Article published online: 2024-06-04

Original Article

Knowledge, Attitudes, and Practices regarding Pain Assessment among Nurses Working at Public-Sector Pediatric Oncology Units in Pakistan

Bashir Ahmed Khan[1] Wasfa Farooq[1] Malick Muhammed Sabih Masood[1] Muhammad Rafie Raza[1]

[1] Department of Paediatric Oncology, Indus Hospital & Health Network, Karachi, Sindh, Pakistan

Address for correspondence Bashir Ahmed Khan, BScN, Department of Paediatric Oncology, Indus Hospital & Health Network, Karachi, Sindh 75500, Pakistan (e-mail: bashir.ahmed@tih.org.pk).

Ind J Med Paediatr Oncol

Abstract

Introduction Pain in pediatric oncology patients is often undertreated due to a lack of timely assessment and inefficient communication between health care workers. Improper pain assessment is a leading cause of poorly managed pain in children. In high-income countries, pediatric oncology nurses play a key role in developmentally appropriate pain assessment measures to identify potential management strategies. However, nurses in low- and middle-income countries (LMICs) face a deficit of knowledge about pain assessment tools and management. Owing to differences in availability of resources, a disparity exists between health-related quality of life of cancer patients treated at public- and private-sector hospitals in Pakistan.

Methodology The Indus Hospital and Health Network partnered with nine public-sector hospitals nationwide to improve pediatric oncology practices. Supported by the My Child Matters grant, training sessions were conducted for nurses at each public-sector pediatric oncology unit (POU) from March to December 2021. Pain assessment tools were provided. To assess retention and implementation of practices, a knowledge, attitudes, and practices questionnaire was distributed online to nurses at each POU. All responses remained anonymous.

Results Fifty-four responses were recorded, 85% were female and most were between 26 and 30 years of age. Most of the participants held a diploma in nursing and were designated charge nurses with more than 6 years of experience. Forty nurses reported routinely assessing pain; the most common reason for not doing so was increased workload. Correlations were observed between routinely performing pain assessment and the number of patients per nurse, availability of formal credentialing or certifications at the institution and routinely performing pain assessment, availability of trainings focused on pain assessment and routinely performing pain assessment, and qualification of nurses and knowledge of nonpharmacological pain assessment methods.

Conclusion Strategies to improve pain assessment knowledge and practices among pediatric oncology nurses in LMICs must be developed to improve patient care and clinical outcomes.

Keywords
- attitude
- knowledge
- LMICs
- nursing
- oncology
- pediatric
- pain

DOI https://doi.org/10.1055/s-0044-1787562.
ISSN 0971-5851.

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

Introduction

Children diagnosed with cancer are particularly susceptible to experiencing pain as a result of the intensity of illness and the treatments they undergo. Despite this vulnerability, the pain experienced by pediatric oncology patients is frequently not adequately addressed, largely due to delays in timely assessment and ineffective communication among health care professionals. An overarching factor contributing to the inadequate management of pain in children is the insufficient evaluation of pain, which significantly impacts their overall quality of life and treatment outcomes.[1–3] Frequently termed the "fifth vital sign," pain necessitates assessment and documentation in conjunction with traditional vital signs such as blood pressure, pulse, temperature, and respiratory rate.[4]

For children, pain expression typically occurs through nonverbal cues and bodily responses. In such cases where a child is between the ages of 2 months and 3 years, the appropriate assessment tool is the behavioral pain scale, such as the Face, Legs, Activity, Cry, and Consolability (FLACC) scale. In contrast, for children aged 3 years and older, self-reported pain intensity becomes more reliable. This can be measured using the Wong–Baker faces pain scale, visual analog scale, and numerical rating scale.[3,5,6]

Within high-income nations, pediatric oncology nurses take on a crucial role in formulating age-appropriate pain assessment methodologies, identifying potential avenues for pain management, and administering both pharmacological and nonpharmacological treatments.[7] Developing nations encounter a lack of understanding concerning pain assessment tools and the significance of proficiently using them.[2] In Pakistan, more than 50% of patients with advanced-stage cancer experience undertreatment of pain due to inadequate education and training of health care workers.[8] Furthermore, disparities arise in the quality of life of cancer patients treated in Pakistan's public- and private-sector hospitals due to variable resource availability.[9]

In a collaborative effort, the Department of Pediatric Hematology/Oncology (PHO) at the Indus Hospital and Health Network (IHHN) partnered with nine public-sector hospitals throughout Pakistan. This partnership was aimed at elevating pediatric oncology practices on a nationwide scale, with the objective of comprehensively enhancing childhood cancer services. Given the limited existing research, this study is designed to evaluate the knowledge, attitudes, and practices surrounding pain assessment among pediatric oncology nurses within these nine units.

