score: 50.00 (41.67–58.33); social relationship domain score: 66.67 (58.33–66.67); environmental domain: 53.13 (43.75–56.25).
Note: °Represents minimum outliers whereas *represents maximum outliers.
Abbreviations: PD, Physical Domain; PSD, Psychological Domain; SRD, Social Relationship Domain; END, Environmental Domain.

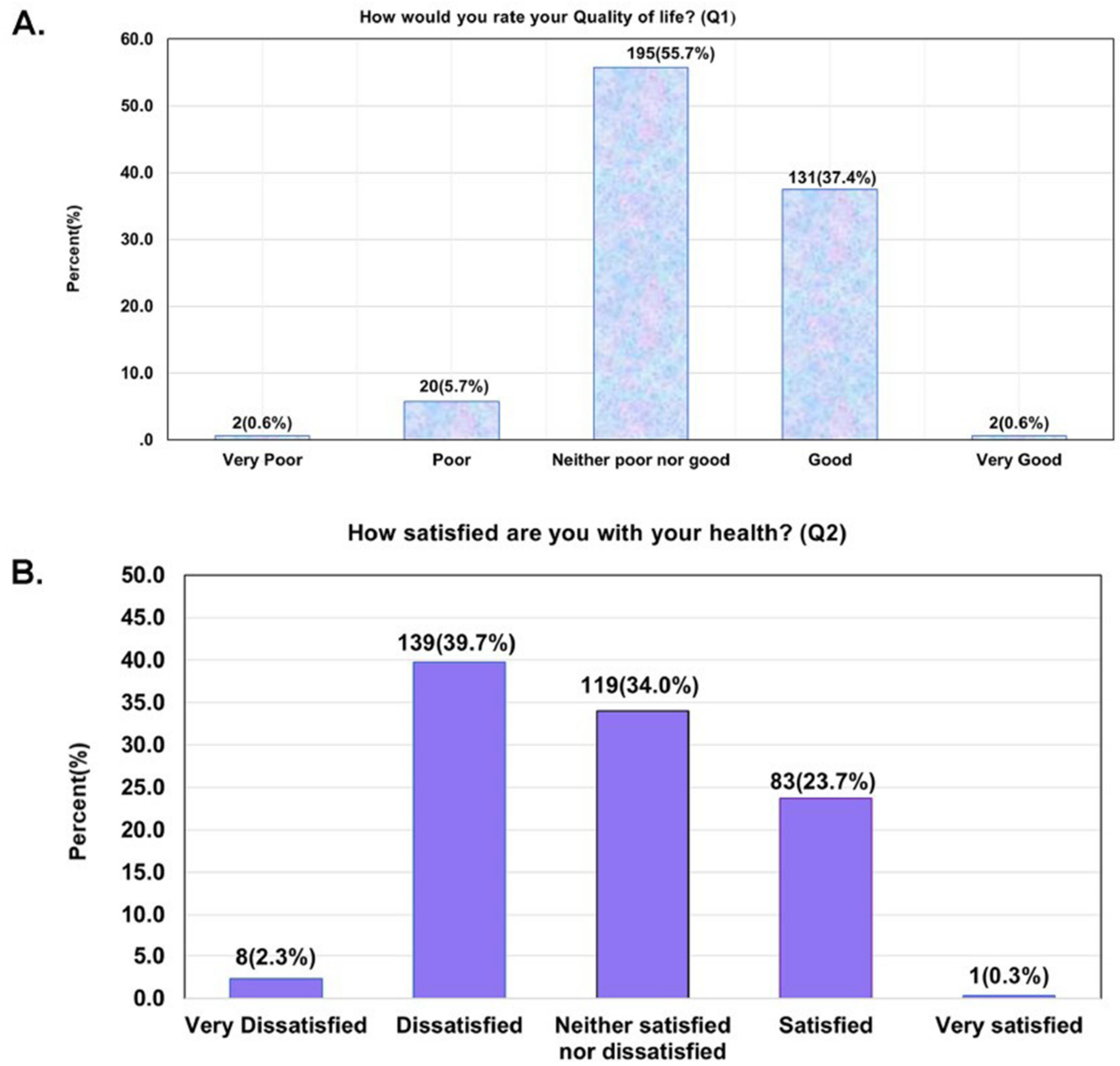

Figure 3 Patients' overall perceived QoL and satisfaction with their health based on Questions 1 and 2 of the WHOQOL-BREF Scale. Sub-figure (**A**) is for vertical bar chart showing distribution of patients' responses to the question: "How would you rate your quality of life?" Sub-figure (**B**) is for vertical bar chart showing distribution of patients' responses to the question: "How satisfied are you with your health?". Reproduced with permission from WHOQOL-BREF: introduction, administration, scoring and generic version of the assessment: field trial version, December 1996.), Geneva, World Health Organization (WHO), (1996), (https://www.who.int/publications/i/item/WHOQOL-BREF, Accessed December 11, 2024. WHO does not endorse any specific companies, products or services.
Abbreviations: QoL, Quality of Life; WHOQOL-BREF, World Health Organization Quality of Life Scale.

Patient Perceptions of Pain Medication

Table 3 highlights the distribution of responses on the PMAQ-14 among cLBP patients. The median (IQRs) scores for the PMAQ-14 were as follows: "Concern over Addiction" 2 (0–3.5), "Perceived Need" 2 (2–2.5), "Concerns over Side-Effects" 2 (1.5–4), "Concerns over Tolerance" 2 (0–2), "Mistrust in the Doctor" 1 (1–1), and "Concerns over Withdrawal" 2 (0–4). "Concerns over Scrutiny" had a median of 0 (0–0). Similarly, a substantial proportion of patients expressed concerns in the "often true", "almost always true", or "always true" category, particularly with respect to dependence on pain medication 262 (74.9%), organ damage 216 (61.7%), and withdrawal symptoms 211 (60.3%). Conversely, minimal concerns were noted in the "never true", "almost never true", or "seldom true" category for embarrassment 346 (98.9%) and worries about other perceptions of medication use 343 (98.0%).

