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*Research article*

## Validation of the Hebrew version of the questionnaire “know pain 50”

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**Abstract: Introduction:** The “Know Pain 50” questionnaire, a well-known and validated questionnaire used to examine medical staff’s knowledge in pain medicine, was translated and validated into Hebrew for Israeli medical staff. The questionnaire consists of 50 questions: the first five assess knowledge in pain medicine alone and the other 45 assess knowledge alongside attitudes and beliefs in many aspects of pain medicine. **Background:** There is great importance in understanding the complexity of pain medicine for patients suffering from chronic pain. Many physicians in Israel report a lack of knowledge in many aspects of pain medicine and in particular proper evaluation of pain, and treatment of chronic pain. To the best of our knowledge, there are no valid and reliable questionnaires in Israel that assess physicians’ knowledge, attitudes, and beliefs regarding pain medicine. Therefore, validation of a Hebrew version of the “know pain 50” questionnaire is necessary. **Methods:** A transcultural adaptation was performed. The Hebrew version of the questionnaire was given to 16 pain specialists, 40 family practitioners, and 41 medical interns. Family practitioners and medical interns were grouped and compared to pain specialists for analysis. **Findings:** In the complete questionnaire alone and in all the different domains, pain specialists received higher scores (median = 3.5) than family practitioners + medical interns combined (median = 2.74), the group of family practitioners alone (median = 2.6), and the group of the medical interns alone (median = 2.9). (P-value < 0.01). **Conclusions:** The validated Hebrew version of the “Know Pain 50” questionnaire was found suitable for the Israeli medical community. Thus, it is an appropriate tool for assessing different levels of knowledge, attitudes, and beliefs of Israeli medical teams in pain medicine.

**Keywords:** Know Pain 50; pain assessment; education; validation

## 1. Introduction

The field of pain medicine has been developing in the last years worldwide and in Israel in particular. While there are only 100 registered physicians in Israel who specialize in pain medicine, it is estimated that a million Israeli adult patients suffer daily from chronic pain of different degrees. Recent surveys show that a fifth of European adults suffer from unrelieved chronic pain [1,2]. Improper, lack of, or insufficient pain care all have a deleterious effect on patient's daily life in particular and on society in general, due to waste of time, money, and resources of the medical system [3–5]. The direct and indirect costs of chronic pain management exceed those estimated for heart disease, cancer, and diabetes [2].

In the state of Israel, as in many western countries, there are few pain clinics and even fewer pain specialists. This implies that a patient who suffers from chronic pain could wait months until he will see a pain specialist. In Israel, only 4% of chronic pain sufferers manage to be examined by a pain specialist.

Despite the fact that pain is one of the most common reasons for seeking medical help [2,6], pain medicine is hardly taught in medical schools both in Israel and the western world, as a mandatory course in its own right [7–10]. In addition, despite the fact that appropriate pain care requires inter and multidisciplinary approaches [6], medical teams in the western world, receive only a few hours of pain education in various courses [7,11]. Pain medicine is an integral part of general medicine and should be taught thoroughly in a planned, progressive, and competency-based manner [2]. According to the medical literature, medical students don't receive appropriate education in pain medicine [2,11], in contrast to veterinarian students who receive a deeper and more extensive training in this field [6,7,12].

Many doctors in Israel report a lack of knowledge and training in pain medicine and this fact prevents them from treating their chronic pain patients appropriately [13]. This phenomenon is especially evident in the fields of evaluation of pain level and intensity, proper knowledge of how to ease chronic pain, and how to prescribe opioid analgesics correctly [13].

It has been reported that attending physicians in western countries lack knowledge in the daily clinical practice of chronic pain management, and perhaps this is the reason why they don't tend to use pain scales even though these are valid and reliable tools for following changes in pain intensity and the assessment of treatment plan effectiveness [1].

To date, there is no reliable and valid tool in Israel for assessing knowledge, attitudes, and beliefs of medical teams, regarding chronic pain. Today's questionnaires focus on specific types of pain (carcinogenic or neuropathic), are not validated, and don't assess knowledge, attitudes, and beliefs about chronic pain in a more general way.

The English version of the "Know Pain 50" questionnaire is a valid and efficient tool that can distinguish between physicians with different levels of pain management expertise [14].