Methods

Study Design

The IHHN PHO project secured the My Child Matters (MCM) grant from the Sanofi Espoir Foundation, propelling initiatives in training and capacity enhancement within partnered pediatric oncology units (POUs). An integrated approach was adopted, combining online theoretical classes with hands-on, in-person sessions for nurses across each POU. These sessions were conducted between March and December 2021. The program prioritized comprehensive pain assessment and management techniques for pediatric cancer patients.

Pertinent pain assessment tools, including the Wong-Baker faces pain scale, visual analog scale, and FLACC pain scale, were provided in both hard and soft formats to nursing leadership at each unit. To gauge the absorption and application of these resources, a structured questionnaire encompassing domains of knowledge, attitude, and practices concerning pain assessment was developed and administered to nurses at nine public-sector hospitals via an online platform.

Sample Size

Study was conducted across nine public-sector hospitals. Fifty-four nurses in total chose to participate.

Inclusion and Exclusion Criteria

The criteria for the study included nurses who were currently working in pediatric oncology and excluded those who were not.

Statistical Analysis

The collected data were analyzed using SPSS v23 for meaningful insights. Descriptive statistics were computed for quantitative variables, and frequencies and cross-tabulations were made for qualitative variables.

Ethics

Ethical approval for the study was obtained from the IHHN Institutional Review Board (IRB number: IHHN_IRB_2022_03_014) on April 8, 2022. Ethical considerations were taken into account by obtaining written informed consent from the participants and ensuring the anonymity and confidentiality of their responses. Our study complied with the Declaration of Helsinki.

Results

A total of 54 nurses, distributed across different age groups were participated in the study. Most participants (61.1%) fell within the age range of 26 to 30 years, indicating a relatively young nursing workforce. The age group of 31 to 40 years accounted for one-third of the participant population, while a very minor number were between 20 and 25 years of age and above 40 years of age.

Gender distribution revealed that the sample was predominantly female (85.2%).

Approximately two-thirds of the nurses held a diploma in nursing (63.0%), while one-third held a bachelor of science in nursing degree (33.3%). Less than 2% of participants held higher qualifications, which included a master of science in nursing and a diploma in pediatric oncology nursing.

The work experience of the nurses varied, with the largest group (42.6%) having more than 6 years of experience. Approximately one-third (29.6%) had 4 to 6 years of experience, while the rest had less than 3 years of experience.

One-third (31.45%) of the nurses who participated in this study reported having access to ongoing training in pain assessment in the form of Continuing Nursing Education (CNEs), whereas approximately two-thirds (66.7%) did not. The fact that only five nurses (9.3%) mentioned formal training in pain management suggests that institutional credentialing programs in this area are limited.

Only 32 nurses (59.3%) were acquainted with the numeric pain scale, which is a widely utilized pain assessment tool. A larger subset of nurses (38 nurses, 70.4%) demonstrated awareness of the facial pain scale. In contrast, a smaller cohort of 11 nurses (20.4%) were familiar with the FLACC scale, a behavioral pain assessment tool often employed for children older than 2 months and younger than 3 years.

Within our study, among the nurses who conducted initial pain assessments, 16 nurses (42.1%) reported actively engaging in pain reassessment, while 22 nurses (57.9%) did not consistently perform follow-up pain evaluations. Among those who did not engage in routine pain reassessment, several reasons emerged, including the perceived lack of importance in 1 nurse (4.5%), insufficient availability of resources/forms indicated by 9 nurses (40.9%), and the formidable challenge of managing workload highlighted by 12 nurses (54.5%).

Knowledge

As shown in ►**Table 1**, when assessing knowledge, there was an association found between a nurse's work experience and their familiarity with pain assessment tools such as facial pain scale (p-value = 0.0005) and numeric pain scale (p-value = 0.005). An association was also seen between work experience and knowledge of nonpharmacological pain management interventions; however, according to our study, nurses with less experience were more likely to know about it than their more experienced counterparts.

