

# Medical students' knowledge and attitude toward cancer pain management in Saudi Arabia

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## ABSTRACT

**الأهداف:** تقييم طلاب السنة الأخيرة في كلية الطب اعتماداً على معرفتهم، ومواقفهم تجاه التحكم بالألم لدى مرضى السرطان، بالإضافة إلى تقييم مدى الحاجة إلى توحيد المناهج في كليات الطب والتي من شأنها تسليط الضوء على التحكم بالألم.

**الطريقة:** أُجري هذا المسح الميداني في مستشفى الملك عبدالعزيز الجامعي، جدة، المملكة العربية السعودية وذلك خلال الفترة من مايو 2008م إلى أكتوبر 2009م. لقد قمنا بتوزيع الاستبيان الذاتي التعبئة على طلاب السنة الأخيرة في كلية الطب وذلك من أجل تقييم مدى معرفتهم ومواقفهم تجاه التحكم بالألم لدى مرضى السرطان.

**النتائج:** لقد وصلت نسبة الأجابة في هذه الدراسة إلى 55% (العدد=325). ويعتقد 54% من الطلاب بأن أقل من 40% من مرضى السرطان يعاني فعلاً من الألم، فيما يعتقد 46% منهم بعدم إمكانية علاج الألم الذي يسببه هذا المرض، ويعتقد 41.6% بأن مشكلة الألم تعد مشكلة بسيطة، ويعتقد 58.6% من الطلاب بأن خطر الإصابة بالإدمان قد يزيد مع شبيهات الأفيون المسكنة للألم، واعتقد 23% بأنه لا ينبغي الرجوع إلى المرضى لتقييم الألم، واكتفى 68% بوصف هذه العقاقير للمراحل المتأخرة من المرض، وذهب 77% من الطلاب إلى أن زيادة جرعة مسكنات الألم ما هي إلا نتيجة لقلة تأثير العقار أو الإدمان النفسي ولا علاقة لذلك بتقدم مرحلة المرض. أشارت نتائج الدراسة إلى أن معرفة الطلاب بكل من: مسببات الألم لدى مرضى السرطان، ودور العيادة المتخصصة بالتحكم بالألم، ووجود طرق التحكم بالألم في المناهج قد كانت ضعيفة، كما أن لا علاقة لذلك بخلفية الطالب أو تجربته الحياتية.

**خاتمة:** يتضح من الدراسة ضعف معلومات طلاب الكليات الطبية، والاعتقاد الخاطئ لدى بعضهم حول الآلام التي تسببها الأورام السرطانية، كما اتضحت الحاجة إلى ضرورة الاستعانة بمهني طبي متخصص من أجل تدريس كيفية التحكم بالألم لدى مرضى السرطان، ومن أجل تحسين معلومات هؤلاء الطلبة.

**Objectives:** To assess the final year medical students' knowledge, beliefs, and attitude toward cancer pain, and the need for a formal pain curriculum in medical schools.

**Methods:** An epidemiological study was conducted from May 2008 to October 2009 at King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia to assess the students' knowledge and attitude toward cancer pain management. A survey in the form of self-conducted questionnaire was distributed among them.

**Results:** Response rate was 55% (N=325). Fifty-four percent of the respondents believed that <40% of cancer patients suffered from pain. Forty-six percent of them considered cancer pain as untreatable, while 41.6% considered pain as a minor problem, and 58.6% considered the risk of addiction is high with legitimate opioids' prescription. There are 23.1% of students believed that patients are poor judges of their pain, 68% of them limited opioids prescription to patients with poor prognosis, and 77.1% believed that drug tolerance or psychological dependence, rather than advanced stages' cancer is the cause of increasing analgesic doses. The students' knowledge on the causes of cancer pain, pain clinic rule, and pain inclusion in the medical curriculum was poor. The correlation between personal life experience and respondents' attitude toward cancer pain management did not reveal any statistical significant.

**Conclusion:** The study revealed poor knowledge and negative attitude of medical students' toward cancer pain. A structured teaching program is needed to improve the knowledge and attitude of future doctors toward pain.

