

[RESEARCH REPORT]

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How Low Back Pain is Managed—A Mixed-Methods Study in 32 Countries. Part 2 of Low Back Pain in Low- and Middle-Income Countries Series

● **BACKGROUND:** The Lancet Low Back Pain (LBP) Series highlighted the lack of LBP data from low- and middle-income countries (LMICs). The study aimed to describe (1) *what* LBP care is currently delivered in LMICs and (2) *how* that care is delivered.

● **DESIGN:** An online mixed-methods study.

● **METHODS:** A *Consortium for LBP in LMICs* (n = 65) was developed with an expert panel of leading LBP researchers (>2 publications on LBP) and multidisciplinary clinicians and patient partners with 5 years of clinical/lived LBP experience in LMICs. Quantitative data were analyzed using descriptive statistics. Two researchers independently analyzed qualitative data using inductive and deductive coding and developed a thematic framework.

● **RESULTS:** Forty-seven (85%) of 55 invited panel members representing 32 LMICs completed the survey (38% women, 62% men). The panel included clinicians (34%), researchers (28%), educators (6%),

and people with lived experience (4%). Pharmacotherapies and electrophysiological agents were the most used LBP treatments. The thematic framework comprised 8 themes: (1) self-management is ubiquitous, (2) medicines are the cornerstone, (3) traditional therapies have a place, (4) society plays an important role, (5) imaging use is very common, (6) reliance on passive approaches, (7) social determinants influence LBP care pathway, and (8) health systems are ill-prepared to address LBP burden.

● **CONCLUSION:** LBP care in LMICs did not consistently align with the best available evidence. Findings will help research prioritization in LMICs and guide global LBP clinical guidelines. *J Orthop Sports Phys Ther* 2024;54(8):560-572. Epub 11 April 2024. doi:10.2519/jospt.2024.12406

● **KEY WORDS:** *developing countries, health surveys, low back pain, mixed-methods design, musculoskeletal pain, service delivery*

Low back pain (LBP) is a leading cause of disability in low- and middle-income countries (LMICs).⁸ Lack of primary data for LBP care from LMICs has been identified.^{6,7,28} For example, the 2018 Lancet Series on LBP highlighted that LMICs are facing growing use of costly, ineffective, and potentially harmful interventions based on data from a few LMICs.⁶ Recent reviews of published reports¹⁷ and policy documents^{5,12} did not identify studies describing clinical pathways (how care is delivered) or policy around LBP care in LMICs. This may be unsurprising given musculoskeletal health is rarely prioritized in LMICs.⁵

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The World Health Organization (WHO) has developed a global clinical guideline for the nonsurgical management of chronic LBP in adults in primary and community care settings.³⁰ Exploring treatment practices (ie, “what” care is currently provided in LMICs) and care pathways (ie, “how” this care is delivered including care settings, care practitioners) is critical to (1) understand implementation targets for the guideline and (2) develop and tailor LBP care for different jurisdictions and health systems. A spinal care pathway for LMICs is available.⁹ However, the development process did not include an exploration of the existing LBP care pathways in LMICs nor was it cocreated *by* end users from LMICs. Understanding the local LMIC contexts and priorities is crucial for cocreating appropriate, meaningful, and sustainable solutions.⁵

To address these gaps, we established a *Consortium for LBP in LMICs*, a leadership group to advance LBP care and research in LMICs.²⁴ The Consortium includes relevant end users from 35 LMICs, including people with lived LBP experience and LBP researchers, educators, and multidisciplinary clinicians.²⁴ These experiences as consumers, researchers, educators, and clinicians in LMICs are critical to cocreating relevant, feasible, acceptable, and potentially effective systems strengthening tools for LBP care in LMICs.^{5,27}

Primary data on population health relevant to LBP and its care delivery characteristics are limited from LMICs.^{6,24,28} On this backdrop, we aimed to leverage

expert knowledge from the Consortium members around (1) *what* LBP care is currently delivered in LMICs and (2) *how* that care is delivered (ie, LBP care pathways). To better understand *what* care is delivered (Aim 1), we specifically aimed to describe the common treatments for managing acute and chronic nonserious LBP in LMICs and how much within- and between-country/setting variability in treatment practices existed. To better understand current LBP care pathways (Aim 2), we aimed to describe in which settings LBP care was primarily delivered and who the first contact and referral practitioners treating LBP were.

METHODS

Study Design and Settings

This is a cocreated online convergent mixed-methods study. The reporting is informed by the Mixed Methods Article Reporting Standards (MMARS).¹⁵ The University of New South Wales Human Research Ethics Committee (reference number HC220665) approved the study.

Development of the Consortium


The Consortium was developed to form a multinational and multidisciplinary expert panel of members with lived LBP experience and LBP researchers, educators, clinicians, health care managers, and policymakers from LMICs. To identify researchers, the lead author (S.S.) searched PubMed and Expertscape (www.expertscape.com) for researchers from an

LMIC with at least 2 published papers on LBP, peer-reviewed original research or systematic reviews without language restrictions, in the past 5 years. Narrative reviews, editorials, and viewpoints were excluded. Clinicians and patient partners were contacted based on thought leadership in the field, through snowballing and via call for involvement in the Consortium.²⁴

Diversity within the Consortium was a priority with regard to country/geography, gender, years of experience, clinical backgrounds (eg, orthopedics, physical therapy, rheumatology, pain medicine, rehabilitation), and skill set (research, clinical practice, lived experience). We were unable to identify policymakers. The Consortium is a dynamic group expected to develop and evolve. The reflexivity statement of the authors of the paper is presented in **SUPPLEMENTAL FILE 1**.