Attitudes

As shown in ►**Table 2**, most nurses reported that they assessed pain but were less likely to reassess pain or document their assessment. Lack of resources/forms and workload were often cited as the reasons.

Practices

As shown in ►**Table 3**, most nurses demonstrated a lack of implementation of pain assessment methods regardless of their work experience level.

As shown in ►**Fig. 1**, only 29.6% nurses in the study had a nurse-to-patient ratio of 1 to 5, which is considered a favorable nurse-to-patient ratio, whereas the rest of the study participants had a higher nurse-to-patient ratio.

Discussion

The assessment, management, and reassessment of pain in childhood cancer patients are primarily the responsibility of oncology nurses.[2] Regardless of treatment outcomes, the efforts of pediatric oncology nurses to identify and manage a child's pain have the potential to improve the quality of life both of patients and their families.[7] Effective pain management for children and adolescents faces continued obstacles; a major one being the lack of knowledge plaguing health care professionals such as nurses, particularly in low- and middle-income countries (LMICs).[10]

The population of nurses in this study highlighted a female predominance which aligns with findings from a comparable survey conducted in Iran, in which 79.8% of the nurses were women.[11]

CNE and specialized training programs are crucial to nurses' pain evaluation and management skills. They show a commitment to professional development and keeping health care workers abreast of new practices. Only one-third nurses (31.5%) said their hospitals offered pain assessment CNE or training, while the rest either report the lack of such programs. This is especially shocking since according to the Baseline Nursing Standards, pediatric oncology nurses must complete 9 hours of CNE annually.

Traditional clinical practice can hinder pain management by failing to consistently assess and document pain. This is made worse by a lack of feasible treatment techniques, and the belief that pain is expected and is therefore trivial. Health care organizations and institutions must go beyond teaching to improve resource distribution and assessment to maintain good pain management practices. Health care settings can

Table 1 Nurses recognized pain as the fifth vital sign

	Nurse's work experience				
	< 1 y	1–3 y	>3 y	Total	p-Value
Recognized pain as the fifth vital sign, n (%); $n = 54$	6 (11%)	7 (13%)	33 (61%)	46 (85%)	0.9775
Nurses' familiarity with pain control modalities					
Pharmacological pain management, n (%); $n = 54$	6 (11%)	7 (13%)	37 (67%)	50 (93%)	1.081
Nonpharmacological pain management, n (%); $n = 54$	4 (7%)	6 (11%)	6 (11%)	16 (30%)	0.0008
Nurses' familiarity with pain assessment tools					
FLACC scale, n (%); $n = 54$	0 (0%)	1 (2%)	10 (19%)	11 (20%)	0.2376
Facial pain scale, n (%); $n = 54$	1 (2%)	6 (11%)	31 (57%)	38 (70%)	0.0005
Numeric pain scale, n (%); $n = 54$	1 (2%)	3 (6%)	28 (52%)	32 (59%)	0.005

Abbreviation: FLACC, Face, Legs, Activity, Cry, and Consolability.

Table 2 Attitudes of Nurses towards Pain Assessment

	Nurse's work experience				
	< 1 y	1–3 y	>3 y	Total	*p*-Value
Routine pain assessment, *n* (%); *n* = 54	6 (11%)	6 (11%)	26 (48%)	38 (70%)	0.344
Pain reassessment following any intervention, *n* (%); *n* = 38	1 (3%)	5 (13%)	10 (26%)	16 (42%)	0.074
Pain assessment documentation, *n* (%); *n* = 38	3 (8%)	4 (11%)	14 (37%)	21 (55%)	0.783
Reasons for not documenting patient's pain score					
It is not important, *n* (%); *n* = 17	1 (6%)	0 (0%)	0 (0%)	1 (6%)	
Lack of resources/forms, *n* (%); *n* = 17	1 (6%)	2 (12%)	4 (24%)	7 (41%)	
Workload, *n* (%); *n* = 17	1 (6%)	0 (0%)	8 (47%)	9 (53%)	
Reasons for not reassessing the patient for pain					
It is not important, *n* (%); *n* = 22	1 (5%)	0 (0%)	0 (0%)	1 (5%)	
Lack of resources/forms, *n* (%); *n* = 22	0 (0%)	3 (14%)	6 (27%)	9 (41%)	
Workload, *n* (%); *n* = 22	0 (0%)	4 (18%)	8 (67%)	12 (55%)	