Table 3 Distribution of Patient Responses to Perception About Pain Medication (Items from The PMAQ-14)

	Median (IQRs)	% of Patients Responding	
		"Never True", "Almost Never True" or "Seldom True"	"Often True", "Almost Always True" or "Always True"
Addiction	2.0 (0–3.5)		
I am concerned that taking medication for a long time will lead to addiction.		208 (59.4)	142 (40.6)
I fear that I am becoming an addict.		204 (58.3)	146 (41.7)
Need	2.0 (2.0–2.5)		
I would be unwilling to reduce my pain medication/s.		273 (78.0)	77 (22.0)
I depend on my pain medication/s.		88 (25.1)	262 (74.9)
Scrutiny	0.0 (0.0–0.0)		
Needing to take medication/s for my pain embarrasses me.		346 (98.9)	4 (1.1)
I worry what others think about my use of pain medication/s.		343 (98.0)	7 (2.0)
Side-Effects	2.0 (1.5–4.0)		
I find it hard to put up with the side effects from my pain medication/s.		196 (56.0)	154 (44.0)
I worry about damage to my internal organs from my pain medication/s.		134 (38.3)	216 (61.7)
Tolerance	2.0 (0.0–2.0)		
I worry that my pain medication/s will stop working.		179 (51.1)	171 (48.9)
I fear that I will eventually run out of pain medication/s that will help with the pain.		252 (72.0)	98 (28.0)
Mistrust	1.0 (1.0–1.0)		
I feel confident about my doctor's management of my pain medication/s.		7 (2.0)	343 (98.0)
I feel satisfied with information my doctor gives me about medication/s.		6 (1.7)	344 (98.3)
Withdrawal	2.0 (0.0–4.0)		
I am afraid that stopping my pain medication/s will cause me to feel ill.		165 (47.1)	185 (52.9)
I worry that withdrawal from my pain medication/s will cause me some harm.		211 (60.3)	139 (39.7)

Abbreviations: IQRs, Inter quartile ranges; PMAQ-14, Pain Medication Attitude Questionnaire-14.