Participants

A purposively selected expert panel (ie, LBP researchers, clinicians, and people with lived experience) was invited to participate in the study. To participate in the study, respondents needed to be an adult (aged 18 years or older), living and working in an LMIC (as countries with a per capita gross national income of less than \$12 535 for the 2022 fiscal year) as defined by the World Bank²⁹ or having lived/ worked for at least a year in an LMIC in the past 5 years. They also needed to be able to respond to the survey in English and meet one of the following criteria, aligned with published research.^{4,5}

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- A researcher with a track record of publishing at least 2 peer-reviewed papers (no restriction to language) in the area of LBP (or chronic musculoskeletal pain) within the last 5 years.
- A health professional, irrespective of discipline, who was regularly treating people with LBP (at least 1 patient per work week) for at least 1 year within the last 5 years.
- A person with a lived experience of chronic LBP for 5 years or longer.
- A senior officer in a national Ministry of Health of an LMIC, having held their position for at least 12 months.
- A thought leader (eg, educator) in musculoskeletal conditions as identified by the research team.

Procedures

From the 65 Consortium members, a selected 55 Consortium members representing 35 LMICs were invited to complete an online survey from December 2022 to February 2023. The survey was administered using REDCap electronic data capture tools, hosted at the University of New South Wales, Australia—a secure, web-based software platform.¹⁰ The survey was codeveloped by multidisciplinary members of the Consortium from multiple countries to apply to multiple countries and health systems. The survey and data items were piloted with 10 expert panel members from LMICs. This pilot testing aimed to determine if (1) the survey items were relevant to the respondents' countries and health systems and (2) the flow of the questions made sense.

The open-ended questions for the qualitative part of the survey were provided to the potential respondents 2 weeks before the survey went live. Hence, respondents had an opportunity to reflect, fact-check responses, and paste their responses into the REDCap survey. All respondents provided informed consent prior to completing the survey. Respondents received 2 automatic reminders using the REDCap system and had 3 weeks to complete the survey.

Survey Structure and Data Items *Respondent-related information* included

country of residence, birth and the name of the country they provided data for, age, gender, and respondent category (eg, patient partner, clinicians, researchers). Data related to years of experience in the respective category and practice settings for clinicians were also collected. The questions related to the 2 study aims are presented in **SUPPLEMENTAL FILE 2**. Briefly, for Aim 1, open-ended questions included description of self-management for acute and chronic LBP. Closed-ended questions included listing the 3 most common treatments for acute and chronic LBP, and all treatments available for acute and chronic LBP. For Aim 2, closed-ended questions included were related to settings for acute and chronic LBP management and first contact and referral clinicians. Open-ended questions included description of LBP care pathway for moderate to severe LBP. A question about within-country LBP care variability was presented with a 0-to-10 numerical rating scale (“0” = “Not variable at all” and “10” = “Extremely variable”). Higher scores represent greater variability in care.

Data Analysis

Data from REDCap were exported into SPSS Version 26 (IBM Corporation, Armonk, NY) for analyses. Nominal data were analyzed using descriptive statistics separately for acute and chronic LBP. The results on variability of LBP care were analyzed using mean and standard deviation (SD), and the range of scores was presented. Free-text responses from all (n = 47) respondents were transferred into an Excel file.

Two authors (A.P. and S.S.) analyzed the free-text responses using a 4-step, grounded theory approach from February to September 2023.⁵ First, open inductive coding was performed manually and independently for free-text responses from 10 random respondents to develop a coding framework. Analysts then met to refine the coding framework. The same 2 analysts then continued to open code the next 10 transcripts and further refined

the framework by further discussion. The remaining 27 transcripts were then analyzed, combining inductive and deductive approaches.

Secondly, the same 2 analysts performed axial coding to develop a composite list of codes (or subthemes) through iterative discussions and review of free-text responses. Thirdly, selective coding was done to develop themes by grouping similar subthemes. Themes were then organized around the 2 study aims. The final coding framework was then discussed with additional 2 authors (R.P., South Africa; and F.M., Brazil) for lived LMIC perspectives and with 2 content experts (J.H.M., A.M.B.). Lastly, member checking was conducted: all respondents who completed the survey read and approved the themes, codes, description of the codes, and quotes. All respondents also had the opportunity to read, provide feedback, and approve the completed manuscript. Fact-checking and external peer review of the survey responses, coding framework, and quotes were also performed by authors who were not involved in providing the responses for the trustworthiness of the responses and thematic coding framework. Results include themes and subthemes with selected illustrative quotes.

RESULTS

FORTY-SEVEN OF 55 INVITED MEMBERS (85%; 38% women and 62% men) representing 32 countries provided complete responses. Respondents were from Afghanistan, Argentina, Bangladesh, Benin, Bhutan, Brazil, Burundi, China, Colombia, Ethiopia, Ghana, India, Indonesia, Iran, Jordan, Kenya, Lebanon, Malaysia, Mexico, Mozambique, Myanmar (Burma), Nepal, Nigeria, Pakistan, Paraguay, Philippines, South Africa, Sri Lanka, Tanzania, Thailand, Vietnam, and Zimbabwe (**FIGURE 1**). Years of research/clinical/lived experience ranged from 4 to 41 (mean, 13.2; SD, 7.8) years. Respondents' age ranged from 29 to 69 years (mean, 40.7; SD, 9.4). Sixteen respondents were clini-

