Original Article

Analysis of Patient-Related Barriers in Cancer Pain Management in Turkish Patients

Gülcan Bağçivan, RN, MSc, Nuran Tosun, RN, PhD, Şeref Kömürcü, MD, Nalan Akbayrak, RN, PhD, and Ahmet Özet, MD
Department of Medical Nursing (G.B., N.T., N.A.), School of Nursing, and Department of Medical Oncology (S.K., A.O.), Gulhane Military Medical Academy, Ankara, Turkey

Abstract
The purpose of this study was to evaluate the validity and reliability of the Barriers Questionnaire II (BQ-II) for Turkish patients and to define the patient-related barriers to cancer pain management in Turkey. For this, 170 patients with cancer who used or were still using analgesic medication for pain related to cancer participated in the study. It was found that patients have beliefs that may be barriers to optimal pain management, mostly in relation to addiction, and to a small extent, physical side effects. It was ascertained that male, unmarried patients, patients with cancer who also have another chronic disease, patients whose "average pain" intensity is more than 5 for the past 24 hours, and patients who use an inadequate analgesic have more beliefs that may be barriers to optimal pain management. It was concluded that the BQ-II is a valid and reliable scale in Turkey for defining patient-related barriers to cancer pain management. J Pain Symptom Manage 2009;38:727–737.

Key Words
Cancer pain, pain management, patient-related barriers, Barriers Questionnaire, patients' beliefs

Introduction

Pain, which is the most prevalent and severe symptom of cancer, is noted in 20%–50% of patients during the early stages of disease, 30%–40% during treatment, and in 75%–90% of patients in advanced stages.[1–3] Pain unfavorably affects the quality of a cancer patient's life and also causes physical, psychological, and social secondary problems. These problems affect not only the patient, but also their circle of close friends, family, and acquaintances. Pain can create more fear in the patient and their family than even death itself.[4–8]

Cancer-related pain, which manifests in medical and sociological problems, is 90%–95% controllable. However, although there has been significant progress in pain management, it has been determined that more than 50% of cancer patients do not receive adequate pain treatment.[9,10] Despite the numerous educational programs, published pain management guidebooks, pharmacological and nonpharmacological strategies, and the establishment of

Address correspondence to: Nuran Tosun, RN, PhD, Department of Medical Nursing, School of Nursing, Gulhane Military Medical Academy, Etlik, Ankara, 06010, Turkey. E-mail: ntosun2002@yahoo.com
Accepted for publication: April 1, 2009.

0885-3924/09/$–see front matter
doi:10.1016/j.jpainsymman.2009.03.004

multidisciplinary pain groups, many barriers to adequate pain management have still not been defined. These barriers may be related to the caregivers, health system, and/or patients.[1,9,11–13] The most important issues that may be preventing effective pain management generally have been the barriers originating from inaccurate beliefs or misunderstandings, which lead patients to be reluctant to report pain and/or receive the appropriate analgesic.[12,14] In studies to determine patient-related barriers in cancer pain management, the following notable facts stand out: fear of addiction, fatalism about an uncontrollable pain experience, anxiety about tolerance to the medication, the incorrect notion that "a good patient does not complain about pain," the worry about interfering with a doctor during treatment, fear of the side effects of medication, the belief that pain medication may suppress the immune system, and that analgesics may hinder the awareness of the symptoms of the illness.[14–17]

The Barriers Questionnaire (BQ) was developed in 1993 by Ward et al.[16] to determine the facts that may impede or unfavorably affect pain management in cancer patients. Gunnarsdottir et al.[14] developed an updated version of the scale (BQ-II) by evaluating the progress and present studies on pain management. This questionnaire has been used in many countries and has proven to be valid and reliable.[12,14,17,18]

In Turkey, the World Health Organization (WHO) analgesic ladder method is mostly used for controlling cancer pain. Paracetamol (acetaminophen), nonsteroidal anti-inflammatory drugs, adjuvant analgesics, codeine, tramadol, morphine, and/or fentanyl are the drugs currently available for this in the Turkish market. The only so-called "strong" opioids available are slow-release morphine and fentanyl. The amount of opioids used for cancer pain has increased in the past 10 years. Improving "opiophobia" in patients and health care personnel, solving the difficulty in the requirement for special prescriptions for opioids, and improving regulations for monitoring opioid prescriptions are prerequisites for better pain control in Turkey.[19]

