Pain KAP Study - Assessment of Knowledge, Attitude and Practice in Cancer Pain Management in North India

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Abstract:

Background: Pain management is critical in the everyday job of healthcare professionals who encounter patients who are in pain on a regular basis. To provide efficient pain treatment, these healthcare professionals must acquire extensive training and have a solid grasp of cancer-related pain. Regrettably, adherence to the World Health Organization's (WHO) treatment recommendations is frequently poor. Our research aims to analyze cancer patients' pain management understanding and practices, as well as medical oncologists' attitudes, knowledge, and practices in the context of pain treatment.

Methodology: The study involved the distribution of pain management tool questionnaires to oncologists (Consultant Oncologists, senior registrars) during their outpatient department (OPD) visits. The questionnaire comprised a total of 27 questions, which were a mix of multiple-choice and short-answer format.

Results: Despite the fact that many oncologists are acquainted with the WHO pain ladder and grading system, barely half of them use it on a regular basis. Only a few oncologists are knowledgeable with opioid dose, maximum dosage, and conversion formulas, while the others are only vaguely acquainted. In terms of hospital resources, the majority of oncologists have access to a pain management team; however, only a few of them engage with this team on a regular basis, and the vast majority never involve the pain management team in patient care choices.

Conclusion: Our findings indicate a lack of both knowledge and training in pain treatment. Because good pain management is a vital component of successful cancer therapy, we believe that pain management training should be prioritized within the oncology curriculum.

1. Introduction

The International Association for the Study of Pain (IASP) defines pain as an unwelcome experience that encompasses both sensory and emotional elements, linked to actual or potential harm to bodily tissues or expressed in connection with such harm. Individuals dealing with cancer often face multiple sources of discomfort in various areas. According to several surveys, as many as thirty-three percent of patients experience more than one type of pain, and eighty-one percent report two or more distinct instances of pain, with thirty-four percent dealing with multiple types [9,10]. Numerous studies have demonstrated the occurrence, intensity, pain relief extent, and impact on the quality of life among patients with various cancer types, including lung, colon, and ovarian cancers [11].

Effectively addressing the needs of cancer patients relies on a multidisciplinary approach involving diverse healthcare professionals [1-3]. The American Society of Clinical Oncology now recognizes pain control and palliative care as essential components of holistic cancer care for all patients with advanced solid malignancies [7]. Research suggests that early introduction of palliative care, along with effective pain control and comprehensive cancer management, can prolong patient survival and improve quality of life [8]. Effective pain management plays a critical role in comprehensive cancer care to achieve the best outcomes for patients. The World Health Organization (WHO) has issued global recommendations for the relief of cancer-related pain and supportive care [4-6]. However, it has been noted that these guidelines are not adequately followed.

According to results from the WHO and several domestic and international studies, 33% of cancer patients receiving active oncological treatment report experiencing moderate to severe pain, compared to 60% to 90% of patients with the disease in its advanced stages [14]. In India, an estimated 1 million cancer cases are diagnosed each year, and during the following 20 years, the cancer burden is predicted to nearly treble [15].

Similar to the scenario globally, 60% to 80% of patients in India who are now receiving diagnoses are found to be at an advanced stage, with 70% to 80% reporting pain [16]. Numerous people across the country continue to experience needless suffering as a result of poor pain management techniques, despite years of efforts by a small palliative care community to address the availability of pain-relieving drugs [17-19]. Less than 3% of Indian cancer patients were thought to have access to appropriate pain treatment over two decades ago [20].

The goals of pain management encompass pain relief, physical activities, potential side effects, appropriate drug usage, and emotional impact [21,22]. Every healthcare provider should be familiar with terms such as opioid-naive, opioid-tolerant patients, pain intensity scale, maximum recommended opioid dosages, adverse effects, and supplementary pain management approaches. Evaluating pain should be a routine part of regular assessments, focusing on factors like pain location, duration, severity, characteristics, factors that worsen or alleviate it, and how it affects daily activities.