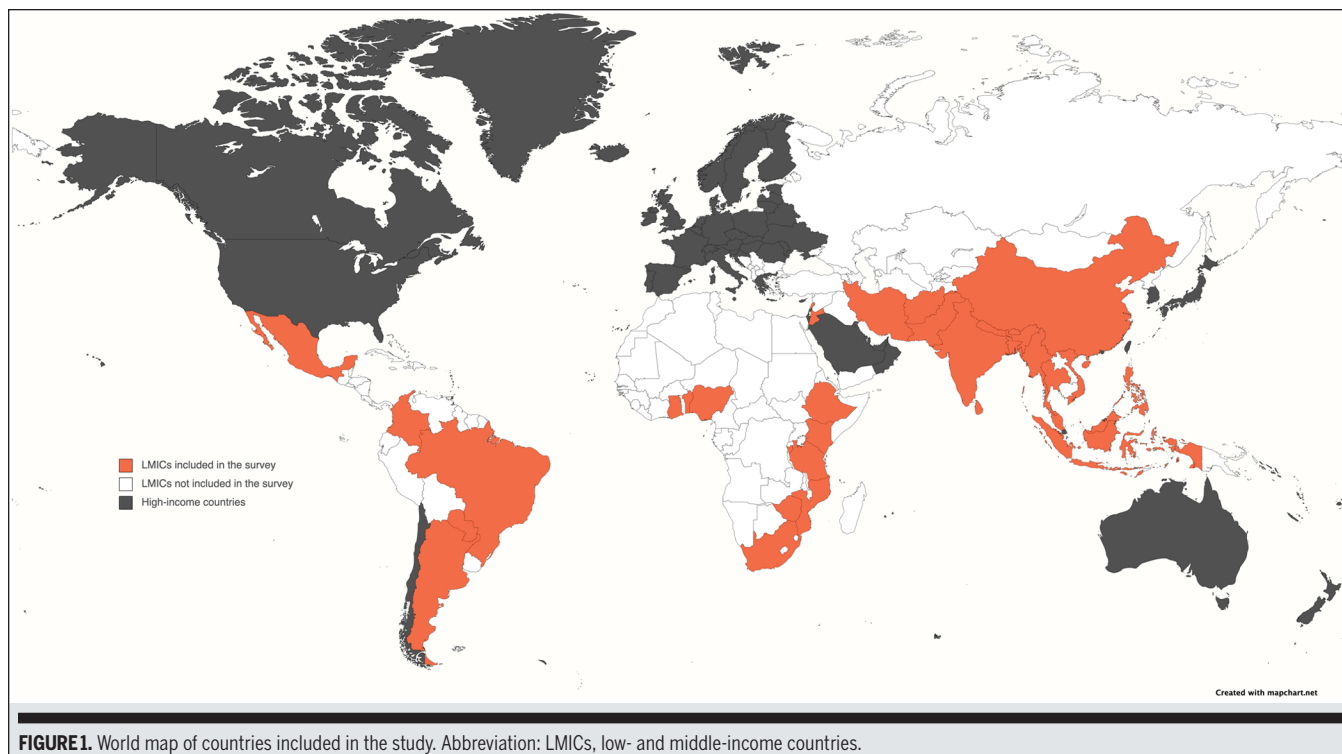


FIGURE 1. World map of countries included in the study. Abbreviation: LMICs, low- and middle-income countries.

icians (34%), 13 were researchers (28%), 13 were clinician researchers (28%), three were educators (6%), and two were people with lived LBP experience (4%). Among the combined clinician and clinician researchers ($n = 29$), a majority practiced in tertiary care (40%), followed by secondary care (15%) and primary or community care (6%). Similarly, 47% of the clinicians practiced in urban settings, 11% in semiurban settings, and 4% in rural settings. A total of 38% of the clinicians worked in public settings, 21% in private settings, and 2% in nongovernmental organizations.

Aim 1: What Care Is Delivered for LBP?

Top 3 Treatments When respondents were asked to select the 3 most common treatments for LBP, pharmacotherapies and electrophysiological agents were the most frequently reported treatments for both acute and chronic LBP. Only 13% of the respondents reported education and self-management as one of the top 3 treatments for both acute and chronic

LBP. **TABLE 1** presents the complete list of responses.

All Treatments Available for Nonserious Low Back Pain in LMICs For acute LBP, the most common treatments reported were simple analgesics such as paracetamol and nonsteroidal anti-inflammatory drugs (NSAIDs) (87% each), followed by electrophysical agents and physical activity/exercise (68% each). More than half of the respondents (53%) reported that bed rest was prescribed for acute LBP.

For chronic LBP, NSAIDs, electrophysiological agents, and physical activity/exercise were the most reported treatments (79% each). More than half of the respondents reported a prescription of weak opioids. **SUPPLEMENTAL FILE 3** lists all available treatments for acute and chronic LBP in LMICs.

Variability in Low Back Pain Care and Care Pathways Within-country LBP care variability was 6.6 (SD, 1.7; range, 3-10). Qualitative results suggested that LBP care variability was related to socioeconomic disparities, health system-related

reasons, workforce availability, and overall geographic and cultural differences.

“The choice of facility opted depends on the financial status of the patient. People belonging to lower and middle socioeconomic class prefer free medical facilities. Patients from upper class and upper middle class prefer to visit private hospitals and specialists directly.” – Pakistan.

Results From Qualitative Analyses We derived 6 key themes from the analysis of free-text responses mapped to Aim 1, presented in **TABLE 2** and described below.

1. *People with acute low back pain universally self-manage their pain.*

All respondents reported that people with acute LBP often first self-manage their pain at home. Self-management approaches consisted of over-the-counter pain medications, hot packs, and traditional oils massages with local herbs. Reducing usual activity levels and bed rest were also reported.

TABLE 1

FREQUENCY OF THE 3 MOST COMMON TREATMENTS FOR NONSERIOUS LOW BACK PAIN IN LMICs

Treatments	Acute Low Back Pain n (%)	Chronic Low Back Pain n (%)
Pharmacotherapies (medications)	45 (95.7)	38 (80.9)
Electrophysiological agents ^a	23 (48.9)	25 (53.2)
Thermotherapy ^b	21 (44.7)	12 (25.5)
Manual therapy	15 (31.9)	9 (19.1)
Active physical therapies (exercise and physical activity)	12 (25.5)	19 (40.4)
Traditional therapies ^c	8 (17.0)	5 (10.6)
Education and self-management	6 (12.8)	6 (12.8)
Assistive technologies	5 (10.6)	6 (12.8)
Interventional therapies ^d	2 (4.3)	11 (23.4)
Needle-based therapies (acupuncture, dry needling)	1 (2.1)	3 (6.4)
Surgical management	1 (2.1)	6 (12.8)
Psychosocial therapies	0 (0.0)	1 (2.1)

Note: The total does not add to 100% because participants could pick the top 3 treatments. The results represent data from 47 respondents from 32 countries, with a single respondent from some countries (eg, Bhutan) and multiple responses from other countries (South Africa).