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An estimated 6.6 million patients worldwide die from cancer each year.<sup>1</sup> According to the Saudi Cancer Registry, the number and incidence of cancer in Saudi Arabia are on the rise.<sup>2</sup> There were 11,040/ 100,000 cases diagnosed with cancer in 2006.<sup>2</sup> Despite major improvements in pain management, cancer related pain continues to be a significant global health concern. Of those with terminal cancer illness, 60-90% experience pain as a result of their cancer.<sup>3-5</sup> Poor management of cancer pain has been related to many factors.<sup>6-9</sup> Inadequacies in the education of health professionals, and the fear of addiction are some of such factors.<sup>10</sup> In our medical school, pain-related topics are taught throughout medical studies but without a formal pain curriculum. To assess the medical students' knowledge, beliefs and attitude toward cancer pain management, a survey among final year medical students relevant to cancer pain management was carried out over a 2-year period.

**Methods.** Following ethics committee approval, an epidemiological study was conducted to assess the medical students' knowledge regarding cancer pain. The study took place at the King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia from May 2008 to October 2009. The survey was conducted through the distribution of 600 closed-answer questionnaires adapted from a previously published survey.<sup>11</sup> Questionnaires were distributed by hand to the sixth-year medical students (equivalent to third year medical student in the US). They were asked to return them in pre-addressed envelopes provided with the questionnaires. Information regarding the voluntary and anonymous nature of the study was described to all medical students. Consent to participate in the survey was implied by return of the completed questionnaire.

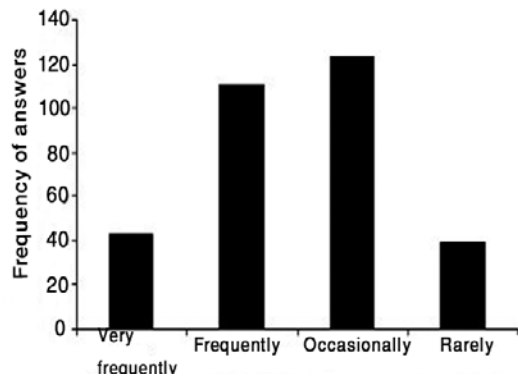
The basic questionnaire used for the research was developed by Weissman and Dahl<sup>11</sup> for a survey of first-year medical students. Ten of the original 12 non-demographic items were used in this study. The author added the rest of the questions. The questionnaire consisted of 18 closed and open-ended questions (Appendix I). It covered 4 major areas relevant to cancer pain: a) attitude regarding the management of cancer pain as a future health care provider (questions 1-4 and 10); b) beliefs regarding the risk of opioids addiction and opioids side effects (questions 5, 6, 8, and 11); c) attitude toward the involvement of patients, families, and health professionals in the management of patients' pain (questions 7, 9, and 12); and d) personnel experiences with pain and its effect on the candidates'

response (questions 13-16). Finally, 2 more questions were added to the survey (questions 17, 18) to assess the respondents' knowledge regarding the contribution of pain clinic, and the inclusion of pain medicine in the medical school curriculum. The validity of the used questionnaire has been tested before in 2 studies<sup>11,12</sup> and no signs of difficulties were reported.

Data pertaining to each of the 4 areas were analyzed separately using Statistical Package for Social Sciences version 10 (SPSS Inc, Vhicago, IL, USA). The F-test was used for statistical analysis. Pearson correlation coefficient, as well as the 2-sided test were used to determine the degree of relationship between personal life experience (questions 13-16), and the participants' age, gender, and attitude toward cancer pain management (questions 1-12), and to detect any statistical significance.

**Results.** From the 600 questionnaires distributed to all final year medical students over a period of 2 years, 15 incomplete questionnaires were excluded, and 325 were included (over all response rate was 55%). The average respondents' age was 23 years (42.9%), while their age range was 24-27 years. One hundred sixty-seven respondents were female students and 158 were males. A total of 25.7% of the respondents believed that 20% of cancer patients suffered from pain, 28.3% of them selected the answer that 40% of cancer patients suffered from pain, while 27.3% thought it is higher (60%), 15.6% answered up to 80%, and 3.2% considered all cancer patients suffered from pain (100%). In response to the percentage of pain relief achieved with treatment, 53.9% of respondents considered that more than 80% of patients' pain will be relieved with treatment, 25.7% of students picked 60% as an answer, 13% thought that 40% is the right answer, and 7.3% thought that only 20% of pain will be relieved with treatment. Over-all, 58.4% of the students considered cancer pain as a major problem to control, 33.7% considered it as somewhat a problem, while 7.9% thought that it is "not a problem". On the other hand only 44.4% of the respondents considered cancer pain as under-treated, while 29.5% thought that cancer patients received more pain medications than necessary, or received adequate pain treatment (26%). Figure 1 represents the students' idea regarding the risk of psychological dependence from legitimate prescription of opioids. There are 58.6% of the students think that the risk of such complication either frequently or very frequently, while 12.4% consider it rare. Most of the students selected the occasional association of respiratory depression

\*The full text including Appendix is available in PDF format on Saudi Medical Journal website ([www.smj.org.sa](http://www.smj.org.sa))



**Figure 1** - Risk of psychological dependence from prescribed opioids (addiction) according to medical students' response.

