

## Evaluating pain management practices for cancer patients among health professionals

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# **Evaluating Pain Management Practices for Cancer Patients Among Health Professionals: A Global Survey**

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## **Abstract**

### Background:

Cancer incidence in the world is predicted to increase in the next decade. While progress has been in diagnosis and treatment, much is still remains to be done to improve cancer pain therapy, mainly in underserved communities in low income countries.

### Objective:

To determine knowledge, beliefs and barriers regarding pain management in both high and low income countries (according to the WHO classification); and to learn about ways to improve the current state of affairs.

### Design:

Descriptive survey

### Setting/Subjects:

56 countries worldwide; convenience sample of 1,639 consisted of 36.8% physicians; 45.1% nurses and 4.5% pharmacists employed in varied settings.

### Results:

Improved pain management services are key elements. Top barriers include religion factors, lack of appropriate education and training at all levels, non-adherence to guidelines, patients reluctance to report on pains, over regulation associated with prescribing and access to opioid anangetics, fear of addiction to opioids, lack of discussions around prognosis & treatment planning.

### Conclusion:

The majority of patients with cancer in low income countries are undertreated for their pain. Promoting cancer pain accredited program of training and education on pain management for physicians and nurses is crucial; as well as advocating policymakers and the public at large.

**Keywords: cancer, pain, management, global, opioids**

## **Introduction**

Pain is one of the most common symptoms in cancer patients. Cancer pain often increases the level of anxiety and depression, and feelings of depression can worsen cancer pain. Patients need a personal approach when it comes to controlling pain. Routinely, a team of palliative care providers help to alleviate cancer patients' pain; this includes physicians, nurses, mental health specialists, social workers, as well as pharmacists and chaplains.

While hospitalized, cancer patients, for the most part, receive appropriate treatment for pain by qualified personnel, be it palliative care specialists or anesthesiologists; yet often problems arise upon the patients' return home as, Family Physicians, Pediatricians, Internal Medicine Specialists and community Nurses lack the adequate training, experience and skills required to manage medication effectively. Thus, primarily physicians and nurses, are well-situated to meet the

growing demands of new cancer cases. To date we still lack data clarifying what hinders the alleviation of suffering and improving the quality of life (QOL) for cancer patients and their families.<sup>1</sup>

The present survey examines professionals' duties, barriers, preferred methods of training, clinical practices, rate of satisfaction and regional differences (according to WHO classifications).

## **Methods**

The Middle East Cancer Consortium (MECC) collaborated with its trustees who participated in several MECC training courses, to generate a convenience sample of professionals who were actively involved in caring for cancer patients: oncologists, oncology nursing and palliative care professional. All of them were involved in pain care in their daily practice, being it in hospitals or in the community. These trustees invited experienced health care professionals in 56 countries, to lead and coordinate a survey in each of their respective countries, in order to determine the participant's eligibility to be part of this survey, there were specific questions in the questionnaire asking: What is your main profession; How frequently do you currently treat cancer patients who have pain; Do you use pharmacological agents in management of cancer pain; Did you receive training for management of cancer pain. The Technion's (Israel Institution of Technology) Behavioral Sciences Research Ethics Committee approved this study (No. 2018-043).

## **Instrument Development**

This survey was questionnaire-based and required no other intervention involving the respondents. Coordinators translated surveys from English into Arabic, Farsi, Spanish, Russian, Turkish and Portuguese and professional specialists performed back-translation for validity. The construct validity and reliability of the tool were approved using exploratory factor analysis (EFA) and internal consistency measurements.

## **Data collection and data analysis**

Survey forms were disseminated via email and analysis was stratified according to the WHO geographic region.

Three "outcomes" were selected: pain assessment, barriers to opioid use, and knowledge. These outcomes were chosen as these parameters would best reflect the overall quality of cancer pain management.