It's well known that the attitudes and beliefs of the medical teams towards chronic pain, significantly influence the success of the treatment and the ability to relieve a patient's chronic pain [15]. For this reason, our questionnaire also assesses these aspects. According to the medical literature, as medical students acquire more knowledge about pain medicine, their negative opinions and attitudes towards prescribing medication for patients and the fear of meeting with them, become more moderate and they tend to be more confident in their treatment [16].

## 2. Materials and methods

### 2.1. Study aim

This is an analytic prospective study and its' main goal is to validate the Hebrew version of the "Know Pain 50" questionnaire. This validation was performed in order to create an appropriate and valid tool for assessing the knowledge, attitudes, and beliefs of Israeli medical teams receiving varied training in pain medicine.

### 2.2. Study design

The questionnaire was translated into Hebrew and then tested on three Israeli medical populations in order to check for internal consistency.

### 2.3. Translation of the questionnaire

Stage 1: The questionnaire was translated from its original English version into Hebrew, by three physicians (family physician, internal medicine physician, and a pain specialist) whose native language is Hebrew but also have an excellent knowledge of English. The three separate versions were then reconciled into one version of consensus.

Stage 2: The Hebrew version was back-translated into English by two family physicians whose native language is English but also have an excellent knowledge of Hebrew and again, the two separate versions were reconciled into one consensus version.

Stage 3: The back-translated English version was compared to the original English version, by three other study investigators (2 pain physicians, 1 pain Neuroscientist Ph.D.) who are well versed in pain medicine and have an excellent knowledge of both Hebrew and English.

Each question of the 50 questions was scored by each investigator and discrepancies were reconciled.

Stage 4: The final Hebrew version was sent out to 10 Israeli pain specialists and they were requested to grade each question for its clarity and appropriateness for the Israeli medical society. Important remarks were reconciled by the authors.

Thus, the translation process of the questionnaire included the necessary steps for validation [17].

The final Hebrew version of the questionnaire was then evaluated on three different Israeli medical populations.

It is important to emphasize that the original English version of the questionnaire included 5 questions pertaining to US federal regulations. These questions were adapted to suit Israeli regulations (see Appendix 1).

### 2.4. Study populations

Three study populations with different levels of training in pain medicine were studied: a) 16 pain specialists; b) 40 family practitioners with little or no training in pain medicine; c) 41 medical interns.

The participants of the study were selected randomly during various courses in pain medicine. The group of pain specialists were chosen from different sectors-specialists and residents in pain medicine alongside physicians that provide medical treatment in pain clinics throughout Israel (the

course took place on 6 October, 2015). The course for the Family practitioners took place on 11 November, 2015 and the course for the medical interns took place on 15 December, 2015.

The study populations had no contact with the investigators except while filling out the questionnaire.

### 2.5. Outcome measure

This is the individual score of each subject in the questionnaire. This score can vary between 0–250 and represents different levels of knowledge, attitudes, and beliefs in pain medicine of Israeli medical practitioners with varied degrees of training.

### 2.6. Questionnaire design

The first five questions are multiple-choice questions with 6 options to every answer. In these questions, there is only one correct answer. The other 45 questions were ranked using Likert scale and the answers range from 1–6: (1-Strongly agree, 2-Agree, 3-Somewhat agree, 4-Somewhat disagree, 5-Disagree, 6-Strongly disagree). Each question received 0–5 points so the total points for a subject were 0–250. For example, the statement “Elderly patients cannot tolerate medications such as opioids for pain” has a correct answer of “Strongly Disagree”. If a user selected this answer, they received five points. If they selected “Disagree” they received four points. If they selected “Somewhat disagree” they received three points and so on to zero points for the sixth and most incorrect response [14].

The distribution of items in the final 50-item questionnaire into various domains was (Table 1):

- 1) Knowledge about pain treatment (18);
- 2) Pharmacological knowledge in pain treatment (15);
- 3) Attitudes and beliefs regarding pain treatment (21);
- 4) Ministry of health regulations (7);
- 5) Development of a treatment plan (7);
- 6) Initial pain assessment (7).