^aConsists of transcutaneous electrical nerve stimulation, ultrasound, interferential therapy, laser therapy, infrared, shortwave diathermy, and other electrotherapy modalities except traction.

^bHeat and cold.

^cSelf-reported therapies that the respondents considered "traditional" therapies in their country, which includes care provided by local traditional healers (eg, bone-setting, bloodletting) and traditional medicine practitioners.

^dMedical procedures involve the use of medical devices (spinal cord stimulator) or minimally invasive techniques (eg, radiofrequency ablation).

"...when people experience their first moderate to severe back pain, they will start with home care, ie, massage by family members, hot water bottles followed by self-medications." – **Ghana.**

2. Medicines are the cornerstone for low back pain management.

Medicines are used for self-management and are also commonly prescribed as the first-line management by general practitioners and specialists across all settings. If pain does not improve, stronger medications such as opioids are prescribed.

"Orthopedic surgeons give analgesic medications (usually NSAIDs/COX-2 inhibitors) as first-line, then add tramadol if still inadequate pain relief, then many also add gabapentinoids..." – **Malaysia.**

3. Traditional therapies have a place in LMICs.

Traditional therapies are reported both as first-line care as well as the last resort. People with LBP in some countries seek care from local traditional healers (eg, shamans, bone setters, monks, and astrologers) and traditional medicine practitioners. Traditional therapies, delivered by traditional medicine practitioners, are integrated within public health systems in some countries (eg, Bhutan, Brazil, China). Local traditional healers, who practice in the community, sometimes administer potentially harmful approaches such as bloodletting in some LMICs (eg, Bhutan, Ethiopia, Iran, Nigeria, South Africa, Zimbabwe).

"Most patients will consult a spiritualist about their pain alongside medical care... Some will go to traditional healers as well where they get cuts on the sites where they hurt. They are rubbed with herbs/leaves. This has risks of infection." – **Zimbabwe.**

4. Social networks play an important role.

People with LBP seek advice from friends and family who previously suffered from LBP (eg, Bhutan, Mexico, Nepal, Vietnam). People with current or previous experience of LBP serve as advocates for treatment or refer to other members of the community.

"The first and foremost advice they [people with low back pain] seek are from friends, peers, or pharmacies for some home remedies and medications. If not improved, only then [they] will go to a hospital or a clinic." – **Nepal.**

5. Imaging use is common.

Imaging referrals were consistently reported across all care settings (primary care, publicly funded hospitals, private hospitals) in almost all countries. Self-referral to radiologists for imaging is possible in some countries. Intense investigations are also associated with visits to specialists.

"Even sometimes patients visit a diagnostic facility themselves for radiographs or medical imaging" – **Pakistan.**

6. Reliance on passive coping strategies and passive interventions.

People reduce their usual activity levels or take bed rest for acute and chronic LBP. Clinicians advise (bed) rest, passive therapies including electrotherapies, and interventional pain management.

"Patients are sometimes advised to perform their religious prayers with restriction of bending." – **Bangladesh.**

Aim 2: How Is LBP Care Delivered (Care Pathways)?

Where Is Low Back Pain Managed (Care Settings)? Forty-seven percent of the respondents reported that people with acute LBP typically present to primary care as the first point of contact with a health care professional, whereas people with chronic LBP typically present to tertiary care settings (40% responses). **FIGURE 2** presents responses related to