Statistical analysis using Kolmogorov-Smirnov and Shapiro-Wilk tests determined that the data was not evenly distributed. In addition, Levene statistics showed unequal variance across groups; therefore, conducting nonparametric tests (Mann-Whitney) was deemed appropriate. Three outcomes (pain assessment score, perceived barriers score, opioid knowledge score) were selected to compare the High Opioid Consumption Group (Group 1) and the Low Opioid Consumption Group (Group 2).

Countries were stratified by six WHO geographical regions and survey subscales were compared between Groups 1 and 2. Data was entered into SPSS (Statistical Package for Social Sciences) software. Analyses were performed using Statistical Analysis System (SAS) software. Mann-Whitney tests were performed on binomial/categorical variables for group comparisons. Analysis

of variance was employed to test WHO group differences. Statistical significance level was set at  $p < 0.05$ .

### Countries Represented

The current survey involved 56 countries across six WHO Regions: Africa = 5 (8.93%); the Americas = 13 (23.21%); South-East Asia = 3 (5.36%); Eastern Mediterranean = 11 (19.64%); European = 20 (35.71%); and Western Pacific = 4 (7.14%)<sup>2</sup>.

Concerning the morphine per capita consumption. The Region of the Americas with 22.0 mg per capita and the European Region with 13.8 per capita, represented the High Opioid Consumption Group (Group 1), comprised 62.05% of respondents surveyed. On the other hand, the African, Southeast Asia, Eastern Mediterranean and Western Pacific Regions, with per capita consumption ranging from 0.21mg to 0.73mg, represented the Low Opioid Consumption Group (Group 2) and comprised 37.95% of all respondents surveyed.

When asked about satisfactory outcome of therapy for cancer pain, the majority of respondents in the high consumption countries ( $M=81.29$ ;  $SD \pm 15.68$ ) answered favorably, whereas in the low consumption countries, the response was significantly lower ( $M=59.04$ ;  $SD \pm 24.11$ ,  $<0.001$ ) (Table 1).

**Table 1: Report of care givers about the percentage of patients who could achieve satisfactory outcome versus the actual level of patients who achieved a satisfactory outcome**

		Mean $\pm$ SD %	Mann-Whitney Test	
			Z	Sig. (2-t.)
Could acheive	High	81.29 $\pm$ 15.68	19.27	<0.001
	Low	59.04 $\pm$ 24.11		
Actually acheived	High	70.53 $\pm$ 17.36	10.69	<0.001
	Low	38.80 $\pm$ 23.17		

The feasibility of the division of regions is confirmed by the perceived ratio of the three “outcome” indicators: pain assessment practices, perceived barriers to opioid use and opioid knowledge are as shown in Table 2.

**Table 2: The ratio of the three outcomes indicators: pain assessment practices, perceived barriers to opioid use and opioid knowledge**

		Mean $\pm$ SD %	Mann-Whitney Test	
			Z	Sig. (2-t.)
Outcomes	High	4.42 $\pm$ 1.79	-1.87	<0.001
	Low	4.18 $\pm$ 1.89		
Perceived barriers	High	13.39 $\pm$ 3.14	-7.08	<0.001
	Low	12.26 $\pm$ 3.41		
Use of opioids	High	4.05 $\pm$ 1.30	-7.61	<0.001
	Low	4.51 $\pm$ 23.17		

Responses related to the three aspects of cancer pain screening: Type, Intensity and Impact on daily life activities, varied by the degree of morphine consumption.

In the high consumption countries, a majority of participants responded positively to all questions, while the responses from low consumption countries slightly differed.(Table 3).

