RESEARCH ARTICLE

# Pain treatment services; a national survey of tertiary care hospitals in Pakistan

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## Abstract

**Objective:** To quantify pain services in Pakistan and classify them according to the International Association for the Study of Pain guidelines.

**Method:** The study was conducted at the Aga Khan University, Karachi, from January to June 2022, and comprised data of all public and private tertiary care hospitals anywhere in Pakistan that were registered with the Pakistan Medical Council till November 25, 2021. Data was collected using a predesigned Google form. Data was obtained primarily via email and secondarily by a phone call in a structured format. The facilities providing dedicated pain management services were classified according to the International Association for the Study of Pain guidelines.

**Results:** Of 118 hospitals, 45(38.1%) were in the public sector and 73(61.8%) were in the private sector. Overall, 78(65.2%) had no pain treatment services, while 40(34.2%) had such services. Of these 40(34.2%) facilities, 25(62.5%) were classified as pain centres, 11(27.5%) were pain clinics and 4(10%) were pain practices. In terms of per 100,000 population, there were 0.0193 pain services, 0.0351 pain physicians, 0.025 nursing staff and 0.02 administrative staff in the country. Physiotherapy was present in 37(92.5%) hospitals, psychiatry and psychology as allied services were used in 38(95%), acupuncture was integrated into the practice in 25(62.5%), while 39(97.5%) hospitals offered interventional procedures. Also, 9(22.5%) hospitals offered advanced training in pain medicine.

**Conclusion:** A severe shortage of chronic pain services in Pakistan was found.


**Keywords:** Chronic pain, Health resources, Multidisciplinary pain centres, Surveys and questionnaires, Allied health personnel. (JPMA 73: 1447; 2023) **DOI: https://doi.org/10.47391/JPMA.7862**

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## Introduction

Pain and related medical conditions are substantial causes of the global burden of disease and disability. Chronic pain is one of the common reasons for seeking medical care. It impacts all the organ systems, including mental health and sleep. The quality of life (QOL) is seriously impaired with chronic pain. It also becomes increasingly complex over time if not timely and adequately treated.[1]

The prevalence of chronic pain varies widely across regions due to disease states as defined and the population selected. It affects approximately 10% of the world's population and 5-33% of the primary care population of a global major city.[2] Among the many reasons investigated worldwide for inadequate pain treatment, emphasis on the concept of pathophysiological management of disease over QOL is the most prominent reason. Other reasons include culture, religion, society and an attitude towards torture acceptance.[3]

Pakistan is the world's fifth most populated country with a population of 207.9 million.[4] It is a federal republic of five provinces that are, Sindh, Punjab, Balochistan, Khyber Pakhtunkhwa (KP), and Gilgit-Baltistan (GB). Islamabad is the federal capital. Azad Jammu and Kashmir (AJK) is administered by the government of Pakistan, but has autonomous governance.[5] The healthcare system is three-tiered; public, private and miscellaneous sectors. A major proportion of health resources is spent on supporting the tertiary care system. National health indicators have lagged behind the standard targets. There is a lack of data regarding prevalence and the types of pain treatment services. Unrelieved pain is a national health problem.[6] Health professionals have expressed concerns over the absence of pain treatment services in hospitals across the country.[7] Above all, there is an absence of health data capturing mechanisms leading to challenges in administration, delivery of care and research.[8]

There is substantial evidence for the effectiveness of multidisciplinary treatment for chronic pain problems. The International Association for Study of Pain (IASP) has set principles for the classification of chronic pain treatment services, categorising them as a pain centres, pain clinics and pain practices. Pain centre has the widest spectrum. It fringes upon the diversity of pain conditions, clinical expertise, education and research obligations. Pain clinic differs from the centre in lacking research and academics in its scope. A pain practice involves a certified pain physician registered with a regulatory health authority. IASP inscribes that the practitioner should have the necessary support to refer patients to a pain clinic or centre

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whenever the pain pathology exceeds his/her management capabilities. Regardless of the services, IASP stresses the highest standards of medical professionalism for every pain physician.[9]

The current study was planned to quantify pain services in Pakistan and to classify them according to the IASP guidelines.

## Materials and Methods

The study was conducted at the Aga Khan University, Karachi, from January to June 2022, and comprised data of all public and private tertiary care hospitals anywhere in Pakistan that were registered with the Pakistan Medical Council (PMC) till November 25, 2021. After approval from the institutional ethics review committee, a Google form was designed as per the IASP standards for pain treatment services containing pertinent questions.[9] A list of the hospitals was procured from the PMC website.[10] Secondary-care private-sector services were excluded.