TABLE 2

THEMES AND SUBTHEMES MAPPED TO AIM 1—WHAT CARE IS DELIVERED FOR LOW BACK PAIN IN LMICs

Themes	Subthemes	Description	Exemplar Quotes
People with acute onset of LBP universally self-manage their pain.	Everyone uses self-management for acute LBP.	Across all countries, most people try to initially self-manage their acute LBP before seeking medical care. Self-management strategies include traditional home remedies such as herbal oil massages, over-the-counter drugs, medications available at home, or asking friends and family for advice.	“... most people who experience their first episode of moderate to severe back pain will not likely seek medical attention immediately, especially since health care costs are mostly paid out-of-pocket. Most people might do self-management at home using 1 or more strategies, including home remedies and over-the-counter medications.” – Philippines “So basically, health care professionals meet most patients with low back pain in the subacute or chronic stage that is after 1 month of the onset or when they have a flare up.” – Indonesia
Medicines are the cornerstone for LBP management.	Self-medications as first-line care	People with LBP in most countries use over-the-counter pain medications for their acute and chronic LBP.	“Pain medications such as paracetamol, NSAIDs [nonsteroidal anti-inflammatory drugs], and even corticosteroids are found in any pharmacy throughout cities in Vietnam; people [with low back pain] can buy those drugs without doctor prescriptions in all pharmacies, which is a big concern for the health care system.” – Vietnam “Ibuprofen, or ‘orange pill,’ is a comfort drug for chronic low back pain. They use this drug of their own will whenever they experience pain.” – Afghanistan
	Prescriptions by health care provider and specialists	Pain medications also seem to be the first-line and ongoing approach to pain management in most LMICs once the person enters the health care system. The prescriptions range from simple analgesics such as paracetamol to opioids.	“...if after 3-5 days they do not feel better, they will go to the district health center or district hospital for medical examination or to the private clinic. There they will be examined by doctors and prescribed out-patient drugs for about 10-15 days. Most of the treatment they receive is unimodal. If they do not improve, they will be re-examined and continue to receive the next prescription. This treatment can last several weeks or even months.” – Vietnam
Traditional therapies have a place in LBP management in LMICs.	Traditional therapies as first-line care	Traditional therapies provided via astrologers, monks, shamans, and other traditional healers are common in many countries and as first-line care. Some traditional therapies (eg, Chinese medicine and cupping therapy) have become popular internationally.	“People also seek help from local healers such as astrologers, monks, and shamans. These are usually the first line of treatment sorted by people with low back pain.” ... “There are some local healers who manipulate the back, or place red hot iron rods on the painful site, or perform bloodletting (ie, make small cuts with blades to drain ‘poisonous’ blood). Treatments in traditional hospital is based on the imbalance of 5 elements in body, 7 constituents, 3 excretions, and 3 humors, similar to Chinese Traditional Medicine.” – Bhutan ... “Chinese traditional medicine clinics have been set up at a tertiary hospital. This is marketed on the national television and in newspapers. People also go there a lot too.” – Zimbabwe
	Traditional therapies as the last resort	While some people seek traditional therapies as first-line care, some reserve these therapies as the last resort when they do not get benefits from medical care.	“...even educated and rich people seek the help of local healers when they do not get better with the treatments and therapies in the hospitals.” – Bhutan “If the pain does not improve after an appointment with a general practitioner nor after rehabilitation session or surgery, they typically self-manage their pain with home remedies or medications and/or traditional healing approaches.” – Republic of Benin
	Traditional therapies are integrated within the public health system.	Traditional therapies have been integrated within the mainstream health care system including public hospitals and tertiary hospitals in many countries such as Bhutan, Brazil, China, and Zimbabwe.	“We have integrative/complementary care in the public system which is also offered to those that are being cared through government insurance alternative care for pain. This includes evidence-based practice, but there are many cultural practices that are not evidence-based. This include the following practices: Traditional Chinese Medicine/ Acupuncture, Anthroposophic Medicine, Homeopathy, Medicinal Plants and Phytotherapy, Social Thermalism/Crenotherapy, Art Therapy, Ayurveda, Biodanza, Circular Dance, Meditation, Music Therapy, Naturopathy, Osteopathy, Chiropractic, Reflexotherapy, Reiki, Shantala, Integrative Community Therapy, Yoga, Apitherapy, Aromatherapy, Bioenergetic, Family Constellation, Chromotherapy, Geotherapy, Hypnotherapy, Laying on of hands, Ozonotherapy and Floral Therapy.” – Brazil
Social connections play an important role in LBP management.	Family and friends as the advisors for LBP management	Friends and family who have had LBP in the past play an important role in many LMICs (eg, Bhutan, Mexico, Nepal, Vietnam). They then act as an advocate for treatment (or procedure) for other members in the community.	Many patients in remote areas or with difficult conditions (economic, no means of transportation, etc) will self-treat at home with traditional folk remedies or go to a healer, or they listen to advice from relatives and friends and go to the drug store themselves to buy oral analgesics. – Vietnam “...treat themselves with rest and medications that can be purchased without a prescription and that are recommended by family or friends, such as anti-inflammatories and injectable steroids (which has no restriction [regulation] in our country!)” – Mexico

(Table continues on next page.)

TABLE 2

THEMES AND SUBTHEMES MAPPED TO AIM 1—WHAT CARE IS DELIVERED FOR LOW BACK PAIN IN LMICs (CONTINUED)

Themes	Subthemes	Description	Exemplar Quotes
Imaging use is very common.	Easy access to imaging including self-referral	With the advancement in medical care and imaging services in many countries, imaging is commonly used.	<p><i>"They usually will be moving from doctor to doctor and most of the times they will be referred for multiple images (X-rays, MRI) and be explained that their pain is due to the abnormal images found."</i> – Argentina</p> <p><i>"Specialist surgeons prescribe painkillers and always ask for imaging even if the patient is not presenting red flags."</i> – Lebanon</p>
Reliance on passive coping strategies and passive interventions.	Bed rest and activity avoidance are commonly used and prescribed.	People with LBP avoid activity and take bed rest as initial management of acute LBP. Clinicians in some countries also advise patients with LBP to bed rest and avoid activities.	<p><i>"...when people experience their first episode of moderate to severe low back pain... some of them typically self-manage by staying in bed or abstaining from any activities requiring movement."</i> – Ethiopia</p>
	Electrotherapies and manual therapies are the mainstay for LBP treatment.	Electrotherapy and manual therapy are commonly and consistently used across most LMICs. Various electrotherapeutic agents and manual therapy approaches are available for LBP treatment in LMICs.	<p><i>"Normally, they [physical therapists] use treatment including TENS, ultrasound, magnetotherapy and manual therapy and education, some will include exercises or stretching."</i> – Paraguay</p> <p><i>"The common care provided by the physiotherapist for people with low back pain is massage, electrotherapy (ultrasound, TENS, diathermy), thermal therapy (heat pack /cold pack), and exercise (stretching, strengthening)."</i> – Indonesia</p>
	Invasive therapies such as steroid injections and surgical interventions are easily accessible and commonly used.	Intensive investigations and treatment are associated with visits to specialists.	<p><i>"If pain is severe and not improving, they [specialist surgeons] typically prefer scans (MRI). Based on the perceived indication, different surgical procedure may be offered."</i> – Tanzania</p> <p><i>"... different surgical procedures may be offered by [specialist surgeons] such as laminectomy. Pain physicians are very limited in number; they typically manage complex low back pain with pain medications, and invasive procedures such as radiofrequency nerve root ablation may be offered."</i> – Pakistan</p> <p><i>"I have seen cases of people who have injected weekly dexamethasone for up to 5 months!"</i> – Mexico</p> <p><i>"If patient goes to see a therapist in a hospital, then common treatments are TENS, ultrasound, heat, cold, lumbar traction, strengthening exercises. If a patient is referred to a therapist in a private clinic, then the common treatments are Fascia Manipulation, active release techniques, shockwave therapy, cupping, dry needling, acupuncture, strengthening exercises."</i> – Kenya</p> <p><i>"There is also growing trend management of low back pain provided by pain physician such as platelet-rich plasma, prolotherapy injection."</i> – Indonesia</p>
<p><i>Abbreviations: LBP, low back pain; LMICs, low- and middle-income countries; MRI, magnetic resonance imaging; TENS, transcutaneous electrical nerve stimulation.</i></p>			

settings where acute and chronic LBP is typically managed.