Given the noticeable gap in adherence to pain management guidelines established by the World Health Organization (WHO), it is imperative to consistently implement interventions such as training and assessments that focus on cancer pain control protocols for physicians. It has been observed that a physician's familiarity with cancer pain management guidelines is associated with improvement in pain management practices [26].

The purpose of this survey was to evaluate the level of understanding among oncologists regarding cancer pain control guidelines, their adherence to these guidelines, the challenges encountered in Cancer Pain Management (CPM), their grasp of opioid analgesics' pharmacology, engagement with pain management teams, and their familiarity with alternative therapies for cancer pain. The main goal of this research was to assess the attitudes, knowledge, and practices of oncologists concerning the management of cancer-related pain.

2. Materials and Methods

This observational study was conducted within tertiary healthcare centers in New Delhi that house oncology departments. Its objective was to assess the comprehension of pain management techniques for cancer patients among medical, surgical, and radiation oncologists. A customized questionnaire focusing on pain management tools was created and completed by the participating oncologists. The questions were derived from a selection of previous studies and surveys [27,28,30,34,36]. The administration of the questionnaire occurred during Outpatient Department (OPD) visits. For individuals unable to complete the questionnaire during OPD visits, the questionnaires were emailed to their addresses.

The questionnaire contained a total of 27 questions in the format of multiple-choice or short-answer queries. These questions addressed various specific aspects of pain management, including:

a) Opioid dosages, toxicity, and addiction;

b) Transitioning from parenteral morphine to oral administration;

c) Adherence to the World Health Organization (WHO) pain ladder;

d) Evaluation of pain;

e) Perceived barriers to prescribing opioid analgesics;

f) Utilization of alternative modalities.

The design of the questionnaire aimed to ensure completion within approximately 15 minutes. This time frame was chosen to align with the optimal range of web survey filling time (10 to 20 minutes). Providing responses to all questions was mandatory for successful submission.

After collecting the data, it was processed and analyzed using SPSS-20. Descriptive statistics were utilized to interpret the test statistics. Quantitative data was presented as the mean and standard deviation from the mean. Additionally, accuracy, sensitivity, positive predictive value, and negative predictive value were calculated using standard formulas based on a contingency table.

This observational research study was conducted within tertiary care centers, specifically within the departments of medical, surgical, and radiation oncology, located in New Delhi.

The primary participants in this study consisted of consultant oncologists, senior registrars who had recently completed oncology training and third year residents/oncology trainees (across medical, surgical, and radiation oncology), distribution showed in Figure 1a. This study primarily encompassed medical oncologists, surgical oncologists, radiation oncologists, senior registrars (specializing in oncology) and third year oncology trainees. While individuals those who declined to participate, oncologists in administrative and research roles, oncology trainees in their first and second years and pediatric oncologists were excluded from the study. As this study was designed as a pilot investigation and drew on response rates from previous studies, a total of 100 oncologists were engaged in the evaluation. The study spanned a period of two years, commencing from July 2018 and concluding in June 2020 with No specific interventions or treatments.