The number of studies identifying barriers to cancer pain management is limited in Turkey. Moreover, studies usually focus on health care professionals' knowledge, attitudes, and opinions toward cancer pain management. One study reported that most physicians think that problems arising from health personnel and the medical system were more serious than problems resulting from patients themselves; it observed that physicians have more concerns about pain management than cancer treatment, such that half had a feeling of being suppressed because of legal restrictions while prescribing opioids, and 75% of them believed that prescribing an opioid would relate to a higher level of addiction and prescription abuse.[20] The knowledge background of nurses has been found to be inadequate in a study of knowledge and attitudes of oncology nurses on cancer pain management in Turkey.[21] It was determined that nurses did not believe in the possibility of opioid addiction and were ineffective in their identification of pain and their analytical approaches toward pain management. Only one study in Turkey attempted to identify with cancer patients on the issues surrounding pain management.[22] According to this study, in which a questionnaire constructed by researchers was used, only 45% of patients believed that pain could be controlled with proper analgesic use, and 36% believed frequent use would lead to addiction. In addition, a significant positive correlation was observed between the regular use of opioids and the patient's belief in their own improvement, as well as in good communication with their physician.[22]

Data related to barriers perceived by patients to cancer pain management are scarce in Turkey. Moreover, there does not seem to be any study employing the BQ-II scale, which could evaluate these barriers systematically and in an objective manner. We think that such data are necessary for Turkey, and will contribute to the related literature and enable the comparison of the results with similar studies of patients from different countries.

The objectives of this study were to: 1) determine barriers to the pain management of cancer patients in Turkey by using BQ-II; 2) perform a validity and reliability study of the BQ-II for Turkish patients; 3) examine the relationship between the BQ-II and key variables, including pain and demographic characteristics of patients; and 4) interview patients about their suggestions on additional factors to include in the BQ-II, to determine unique barriers specific to the Turkish population.

Methods

Design and Sample

This study was planned as a descriptive and cross-sectional study of 170 patients. It was conducted at the Gulhane Military Medical Academy (GMMA) Training and Research Hospital, Department of Medical Oncology outpatient clinic. The GMMA is located in Ankara, the capital of Turkey.

The BQ-II, which was to be tested for validity and reliability, contains 27 items, each of which is answered on a six-step Likert scale. The required sample size was calculated as at least 170 patients (27 items × 6 Likert levels = 162) so as to ensure that there was at least one subject for each option possible.

The inclusion criteria were: 1) diagnosis of cancer; 2) age 18 years or older; 3) ability to read and write Turkish; 4) willingness to participate; 5) mentally able to communicate; and 6) having been, or still using an analgesic for cancer-related pain.

Instruments

Demographic and Medical Characteristics. A short questionnaire included items about demography and health conditions.

Barriers Questionnaire. The BQ-II is a 27-item self-report instrument designed to measure the extent to which a patient holds eight beliefs about reporting cancer pain and using analgesics, which can act as barriers to pain management. These beliefs are: 1) fear of addiction; 2) fatalism about an uncontrollable pain experience; 3) anxiety about tolerance for analgesic medication; 4) the inaccurate belief that "a good patient does not complain about pain;" 5) worry about interfering in a doctor's implementation of treatment; 6) fear from the side effects of analgesic medication; 7) concern that pain medication may suppress the immune system; and 8) fear that analgesics may mask the awareness of the symptoms of the illness.

The questionnaire consists of four categories: 1) physiologic effects (12 items); 2) fatalism (three items); 3) communication (six items); and 4) side effects (six items). Participants provided their answers by scoring between 0 and 5 (0 = do not agree at all and 5 = agree very much) on a 6-point Likert scale. Many of the scores have shown a high level of inaccurate beliefs about items in the scale. The total score is between 0 and 135. For this study, an open-ended question to collect patients' suggestions for additional items was added to the scale.