Associations Between HRQOL and Pain Medication Perception

Table 4 summarizes the correlations between the PMAQ-14 and the WHOQOL-BREF domains. Statistically significant negative relationships were observed between various pain medication concerns and different domains of HRQOL. Concerns over addiction, tolerance and withdrawal were negatively correlated with OQOL, PQOL, GHS, and multiple HRQOL domains, including physical, psychological, social, and environmental well-being. Similarly, concerns about side effects were negatively associated with OQOL and domains of HRQOL such as physical and psychological. Tolerance, and withdrawal symptoms showed negative correlations with OQOL, GHS, and several HRQOL domains. Perceived need had a minimal impact, showing only a slight positive correlation with GHS ($r_s = 0.132$). Concerns such as Scrutiny and Mistrust in the doctor had weaker or insignificant associations with most of the domain.

Table 4 Correlation Between HRQOL and Pain Medication Perception of Patients with cLBP

Spearman's Rho														
WHOQOL-BREF / **PMAQ-14**	**OQOL**		**PQOL**		**GHS**		**PD**		**PSD**		**SRD**		**END**	
	r_s	p-value	r_s	p-value	r_s	p-value	r_s	p-value	r_s	p-value	r_s	p-value	r_s	p-value
Concern over Addiction	−0.273**	0.000	−0.128*	0.016	−0.159**	0.003	−0.265**	0.000	−0.223**	0.000	−0.170**	0.001	−0.160**	0.003
Perceived Need	−0.031	0.559	0.078	0.148	0.132*	0.013	−0.072	0.179	−0.002	0.970	−0.006	0.907	−0.091	0.090
Concerns Over Scrutiny	0.021	0.698	0.007	0.889	−0.017	0.757	0.006	0.916	0.020	0.712	−0.105*	0.049	0.058	0.282
Concerns over Side-Effects	−0.160**	0.003	−0.068	0.203	−0.103	0.055	−0.108*	0.043	−0.147**	0.006	−0.060	0.267	−0.113*	0.035
Concerns over Tolerance	−0.287**	0.000	−0.184**	0.001	−0.136*	0.011	−0.307**	0.000	−0.223**	0.000	−0.183**	0.001	−0.132*	0.013
Mistrust in the Doctor	−0.051	0.339	−0.068	0.207	−0.028	0.603	0.021	0.702	−0.082	0.126	−0.091	0.091	−0.036	0.505
Concerns over Withdrawal	−0.304**	0.000	−0.172**	0.001	−0.016**	0.002	−0.272**	0.000	−0.253**	0.000	−0.153**	0.004	−0.185**	0.001

Notes: *Indicates Correlation is significant at the 0.05 level (2-tailed spearman rank correlation test). **Indicates Correlation is significant at the 0.01 level (2-tailed spearman rank correlation test).

Abbreviations: r_s, Coefficient Correlation; HRQOL, Health Related Quality of Life; cLBP, Chronic Low Back Pain; WHOQOL-BREF, World Health Organization Quality of Life Scale; PD, Physical Domain; PSD, Psychological Domain; SRD, Social Relationship Domain; ED, Environmental Domain; OQOL, Overall Quality of Life; GHS, General Health Satisfaction; PQOL, Perceived Quality of Life; PMAQ-14, Pain Medication Attitude Questionnaire; p-value, Significant Value.

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Discussion

HRQOL scores provide a meaningful reflection of a persons' overall health and well-being. In addition, patient perceptions regarding their pain medication also play a vital role in shaping their overall QoL. To the best of our knowledge, this is the first study in Nepal to explore the association between HRQOL and pain medication perception among cLBP patients attending the Orthopedics and traumatology OPD of a tertiary care hospital. This study empirically shows that specific fears about painkillers are linked to poorer physical and psychological domains of HRQOL in Nepalese cLBP patients – an underexplored relationship in similar settings.