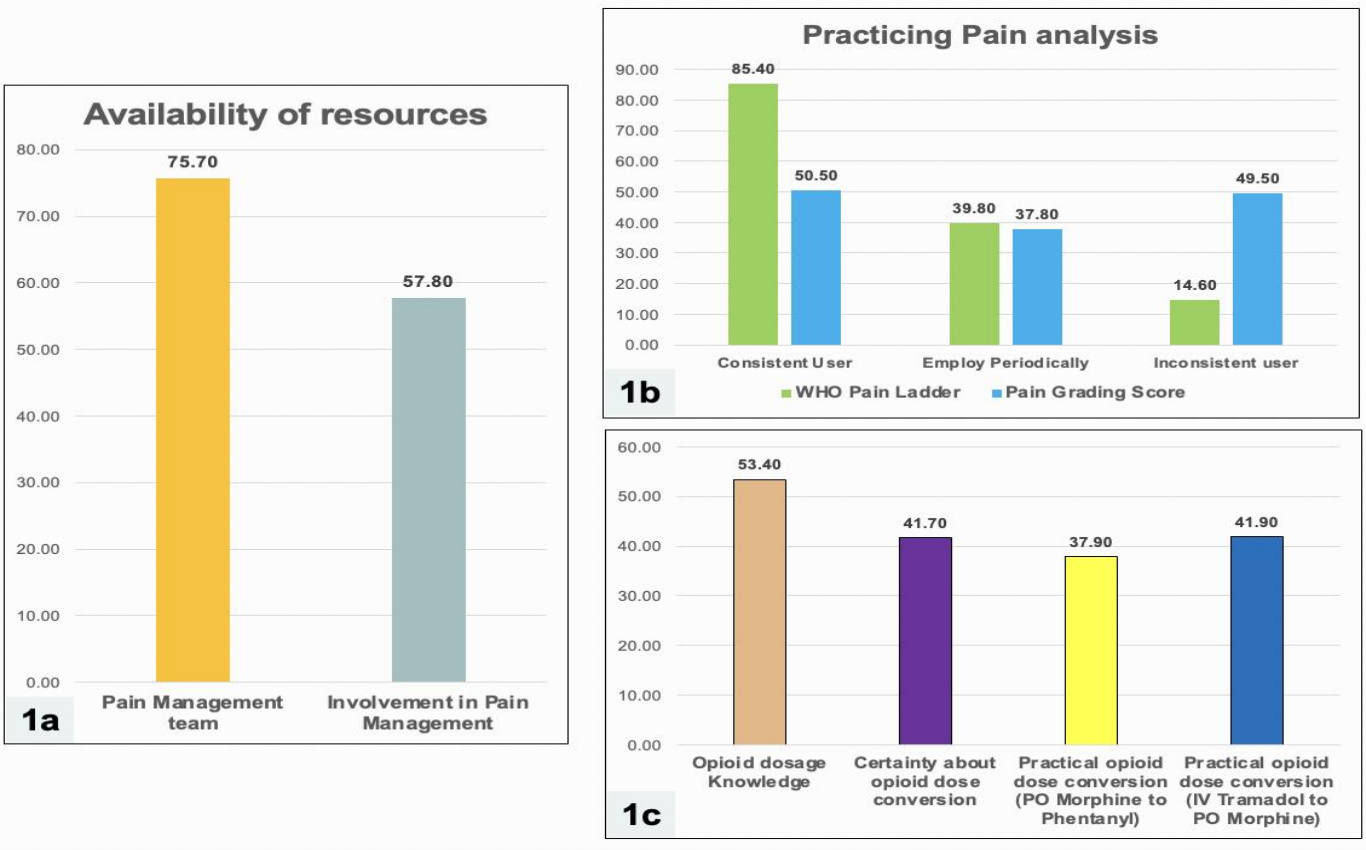

Figure 1:

A questionnaire focusing on pain management was developed and administered to the participating oncologists. The questionnaire was accessible in offline and online formats, allowing participants to choose their preferred mode of completion. All pertinent information was gathered according to the content of the prepared questionnaire. For data analysis, descriptive statistics were employed. In addition, the appropriate method, either Pearson chi-square test or Fisher's Exact Test, was applied to explore associations between categorical variables.

3. Results

In our study, a total of 103 oncologists responded to the questionnaire. Among the respondents, the majority were medical oncologists (69.9%), and a significant portion was resident doctors (65.04%). Answers recorded are tabulated in Table 1 and 2. While a substantial portion of oncologists (85.4%) are aware of the WHO pain ladder, only 53.4% consistently utilize it, with 39.8% employing it periodically.