Brief Pain Inventory. The Brief Pain Inventory (BPI)-short form also was used in the study. The BPI is a multidimensional pain evaluation tool, which is used to question the presence of pain, its intensity, and its effect in hindering general activities. Participants reported their feeling of "least pain," "worst pain," "average pain," and "pain now" during the last 24 hours, and scored each item on four separate 10 cm visual analogue scales (VAS) (0 = no pain and 10 = pain as bad as you can imagine). It was previously concluded that the BPI is valid and reliable for Turkish subjects.[23]

Pain Management Index. The Pain Management Index (PMI) is used to evaluate the adequacy of analgesic use. The PMI is based on the WHO analgesic ladder for treating cancer pain and compares the most potent analgesic used by a patient with the patient's level of reported pain.[14] Patients' analgesic usage and pain level are evaluated to calculate PMI. Four levels are used to evaluate analgesic usage (0 = no analgesic; 1 = nonopioid; 2 = "weak" opioid; and 3 = "strong" opioid). The level of patients' pain in the last 24 hours is determined by using the "worst pain" item from the BPI (0 = worst pain rating of 0; 1 = worst pain rating of 1–3; 2 = worst pain rating of 4–7; and 3 = worst pain rating of 8–10). In PMI calculations, analgesic usage level was subtracted from pain level. If the PMI was equal to or greater than 0, the condition was considered as "adequate analgesic use." If the PMI was smaller than 0, the condition was considered as "inadequate analgesic use."

Procedures

The creator of the BQ (S. Ward) gave permission and approval for the use of the scale in this study. Before initiating the research, we received approval for this study from the GMMA Local Ethics Committee.

Two experts first translated the original scale into Turkish, and these translations were retranslated into English by two other experts

in the English language to identify the compatibility of BQ-II for our country. The resulting English version of the scale and the original English version were compared by an English language expert, one specialist nurse, and the authors herein. There were no meaningful differences between the original English version and the resulting translation. To validate the content of the Turkish translation of the scale and to determine the cultural appropriateness of the tool, two oncology specialists and two oncology nurses were involved in the evaluation process and endorsed it accordingly.

The pilot study of the scale was implemented on five patients and two oncology nurses to obtain feedback about the comprehensibility of questions/items found on data collection forms and on the scale.

Researchers were in the medical oncology outpatient clinic during implementation. After choosing the patients that met the research criteria, the aim and procedures were explained and they were asked if they would volunteer. After receiving written consent from volunteering patients, data were collected during face-to-face interviews, which lasted between 20 and 40 minutes.

The scale was retested on 68 patients chosen randomly from the 170 patients to determine validity and reliability of the BQ-II for Turkish subjects. Patients who were readmitted at least three weeks later to the outpatient clinics were considered eligible for the retest. These patients were informed during the first interview that the test would be implemented again, and their approvals were taken. As such, these patients only completed the BQ-II during their second interview.

Statistical Analysis

All statistical analyses were performed with the SPSS for Windows Version 15.0 (SPSS Inc., Chicago, IL) statistical software package. Descriptive statistics for numbers and percentages were displayed for variables identified by counting, whereas variables identified by measurement were presented by mean ± standard deviation (SD). Because it was the first usage of the scale in Turkey, basic components and factor analysis were performed to determine subscales. For this, the first, eighth, and 24th items of the scale were reversely rated before analysis. The reliability coefficient for the total scale and subscales (Cronbach's α) was calculated. Test and retest results were compared to determine the scales reliability for Turkish patients. Fitting to normal distribution was inspected for graphical data for calculated or measured variables and with the Shapiro-Wilk test for numerical data. Because no data derived from scores and calculations fitted normal distribution, nonparametric tests were used for all comparisons. Two group comparisons (i.e., gender groups) were performed by the Mann-Whitney U test. For groups of more than two (i.e., age groups), the Kruskal-Wallis variance was performed. If a difference was found between groups, the source of the difference was investigated by using a Bonferroni-corrected Mann-Whitney U test. A value was considered statistically significant when $P \leq 0.05$.

Results

Characteristics

The average participant age was 52.87 ± 15.03 (minimum = 18, maximum = 77). Half of the patients were 56 years or older (50.6%), most were female (62.9%), 80.6% were married, 53.5% had a pre-high school education, and 23.0% had a full-time profession. Most of the participants (83.5%) lived in urban areas, and all participants had health insurance.