Who are the First Contact and Referral Clinicians Treating Low Back Pain? General practitioners/family physicians were the most common first contact clinicians, and physical therapists were the most common referral clinicians (79% each). **TABLE 3** presents the detailed list of first contact and referred clinicians.

Results From Qualitative Analyses We identified 2 themes related to how care is delivered in LMICs, summarized in **TABLE 4** and described below.

1. Social determinants influence low back pain care pathway.

Social determinants influence where people with LBP seek care, what care they receive, and, therefore, the treatment outcome. LBP care services people receive are variable and are dependent on (1) the individual's socioeconomic position (including social security such as health insurance), (2) rural versus urban living, and (3) and health systems-related factors, including funding models.

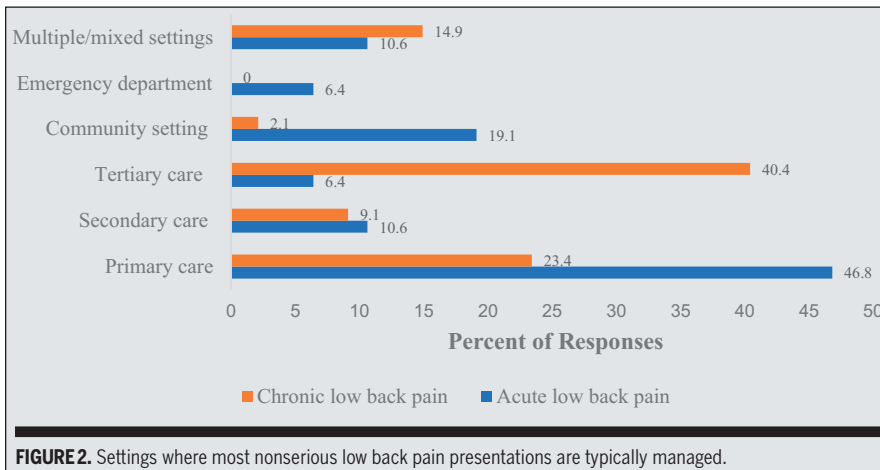
"They might likely go straight for an appointment with a specialist medical/surgical professional such as an orthopaedic surgeon, neurologist,

rheumatologist, or rehabilitation medicine doctor." – **Philippines.**

2. Health systems are ill-prepared to manage low back pain.

People with LBP do not have direct access to allied health professionals in some countries (eg, in Lebanon and the Philippines), and their insufficient number limits access to LBP care (eg, Afghanistan, Paraguay, South Africa).

"...here if you want to get physical therapy treatment, you must wait around 2 months, the demand is really high" – **Paraguay.**



India) if they can afford. The situation for people with low back pain is worse in Afghanistan.” – Afghanistan.

DISCUSSION

WE DESCRIBED LBP TREATMENT practices and care pathways across 32 LMICs—the data that are currently lacking. The findings indicate that the current care is not concordant with international LBP guidelines, and health systems are likely unprepared to handle the growing burden of LBP. These findings provide a snapshot of the current landscape of LBP care in LMICs and further inform implementation of the WHO LBP guidelines.³⁰

Summary and Meaning of the Findings

What Care Is Delivered? The data-derived thematic framework covered 6 concepts or themes: self-management is universally used for acute LBP, drugs are the cornerstone, traditional therapies have a place, society plays an important role, imaging use is common, and people rely on passive approaches—consistent with the Lancet Series on LBP report.⁶ LBP care is mostly focused on structural or biological influences on LBP (eg, identifying and treating structural faults), despite evidence demonstrating biopsychosocial contributors of LBP,¹¹ and that “modern” medicine is “magic” cure. Pharmacotherapies such as opioids for acute nonspecific LBP were reported by 40% of the respondents despite their questionable efficacy and potential harm.¹⁴ Use of passive approaches, including bed rest, should be judicious; instead, *pacing* may be appropriate.¹⁹ Social connections in LMICs is a strength of its people, which could be adopted for the treatment of LBP and other conditions that may improve treatment outcomes.

Traditional therapies are also often passive and promote pathoanatomical and curative beliefs. High-quality evidence on the efficacy/effectiveness of some of these traditional therapies is needed. Some approaches such as bloodletting by local healers in Bhutan, Ethiopia, Iran, Nigeria,

TABLE 3

FIRST CONTACT AND REFERRAL CLINICIANS TREATING NONSERIOUS LOW BACK PAIN

Health Professionals	First Contact n (%)	Referral Clinician n (%)
General practitioners/family physicians	37 (78.7)	11 (23.4)
Orthopaedic surgeons	35 (74.5)	29 (61.7)
Physical therapists	29 (61.7)	37 (78.7)
Traditional medicine practitioners ^a	26 (55.3)	2 (4.3)
Neurologists	17 (36.2)	13 (27.7)
Pharmacists	15 (31.9)	2 (4.3)
Rehabilitation physicians	14 (29.8)	14 (29.8)
Neurosurgeons	13 (27.7)	16 (34.0)
Rheumatologists	10 (21.3)	9 (19.1)
Pain physicians and anesthesiologists	9 (19.1)	12 (25.5)
Community health workers	9 (19.1)	0 (0)
Emergency medicine physicians	8 (17.0)	0 (0)
Chiropractors	7 (14.9)	1 (2.1)
Nurses	6 (12.8)	1 (2.1)
Homeopathy clinicians	4 (8.5)	1 (2.1)
Naturopathy clinicians	2 (4.3)	1 (2.1)
Occupational therapists	2 (4.3)	0 (0)
Psychologists	1 (2.1)	0 (0)
Osteopaths	1 (2.1)	1 (2.1)
Psychiatrists	0 (0)	1 (2.1)
Others	4 (8.5)	1 (2.1)

*Note: The total does not add to 100% because participants were allowed to select multiple responses.
^aIncludes shamans.*

While some countries lack specialists and travel overseas to seek care is not uncommon (eg, Afghanistan, Mozambique), in other countries, specialists (eg, orthopedic surgeons, neurosurgeons, neurologists, rheu-

matologists) are the first contact clinicians for LBP (eg, India, Lebanon, Nepal).