The form was sent to the representatives of Anaesthesiology departments and hospital administrators (Medical Directors) via email primarily. Two reminder emails were sent at an interval of two weeks. The hospitals that did not respond and those that did not have an email address were contacted at their official phone numbers by the researchers secondarily. A maximum of three phone calls were made during official timings to contact the designated representative. Study objectives were explained, and queries were responded to. The form was completed during the phone call conversation. The number of clinicians and nursing staff were recorded. Operational details relating to administration, liaison with psychiatrists, psychologists and physiotherapists as well as details regarding research activities were collected.

The facilities providing dedicated pain management services were classified according to the IASP guidelines.[9] Descriptive statistics were calculated using Microsoft Excel. Data was expressed as frequencies and percentages.

## Results

All the 118(100%) institutions approached participated in the survey. Data was obtained through the Anaesthesiology representatives in 83(70.3%) cases and from hospital administrators in 35(29.6%). Of all the hospitals, 45(38.1%) were in the public sector and

**Table-1:** Chronic pain services in Pakistan.

| **Region** | **Private Sector** (n = 23) n %) | **Public Sector** (n = 17) n (%) | **Total** (n =40) n (%) |
|---|---|---|---|
| AJK | 1 (100) | 0 (0) | 1 (2.5) |
| Islamabad | 1 (100) | 0 (0) | 1 (2.5) |
| Balochistan | 1 (50) | 1 (50) | 2 (5) |
| KP | 2 (50) | 2 (50) | 4 (10) |
| Punjab | 9 (50) | 9 (50) | 18 (45) |
| Sindh | 9 (64.29) | 5 (35.73) | 14 (35) |

AJK: Azad Jammu and Kashmir, KP: Khyber Pakhtunkhwa.