The diagnosis distribution of patients was as follows: 31.2% breast cancer, 21.7% gastrointestinal system-related cancer types, and 12.9% lung cancer. The duration of disease was between zero and six months in 47.0% of the patients and between seven and 24 months in 26.5%. For 54.7% of patients, no metastasis had been observed. However, 65 patients among the 170 patients involved in the research (38.2%) were found to have several chronic diseases other than cancer. Half of these subjects (52.4%) did not take any medication other than those for cancer treatment.

Pain Experience

When asked, 32.4% of the patients expressed that they felt pain during the previous 24 hours. The participants' "least pain" in the past 24 hours had a mean (SD) of 0.80 (1.41), "worst pain" had a mean (SD) of 2.49 (3.29),

and their "average pain" had a mean (SD) of 2.82 (2.81). Participants' mean value (SD) for "pain now" was 0.92 (1.94). Most of the participants (87.6%) indicated that the pain they felt had not interfered with their daily life activities in general during the past 24 hours. Most of the patients (75.5%) identified that they had used adequate analgesics (PMI score ≥ 0).

The Barriers Questionnaire II

Based on the identification of the construct validity of the 27 items of BQ-II, according to the varimax rotation method, resultant basic components and factor analysis displayed seven factors, which explain 64.01% of the total variance (Tables 1 and 2). A scree plot suggested a seven-factor solution as well (Fig. 1).

The Cronbach α value for the BQ-II was 0.872 for the total scale. The Cronbach α values for the subscales varied from 0.58 to 0.82 (Table 3). The Cronbach α value was calculated as 0.82 for retesting. When total BQ-II scale points and retest total scale points were compared, there was no statistically significant difference between groups ($Z = 0.351$; $P = 0.725$).

The total BQ-II scale mean (SD) score was 1.94 (0.86). The "addiction" subscale mean (SD) score was 3.59 (1.39), "immune system" subscale mean (SD) score was 2.98 (1.16), "monitor and tolerance" subscale mean (SD) score was 2.51 (1.54), "communication" subscale mean (SD) score was 1.52 (1.17), "psychological side effects" subscale mean (SD) score was 1.44 (3.31), "fatalism" subscale mean (SD) score was 0.83(1.13), and "physical side effects" subscale mean (SD) score was 0.61 (1.09) (Table 3).

Comparison of Total Barriers Questionnaire II Scale and Subscale Means for Patients' Characteristics, Pain Intensity, and Use of Adequate Analgesics

Further analyses were conducted to determine if the BQ-II score was related to patients' demographics and pain-related variables. According to patients' characteristics, male patients ($Z = 2.320$; $P = 0.020$), single patients ($Z = 2.427$; $P = 0.015$), and patients with cancer who also had another chronic disease ($Z = 2.035$; $P = 0.042$) had statistically higher total BQ-II scale mean scores (Table 4).

The male patients' "communication" subscale mean scores were relatively high, and the sex difference for this subscale was found to be statistically significant ($Z = 2.197$; $P = 0.028$). The single patients' "psychological side effects" ($Z = 3.127$; $P = 0.002$), "physical side effects" ($Z = 4.347$; $P < 0.001$) and "fatalism" ($Z = 2.734$; $P = 0.006$) subscale mean scores were higher than those of married patients, and differences between groups were found to be statistically significant.

Table 1
Factor Analysis of the BQ-II Variance Explained by Seven Factors With Eigenvalues Above 1

Factor	Eigenvalue	Explained Variance (%)	Cumulative Variance (%)
1	6.79	25.15	25.15
2	3.24	12.01	37.16
3	2.04	7.56	44.72
4	1.62	5.99	50.72
5	1.35	5.00	55.71
6	1.16	4.31	60.02
7	1.08	3.99	64.01

According to the BPI, the pain intensity levels of patients during the last 24 hours were classified as less than or equal to 5 and more than 5. This cutpoint is recognized as clinically meaningful.[15] The group with "average" pain intensity within the last 24 hours of more than 5 compared with the group with a value of less than or equal to 5 had a relatively higher total BQ-II mean score, and the difference between the groups was found to be statistically significant ($Z = 2.255$; $P = 0.024$) (Table 5). Compared with the group with lower pain intensity, the group having "average" pain intensity of more than 5 had significantly higher "psychological side effects" ($Z = 3.116$; $P = 0.002$), "fatalism" ($Z = 1.146$; $P = 0.002$), and "physical side effects" ($Z = 3.714$; $P < 0.001$) subscale mean scores.