**Table 3. Screening for Cancer Pain and Assessment of Type, Intensity and Impact on Daily Life Activities of Cancer Pain with Goals and Expectation of Pain Management, Discussed with Patient and Patients' Relatives**

Cancer Pain Screening as to Type, Intensity and Impact on Daily Life Activities; Goals and expectations of Pain Management discussed with Patients and their families		Group 1 WHO Regions with High Opioid Consumption			Group 2 WHO Regions with Low Opioid Consumption					TOTAL All
		Americas	Europe	TOTAL	Africa	Southeast Asia (India)	East Mediterranean	Western Pacific	TOTAL	
Routine Screening for Cancer Pain										
Yes	n	208	525	733	17	4	292	116	429	1162
	%	71.23	72.71	72.29	68	16.67	75.65	62.37	69.08	71.07
Routine Assessment of Cancer Pain Intensity										
Yes	n	235	616	851	19	23	278	162	482	1333
	%	80.48	85.32	83.93	76	95.83	72.02	87.1	77.62	81.53
Routine Assessment of Type of Cancer Pain										
Yes	n	214	530	744	18	24	292	115	449	1193
	%	73.29	73.41	73.37	72	100	75.65	61.83	72.3	72.97
Routine Assessment of the impact of Cancer Pain on daily life activities										
Yes	n	242	550	792	14	23	275	138	450	1242
	%	82.88	76.18	78.11	56	95.83	71.24	74.19	72.46	75.96
Goals and expectations of Cancer Pain management are discussed with patients										
Yes	n	190	477	667	16	24	235	125	400	1067
	%	65.07	66.07	65.78	64	100	60.88	67.2	64.41	65.26
Goals and expectations of Cancer Pain management are discussed with patients' families										
Yes	n	205	429	634	12	24	245	108	389	1023
	%	70.21	59.42	62.52	48	100	63.47	58.06	62.64	62.57

Physicians reporting outcomes on pain assessment questions pointed to the pain quantification test via numeric scale as the most commonly used: 83.93% in high consumption countries and 77.62% in low consumption countries.

Barriers identified as patient-related barriers to opioid use included: patients' reluctance to report pain, Group 1- 19.6%, Group 2- 34.5%, excessive regulations of opioid drugs, Group 1- 22.86%, as compared to Group 2- 41.18%, fear of addiction (47.36%) for both groups of countries; whereas physician-related barriers to opioid use (Group 1- 29.25%; Group 2- 43.30%); and reluctance to prescribe opioids because of strict country-wide regulations (34.85%) in both groups of countries.

When questioned about the source of knowledge of the use of opioids to manage cancer pain. Training on opioid use in medical school was reported by 10.93% and 7.08% of respondents in Groups 1 and 2, respectively. Group 1, which was comprised of more healthcare professionals (32.55%) than Group 2 (10.80%) learned about opioid use for treating pain during their postgraduate training. No training was reported among Group 2 (13.98%) than Group 1 (10.25%).

When physicians were asked what guidelines they follow when treating their patients' pain, in group 1- 80.43% indicated that they are using guidelines; versus 71.62% in group 2. In the former group the WHO guidelines were more in use; whereas in the latter group, institutional guidelines were more commonly used (28.06% as compared to 22.62%).

In response to the questions regarding the use of opioids as the first-line treatment for moderate to severe pain. 71.32% reported "agree" in both groups, whereas 42.04% agreed that opioids are more effective for the treatment of neuropathic pain. Also 55.26% of respondents in group 1, and 82.80% in group 2 agreed that, in order to minimize side effects of opioids, non-opioid and non-pharmacological measures should be used. The overall average opioid knowledge score was  $4.20 \pm 1.31$  out of 6 (Table 4).

Table 4. Average Opioid Knowledge Scores									
	Average Opioid Knowledge Scores according to WHO Region						Average Opioid Knowledge Scores comparing Groups 1 and 2		
	Africa	Americas	S.East Asia	East. Medit.	Europe	West. Pacific	1 High (AmrEur)	2 Low (AfAs2Wp)	Total
N	25	293	24	386	724	187	1017	622	1639
Mean $\pm$ SD	4.16 $\pm$ 1.18	4.10 $\pm$ 1.12	5.08 $\pm$ 0.65	4.39 $\pm$ 1.37	3.98 $\pm$ 1.37	4.66 $\pm$ 1.03	4.02 $\pm$ 1.31	4.49 $\pm$ 1.26	4.20 $\pm$ 1.31

When asked about details of their clinical practice, 71.07% of respondents from both groups of countries indicated that their patients are screened for pain, while 72.97% seek to identify the type of pain (neuropathic, somatic, etc.) Only 65.26% of respondents in both groups, discuss goals and expectations of pain management.