**Table 1.** Question’s distribution into the different domains of the questionnaire.

Domains	A	B	C	D	E	F
Questions	1, 4, 7, 8, 9, 11, 13, 15, 16, 18, 26, 27, 28, 32, 36, 38, 45, 46	2, 3, 5, 12, 13, 22, 24, 25, 34, 37, 40, 42, 44, 47, 49	7, 13, 17, 19, 21, 22, 23, 25, 28, 30, 33, 35, 36, 39, 41, 42, 43, 44, 46, 48, 49	6, 10, 14, 20, 29, 31, 50	4, 8, 24, 33, 37, 41, 46	1, 16, 17, 18, 21, 38, 45

Note: Each question of the 45 questions ranked using Likert-scale contains data regarding several aspects in pain medicine. Thus, individual questions can appear in more than one domain. A-Knowledge about pain treatment; B-Pharmacological knowledge in pain treatment; C-Attitudes and beliefs regarding pain treatment; D-Ministry of health regulations; E-Development of a treatment plan; F-Initial pain assessment.

## 2.7. Statistical analysis

Statistical analysis was made by using SPSS software, version 21 and the results are presented as averages with standard deviation, range and a median, P-value < 0.05, power analysis 90%.

The statistical tests for analyzing the results was made by Mann-Whitney non parametric test for comparison between the study groups.

## 3. Results

The performance of each of the three study groups in the questionnaire and in its different domains is shown in Table 2. In the questionnaire alone and in each of the different domains, pain specialists received higher scores (Median = 3.5) than family practitioners + medical interns combined (median = 2.6), the group of family practitioners alone (median = 2.5) and the group of the medical interns alone (median = 2.9). (P-value < 0.01).

The results for individual questions in the questionnaire are shown in Table 3. The proportion of respondents scoring 4 or 5 (with 5 awarded for the most appropriate answer) is shown.

Characteristic questions showing marked differences between the pain specialists on one hand and the combined results of family practitioners and interns are displayed.

The performance of the family practitioners group vs the medical interns group is shown in Table 4. In the questionnaire alone and in domains 3, 6 (“Attitudes and beliefs regarding pain treatment”, “Initial pain assessment”), medical interns received higher score than family practitioners. (P-value = 0.031, P-value = 0.02).

\* In domains 1, 2, 4, 5 (“Knowledge about pain treatment”, “Pharmacological knowledge in pain treatment”, “Ministry of health regulations”, “Development of a treatment plan”) medical interns also received higher score than family practitioners but this wasn’t statistically significant. (P-value = 0.054, P-value = 0.096, P-value = 0.947, P-value = 0.474).

**Table 2.** A comparison between pain specialists, family practitioners and medical interns performance in the “Know pain 50” questionnaire in each of its domains.

DOMAINS	FAMILY PRACTITIONERS								PAIN SPECIALISTS								Mann-Whitney P value
	No.	Mean	STD	Median	Min	Max	% mean 4, 5	% mean 0, 1, 2	No.	Mean	STD	Median	Min	Max	% mean 4, 5	% mean 0, 1, 2	
1. Knowledge about pain treatment:	40	2.83	0.4	2.8	1.9	3.8	0.0	90.0	16	3.44	0.3	3.4	2.8	4.0	6.3	50.0	P < 0.001
2. Pharmacological knowledge in pain treatment:	40	2.52	0.5	2.5	1.7	3.6	0.0	97.5	16	3.68	0.4	3.6	2.9	4.5	18.8	25.0	P < 0.001
3. Attitudes and beliefs regarding pain treatment:	40	2.70	0.4	2.7	1.9	3.5	0.0	95.0	16	3.55	0.4	3.4	2.7	4.4	18.8	43.8	P < 0.001
4. Ministry of health regulations:	40	2.26	1	2.6	0.0	3.6	0.0	92.5	16	3.81	0.5	3.9	3.0	4.9	43.8	18.8	P < 0.001
5. Development of a treatment plan:	40	3.11	0.5	3.1	1.7	4.1	5.0	67.5	16	3.68	0.5	3.7	2.6	4.3	37.5	18.8	P < 0.001
6. Initial pain assessment:	40	3.02	0.5	3	2.1	4.3	5.0	77.5	16	3.48	0.7	3.6	1.4	4.3	31.3	31.3	P < 0.002
Know pain 50:	40	2.69	0.4	2.6	2.1	3.4	0.0	100.0	16	3.59	0.3	3.5	3.1	4.3	12.5	25.0	P < 0.001
	MEDICAL INTERNS								PAIN SPECIALISTS								
1. Knowledge about pain treatment:	41	3.02	0.4	2.9	2.2	3.8	0.0	80.5	16	3.44	0.3	3.4	2.8	4.0	6.3	50.0	P < 0.002
2. Pharmacological knowledge in pain treatment:	41	2.68	0.4	2.7	1.8	3.8	0.0	97.6	16	3.68	0.4	3.6	2.9	4.5	18.8	25.0	P < 0.001
3. Attitudes and beliefs regarding pain treatment:	41	2.95	0.4	2.9	2.1	4.4	2.4	92.7	16	3.55	0.4	3.4	2.7	4.4	18.8	43.8	P < 0.001
4. Ministry of health regulations:	41	2.51	0.7	2.57	1.3	4.9	4.9	92.7	16	3.81	0.5	3.9	3.0	4.9	43.8	18.8	P < 0.001
5. Development of a treatment plan:	41	3.20	0.5	3.29	1.9	4.1	4.9	65.9	16	3.68	0.5	3.7	2.6	4.3	37.5	18.8	P < 0.002
6. Initial pain assessment:	41	3.26	0.5	3.3	2.4	4.3	7.3	58.5	16	3.48	0.7	3.6	1.4	4.3	31.3	31.3	P < 0.054
Know pain 50:	41	2.88	0.3	2.9	2.3	4.0	0.0	90.2	16	3.59	0.3	3.5	3.1	4.3	12.5	25.0	P < 0.001