Table 3 Pain assessment methods used

	Nurse's work experience				
	< 1 y	1–3 y	>3 y	Total	*p*-Value
Use of standardized pain assessment tools, *n* (%); *n* = 54	2 (5.2%)	6 (16%)	17 (45%)	25 (66%)	0.05156
Use of interviews for pain assessment, *n* (%); *n* = 38	3 (8%)	3 (8%)	6 (16%)	12 (32%)	0.2523
Use of other methods for pain assessment, *n* (%); *n* = 38	1 (3%)	0 (0%)	0 (0%)	1 (3%)	0.06465

enhance pain evaluation and management by addressing these issues, in the process improving patient care and outcomes.[12]

As shown in ►**Table 1**, a significant majority of nurses (87.0%) recognized pain as the fifth vital sign, mirroring findings from a parallel survey in Brazil where 79.3% of nurses reported a similar acknowledgment.[13] However, this study shows that there were certain gaps in knowledge regarding specific pain assessment tools. A large subset of nurses were familiar with the facial pain scale, but slightly more than half (59.3%) were acquainted with the numeric pain scale, and only a quarter (20.4%) was familiar with the FLACC scale. Effective pain management commences with accurate pain assessment and the utilization of standardized tools. These tools are instrumental in evaluating the effectiveness of interventions tailored to the individual needs of patients, particularly concerning pain relief.[14] Recent literature also highlights this disparity between recommended methods of frequent pain evaluation and their lack of usage and implementation on the ground.[12]

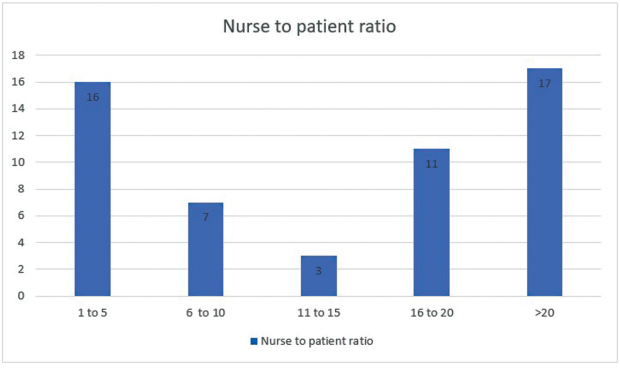

Fig. 1 Distribution of Nurse-to-Patient Ratios Among Study Participants.

Most nurses (92.6%) exhibited familiarity with pharmacological approaches for pain management, whereas awareness of nonpharmacological pain control methods such as complementary therapies and relaxation techniques was less prevalent (29.6%). Nurses with less experience were more likely to know of nonpharmacological methods, which may point toward a change in emphasis in nursing teaching programs in recent times or suggest that more experienced nurses tend to forget about them with the passage of time due to a lack of implementation. Interestingly, a study conducted in Zimbabwe found that most respondents demonstrated knowledge of nonpharmacological pain control methods. This discrepancy in awareness regarding nonpharmacological approaches highlights the need for comprehensive education and training initiatives to ensure that nurses are equipped with a diverse set of pain management strategies. Addressing this knowledge gap can enhance the ability of health care professionals to provide well-rounded and patient-centered pain management.[15]

As shown in ►**Table 2**, two-thirds of nurses (70.4%) demonstrated the positive practice of routinely conducting

pain assessments concurrently with vital sign measurements. This proactive approach within patient care underscores the significance of comprehensive pain management. Conversely, one-third of nurses (29.6%) indicated that they did not consistently incorporate pain assessment into their routine practices. It is imperative for health care professionals to consistently evaluate pain, particularly considering that many patients may not spontaneously report pain unless specifically prompted. Thus, the practice of patient-centered pain assessments aligns with the core principles of patient care, emphasizing the necessity of incorporating pain assessment as a routine component of health care delivery.[16]

The documentation of pain scores among participating nurses showed variability. Some nurses reported actively documenting pain scores, while others did not routinely record them. Barriers to comprehensive pain assessment documentation were identified, including a perceived lack of importance, limited availability of resources/forms, and the challenge of managing heavy workloads. These findings underscore potential hurdles in effectively integrating pain assessment documentation into clinical practice. The importance of pain reassessment after interventions cannot be understated, as it forms the cornerstone of evaluating the efficacy of pain management strategies.