“They usually go to one of the neighboring countries (Iran, Pakistan, or

TABLE 4

THEMES AND SUBTHEMES MAPPED TO AIM 2—HOW CARE IS DELIVERED FOR LOW BACK PAIN IN LMICs

Themes	Subthemes	Description	Exemplar Quotes
Social determinants influence LBP care pathway.	Individual's financial positioning determines the care pathway.	People's socioeconomic positioning, including social security (availability of health insurance), determines their care pathway, the care they receive, and the therapy outcome. For example, people with limited funds present to public hospitals and receive different care than those who present to private hospitals.	<p><i>"The choice of facility opted depends on the financial status of the patient. People belonging to lower and middle socioeconomic class prefer free medical facilities. Patients from upper class and upper middle class prefer to visit private hospitals and specialists directly."</i> – Pakistan</p> <p><i>"They pay for over-the-counter medications or doctor consultation from their own pockets. Usually, the treatment received from a doctor in the clinic is medication.....Those with high monthly income may go straight to a private hospital to receive an intensive treatment for their moderate to severe low back pain, which may include physical therapy. They can ask to see medical specialists, eg, orthopaedic surgeon or neurosurgeon, in the first visit."</i> – Thailand</p>
	Health system's funding model influences LBP care pathways.	Care pathways are distinct in countries with publicly funded health systems (eg, Colombia) and countries where people pay for treatment out-of-pocket (eg, Bangladesh, India, Nepal). Longer waiting time is associated with the former and includes emergency department visits. Direct access to specialists is common in the latter. Social security including health insurance also influences LBP care, ie, people with private insurance receive "better" and timely care, especially for chronic LBP.	<p><i>"To get a clinical consultation with and specialist. it may take weeks to months. In many cases, it requires patients to move to a medium to big city with stressful situations including financial concerns. Due to the waiting time involved, many patients opt to attend emergency department, where they can be evaluated by specialist."</i> – Colombia</p> <p><i>"As a consequence, patients with private insurance enjoy better chronic disease outcomes than those with government-subsidized insurance.... The timely access to these therapies is strongly related to the insurance scheme..."</i> – Colombia</p>
	LBP care pathways depend on the place of residence.	People with LBP go through different care pathways based on their place of residence (eg, location of their state or province or living status in rural and urban areas).	<p><i>"There are also major disparities between provinces (or states), of which there are nine in the country. Each have a variety of cultures, management styles, and compliance with health regulations."</i> – South Africa</p> <p><i>"People with low back pain in Tanzania in rural areas manage their immediate onset (or acute) by the use of tropical analgesics and over-the-counter medications or massage themselves. In most case those from rural areas does not seek for treatment or in severe cases they use traditional approaches."</i> – Tanzania</p> <p><i>"If the pain does not improve, they may make an appointment with a general practitioner (GP) or a health technician (where there is no general practitioner) for their low back pain treatment, but in rural areas most of them look to a healer as one of the alternatives."</i> – Mozambique</p> <p><i>"...in rural area, people who experience moderate low back pain start with self-management with home remedies/herbal medicine/traditional massage/over-the-counter drugs within a week. In the urban setting, majority are treated with primary care in which main treatment is simple analgesics, and muscle relaxants. Then refer to physiotherapists for postural care, physical modalities, and therapeutic exercises."</i> – Myanmar</p> <p><i>"In rural Nigeria, when people experience their first episode of moderate to severe low back pain, they are more likely to consult a 'chemist' for analgesic drugs. If this does not improve their pain, they may return to the 'chemist' for stronger analgesic drugs such as tramadol, or consult other 'unorthodox' treatment centers such as a herbalist for herbs, and a pastor for prayers. Very few of them will end up visiting a secondary or tertiary hospital. Low back pain is rarely managed in primary care in Nigeria (which focuses more on prenatal services, vaccinations, and treatment of acute infective conditions)"</i> – Nigeria</p> <p><i>"In the private sector, if there are red flags the GP may refer the patient for scans (eg, MRI, CT scans) then after the result may refer them to the specialist surgeons such as neurosurgeons. But in public hospitals, the specialist surgeons order for scans as opposed to general physicians."</i> – Jordan</p>

(Table continues on next page.)

TABLE 4		THEMES AND SUBTHEMES MAPPED TO AIM 2—HOW CARE IS DELIVERED FOR LOW BACK PAIN IN LMICs (CONTINUED)	
Themes	Subthemes	Description	Exemplar Quotes
Health systems are ill-prepared to manage LBP.	Access to health professionals	In many countries (eg, Afghanistan, Mozambique, Paraguay), few health workers, including specialists and allied health professionals, provide care for LBP. In some countries (eg, Lebanon and the Philippines), people with LBP do not have direct access to allied health professionals such as physical therapists. This means that specialists are required to screen and treat all LBP cases and take their time away from other conditions that require their attention (eg, trauma).	“Patients in Lebanon do not have direct access to physical therapy.” – Lebanon “If referred to physio, they often have to wait weeks for the first consultation and cannot get follow-up treatment sessions due to the lack of staff.” – South Africa “Physiotherapy services are not included in standard insurance plan therefore it is often patient self-funded.” – India “They usually go to one of the neighboring countries (Iran or Pakistan) or India if they can afford. The situation for this group [people with low back pain] is worse in Afghanistan.” – Afghanistan “Out of the city, most of them are managed by medical technicians or physiotherapy technicians..... However, the more complex the diagnosis, the patients are sent out of the country through a medical board, to countries like India and South Africa mainly.” – Mozambique
	Specialists as the first contact practitioners for LBP care	In some countries (eg, Bangladesh, India, Nepal, Thailand), specialists serve as the first contact clinicians to treat LBP, despite direct access to allied health professionals and availability of general practitioners.	“They [people with low back pain] can ask to see medical specialists, eg, orthopaedic surgeon or neurosurgeon, in the first visit.” – Thailand

Abbreviations: CT, computed tomography; GP, general practitioner; LBP, low back pain; LMICs, low- and middle-income countries; MRI, magnetic resonance imaging.

and Zimbabwe and bone-setting in Bhutan, India, and Iran can be harmful.