The comparison of the total BQ-II scale means for patients' using adequate analgesics according to the PMI are depicted in Table 6. Inadequate analgesic-consuming patients' (PMI score < 0) total scale points were higher compared with those with adequate analgesic consumption (PMI score ≥ 0), and the difference between groups was found to be statistically significant ($Z = 2.057$; $P = 0.040$). Patients using inadequate analgesics had higher "psychological side effects" ($Z = 3.135$; $P = 0.002$), "fatalism" ($Z = 5.463$; $P < 0.001$), and "physical side effects" ($Z = 2.341$; $P = 0.019$) subscale scores, and the difference between groups was determined to be statistically significant.

Table 2
Factor Analysis of the BQ-II

	Factors						
Items	1	2	3	4	5	6	7
Monitor 1	**0.706**	0.041	0.154	0.164	0.196	0.146	0.172
Monitor 2	**0.598**	−0.033	0.164	0.160	0.348	−0.013	0.301
Monitor 3	**0.668**	0.293	0.039	0.212	0.245	0.099	0.173
Tolerance 1	**0.485**	0.362	0.361	0.071	−0.013	0.164	−0.081
Tolerance 2	**0.675**	0.245	0.186	−0.155	−0.177	0.163	0.023
Tolerance 3	**0.519**	0.506	0.134	−0.023	0.014	0.225	−0.102
Immune system 1	0.096	**0.746**	0.255	0.034	0.037	0.096	0.022
Immune system 2	0.179	**0.716**	−0.064	0.127	0.299	0.188	0.053
Immune system 3	0.302	**0.692**	−0.082	0.159	0.068	0.258	0.222
Psychological side effect 1	0.330	0.031	**0.626**	0.224	0.088	−0.071	0.199
Psychological side effect 2	0.119	0.046	**0.732**	0.155	0.226	0.164	0.200
Psychological side effect 3	0.234	0.038	**0.692**	0.040	0.158	−0.039	0.187
Fatalism 1	−0.032	0.119	0.167	**0.781**	0.012	0.158	0.087
Fatalism 2	0.185	−0.020	0.003	**0.851**	0.033	−0.092	0.144
Fatalism 3	0.069	0.116	0.192	**0.852**	0.028	−0.152	−0.084
Communication 1	0.298	0.328	0.037	−0.173	**0.249**	−0.371	−0.370
Communication 2	0.287	−0.179	0.154	−0.075	**0.670**	0.008	−0.024
Communication 3	0.136	0.231	0.016	0.107	**0.689**	−0.028	0.241
Communication 4	−0.011	0.210	0.440	0.125	**0.643**	0.045	0.080
Communication 5	−0.062	0.309	0.212	−0.048	**0.586**	−0.128	0.142
Communication 6	−0.044	0.462	0.499	0.111	**0.298**	−0.107	0.157
Addiction 1	0.146	0.011	0.249	−0.103	−0.168	**0.717**	−0.374
Addiction 2	0.128	0.200	−0.081	−0.020	0.021	**0.841**	−0.072
Addiction 3	0.264	0.390	−0.035	−0.032	0.036	**0.698**	0.005
Physical side effects 1	0.133	−0.005	0.146	0.027	0.245	−0.112	**0.670**
Physical side effects 2	0.198	0.070	0.200	−0.035	0.028	−0.087	**0.669**
Physical side effects 3	0.005	0.183	0.265	0.185	0.109	−0.059	**0.483**

Boldfaced values refer to r > 0.400.

Additional Barriers

At the end of the scale, patients were surveyed with an open-ended question on their way of expressing the pain they experienced or any thoughts regarding an urge toward not using analgesics, as it was not included in the scale accordingly. Few of the participants (16 patients, 9.41%) replied with answers, and similar views were grouped. Eight of the patients said "When I talk about my pain, I think I make my loved ones or family members sad, and make them unnecessarily worry;" five of the patients said "I feel saddened when I feel more pain as my illness seems to be getting worse;" and three of the patients said "In the situation of pain, I feel desperate and keep silent as I do not know how to deal with this."