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DOMAINS	No.	Mean	STD	Median	Min	Max	% mean	% mean	No.	Mean	STD	Median	Min	Max	% mean	% mean	Mann-Whitney P value
							4, 5	0, 1, 2							4, 5	0, 1, 2	
	FAMILY PRACTITIONERS + MEDICAL INTERNS							PAIN SPECIALISTS									
1. Knowledge about pain treatment:	81	2.92	0.4	2.89	1.9	3.8	0.0	85.2	16	3.44	0.3	3.4	2.8	4.0	6.3	50.0	P < 0.001
2. Pharmacological knowledge in pain treatment:	81	2.60	0.4	2.6	1.7	3.8	0.0	97.5	16	3.68	0.4	3.6	2.9	4.5	18.8	25.0	P < 0.001
3. Attitudes and beliefs regarding pain treatment:	81	2.82	0.4	2.81	1.9	4.4	1.2	93.8	16	3.55	0.4	3.4	2.7	4.4	18.8	43.8	P < 0.001
4. Ministry of health regulations:	81	2.39	0.9	2.57	0	4.9	2.5	92.6	16	3.81	0.5	3.9	3.0	4.9	43.8	18.8	P < 0.001
5. Development of a treatment plan:	81	3.16	0.5	3.14	1.7	4.1	4.9	66.7	16	3.68	0.5	3.7	2.6	4.3	37.5	18.8	P < 0.001
6. Initial pain assessment:	81	3.14	0.5	3.14	2.1	4.3	6.2	67.9	16	3.48	0.7	3.6	1.4	4.3	31.3	31.3	P < 0.007
Know pain 50:	81	2.79	0.4	2.74	2.1	4.0	0.0	95.1	16	3.59	0.3	3.5	3.1	4.3	12.5	25.0	P < 0.001

Note: % mean 4, 5: percentage of participants received 4/5 points; % mean 0, 1, 2: percentage of participants received 0/1/2 points; (5 points for a correct answer and 0 point for an incorrect answer).

**Table 3.** Knowledge, attitudes and beliefs of pain specialists and family practitioners medical interns (combined together) as evaluated by individual “Know Pain 50” questionnaire items.

DOMAINS	FAMILY PRACTITIONERS + MEDICAL INTERNS						PAIN SPECIALISTS						Mann- Whitney Pvalue
	No.	Mean	STD	Median	% 4, 5	% 0, 1, 2	No.	Mean	STD	Median	% 4, 5	% 0, 1, 2	
1. Knowledge about pain treatment: * Chronic myofascial pain syndrome of the gluteal muscles can cause referred pain down the leg with a similar distribution and feeling as sciatica.	81	3.4	1.3	4.0	64.2	22.2	16	4.3	1.3	5.0	87.5	6.3	P < 0.003
2. Pharmacological knowledge in pain treatment: * There is a limit or “ceiling” to the dosage of pure agonist opioids (e.g., morphine) that can be used to control a patient’s pain.	81	1.8	1.6	2.0	22.2	74.1	16	4.4	0.5	4.1	100.0	0.0	P < 0.001
3. Attitudes and beliefs regarding pain treatment: * If the patient can be distracted from her/his pain, this usually means that she/he does not have high pain intensity.	81	2.5	1.4	2.0	34.6	54.3	16	3.6	1.1	4.0	68.8	18.8	P < 0.008
4. Ministry of health regulations: * It is illegal for a physician to prescribe methadone for pain, unless he/she is certified in addiction medicine.	81	1.8	1.5	1.0	21.0	67.9	16	4.2	1.1	4.5	81.3	6.3	P < 0.001
5. Development of a treatment plan: * Selective serotonin re-uptake inhibitors (SSRIs) are effective treatment for neuropathic pain.	81	2.1	1.2	2.0	14.8	69.1	16	3.4	1.2	4.0	62.5	18.8	P < 0.001
6. Initial pain assessment: * In chronic pain the assessment should include measurement of the pain intensity, emotional distress, and functional status.	81	4.1	1.1	4.0	82.7	6.2	16	4.5	1.3	5.0	93.8	6.3	P < 0.020