**Table 1** - Frequency of respiratory depression among patients receiving an overdose of prescribed opioids for cancer pain management.

Answers	Frequency of answers	(%)
Very frequently (>1:10)	10	(3.2)
Frequently (1:100 - 1:1000)	75	(23.8)
Occasionally (1:100 - 1:1000)	150	(47.6)
Rarely (<1:1000)	80	(25.4)
<b>Total</b>	<b>315</b>	<b>(100.0)</b>

**Table 2** - Degree of addiction concern if morphine was prescribed to a member of the family to treat cancer pain.

Responses	Frequency of answers	(%)
No concern	38	(12.1)
Mild concern	77	(24.4)
Moderate concern	88	(27.9)
Major concern	112	(35.6)
<b>Total</b>	<b>315</b>	<b>(100.0)</b>

**Table 3** - Correlation coefficients and two-sided test results, between personal life experience (questions 13, 14, 15, and 16) to gender and age, and attitude toward cancer pain management (questions 1-12).

Items in Questionnaire	He has cancer (Q-13)	He has a relative with cancer (Q-14)	He complained of any pain (Q-15)	He has a relative with a complaint of any pain (Q-16)
Pearson Correlation / Two-tailed test				
Age (years)	0.023 / 0.681	- 0.045 / 0.422	0.036 / 0.527	0.006 / 0.916
Gender	- 0.031 / 0.587	- 0.010 / 0.861	0.036 / 0.520	0.083 / 0.142
Question 1	-0.016 / 0.779	0.056 / 0.320	-0.021 / 0.704	0.032 / 0.566
Question 2	0.036 / 0.525	-0.024 / 0.666	-0.035 / 0.534	-0.044 / 0.435
Question 3	-0.044 / 0.439	0.027 / 0.630	-0.068 / 0.231	-0.104 / 0.066
Question 4	0.056 / 0.320	-0.091 / 0.107	-0.027 / 0.634	0.170 / 0.002
Question 5	-0.032 / 0.569	0.078 / 0.169	0.034 / 0.550	-0.040 / 0.480
Question 6	-0.068 / 0.226	-0.005 / 0.935	0.013 / 0.819	-0.063 / 0.267
Question 7	-0.063 / 0.266	-0.020 / 0.724	0.014 / 0.805	0.010 / 0.861
Question 8	0.061 / 0.278	-0.007 / 0.897	-0.008 / 0.885	0.104 / 0.065
Question 9	-0.069 / 0.223	0.050 / 0.376	-0.012 / 0.828	0.096 / 0.087
Question 10	0.010 / 0.860	0.069 / 0.222	0.063 / 0.269	-0.024 / 0.673
Question 11	-0.089 / 0.115	0.154 / 0.006	0.027 / 0.636	0.133 / 0.018
Question 12	-0.011 / 0.845	0.014 / 0.802	-0.031 / 0.582	-0.036 / 0.525

with opioids' use (150 students, 47.6%) (Table 1). Regarding the judgment of pain by patient, 76.8% of the candidates believed that the patient is the best judge of his own pain, 11.1% thought that the doctor is the best judge, 7.6% selected the patient's spouse, or family members, and 4.4% considered the treating nurse as the best judge of pain. Most of the respondents (35.6%) thought that it is a major concern if a member of their families using morphine (Table 2). Most of the students were shied away from opioids' use. A total of 32.4% of respondents decided to give opioids when the prognosis of cancer patient is less than one month, 19.7% if less than 6 months, and 15.9% for one year, while 32.1% of them decided to prescribe opioids at any time.

In response to causes of cancer pain, cancer per se was selected by 46.7% of the respondents, 33% related pain to treatment modalities of cancer, and 20.3% considered that pain is unrelated to cancer. A number of respondents (53.7%) considered the increased requirement of opioids' dose is mainly related to development of tolerance, 23.4% related that to development of psychological dependence, and 22.9% considered that as a result of worsening of cancer pain. Considering the involvement of patients in their own pain treatment, 46% of the students selected that the patients should have as much control as the health professional in controlling their pain, 19.4% selected "less control than the health professional," 15.6% decided that they should have more control than health professional, 15.6% selected that they should have completed control over treatment of pain with no contribution from the health professional, and a minimum percentage (3.5%) thought that they should have no control over the treatment of their pain.