Table 1:

1a

Sr No	Questions	Answer	Total Responses	Correct Response	Incorrect Response	No response
1	Any patient who is given opioids for pain relief is at a 25% or more risk for addiction?	FALSE	103	68	23	12
2	When opioids are taken on a regular basis, respiratory depression is rare?	TRUE	103	71	22	10
3	Doses of opioid for breakthrough pain should be 10% of the total daily dose (every 1 hour to 2 hours as needed)?	TRUE	103	78	19	6
4	Physical dependence while on oploid is a sign of addiction?	FALSE	103	75	21	7
5	Patient who complain of pain out of proportion to its cause are usually substance abusers?	FALSE	103	73	20	10
6	Increasing request for analgesics usually indicates unrelieved pain?	TRUE	103	79	18	6
7	Morphine for cancer pain shortens life but makes people more comfortable?	FALSE	103	40	61	2

1b

St No	Questions	Answer	Total Responses	Correct Response	Wrong Response
1	100 MG morphine is equivalent to ... MCG of fentanyl patch	50	103	39	64
2	300 MG Tramadol is equivalent to ... MG of morphine	30	103	43	60
3	Maximum dose of Tramadol ..... MG	400	103	86	17
4	Maximum dose of morphine	No maximum dose	103	47	56

Table 2:

2a

Sr No	Questions	Total Responses	YES	NO	Others
1	Are you well versed with the WHO ladder of pain management?	103	88	15	Not Applicable
2	Do you know the ceiling dose of opioid?	103	33	15	55 (Not of all drugs)
3	Are you aware of the maximum tolerating doses of neuropathic drugs like Pregabalin?	103	69	6	28 (Somewhat)
4	Do you have pain management team in your hospital?	103	78	25	Not Applicable
5	Do you frequently refer to them?	103	31	44	29 (Sometimes)

2b

Sr No	Questions	Total Responses	Always	Sometimes	Never
1	How frequently do you use WHO ladder for pain management?	103	55	7	41

	2	How often do you use pain gradation score to decide pain management?	103	52	2	49
2c	Sr No	Questions	Total Responses	12 Hour	24 Hour	Not Daily
	1	How frequently you assess to see pain control?	103	22	66	15
2d	Sr No	Questions	Confident		Somewhat	Don't Know
	1	Are you confident of conversion doses of oral opioids to another or weak opioids to strong aploids? N=103	43		19	41

Concerning pain gradation scores, 50.5% of oncologists consistently use them, while 47.6% do so intermittently. Regarding the knowledge of opioid dosing, only 32% of oncologists are aware of the ceiling doses, and 53.4% acknowledge partial familiarity with them. This study also shows that confidence levels vary, with only 41.7% feeling assured about various conversion doses and formulas, while 39.8% are uncertain about the conversion process. In terms of specific conversions, merely 37.9% of oncologists accurately converted oral morphine doses to fentanyl patches, and 41.7% correctly converted IV tramadol to oral morphine equivalents. Understanding maximum tolerated doses is varied, with 83.5% correctly recognizing tramadol's limits, while just 45.6% accurately noted that there is no maximal dose for morphine.

Many true/false questions were correctly answered by a majority of oncologists. Regarding hospital infrastructure, 75.7% of oncologists have access to a pain management team. However, only 29.4% frequently engage this team, while nearly 42.2% never involve the pain management team in patient care decisions.

4. Discussion

This study aims to evaluate oncologists' current practices, attitudes, and knowledge regarding cancer pain management. This assessment serves as an initial step in developing educational initiatives for better pain relief in cancer patients. It's the first survey to explore oncologists in the Delhi-National Capital Region, including those in medical, radiation, and surgical fields, focusing on their familiarity, attitudes, and challenges related to prescribing opioid analgesics.

Out of a total of 395 oncologists, only 103 participated in the survey by responding to the questionnaire, yielding a response rate of 26.07%. When compared with response rates from other studies, such as 10.4% by Shalini Singh et al [33], 33% for Brenda Breuer et al's study [29], 57% by LP Ger et al [27], 90.9% for Zhang Q et al [28], and 74.5% for Rama Sapir et al's study [32]; it becomes evident that the variance in response rates is attributed to differences in the studied populations. Within the medical oncology category, the respondents consisted of 08 senior consultants, 15 senior registrars, and 49 trainees.

In radiation oncology, the respondents comprised 2 senior consultants, 4 senior registrars, and 7 junior oncology trainees. As for surgical oncology, there were 2 senior consultants, 5 senior registrars, and 11 oncology trainees. Notably, a majority of respondents in the survey were oncology trainees specializing in medical oncology.