Close to half of our study population (42.1%) performed initial pain assessments which parallels the findings in a study conducted in Uganda. In their study, documentation of pain assessment was commonly reported, reflecting the recognition of pain as an essential vital sign. However, their results also suggested that while pain assessment may be documented, it might not be effectively discussed in nurses' reports. This highlights a potential gap between documenting pain assessment and translating these findings into actionable care decisions. Such disparities between documentation and effective communication of pain assessment results emphasize the need for cohesive strategies to ensure that pain assessment is not only recorded but also integrated into the broader patient care process.[14,17]

As shown in ►**Table 3**, a significant number of nurses (65.8%) used standardized pain scales such as the facial pain scale, and one-third (31.6%) preferred conversational nonstandard interviews. This aligns with findings from a comparable survey conducted in Jerusalem, Israel.[18] These findings support the literature outlining the gap between current guidelines recommending regular and routine pain evaluation using valid and reliable methods.[12]

As shown in ►**Fig. 1**, only one-third of the study participants (29.6%) reported that they were responsible for managing one to five patients, reflecting a favorable nurse-to-patient ratio that promotes personalized care. The rest managed 6 or more patients along with a shocking one-third of participants (31.5%) managing more than 20 patients per shift. This is similar to a study conducted in Brazil, in which it was identified that the highest patient-to-nurse ratio was around 27 patients per nurse during shifts. This congruence in findings between our study and the Brazilian study underscores the challenges faced by health care systems in LMICs in maintaining optimal nurse-to-patient ratios, particularly in settings like pediatric oncology where the demands for comprehensive and individualized care are paramount.[19]

Most people who answered our survey cited an excessive amount of work and a dearth of resources as the primary reasons why comprehensive pain evaluations and recordings were not performed frequently and on each patient. This issue is further exacerbated by the fact that Pakistan has only 0.49 registered nurses for every 1,000 people, resulting in a severely understaffed health care system (Pakistan Human Resources for Health Vision 2018–2030). Therefore, significant changes will need to be made to Pakistan's health care system to address the challenges posed by its deteriorating infrastructure and limited supply of resources.[20,21]

As evidenced by this study, nurses working in POUs within the public sector in Pakistan encounter a range of barriers when it comes to evaluating and managing pain in a clinical setting. These challenges include a lack of knowledge, a severe shortage of human resources, inadequate availability of materials, and significant deficiencies in leadership support, among various other microlevel issues. In light of these challenges, it is crucial to recognize that oncology nurses are uniquely positioned to emphasize the importance of accurate and frequent pain assessment for their patients. They play a pivotal role in advocating for the necessity of comprehensive pain evaluation until the patient's pain is effectively alleviated.

Limitations

Several limitations are inherent in this study. As a cross-sectional investigation, it captured a singular perspective of nurses' knowledge, attitudes, and practices within a specific time frame. Longitudinal studies would offer a more dynamic understanding of the evolution of pain assessment practices over time. Furthermore, the study was confined to nurses functioning within public-sector POUs within specific Pakistani cities. Consequently, the generalizability of the findings to nurses in distinct health care settings or geographical regions may be restricted.

Conclusion

The findings of this study highlight the need for further training in pain assessment and management for pediatric oncology nurses within Pakistan's public-sector hospitals. To address challenges such as high workload, resource limitations, inadequate training, and education in pain management, and to prioritize effective pain control in pediatric oncology as a fundamental quality care indicator, the active engagement of hospital leadership and policymakers is crucial.

Authors' Contribution

B.A.K. contributed to conceptualization, design, definition of intellectual content, literature search, data acquisition, and manuscript preparation. W.F. contributed to data analysis, statistical analysis, and manuscript editing. M.M.S.M. reviewed and edited the manuscript. M.R.R. reviewed the manuscript.

Declaration and Statement

We confirm that the manuscript has been read and approved by all named authors, that the requirements for authorship have been met, and each author believes that the manuscript represents honest work. There were no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.

Patient Consent

Patient consent was not required for this study as it involved surveying nurses and did not include direct patient data.

Source of Funding

None.

Conflict of Interest

None declared.

Acknowledgments

We would like to thank Dr. Vashma Junaid, Dr. Misbah Baig, Dr. Natasha Baig, Dr. Rabel Gul, and Dr. Samarah Usman for their valuable guidance and support throughout this research project. We also extend our gratitude to the participants who generously shared their time and insights. This work was supported by the My Child Matters (MCM) grant by the Sanofi Espoir Foundation.