In a question whether a relative or a friend was suffering from cancer pain, 50.5% of the students selected the "No" answer, and 49.5% picked the "Yes" answer. There were 77.8% of students that denied having any pain longer than one month, and only 22.2% admitted that they had experienced pain. A total of 63.5% of the respondents admitted that a member of their families or a friend had pain for any reason longer than a month, and 36.5% denied that. Regarding the pain clinic contribution to pain management 59.4% of the students never heard of a pain clinic, while 40.6% were aware of it. Finally, 63.2% of the students admitted that pain was not part of the medical education curriculum, and 36.8% thought that pain medicine was part of the curriculum. Although a good percentage of students experience pain longer than one month, or had a family member, or close friend with pain or cancer at one time or another, the Pearson correlation coefficients and the two-tailed test failed to provide any correlation between personal life experience and gender, age, or attitude to cancer pain management or to detect any statistical significant (Table 3).

**Discussion.** Despite the great progress in the management of pain, physicians continue to mismanage, and under-medicate pain patients.<sup>5,11-14</sup> The major finding of our study is the inadequate knowledge and negative attitude toward cancer pain management among final year medical students. Similar to findings of previous studies, in which nurses, pharmacist and physicians working in the Oncology Unit at the academic center were deficient in their knowledge of pain management.<sup>15-17</sup> Other surveys conducted among physicians revealed similar problem in the form of lack of knowledge concerning pain and its treatment, and negative views regarding patients with chronic pain, with or without cancer. In these surveys, the most important barriers to optimal pain management were inadequate guidance from pain specialists, inadequate knowledge, and inadequate pain assessment.<sup>16-18</sup> As opposed to our finding, a survey conducted among medical students at the University of Helsinki revealed a positive attitude of students toward treating the pain of cancer patients and elderly patients.<sup>19</sup> In our study the lack of knowledge and the poor judgments were obvious in the respondents' belief that: cancer does not associate with pain; it is untreatable; it is a minor problem; the prescribed medications to treat cancer pain, either enough or more than enough; and cancer's patients could not judge their pain better than their relatives, treating nurses or doctors. The students' beliefs on the risk of addiction were reflected in their consideration of addiction as a frequent complication to legitimate opioids' use and their belief that opioids'

use should be limited to patient with poor prognosis. In addition, most of them believed that drug tolerance or psychological dependence rather than advancing disease was the cause of increasing analgesic doses. This is similar to the survey conducted by Ger et al<sup>20</sup> in Taiwan among fifth-year medical students, in which they reported a negative attitude of medical students toward opioids prescription for chronic pain patients when compared to practicing physician. Weinstein et al<sup>21</sup> found that professionalization process of medical training may reinforce negative attitudes, associated with reluctance to prescribe opioids, and fears of patient addiction and drug regulatory agency sanctions. This might explain the negative response of our students. Further research are needed to prove such findings. Despite the lack of pain's teaching courses in the curriculum, one third of the respondents claimed that pain management was part of the curriculum, while two-thirds of the students never heard of pain clinic, or its contribution to pain management. Both findings showed the poor knowledge of pain among medical students, and reflected the need for a specific pain management course in the curriculum. A group from the University of Kentucky, introduced a short pain management course for final-year medical students, and assessed its efficacy in improving the students' knowledge regarding the use of opioids among cancer patients.<sup>22</sup> They documented marked improvement in knowledge among the student in the field of pain.<sup>22</sup>

The attempt to detect any association between the personal life experience of the respondents and their attitude toward cancer pain management did not reveal any positive relation between these. This is similar to the findings of Weissman and Dahl<sup>11</sup> in their study among first-year medical students, in which they contributed their finding to the separation of the students between their personal lives, and the highly demanding and stressful work situation.<sup>11</sup>

Limiting the survey to cancer pain and not including other types of pain is a limitation of this study. A second limitation is the use of an English questionnaire among Arabic speaking students, which might affect their understanding of the questions. Further research are needed to measure the effect of changing the educational strategy in our medical schools on the medical students' knowledge and attitude towards pain management in general and cancer pain in particular.

In conclusion, addition of pain medicine curriculum is needed to overcome the shortage in the knowledge of professionals regarding pain and lead to better pain management among those pain patients.

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