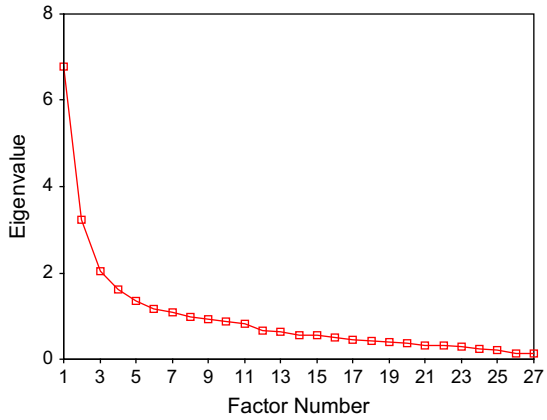

Fig. 1. Scree plot from factor analysis of the BQ-II.

Discussion

The Barriers Questionnaire II

The results obtained have proven that the BQ-II, which was first developed to identify barriers with regard to pain management for cancer patients by Ward et al.,[16] and updated by Gunnarsdottir et al.,[14] as translated into Turkish, could be used in our country for cancer patients as a valid and reliable instrument. The Cronbach α value for the BQ-II general internal consistency was calculated to be 0.872 for the total scale, which is relatively

Table 3
Internal Consistency and Mean Scores for the BQ-II Total Scale and Subscales

Subscales	Number of Items	Mean (SD)	Alpha
Addiction	3	3.59 (1.39)	0.80
Immune system	3	2.98 (1.16)	0.81
Monitor and tolerance	6	2.51 (1.54)	0.82
Communication	6	1.52 (1.17)	0.68
Psychological side effects	3	1.44 (3.31)	0.77
Fatalism	3	0.83 (1.13)	0.82
Physical side effects	3	0.61 (1.09)	0.58
Total scale	27	1.94 (0.86)	0.87

high. For the subscales, Cronbach α values varied from 0.57 to 0.82. In other studies, Cronbach α values varied from 0.78 to 0.90 for the total scale, and were between 0.50 and 0.90 for the subscales.[12,14,16,17] In comparing participants' total scale points and retest scale points, no statistically significant difference was found. Most of the participants answered similarly in both the first test and the retest, ensuring the reliability of our research in accurately reflecting the patients' feelings and beliefs regarding pain management.

In addition, support for the validity of the BQ-II was provided both by the findings from the factor analysis and by the relationship among barriers' scores and pain and patients' characteristics. Based on the identification of the factor structure of BQ-II, resultant basic components and factor analysis displayed seven factors that accounted for 64.01% of the total variance in our study. Ward et al.[16] identified eight factors in their study. Gunnarsdottir et al.[14] also identified eight factors in their modified scale. The modification involved the removal of the items related to "fear of injection," which were originally contained in the first scale, because improvements in pain treatment suggested that this item was obsolete. Instead, Gunnarsdottir et al.[14] added items based on the patients' introspective self-awareness and collected them under the "monitor" subfactor. In the same research, eight factors were found that did not seem compatible with the concept structure. A second analysis has since been conducted, and four factors proper with regard to the concept structure were identified: addiction, communication, fatalism, and side effects, respectively. In another study conducted by Gunnarsdottir et al.[12] in Iceland, eight factors were found for the BQ-II factor analysis. However, as a result of the scree plot analysis, only three factors have been noted and used (fatalism, communication, and fear of side effects resulting from analgesic usage). In another study conducted by Lin[17] in Taiwan using the BQ-II, researchers added three additional items based on their cultural specifics, and found nine factors (fatalism, communication, being

Table 4
Comparison of Total BQ-II Scale Means for Patients' Characteristics ($n = 170$)