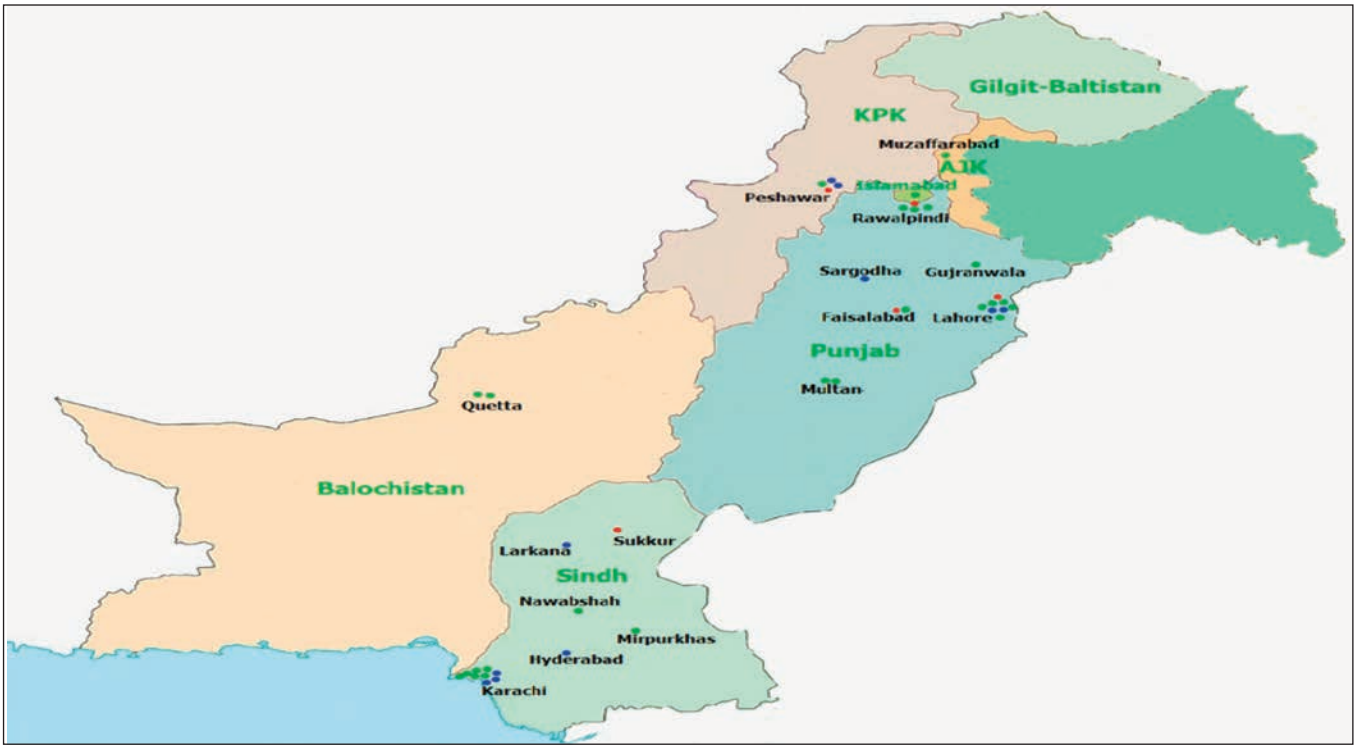


**Figure:** Locations of pain services on the political map of Pakistan: Each Green dot represents a pain centre, a Blue dot represents a pain clinic, and a Red dot represents a pain practice.

**Table-2:** Pain resources and their distribution.

| Resource | AJK (n=4) n (%) | Islamabad (n=7) n (%) | Balochistan (n=2) n (%) | KP (n=21) n (%) | Sindh (n=30) n (%) | Punjab (n=54) n (%) | Total (n=118) n (%) |
|---|---|---|---|---|---|---|---|
| Pain service/100,000 | 0.02 | 0.05 | 0.07 | 0.01 | 0.03 | 0.02 | 0.02 |
| Pain Physicians | 2 | 1 | 0 | 4 | 31 | 35 | 73 |
| /100,000 | 0.05 | 0.05 | 0 | 0.01 | 0.06 | 0.03 | 0.03 |
| Nursing Staff | 0 | 6 | 0 | 5 | 20 | 21 | 52 |
| Per /100,000 | 0 | 0.29 | 0 | 0.01 | 0.04 | 0.02 | 0.03 |
| Administrative Staff | 0 | 3 | 0 | 2 | 14 | 23 | 42 |
| Per /100,000 | 0 | 0.15 | 0 | 0.005 | 0.03 | 0.02 | 0.02 |
| Physiotherapy | 1 (100) | 1 (100) | 2 (100) | 3 (75.0) | 13 (92.9) | 17 (94.4) | 37 (92.5) |
| Psychology/Psychiatry | 1 (100) | 1 (100) | 2 (100) | 3 (75.0) | 14 (100) | 17 (94.4) | 38 (95.0) |
| Neurology | 1 (100) | 1 (100) | 2 (100) | 3 (100) | 9 (64.3) | 15 (88.2) | 31 (81.6) |
| Acupuncture | 1 (100) | 0 (0) | 1 (50.0) | 2 (66.7) | 10 (71.4) | 11 (64.7) | 25 (65.8) |

AJK: Azad Jammu and Kashmir, KP: Khyber Pakhtunkhwa; Data per 100,000 of the population is estimated to be 207.684 million nationally. AJK, Islamabad, Balochistan, KP, Sindh and Punjab have population estimates of 4.045, 2.003, 12.335, 35.501, 47.854 and 109.989 million respectively.[4]

**Table-3:** Pain services classification.

| Category | AJK (n=1) n (%) | Islamabad (n=1) n (%) | Balochistan (n=2) n (%) | KP (n=4) n (%) | Sindh (n=14) n (%) | Punjab (n=18) n (%) | Total (n=40) n (%) |
|---|---|---|---|---|---|---|---|
| Pain Centre | 1 (100) | 1 (100) | 2 (100) | 1 (25.0) | 7 (50.0) | 13 (72.2) | 25 (62.5) |
| Pain Clinic | 0 (0) | 0 (0) | 0 (0) | 2 (50.0) | 6 (42.9) | 3 (16.7) | 11 (27.5) |
| Pain Practice | 0 (0) | 0 (0) | 0 (0) | 1 (25.0) | 1 (7.14) | 2 (11.1) | 4 (10.0) |

AJK: Azad Jammu and Kashmir, KP: Khyber Pakhtunkhwa

73(61.8%) were in the private sector. Overall, 78(66.1%) had no pain treatment services, while 40(33.8%) had such services; 18(45%) of them in the Punjab province (Table 1), and none in GB (Figure).

In terms of per 100,000 population, there were 0.0193 pain services, 0.0351 pain physicians, 0.025 nursing staff and 0.02 administrative staff in the country (Table 2).