Our investigation demonstrates that a significant portion, 85.4%, of oncologists possess awareness and a strong understanding of the World Health Organization (WHO) pain management ladder. In contrast, a study conducted by S Singh [33] et al reveals that only 54.9% of physicians are acquainted with the WHO ladder. This discrepancy can be attributed to the fact that our study focused exclusively on oncologists, whereas Singh's study encompassed physicians from all fields. In China, a study conducted by Zhang Q [28] et al reported that 72% of physicians were familiar with the WHO Ladder. However, despite the majority of oncologists being cognizant of the WHO ladder, only 53.4% of them consistently employ it, while 39.8% use it intermittently.

Within our study, 50.5% of oncologists consistently employ a pain gradation score, while 47.6% do so occasionally. In contrast, the study by Zhang Q [28] et al reveals that 95% of physicians employ a pain gradation score. It is essential for every oncologist to be familiar with pain gradation scores, as pain management strategies differ accordingly. A pain gradation score of 0 to 3 signifies mild

pain and aligns with the management protocol of WHO pain ladder 1 using NSAIDs. Pain gradation scores of 4 to 6 indicate moderate pain and align with WHO pain ladder 2 utilizing NSAIDs and mild opioids. Finally, pain gradation scores of 7 to 10 indicate severe pain, prompting the application of WHO pain ladder 3 involving strong opioids.

A mere 32% of oncologists possess knowledge of opioid ceiling doses, while 53.4% acknowledge having only partial knowledge of these limits. It is crucial for all oncologists to be well-versed in the maximum allowable doses of opioids. This awareness is paramount as many healthcare providers administer sub-optimal opioid doses due to concerns over side effects, tolerance, addiction, and availability.

In a comprehensive survey conducted across multiple Indian tertiary cancer hospitals involving 1600 patients, it was noted that 67% of patients reported inadequate pain management [25]. Correspondingly, a study by LP Ger [27] et al found that 66% of patients receive insufficient treatment, and an RTOG study led by Cleeland CS [37] et al revealed that 83% of oncologists believed that a majority of cancer patients with pain were not receiving adequate medication.

In our investigation, a notable 64.1% of oncologists engage in daily pain assessment, a pattern congruent with the findings of Zhang Q (28) et al. Moreover, only 41.7% of oncologists exhibit confidence in various conversion doses and formulas, encompassing the transition from weak to potent opioids, short-acting to long-acting opioids, and parenteral to oral opioids. Conversely, 39.8% of oncologists lack knowledge of the conversion formulas. Within our study, a mere 37.9% of oncologists accurately converted oral morphine doses to fentanyl patch equivalents, while 41.7% successfully converted IV tramadol to its oral morphine equivalent. This aspect of opioid conversion is crucial, particularly given that IV morphine is recommended for severe pain due to its rapid onset within 15 minutes. However, many healthcare professionals struggle with the conversion of IV morphine to the oral form.

Our study indicates that a substantial 83.5% of oncologists possess awareness of the maximum tolerated doses for tramadol, whereas a mere 45.6% provided the accurate response regarding morphine, recognizing that there exists no maximum dose for it. Additionally, 67% of oncologists are familiar with the maximum tolerable doses of neuropathic medications like pregabalin. While these antiepileptic and antidepressant drugs aren't first-line treatments and function as adjuvant pain management options, it remains crucial for every physician to understand their potential side effects, maximum dosage thresholds, and contraindications.

Patients often avoid morphine fearing addiction, leading doctors to under-dose opioids or choose milder options. This stems from misconceptions. Our study, with seven true/false questions, addresses these myths. Notably, 10-15% of patients prescribed opioids face addiction risk. In our study, 66% of oncologists correctly answered that opioid use doesn't pose a 25% or higher addiction risk, while 22.3% provided incorrect responses.