References

1 Tutelman PR, Chambers CT, Stinson JN, et al. Pain in children with cancer: prevalence, characteristics, and parent management. Clin J Pain 2018;34(03):198–206
2 Mathew PJ, Mathew JL, Singhi S. Knowledge, attitude and practice of pediatric critical care nurses towards pain: survey in a developing country setting. J Postgrad Med 2011;57(03):196–200
3 Shad A. PAIN MANAGEMENT IN CHILDREN. Published online 2016, at: https://siop-online.org/wp-content/uploads/2015/11/ICON-2016-Pain-Management.pdf Accessed on March 15, 2023
4 Kahsay H. Assessment and treatment of pain in pediatric patients. Published online January 30, 2017, at: https://www.currentpediatrics.com/articles/articles/articles/assessment-and-treatment-of-pain-in-pediatric-patients.html Accessed on March 18, 2023
5 The Royal Children's Hospital Melbourne. Pain assessment and measurement Clinical Guidelines (Nursing),. at: https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Pain_assessment_and_measurement/ Accessed on March 20, 2023
6 Beltramini A, Milojevic K, Pateron D. Pain assessment in newborns, infants, and children. Pediatr Ann 2017;46(10):e387–e395
7 Duffy EA, Dias N, Hendricks-Ferguson V, et al. Perspectives on cancer pain assessment and management in children. Semin Oncol Nurs 2019;35(03):261–273
8 Majeed MH, Nadeem R, Khokhar MA, Qaisar MN. Adequacy of pain control in patients with advanced cancer in Pakistan. J Palliat Care 2019;34(02):126–131
9 Malik M, Rizwan I, Hussain A. Health related quality of life among blood cancer patients in Pakistan: a cross sectional survey. Inquiry 2021;58:469580211025211
10 Swift A, Twycross A. Using ways of knowing in nursing to develop educational strategies that support knowledge mobilization. Paediatr Neonatal Pain 2020;2(04):139–147
11 Masoumi SJ, Masoumi SJ, Nasabi NA, Varzandeh M, Bordbar N. Gender equality among nurses: promotion strategies for gender equality. Journal of Health Management and Informatics (JHMI) 2020;7(04):252–258
12 Berry PH, Dahl JL. The new JCAHO pain standards: implications for pain management nurses. Pain Manag Nurs 2000;1(01):3–12
13 do Nascimento LA, Kreling MCGD. Avaliação da dor como quinto sinal vital: opinião de profissionais de enfermagem. Acta Paul Enferm 2011;24(01):50–54
14 Kiwanuka F, Masaba R. Nurses' knowledge, attitude and practices regarding pain assessment among patients with cancer at Uganda Cancer Institute. J Anal Res Clin Med 2018;6(02):72–79
15 Mwanza E, Gwisai RD, Munemo C. Knowledge on nonpharmacological methods of pain management among nurses at Bindura Hospital, Zimbabwe. Pain Res Treat 2019;2019:2703579
16 Dequeker S, Van Lancker A, Van Hecke A. Hospitalized patients' vs. nurses' assessments of pain intensity and barriers to pain management. J Adv Nurs 2018;74(01):160–171
17 Day S, Hollis R, Challinor J, Bevilacqua G, Bosomprah ESIOP PODC Nursing Working Group. Baseline standards for paediatric oncology nursing care in low to middle income countries: position statement of the SIOP PODC Nursing Working Group. Lancet Oncol 2014;15(07):681–682
18 Zisk-Rony RY, Lev J, Haviv H. Nurses' report of in-hospital pediatric pain assessment: examining challenges and perspectives. Pain Manag Nurs 2015;16(02):112–120
19 de Magalhães AM, Dall'Agnol CM, Marck PB. Nursing workload and patient safety–a mixed method study with an ecological restorative approach. Rev Lat Am Enfermagem 2013;21(Spec No):146–154
20 Khokhar MA, Ali MM, Liaqat S, Moin A, Sarwar HA, Sarwar MZ. A review of access to cancer facilities in Punjab, Pakistan. Cancer Rep 2020;3(03):e1245
21 Ministry of National Services. Regulations & Coordination. Pakistan Human Resources for Health Vision 2018–30. Published online April 4, 2018, at: https://phkh.nhsrc.pk/sites/default/files/2019-06/Pakistan%20Human%20Resources%20for%20Health%20Vision%202018.pdf Accessed March 25, 2023