The demographics analysis of our study revealed that the median age of patients with cLBP was 45 (IQRs: 37.00–56.00) years, and the most common age group was in 36–45 years with majority being female. cLBP is more prevalent in females, which is consistent with the study by Thapa et al.[19–21] Here, the majority of patients were women (64.4%) and had an age median (range) of 49 (18–91) years with many being housewives (41.3%).[22,23] However, occupationally our study revealed that approximately 44.3% were engaged in agriculture. The reason behind predominance of cLBP in females might be their participation in activities involving frequent bending, standing for long periods and household activities such as washing, cooking or farming.[23,24] Moreover, as women approach menopause, their bone mineral density decreases (especially in the vertebrae).[21,25] Half of the population engages in moderate or vigorous physical activity and works in rigorous jobs or sedentary jobs, which makes them even more prone to cLBP.[26,27] People with lower levels of education, such as no formal education or lower educational levels, tend to experience worse outcomes compared to those with higher educational backgrounds, which underscores the importance of tailored educational interventions in managing cLBP.[28] The majority patients of our study had hypertension as co-morbid condition, which aligns with the study done by Omoke and Amaraegbulam.[29] In our study, a median duration of cLBP was 18 months, which is noticeably shorter than the 33 months reported by Aminde et al.[30] This difference may reflect the varying timelines in which individuals from our population seek medical care for cLBP, potentially influenced by factors such as symptom severity, accessibility to health care or awareness of treatment options.

Previous research indicates that analgesics, particularly NSAIDs, are among the most commonly prescribed medications for the treatment of cLBP followed by calcium and vitamins.[31–34] Gabapentin and Pregabalin were medications initially developed to treat epilepsy, but they were primarily used for managing neuropathic pain and musculoskeletal pain associated with cLBP.[35] In our study, Gabapentin was prescribed to 33.7% of patients, highlighting its role in chronic pain management.

Similarly, 36.6% of patients were prescribed PPIs to manage gastrointestinal side effects and ensure medico-legal safety as PPIs help in preventing complications such as gastric ulcers and bleeding, which could lead to legal and ethical concerns in patient care. The use of PPIs is typically not necessary with milder analgesics, such as paracetamol, or with COX-2 inhibitors like etoricoxib. Instead, patients are advised to take these medications after meals. Opioids are rarely used at DH for managing cLBP possibly because the pain is usually dull and persistent rather than sharp or severe. Their side effects, such as nausea, vomiting, and drowsiness, can make it difficult for patients to carry on with their daily routines, making opioids less suitable for long-term care in these cases. Although dependency concerns and strict regulations exist, they are not the main factors. For the small group of patients who genuinely need opioids, prescriptions are provided in compliance with established regulations.

The results indicated that the transformed OQOL with cLBP was moderate. Prior investigations have shown that LBP has an impact on HRQOL both indirectly and directly, contributing to HRQOL deterioration through pain severity, psychological distress mainly depression and anxiety and other comorbid conditions. This underscores the importance of integrating mental and physical health in chronic LBP management to better treat patients.[36] In this study, the PD and PSD, measured by the WHOQOL-BREF with median IQRs of 42.86 (35.71–50.00) and 50.00 (41.67–58.33), respectively, were the most impaired, which is consistent with the findings of similar studies. For instance, research from Brazil reported similar findings with median scores of 46.40 in the PD and 62.50 in the PSD, indicating a strong association between pain, disability, and lower HRQOL.[37] In contrast, in our study the social relationships and environment domains were less affected, with SRD median (IQRs) scoring the highest at 66.67 (58.33–66.67) and the environment at 53.13 (43.75–56.25). Similarly, a study in Cameroon highlighted the PD as the most impacted, whereas the END scored

highest.[30,38,39] This might be because cLBP patients may maintain social support and healthcare access, mitigating some of the negative effects on their well-being.

Our study demonstrated a negative association between concerns over addiction and OQOL, particularly in the PD. Similarly, concerns over withdrawal and tolerance were significantly associated with lower scores in both the PD and the PSD. These findings indicate that fear among cLBP patients regarding withdrawal and tolerance is strongly related to reduced physical and psychological health scores. These data demonstrated that those most fearful of long-term use of medication reported reduced HRQOL. On the other hand, HRQOL showed a weaker positive association with the perceived need for medication for both domains and that the association was observed only in the PSD.