### Barriers

Regarding the perceived significance of potential barriers to the treatment of cancer pain lack of pain/palliative medicine services and inadequate knowledge among healthcare workers were deemed "highly significant" barriers by 46.60% of respondents and at least "moderately significant" by 36.14% of respondents.

### Barriers related to patient factors

Respondents perceived that 67.21% of cancer patients reliably report their pain intensity and that 72.84% of patients could achieve a satisfactory outcome. More healthcare professionals in Group 1 believed that a higher percentage of patients routinely report their pain intensity more than those in Group 2 (83.93% v. 77.62%). Patients' reluctance to report pain (25.54%), patients'

reluctance to take opioids (31.79%) and patients' inability to pay (31.27%) were identified as at least moderately significant barriers (Table 3).

Fewer respondents in Group 1 considered patient-related barriers (patient reluctance to report pain or take opioids) as a "significant barrier" compared to Group 2 respondents (19.61 v. 34.48%). Fewer respondents in Group 1 likewise rated the lack of pain/palliative care as a "highly significant" barrier than Group 2 respondents (31.09 v. 51.80% ). Overall, the average perceived barrier score (from a high of 16.63 to a low of 11.05) was similar for the two groups.

### **Correlation analysis**

Several items were found to be correlated with the overall question of patients' satisfaction with the outcome of therapy for cancer pain.

(Spearman correlation coefficient =  $p < 0.05$ ).

### **Analysis of Variance and Linear Regression**

Pain management issues were checked individually, using categorical variables and independent t-test for countries variables. We evaluated whether demographic, professional, psychologic and religiosity factors were different across the various pain management items using the Spearman test.

The linear regression analysis, indicated that significant differences were noted for many variables: Female professionals in Group 1 scored significantly in satisfaction with pain management provision, as did Christian and Jewish care givers in these countries; while patients in Group 2 scored negatively. The effects of discussions, goals, and expectations of pain management with patients on their satisfaction, only low income countries scored significantly.

The issue of patients' reporting reliably to their care givers about the intensity of their pain, the patients' overall satisfaction was found to be highly significant in both groups of countries.

Patients in high income countries, were less likely to use non-opioid and non-pharmacological interventions. The likelihood of developing opioid addiction were higher in low income countries.

### **Discussion**

In most low income countries patients suffering from cancer face difficulties in managing their cancer-related pains and that due in part, to lack of training, cultural beliefs and various regulatory procedures. Accordingly, we were not surprised that in the present survey 81.29% of the respondents in high income countries were satisfied with the outcome of the pain therapy, as compared to only 59.04% in low income countries. The present study pointed toward several factors responsible for the current situation. One of the factors refers to the lack of a standardized methodology for the assessment of pain, a factor that relates to both groups of countries, pain assessment applies the best available evidence and should be individualized and physician-driven.



## Barriers

An important lesson learned from this study is that the practice of pain screening is still a serious problem in low income countries, as many patients do not report the true type and intensity of their pain to their physician. This may be especially important given that both cancer diagnosis and treatment are often delayed, and in a substantial number of patients their disease has already reached advanced stages, when first seen by a physician. Also, clinicians perceive family-related and patient-related factors as the most important barriers to discussions regarding goals of care. Our survey revealed that in both groups of countries the responses to discussing goals of care with both patients and family members were very similar. Often, family members and patients face difficulty accepting a poor prognosis as it causes high levels of anxiety and denial. Therefore, effective communication skills are needed to navigate these strong feelings, and yet clinicians often report discomfort in responding to the emotional reactions of patients.<sup>3</sup> Better communication skills will undoubtedly improve the ability to build rapport, listen with empathy and discuss prognosis which in turn will be important in future interventions.<sup>3</sup> Our study showed that whereas 80.45% of clinicians in high income countries follow guidelines for treating pain; only 71.62% of clinicians in the lower income countries follow any guidelines.