Physiotherapy was present in 37(92.5%) hospitals, psychiatry and psychology as allied services were used in 38(95%), acupuncture was integrated into the practice in 25(62.5%), while 39(97.5%) hospitals offered interventional procedures. Three (7.5%) hospitals had no support from allied health departments. There was one specialist pain nurse in the country. Psychologists were employed in 30(75%) hospitals. Advanced neuromodulation technique of spinal cord stimulation was not present in any of the services. No pain service was specialised for a certain pain syndrome. Administrative staff was devoted to pain services in 13(32.5%) hospitals. Among the pain physicians, 70(96%) were anaesthesiologists, and 67(92%) of the pain physicians were registered with either the Society for Treatment and Study of Pain (STSP) or IASP, or both.

Of all the health 40(34.2%) facilities, 25(62.5%) were classified as pain centres, 11(27.5%) were pain clinics and 4(10%) were pain practices (Table 3). Also, 9(22.5%) hospitals offered advanced training in pain medicine; 3(7.5%) public and 3(7.5%) private hospitals in Punjab, 1(2.5%) public and 1(2.5%) private hospital in Sindh, and 1(2.5%) private hospital in Islamabad. The three active programmes were Fellowship in Pain Medicine from the College of Physicians & Surgeons Pakistan (FCPS-Pain), Fellowship in Interventional Pain Medicine (FIPM) from the Rawalpindi Medical University, and Master of Science in pain medicine (MSc-Pain Medicine) from the Riphah International University. Master of Surgery (Pain Medicine) was being planned at 1(2.5%) hospital in Punjab. FCPS-Pain and MSc-Pain Medicine are recognised as national post-graduate medical qualifications by the PMC. Only FCPS-Pain required a primary specialty certification in Anaesthesiology. The duration of all of these programmes was 2 years.

## Discussion

Access to pain management is a fundamental human right. Inadequate pain treatment is unethical and professional misconduct.[11] The British Pain Society (BPS) has published standards for pain medicine in the United Kingdom, with the goal of achieving optimisation of chronic pain services across the country. This followed audits to ensure compliance.[12]

In Pakistan, 'Pain Medicine' as a specialty was introduced in the mid-1980s.[6] Data regarding Pakistan's pain treatment services was not available, and the current study is the first to quantify such services in the country.

Considering the pain burden, chronic pain services were found to be sparse. Insufficient resources and a lack of professionals in Pakistan have been highlighted earlier as well.[13] Pakistan's quantification of pain services is 0.02 per 100,000 population. There is not a standardised criterion regarding the number of pain treatment services to be compared yet. Inequity in the pain treatment services among the countries is found to be ubiquitous. Australia, Canada and the UK have 0.32, 0.38 and 0.27-0.5 services/100,000 population respectively.[14] Several factors have been identified worldwide in this regard. These include lack of government policies and healthcare systems for pain relief, misplaced beliefs among the medical

community, insufficient education of medical professionals, and lack of culturally appropriate care.[15]

Like other countries, Pakistan was found to have a disparity in pain services when its regions were compared. GB had no pain treatment service for a population of 1.49 million. KP and Balochistan's pain services were located in the provincial capitals only. The majority of the services were confined to urban cities and provincial capitals. For the rural masses who make up 63.6% of the total population, there were no resources available immediately.[4] Pakistan's rural area health system is functioning poorly, while urban areas have inadequate primary and secondary healthcare systems.[16] Its significance is of relevance as there is no integrated referral system. According to the British Pain Society (BPS) core standards, chronic pain services must ensure joined-up care with the health system. Pain services should form a 'Pain-Network' for appropriate patient care.[12]

When available pain services were classified as per IASP standards, 25(62.5%) fulfilled the criteria of pain centres. Pain centres are superior based on the bio-psychosocial model.[9] The results are reassuring only in terms of the relative value of percentage compared to the developed countries. For example, 46% of Australian hospitals fulfilled the criteria of pain centres and the United States of America has only a minor proportion of pain centres.[14] Many of the allied health services were not always present in Pakistan's hospitals, like in other countries. The British National Pain Audit reported a similar variation in its pain services.[17] Both IASP and the World Institute of Pain (WIP) endorsed multidisciplinary management of pain to promote quality of services and better pain outcomes.[18] The situation was not gratifying as 11(27.5%) pain clinics and 4(10%) pain practices were part of the teaching hospitals. They must be upgraded to the pain centres to promote education and research.