Note: % mean 4, 5: percentage of participants received 4/5 points; % mean 0, 1, 2: percentage of participants received 0/1/2 points; (5 points for a correct answer and 0 point for an incorrect answer).



**Table 4.** A comparison between family practitioners vs medical interns' performance in the "Know pain 50" questionnaire and in each of its domains.

DOMAINS	FAMILY PRACTITIONERS						MEDICAL INTERNS						Mann-Whitney P value
	No.	Mean	STD	Median	% mean 4, 5	% mean 0, 1, 2	No.	Mean	STD	Median	% mean 4, 5	% mean 0, 1, 2	
1. Knowledge about pain treatment:	40	2.83	0.4	2.8	0.0	90.0	41	3.02	0.4	2.9	0.0	80.5	P < 0.054
2. Pharmacological knowledge in pain treatment:	40	2.52	0.5	2.5	0.0	97.5	41	2.68	0.4	2.7	0.0	97.6	P < 0.096
3. Attitudes and beliefs regarding pain treatment:	40	2.70	0.4	2.7	0.0	95.0	41	2.95	0.4	2.9	2.4	92.7	P < 0.031
4. Ministry of health regulations:	40	2.26	1	2.6	0.0	92.5	41	2.51	0.7	2.6	4.9	92.7	P < 0.947
5. Development of a treatment plan:	40	3.11	0.5	3.1	5.0	67.5	41	3.20	0.5	3.3	4.9	65.9	P < 0.474
6. Initial pain assessment:	40	3.02	0.5	3	5.0	77.5	41	3.26	0.5	3.3	7.3	58.5	P < 0.020
Know pain 50:	40	2.69	0.4	2.6	0.0	100.0	41	2.88	0.3	2.9	0.0	90.2	P < 0.026

Note: % mean 4, 5: percentage of participants received 4/5 points; % mean 0, 1, 2: percentage of participants received 0/1/2 points; (5 points for a correct answer and 0 points for an incorrect answer).

#### 4. Discussion

The original “Know Pain 50” questionnaire is a valid and appraised tool for assessing the medical team’s knowledge, attitudes, and beliefs regarding pain medicine and is commonly used in different surveys worldwide.

To validate its Hebrew version, we performed a robust translation process.

As we assessed, in the questionnaire alone and each of the different domains, pain specialists received a higher score than family practitioners + medical interns combined, the group of family practitioners alone, and the group of the medical interns alone. (P-value < 0.01). However, some of the results were surprising. In the questionnaire alone and domains 3, 6 (“Attitudes and beliefs regarding pain treatment”, “Initial pain assessment”), medical interns received a higher score than family practitioners. (P-value = 0.031, P-value = 0.02).