Our research revealed that cLBP patients who were more concerned about addiction had worse HRQOL, especially in physical areas. Likewise, concerns over withdrawal and tolerance were indeed found to be associated with lower scores in both PD and PSD. These results are consistent with those of previous studies, for example, McCracken et al reported that anxiety about pain medication, such as addiction and withdrawal, plays a key role in the lowering HRQOL and nonadherence to treatment. Our research revealed that cLBP patients who were more concerned about addiction had worse HRQOL, especially in the PD areas. Likewise, concerns over withdrawal and tolerance were indeed found to be associated with lower scores in both PD and the PSD. These results are consistent with those of previous studies, for example, McCracken et al reported that anxiety about pain medication, such as addiction and withdrawal, plays a key role in the lowering HRQOL and nonadherence to treatment.[40]

A unique strength of this study is its dual focus on both HRQOL & patients' perception of medication for pain and, hence, allows a broader understanding of the experience of cLBP, which differentiates it from studies that focus solely on clinical outcomes.

This study's cross-sectional design captures only a snapshot of participants' HRQOL and medication perception, limiting insights into longitudinal changes. The lack of follow-up data restricts understanding of how these factors evolve with long-term treatment or disease progression. Additionally, it does not account for other interventions like physiotherapy, lifestyle changes, or alternative medicine that may influence outcomes. Being a single-center study, the findings may not be fully generalizable to other health-care settings, and recall bias could affect data accuracy.

Likewise, this study lacks use of tools like the Visual Analogue Scale (VAS) or Numerical Rating Scale (NRS) to assess pain, so unaccounted pain severity may have influenced patients' reported HRQOL and medication perceptions.

Conclusion

This study revealed that transformed OQOL was moderate, with the physical and psychological domains being the most impaired in the HRQOL of cLBP patients. Similarly, this study highlighted an association between pain medication perception and HRQOL, bridging gaps in the literature and providing a nuanced perspective on how these factors influence the clinical outcomes and perceptions of patients. It underscores the importance of understanding patient perspectives to promote holistic management approaches for cLBP. Future research should consider employing longitudinal designs that will improve HRQOL and medication perceptions over time. Moreover, the expansion of multicenter applicability is also one of the issues that should be taken into account.

Pharmacovigilance initiatives are essential for assessing the impact of prolonged NSAIDs use on gastrointestinal, renal, and cardiovascular health, which will be crucial in the near future.

Additionally, integrating alternative approaches such as physical therapy, lifestyle interventions, and complementary medicine into treatment protocols holds significant promise for enhancing overall patient care and achieving better long-term outcomes.

Validated instruments for measuring pain intensity, such as the VAS or NRS, should be used in future research when choosing patients and gathering data. This would improve the findings' therapeutic relevance and generalizability by allowing for a deeper investigation of the associations between patient-reported outcomes and pain intensity.

Abbreviations

cLBP, Chronic Low Back Pain; CBT, CIs, Confidence Interval; DH, Dhulikhel Hospital; END, Environmental Domain; GBD, Global Burden of Disease; GHS, General Health System; HRQOL, Health Related Quality of Life; IQRs, Interquartile Ranges; IRC, Institutional Review Committee; KUSMS, Kathmandu University School of Medical

Sciences; LBP, Low Back Pain; LBPQ, Low Back Pain Knowledge Questionnaire; Mds, Median; NRS, Numerical Rating Scale; NSAIDS, Nonsteroidal Anti-Inflammatory Drugs; OPD, Outpatient Department; OQOL, Overall Quality of Life; PQOL, Perception of Quality of Life; PD, Physical Health Domain; PSD, Psychological Domain; PPIs, Proton Pump Inhibitors; PMAQ-14, Pain Medication Attitude Questionnaire-14; QoL, Quality of Life; Q1, Question number 1; Q2, Question number 2; SPSS, Statistical Package For Social Science; SRD, Social Relationship Domain; WHO, World Health Organization; WHOQOL-BREF, World Health Organization Quality of Life Scale; VAS, Visual Analogue Scale.

Data Sharing Statement

The data supporting the findings of this study are presented within the article, and the raw data from the survey will be made available from the corresponding author on request.

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Author Contributions

All the authors made substantial contributions across all critical aspects of this work, including its conception, study design, execution, data collection, analysis, and interpretation. Additionally, all the authors participated in drafting, revising, or critically reviewing the manuscript, approved the final version for publication, agreed on the journal submission, and assumed responsibility for the work throughout.

Disclosure

The authors confirm that no conflicts of interest are associated with this work.

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