When prescribing opioids, a comprehensive pain assessment should be conducted. This involves evaluating the patient's prior history of substance abuse and performing a psychosocial assessment. Certain patient profiles, such as those who are young, possess prior psychiatric conditions, have a history of alcohol dependence, or were previous substance abusers, are more susceptible to addiction [39]. Within our survey, 68.9% of oncologists concurred that regular use of opioids seldom leads to respiratory depression. This finding aligns with the observations made in the study conducted by R Gallagher [34] et al, where 79.5% of physicians shared the sentiment that respiratory depression is infrequent among patients who use opioids regularly. In routine clinical practice, there is also a tendency to under-dose drugs like morphine due to concerns surrounding respiratory depression.

The occurrence of physical dependence during opioid use does not necessarily indicate addiction. This fact was accurately recognized by 72.8% of oncologists in our study, a response consistent with the findings of the research conducted by R Gallagher [34] et al. Moreover, the understanding that opioids can be safely prescribed to individuals experiencing chronic cancer pain along with a coexisting substance use disorder was linked to having knowledge about the nature of addiction [33].

As per the NCCN guidelines, Breakthrough pain refers to episodic pain that remains unmanaged by current pain treatment regimens. This category of pain encompasses incident pain and spontaneous breakthrough pain [40]. In a survey involving 1000 oncology patients, 44% of the respondents reported experiencing incident pain, 41.5% indicated experiencing spontaneous pain, while the remaining participants reported both types of pain. In our study, 75.7% of oncologists provided accurate responses concerning breakthrough pain.

This contrasts with the findings from the research conducted by R Gallagher [34] et al, where only 55% of physicians correctly answered questions related to breakthrough pain.

In our survey, a significant majority of oncologists, accounting for 70.9%, hold the viewpoint that patients who express pain disproportionate to its cause are not necessarily substance abusers. Additionally, a substantial proportion, 76.7%, of oncologists agrees that an increased request for analgesics typically indicates unresolved pain. Furthermore, 59.2% of oncologists concur that the utilization of Morphine for cancer pain not only brings comfort but also enhances the quality of life, contrary to the misconception that it shortens life.

Pain management constitutes an essential aspect of palliative care and is even considered the fifth vital sign [23]. Among the various interventional strategies, options like nerve blocks, regional infusions via intrathecal administration, deep brain stimulation, epidural approaches, and surgical procedures such as percutaneous vertebroplasty and regional plexus are employed. These interventions become necessary when pain remains uncontrolled despite opioid usage. Hence, the establishment of a pain management team within each hospital catering to cancer patients is paramount.

Our study indicates that 75.7% of oncologists have a pain management team present in their respective hospitals. However, only 29.4% of them frequently refer to this team, while 42.2% never involve the pain management team in patient care decisions. Consultation for interventional strategies becomes pertinent in cases where medical treatment fails to provide adequate analgesia and when nerve blocks can yield effective pain relief, such as employing a celiac plexus block for pancreatic cancers.

5. Conclusion

Our study identifies knowledge and training gaps in pain management among oncologists. Despite their involvement in cancer pain management, there's limited mastery of appropriate opioid use, adherence to WHO guidelines, and familiarity with conversion formulas. These findings highlight the urgent need for comprehensive pain management training in oncology education in India.

Promoting a positive attitude among oncologists towards cancer pain management is crucial. Encouraging multidisciplinary collaboration with other specialists can enhance patient care. In the context of the COVID era, pain management conferences, Continuing Medical Education (CME) sessions, seminars, workshops, and webinars can bridge knowledge gaps and provide a holistic understanding of cancer management. Given that effective pain management is a significant outcome of successful cancer therapy, we advocate for increased pain management training within the oncology curriculum.