There are 73 pain physicians in the country. A pain physician is a "specialist, who assesses and evaluates pain, classifies and grades it, and then treats it effectively".[19] Of note, Balochistan had no pain physician. International recommendations for physician staffing demand a minimum of one consultant per 100,000[20] whereas Pakistan was found to have 0.03 per 100,000 population. The US has 2,200 and UK has 500 certified pain physicians compared to Pakistan.[14,21] The scarcity of pain physicians is not a matter of concern in Pakistan alone. It has been reported by the American Board of Pain Medicine (ABPM) and the BPS in their national perspectives. Pain-specific certification of the physicians was not included in the current survey which found that 96% of the pain physicians in Pakistan were anaesthesiologists. They have a special interest in the subject, but the majority have no formal training in the specialty. Data regarding physicians registered with PMC for having certification in Pain Medicine could not be procured. There is a need for standardisation of the physicians' qualifications besides capacity building.

IASP recommends the incorporation of nurses in pain management services.[9] A total of 52 nurses were devoted to the subject in the country. Their skills were task-driven. There was only one specialist pain nurse in the country. Whereas, the UK has a mode of 2 nurse specialists per service.[14] Overall staffing as well as the expertise of nurses in Pakistan do not meet the BPS recommendations. A focussed career grooming for nurses within pain services is altogether absent in Pakistan.[12] More nurses are needed for effective patient care as they are the ones who have the most involvement in patient care.

The current study found that 13 (32.5%) services in Pakistan had administrative support. This was reflective of under-resourcing in comparison to 80.3-83% in the UK and 100% in Ireland.[14,20] BPS core standards recommend administrative staff for the management of outpatient clinics, intervention lists, and other processes. This is beneficial for patients' facilitation and workload distribution of the clinical staff[12] The German Society for Anaesthesiology and Intensive Care Medicine recommends mandatory continuing medical education (CME) for non-clinical staff.[22]

Regarding the composition of multidisciplinary management of patients, physiotherapy services were present in 92.5% of the hospitals. The UK and US have physiotherapy services in 79.5% and 56% of centres, respectively.[14] Physiotherapy is a key component of chronic pain treatment. Physiotherapists devise targeted exercises to attain the required functionality. They also provide support in the psychological management of symptoms through graded imagery and desensitisation techniques.[23] Given the bio-psychosocial model of pain treatment, psychologists are integral to mental health restoration. They are experts in the management of widely prevalent diseases among the pain population like post-traumatic stress disorder (PTSD), anxiety, depression, and substance abuse.[12] Only 30(75%) services in the country had input from psychologists. This was unsatisfactory. Psychiatry and psychology were utilised interchangeably in them. Unavailability and improper utilisation of resources were the reasons. Occupational therapy should also be integrated into multidisciplinary management to counteract pain-associated disability, which was utterly absent. Neurology input was available in 81.6% of pain services. In the US, 46.1% of the pain services have neurology assistance.[14] BPS recommends input from

specialties where-ever indicated.[12]

Acupuncture was offered by pain physicians as an alternative modality in 25(65.8%) hospitals. It is the most widely used alternative complementary modality.[24] Despite the available evidence, there are rarely any recommendations from medical societies. Data regarding the incorporation of acupuncture in chronic pain services is absent. This is one of the exclusive features of hospitals in Pakistan compared to other countries.

One of the biggest barriers to adequate pain management in developing nations is the lack of adequate training in pain medicine.[15] In the current study, 9(22.5%) hospitals offered advanced training for physicians in Pakistan. In the UK, such training is present in 28% hospitals. The US and Canada have more training centers, amounting to 76% of the hospitals.[14] Of the 9 hospitals, one hospital's training programme was not recognised by the PMC, which is a deviation from the standards of medical education.

When these training programmes are compared to international standards, FCPS-Pain matches the credentialing prerequisites of adequate training. It requires primary certification in Anaesthesiology. The General Medical Council-UK (GMC), requires specialist training in Anaesthesiology and a fellowship of the Faculty of Pain Medicine of the Royal College of Anaesthetists or equivalent to register a physician as pain specialist.[12] Similarly, the American Board of Pain Medicine (ABPM) certification requires successful completion of primary residency, a fellowship in Pain Medicine/Palliative Care Medicine, and success in the American Pain Board exam.[21] The other pain training programmes in Pakistan need to be upgraded to match recommendations in advanced pain training.

The current study is the first national survey to contemplate the multidisciplinary pain management resources available. Data was collected comprehensively as the survey response rate was 100%. This enabled the existing services to be evaluated following the recommendations in pain medicine and for comparison with other countries. Since data is based on voluntary reporting its accuracy may be limited. Secondary-care private-sector services were not included in the survey due to their limited number. As Pakistan's neighbouring countries' data is not available, the current data could only be compared with that of the Western countries.

## Conclusion

Pakistan was found to be short of pain treatment services and trained professionals. Some regions faced specific limitations. Advanced pain training programmes were limited in number as well as in their standardisation.

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