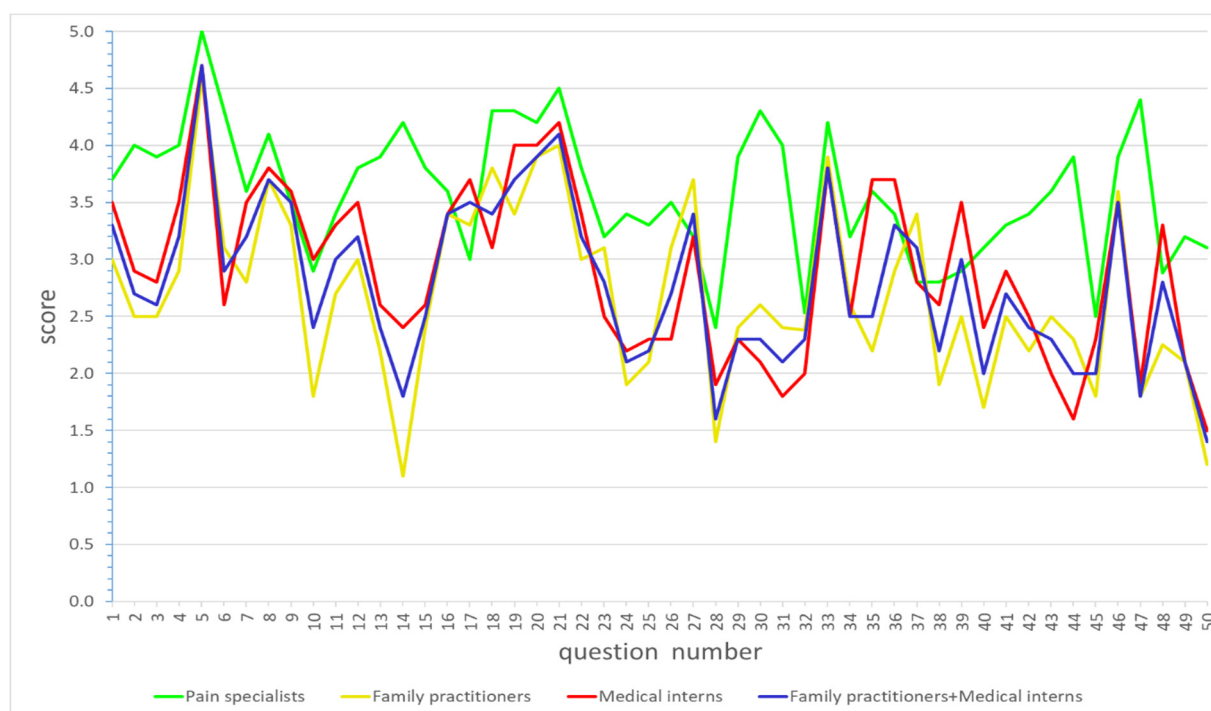
This fact has several possible explanations: First, we assume that the medical interns have a small academic advantage over the group of family practitioners because they are used to filling out long exams with numerous questions. Second, medical interns are used to performing exams with multiple-choice questions. Third, medical interns probably have less of a bias than family practitioners about different medical situations in general medicine and pain medicine in particular. Fourth, medical interns are new to the medical system and want to make a good academic impression. Thus, it’s possible that they took the exam more seriously and had more will to excel. Fifth, medical interns may have received more updated knowledge about pain medicine in recent academic medical courses at their universities.