Characteristics (n, %)	Total Scale Means		
	Mean (SD)	Test	P
Age (years) (minimum = 18, maximum = 77, mean [SD] = 52.87 [15.03])			
18–40 (36, 21.2)	1.60 (0.56)	$\chi^2 = 5.728$[b]	0.057
41–55 (48, 28.2)	0.96 (0.49)		
56 and above (86, 50.6)	0.62 (0.27)		
Gender			
Female (107, 62.9)	0.46 (0.22)	$Z = 2.320$[c]	0.020
Male (63, 37.1)	0.90 (0.33)		
Marital status			
Married (137, 80.6)	0.36 (0.16)	$Z = 2.427$[c]	0.015
Unmarried (33, 19.4)	1.83 (0.68)		
Level of education			
Below high school (91, 53.5)	0.56 (0.26)	$Z = 0.681$[c]	0.496
High school and above (79, 46.5)	0.67 (0.27)		
Other chronic diseases[a]			
Yes (65, 38.2)	0.88 (0.37)	$Z = 2.035$[c]	0.042
No (105, 61.8)	0.47 (0.21)		

[a]Diabetes mellitus, hypertension, coronary heart disease, rheumatoid arthritis, hypothyroidism.
[b]Kruskal-Wallis test.
[c]Mann-Whitney U test.

Table 5
Comparison of Total BQ-II Scale Means for Patients' Pain Intensity According to BPI ($n = 159$[a])

	Total Scale Means		
Pain Intensity (n, %)	Mean (SD)	Test	P
Worst pain (mean [SD] = 2.49 [3.29])			
≤5 (127, 79.8)	0.41 (0.18)	1.106[b]	0.269
>5 (32, 20.2)	1.80 (0.75)		
Least pain (mean [SD] = 0.80 [1.41])			
≤5 (159, 100)	0.33 (0.14)	[c]	
>5	—		
Average pain (mean [SD] = 2.82 [2.81])			
≤5 (132, 83.0)	0.39 (0.17)	2.255[b]	0.024
>5 (27, 17.0)	2.28 (0.78)		
Pain now (mean [SD] = 0.92 [1.94])			
≤5 (152, 95.6)	0.35 (0.15)	0.239[b]	0.811
>5 (7, 4.4)	8.00 (3.41)		

[a]One hundred and fifty-nine of the 170 participants completed the BPI.
[b]Mann-Whitney U test.
[c]Test not performed.

a good patient, annoying the physician, disease progression, tolerance, side effects, religious fatalism, using medicine only in excessive pain). According to our study and analysis results, seven factors were identified for the BQ-II.

Our results indicate that the "side effects" factor has been divided into two separate factors: "psychological side effects" and "physical side effects." The reason for the low value of Cronbach's α obtained pertaining to the factor "physical side effects" could be considered as the division of the "side effect" factor into two separate factors. The division of the factor "side effects" into "psychological" and "physical" allowed the participants to understand the scale in a more clear and accurate manner, and thus answers were likely more accurate.

Table 6
Comparison of Total BQ-II Scale Means for Patients Using Adequate Analgesics According to the PMI ($n = 159$[a])

	Total Scale Means		
Analgesic Use (n, %)	Mean (SD)	Test	P
Adequate analgesic use (120, 75.5) (PMI score ≥ 0)	0.42 (0.18)	2.088[b]	0.037
Inadequate analgesic use (39, 24.5) (PMI score < 0)	1.57 (0.66)		

[a]Statistical analysis was carried out according to 159 patients who completed the BPI.
[b]Mann-Whitney U test.

The "communication" factor's Cronbach's α value was also low. As depicted in Table 2, two items out of six belonging to the "communication" factor received higher values in other factors. However, all items were regarded within the "communication" factor, even though they had a low value possession, because they were considered conceptually and meaningfully suited to this. Furthermore, when items pertaining to the "communication" factor were correlated with each other, the correlation value of the item "It is important to be strong by not talking about pain" was found to be relatively low with regard to the other items ($r = 0.24$). This situation lowers the α value of the "communication" factor. Nevertheless, because we think that the inclusion of this item in the "communication" factor was necessary, we did not exclude it from the scale.

On the other hand, the items "monitor" and "tolerance" in the original scale have been analyzed together (Table 2), and hence were renamed as "monitor and tolerance." In our opinion, when these two factors were evaluated to be merged, they seemed to have similar meanings, and patients had a tendency to reply to those two factors alike. This was the underlying idea in creating one single factor from the two.