Barriers exist regarding sufficient pain control using medication such as opioids. In the present study 71.32% of respondents in high income countries agree that opioids should be used as first line medication, and only 42.04% in low income countries. Reasons for this finding include fear of analgesics progression. Many US states began enacting regulation to curb inappropriate opioid prescribing amidst the growing epidemic of opioid overdose deaths, thus it became much harder for people with cancer to access pain medications, even at the end of life.<sup>4</sup> This study has reaffirmed that inadequate management is most prevalent in underserved communities in the low-, middle income, and impoverished countries. Furthermore, geographical disparities between various locations, and training required to prescribe opioid analgesics make access to these treatments difficult for patients.<sup>5</sup>

In the future, the evaluation of the influence of cultural- social- economical backgrounds as well as the differences between the various specialists involved in the care of patients with cancer, should be explored to better understand physicians' barriers and more effectively address them in international and national programs.<sup>6</sup>

The present study also identified that physicians in high income countries receive their knowledge about the use of opioid in part during their medical studies, more during their post-graduate training and about 10% did not receive any training at all. In the low income countries the situation is worse, as about 14% did not get any background education and training, which leads to misconceptions in terms of knowledge about prescribing opioids. In order to overcome this barrier, more attention must be given to improving the curriculum and integrating it into clinical practice.

A large majority of respondents agree that non-pharmacological interventions should be used.

This study, provides the perception of clinicians in different nations (physicians and nurses), who feel that the management of cancer pain has not as yet reached a satisfactory level. Since nurses (both in hospitals, hospices and at the patients' home) have more direct contact with patients/families, they are in a better position to improve patients' symptoms and sense of well-being; by getting to know patients as individuals and learning about their lives in the context of an ongoing relationship.

### **Limitations**

Findings should be interpreted in view of the foregoing limitations. Data were collected using convenience sampling. Selection bias is another limitation. Some questions had missing data, resulting in nonrandom missing information. These limitations pose challenges in that findings may not be generalizable.

Another potential limitation in this study is its scope in terms of breadth and depth when considering the diversity of cancer pain management present in each country within a given region. Moreover, this study of only 56 countries out of 185 countries (30.2%) was included under the Global Cancer Statistics 2020 Project.

Moreover, this study presents the barriers to adequate cancer pain management from the standpoint of health care professionals only and does not consider the patients' perspectives. Another caveat is that practices culled from surveys convey only the respondents' perceptions; hence the data presented may not accurately reflect empirical clinical practice.

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### **References**

1. Brant, JM, Fink RM, Thompson, C. et al. Global survey of the roles, satisfaction and barriers of home health care nurses on the provision of palliative care. J Palliative Medicine 22:945-955, 2019.
2. Report of the International Narcotics Control Board for 2020.  
<https://www.incb.org/en/publications/annual-reports/annual-report-2020.html>
3. You, J.J., Downer, J., Fowler, R.A., Lamontagne, F. et al. Barriers to goals of care discussion with seriously ill hospitalized patients and their families: A multicenter survey of clinicians. JAMA Intern. Med. 2015  
Doi: 10.1001/jamainternmed. 2014.7732
4. National Cancer Institute. Opioid use drops among cancer patients at end of life. 2021  
<https://www.cancer.gov/news-events/cancer-currents-blog/2021/opioids-cancer-pain-end-of-life>
5. Patal, K., Bunachita, S., Agarwal, A.A., Lyon, A., Patel, U.K. Opioid use disorder: treatments

and barriers. Cureus 13(2):e13173, 2021  
Doi: 10.7759/cureus.13173

6. Jacobson, R., Sjorgen, P., Moldrup, C., Christrup. L. Physician- related barriers to cancer pain management with opioid analgesics: A systematic review. J. Opioid Management 3:4, 2017