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References

1. Foley K, Gelband H, eds. Institute of Medicine. Washington, DC: National Academies Press. 2001.
2. NIH State-of-the-Science Conference Statement on improving end of life care. NIH Consens State Sci Statements. 2004; 21(3): 1-26.
3. Ong CK, Forbes D. Embracing Cicely Saunders's concept of total pain. BMJ. 2005; 331(7516): 576.
4. World Health Organization. Cancer Pain Relief. 2nd ed. Geneva, Switzerland: World Health Organization; 1996.
5. Ferrell BR, Temel JS, Temin S, Alesi ER, Balboni TA, Basch EM, et al. Integration of palliative care into standard oncology care: American Society of Clinical oncology clinical practice guideline update. J Clin Oncol. 2017; 35(1): 96-112.
6. Dans M, Smith T, Back A, Baker JN, Bauman JR, Beck AC, et al. NCCN guidelines insights: palliative care, version2.2017. J Natl Compr Canc Netw. 2017; 15(8): 989-97.
7. Jordan K, Aapro M, Kaasa S, Ripamonti CI, Scotté F, Strasser F, et al. European Society for Medical Oncology (ESMO)position paper on supportive and palliative care. Ann Oncol. 2018; 29(1): 36-43.

8. Temel JS, Greer JA, Muzikansky A, Gallagher ER, Admane S, Jackson VA, et al. Early palliative care for patients with metastatic non-small-cell lung cancer. N England Journal Med. 2010; 363(8): 733-42.
9. Sanft TB, Von Roenn JH. Palliative care across the continuum of cancer care. J Natl Compr Canc Netw. 2009; 7(4): 481-7.
10. Swarm RA, Abernethy AP, Anghelescu DL, Benedetti C, Buga S, Cleeland C, et al. Adult cancer pain. J Natl Compr Canc Netw. 2013; 11(8): 992-1022.
11. Fitzmaurice C, Allen C, Barber R, Barregard L, Bhutta ZA, Brenner H, et al. Global Burden of Disease Cancer Collaboration. Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life-years for 32 cancer groups, 1990 to 2015: a systematic analysis for the global burden of disease study. JAMA Oncol. 2017; 3(4): 524-48.
12. Foley KM. How well is cancer pain treated? Palliat Med. 2011; 25(5): 398-401.
13. Foley KM. Acute and chronic cancer pain syndromes. Oxford Textbook of Palliative Medicine 3rded. New York: Oxford Unversity Press; 2004: 298.
14. Zimmermann C, Swami N, Krzyzanowska M, Hannon B, Leighl N, Oza A, et al. Early palliative care for patients with advanced cancer: a cluster-randomized controlled trial. Lancet 2014; 383(9930): 1721-30.
15. Mallath MK, Taylor DG, Badwe RA, Rath GK, Shanta V, Pramesh CS, et al. The growing burden of cancer in India: Epidemiology and social context. Lancet Oncol. 2014; 15: e205-e212.
16. Rana S, Gupta R, Chaudhary P, et al. Cancer pain management: basic information for the young pain physicians. Indian J Palliat Care. 2011; 17: 127-30.
17. Manjiani D, Paul DB, Kunnumpurath S, Kaye AD, Vadivelu N. Availability and utilization of opioids for pain management: Global issues. Ochsner J. 2014; 14: 208-15.
18. Human Rights Watch: Unbearable pain: India's obligation to ensure palliative care.
19. Joranson DE, Rajagopal MR, Gilson AM. Improving access to opioid analgesics for palliative care in India. J Pain Symptom Manage. 2002; 24: 152-9.
20. Rajagopal MR, Joranson DE, Gilson AM. Medicaluse, misuse, and diversion of opioids inIndia. Lancet. 2001; 358: 139-43.
21. Stalnikowicz R, Mahamid R, Kaspi S, Brezis M. Undertreatment of acute pain in the emergency department: a challenge," International Journal for Quality in HealthCare. 2005; 17(2): 173-6.
22. Howell D, Butler L, Vincent L, Watt-Watson J, Stearns N. Influencing nurses' knowledge, attitudes, and practice in cancer pain management,"CancerNursing. 2000; 23(1): 55-63.
23. Walid MS, Donahue SN, Darmohray DM, Hyer Jr. LA, RobinsonJr. JS. The fifth vital sign-what does it mean? PainPractice. 2008; 8(6): 417-22.
24. Von Roenn JH, Cleeland CS, Gonin R, Hatfield AK, Pandya KJ. Physician attitudes and practice in cancer pain management: A survey from the Eastern Cooperative Oncology Group. Ann Intern Med. 1993; 119(2): 121-6.
25. Doyle KE, El Nakib SK, Rajagopal MR, Babu S, Joshi G, Kumarasamy V, et al. Predictors and prevalence of pain and its management in four regional cancer hospitals in India. J Glob Oncol. 2018; 4: 1-9.
26. Kim DY, SeokAhn J, Kim SY, Kim YC, Lee J, Kim SY. A Nationwide Survey of Knowledge of and Compliance with Cancer Pain Management Guidelines by Korean Physicians.Cancer Res Treat. 2014; 46(2): 131-140.
27. Ger LP, Ho ST, Wang JJ. Physicians' knowledge and attitudes toward the use of analgesics for cancer pain management: a survey of two medical centers in Taiwan. J Pain Symptom Manag. 2000; 20(5): 335-44.
28. Zhang Q, Yu C, Feng S, Yao W, Shi H, Zhao Y, Wang Y. Physicians' practice, attitudes toward, and knowledge of Cancer pain Management in China. Pain Med. 2015; 16(11): 2195-03.
29. Breuer B, Fleishman SB, Cruciani RA, Portenoy RK. Medical oncologists' attitudes and practice in cancer pain management: a national survey. J ClinOncol. 2011; 29(36): 4769-75.