#### 5. Strengths and limitations

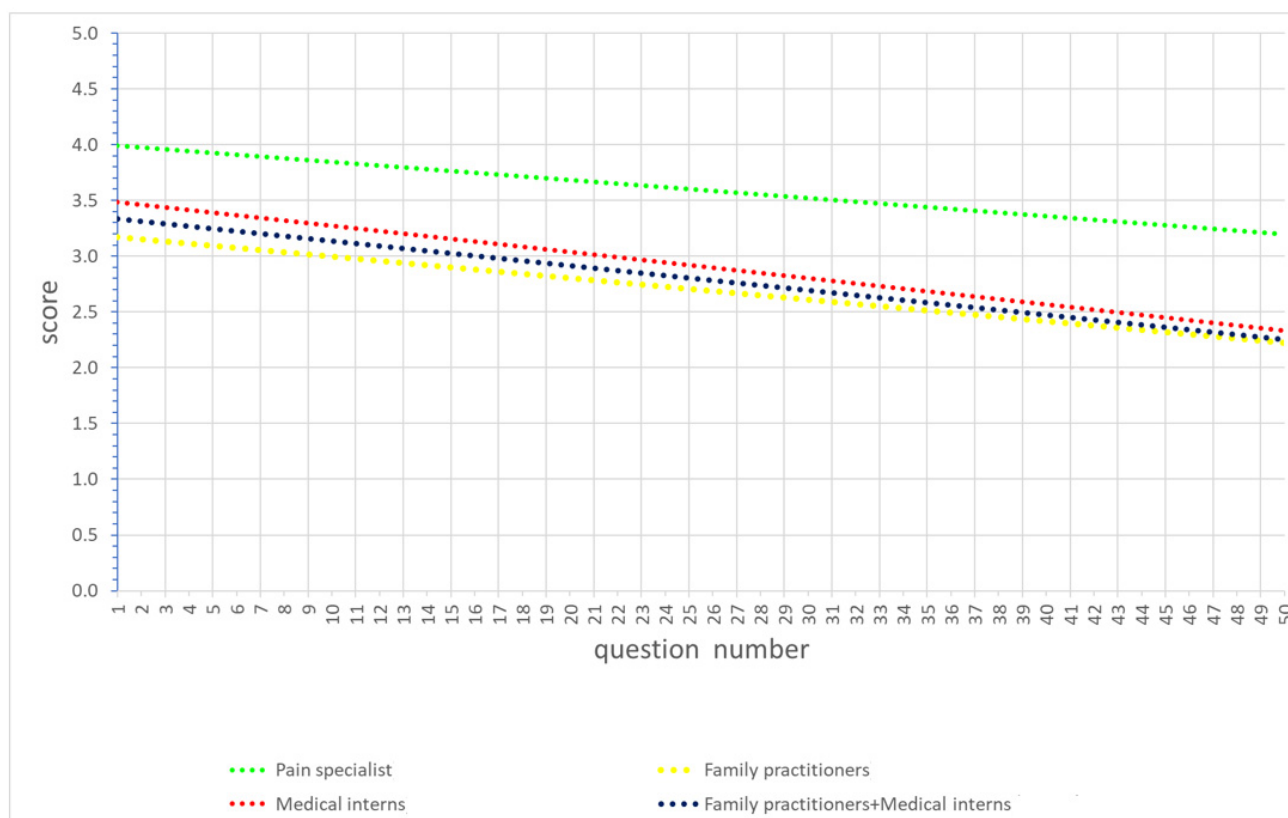
The Hebrew version of the questionnaire was developed carefully by a panel of experts in pain medicine and included the necessary steps to make it a valid and reliable tool for assessing the Israeli medical team’s knowledge, attitudes, and beliefs regarding pain medicine. Moreover, the original questionnaire includes several questions which the correct answer to them is “1” (Strongly agree) and not “6” (Strongly disagree). Thus, it may be confusing for some participants who may think that they will get a low score if they chose an answer ranked “1” but is the correct answer (for example, questions 16, 23, 30, 43).

Even so, the questionnaire structure has several limitations: First, the questionnaire consists of 50 questions which may exhaust the participant. Figure 1 shows the performance of the three study groups in each question along with the questionnaire (represented by a mean score).

Figure 2 shows a linear correlation between a question’s number and the mean score in that question. It can be seen that the score of the three study groups decreases as the respondent progressed through the questionnaire. Monotonous and time-consuming long questionnaires may have a negative influence on the respondents such as boredom, irritation, fatigue, and annoyance. Consequently, it might result in lower cognitive participation and give rise to random and careless responses [18]. Thus, it will be interesting to test these groups of subjects in a shorter questionnaire (For example, the “Know Pain 12” questionnaire) [19].



**Figure 1.** The three study groups performance for each question throughout the questionnaire.



**Figure 2.** Linear regression analysis: The three study groups' performance for each question throughout the questionnaire.

Second, the questionnaire includes several questions that examine a subject's self-evaluation and not knowledge per se on pain medicine. (For example, questions 6, 17, 23, 29). This fact may reduce the interpretability of the results as well as the reliability of the original questionnaire. To the best of our knowledge, current questionnaires for assessing knowledge regarding pain medicine in Israel, are not valid and focus on specific types of pain. Therefore, the Hebrew version of the "Know Pain 50" questionnaire is the only valid tool in Israel that can assess Israeli medical team's knowledge, attitudes and beliefs regarding pain medicine in a more comprehensive way. We now hope that this tool will be used by different universities teaching pain medicine in Israel and improve pain education by assessing the quality and effectiveness of the different courses being taught. Furthermore, we hope that the Israeli medical system will be motivated to extend pain medicine education for the sake of the patients who suffer from chronic pain. Teaching pain medicine thoroughly and as a mandatory course of its own right, could lead to a better understanding of the complexity of this field.

## 6. Conclusions

The Know Pain 50 questionnaire has undergone a robust transcultural translation into Hebrew and has been tested on Israeli physicians. It has been found valid in differentiating levels of knowledge and beliefs between physicians specializing in Pain Medicine, General Practitioners and Interns.

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## Conflict of interest

The authors declare no conflicts of interest in this paper.

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