How Is LBP Care Delivered? LBP care pathways are influenced by social determinants (eg, individual’s financial positioning, care funding models, place of residence)²⁵ and health systems–related factors (eg, access to health professionals).^{3,18} Given that the evidence around care pathways for LBP in LMICs is lacking,¹⁷ these results can inform future research and the WHO LBP guidelines.³⁰

Early access to specialists may be related to more investigations (eg, imaging), which are costly, are often unnecessary, and may lead to overdiagnosis and overtreatment.^{6,26} Early triage and wait-and-see approach with reassurance (eg, by general physicians, allied health professionals, or community health workers), or the use of simple self-management strategies may be more suitable for nonserious LBP.^{1,16,17,20} Such care delivery models need testing for feasibility, acceptability, effectiveness, and cost-effectiveness in LMICs.^{17,23} For economically challenged citizens and health systems, the need for the right care, at the

right time, for the right person should be the priority.^{4,20,22,26} Such health systems strengthening approaches include public education around musculoskeletal health; training workforce in biopsychosocial approaches; disinvesting in ineffective, expensive, and potentially harmful therapies; and supporting effective, safe, and cost-effective therapies.^{5,6} Current public education websites in LMICs, eg, government websites, rarely include evidence-based information, and when they do, they are often inaccurate.^{2,21}

Implications

We offer important policy, research, and clinical recommendations. Policymakers should urgently consider supporting research and clinical care for LBP, given the projected growth in the burden of LBP in the coming decades.⁸ While health care resources available in LMICs are scarce and local research on the efficacy and effectiveness of interventions is often lacking,²⁷ policy recommendations should consider using high-quality evidence from countries with similar health

systems and cultural contexts when available, weighing their potential effectiveness and harms, feasibility, acceptability, and costs in the short term. This approach will guard the public against escalating use of potentially harmful therapies until local research is undertaken. Given the lack of health workforce, training community-based health workers to deliver high-value LBP care could be a viable cost-effective solution, which needs further testing.¹³ In the longer term, research efforts may focus on codesigning (adapting existing interventions when feasible) and testing locally appropriate therapies. Updating undergraduate and postgraduate curricula for all health professionals with evidence-based content is needed, which will likely facilitate evidence-based and consistent treatment across all health care professionals. Lastly, clinicians should offer information on the potential benefits, harms, and costs of the interventions along with alternative options (surgical or interventional treatment versus noninvasive treatment versus traditional therapies) to patients.

Strengths and Limitations

The study provides the first data on LBP treatment practices and care pathways for 32 LMICs via Consortium of expert panel members. A convergent mixed-methods design allowed us to triangulate results from the quantitative and qualitative data. Member checking external peer review of the data and fact-checking were performed. The opportunity to write and think through the responses (as opposed to in-depth interviews) was an efficient method saving transcription time. It also allowed respondents to clarify and articulate their thoughts in English (second language for a vast majority of the respondents). Any necessary clarifications were made via e-mails (or phone conversations).

The study also has some limitations. First, expert panel members provided proxy data that serve as the starting point for future LBP research. Routine collection of data using hospital records could provide accurate information on health care consumption, which is currently unavailable for many LMICs.^{6,7,24} Second, the results provide an overview of current practices in 32 LMICs, these should not be interpreted as recommended care. Third, the survey was administered in English limiting more global participation.

Conclusions and Future Directions

LBP care in LMICs did not consistently align with the best available evidence. Findings provide direction on research priorities (eg, which commonly used interventions need to be tested in health systems in LMICs) and may guide global LBP clinical guidelines. ●

KEY POINTS

FINDINGS: Low back pain is commonly treated using pharmacotherapy and electrotherapy in 32 low- and middle-income countries (LMICs). Use of self-management approaches, traditional therapies, imaging, and passive approaches are also common. Social connections seem to play a big role in low back pain management in LMICs.

Low back pain is commonly managed by general physicians, orthopedic surgeons, physical therapists, and traditional healers.

IMPLICATIONS: These findings provide a snapshot of what low back pain care is provided in 32 countries and how. These findings can serve as a preliminary data on feasible, accessible, and acceptable care for low back pain in LMICs and inform low back pain guidelines. These data can serve as a starting point to re-evaluate the care that should be provided by carefully weighing treatments' potential benefits, harms, and costs. It can also inform which treatments need further testing. Barriers related to health systems could be addressed through health systems strengthening approaches. Importantly, the Consortium (1) can serve as an advocacy group for the needs of LMICs, (2) prioritizes research agenda around low back pain and address them, and (3) can be a mechanism that fosters collaborations and supports capacity building for research in LMICs.

CAUTION: These findings from 32 LMICs should not be generalized across all LMICs. The findings of the study should not be considered recommendations for low back pain treatment in these countries; rather, the study only provides an overview of current treatment practices in LMICs.

STUDY DETAILS

AUTHOR CONTRIBUTIONS: Saurab Sharma: Conception, development and chairing of the Consortium, protocol writing, ethics submission, project management, data collection, data analysis and interpretation, writing manuscript first draft, collecting revisions from coauthors, incorporating feedback, and revision and approval of the final manuscript. Anupa Pathak: Conception, data analysis and interpretation, writing and revising manuscript, and approval of the final manuscript. Romy Parker: Conception, external peer review and fact-checking of the data and interpretation, qualitative analyses review, writing and

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