30. Ahmad M. Samara1, Haneen A. Toba1 and Sa'ed H. Zyoud 2,3 Physicians' knowledge, perceived barriers, and practices regarding cancer pain management: a cross-sectional study from Palestine Applied Cancer Research. 2018; 38: 15.
31. Jho HJ, Kim Y, Kong KA, Kim DH, Choi JY, Nam EJ, Choi JY, et al. Knowledge, practices, and perceived barriers regarding cancer pain management among physicians and nurses in Korea: a nationwide multicenter survey. PLoSOne. 2014; 9(8): e105900.
32. Sapir R, Catane R, Strauss-Liviatan N, Cherny NI. Cancer pain: knowledge and attitudes of physicians in Israel. J Pain Symptom Manag. 1999; 17(4): 266-76.
33. Singh S, Prasad S, Bhatnagar S, Lal R, Choudhary N, Sahi MS, et al. A Cross Sectional WebBased Survey of Medical Practitioners in India to Assess their Knowledge, Attitude, Prescription Practices, and Barriers toward Opioid Analgesic Prescriptions.Indian J PalliatCare.
34. Gallagher R, Hawley P, Yeomans W. A survey of cancer pain management knowledge and attitudes of British Columbian physicians.Pain Res Manag. 2004; 9(4): 188-94.
35. Khan F, Ahmad N, Kamal AM, Kamal AM. physicians knowledge and attitude of opioid availability, accessibility and use in pain management in Bangladesh. Bangladesh Med Res Counc Bull. 2014; 40: 18-24.
36. Srisawang P, Harun-Or-Rashid M, Hirosawa T, Sakamoto J. Knowledge, attitudes and barriers of physicians, policy makers/regulators regarding use of opioids for cancer pain management in Thailand. Nagoya J Med Sci. 2013; 75((3–4)): 201-12.
37. Cleeland CS, Janjan NA, Scott CB, Seiferheld WF, Curran WJ. Cancer pain management by radiotherapists: A survey of radiation therapy oncology group physicians. Int J RadiatOncolBiol Phys. 2000; 47: 203-8.
38. Nasser SC, Nassif JG, Saad AH. Physicians' attitudes to clinical pain management and education: Survey from a Middle Eastern Country. Pain Res Manag. 2016; 2016: 1358593.
39. Anghelescu DL, Ehrentraut JH, Faughnan LG. Opioid misuse and abuse: risk assessment and management in patients with cancer pain . J Nati Compr Canc Netw 2013; 11: 1023-31.
40. Davies A, Buchanan A, Zeppetella G, et al. Breakthrough cancer pain; an observational study of 1000 Europian oncology patients. J Pain Symptom Manage. 2013; 46:619-628.