As observed in both our study and other scale-based studies, different results could be obtained depending on the cultural diversities and variable patient groups. Thus, the scale in general has been confirmed, as it includes all basic titles to identify patient-related barriers to pain management in cancer patients. However, because of technological and sociological developments in society, the basic validity and reliability efforts should be made accordingly in every use of the scale, such that the collected data integrity and validity are ensured. Because all patients who constituted our sample were socially stable, future studies could be conducted in different hospitals (e.g., multicenter studies) and with samples including patients from diverse socioeconomic levels. In our opinion, this sampling may contribute to the validity and reliability of the scale applied.

Patient-Related Barriers

The total BQ-II scale mean score was determined to be 1.94 (0.86), according to the

responses given by the participants to the items in the scale. Higher scores suggested that patients had general misconceptions regarding pain and pain management, and avoided expressing the pain they felt or their concerns about using medicine. According to the results, these beliefs could relate to barriers to optimal pain management and result in low usage of analgesics in general. In the initial study in which the scale was used, the total scale mean score was found to be lower than our score of 1.94.[16] In other similar studies, total BQ-II scale scores have been found to be higher than our results.[12,14,17,24]

It was apparent that patients held beliefs that may be barriers to optimal pain management, mostly in the "addiction" subscale. This indicates that the fear of being dependent on analgesics was the most important patient-related barrier. Ward et al.[16] and Chang et al.[24] also found that the "fear of addiction" was the most important barrier to pain management mentioned by the patients.

Patients had the fewest misperceptions on the subscale "physical side effects." This may indicate that a patient's concerns about analgesic-related physical side effects could be defeated, and the patient's belief in pain relief had more priority. In contrast, a patient's misperception of "fatalism" was relatively low, indicating that patients think that cancer-related pain was relievable, and living with the pain was not an ordinary outcome of the disease. Therefore, a belief as hard to change as "fatalism" would not be considered as a severe barrier for our patients. Lin et al.[17] had foreseen religious fatalism as an important barrier in their study's culture, and added the religious fatalism subscale to the scale and the "fatalism" subscale. Nevertheless, these authors reached the conclusion that fatalism would not constitute an important barrier, such as the results attained in our study.

Many studies in which the BQ-II was used to identify patient-related barriers to pain management have indicated that a patient's disbelief of pain management can be ranked in various ways. Gunnarsdottir et al.[14] indicated the greatest misperception regarded "side effects" and the least regarded "communication." Lin et al.[17] indicated that the greatest misperception was "preventing the physician from the treatment and annoying them," whereas the least was "fatalism." Ward et al.[16] indicated that the greatest misperception was "addiction" and the least was "fear of injection." Chang et al.,[24] in their study on cancer patients who received home care, indicated that patients had inaccurate beliefs on the subscales of "addiction," "disease progression," "tolerance," and "using medicine only in excessive pain." In conclusion, research results may display differences and similarities depending on the various societies studied.

Breitbart et al.[25] indicated that the greatest misconception was with regard to subscale "addiction," and the least was with regard to "side effects" in their study by using BQ-II on acquired immunodeficiency syndrome patients. Vallerand et al.[26] indicated that the greatest misconception was on the subscales "side effects" and "pain as an indicator for disease progression," and the least misconception was on "tolerance" in the study they performed using BQ-II on family members of patients receiving treatment at home.

Patient Characteristics

Male patients had a greater tendency to express barriers about optimal pain management than females in our study. Ward et al.[16] reported the opposite, with female patients' total scores higher than those of male patients. In other studies in which the BQ-II was used, patient gender did not constitute a decisive factor for barriers to optimal pain management.[12,14,17] We think that the variance in our results may suggest that male patients could feel that they were incompetent because of responsibilities, classically defined roles in society, and illness progression, and this could affect them negatively.

Unmarried patients had the tendency to report barriers to optimal pain management more than married patients in our research. In other studies using BQ-II, a patient's marital status did not constitute a meaningful relationship with the total scale points.[12,14,16,17] Cancer, as a chronic disease, affects family members and the patients themselves, and requires all involved to take responsibility in the process. Furthermore, patients need the power and responsibility to apply self-care, have to be ready for and conscious of possible complications, and require family support for the changes in their lifestyles.[27] From the

meaningful relationship found between marital status and patient-related barriers in our research, as opposed to other studies, it could be interpreted that family and family support are very important in our culture and society.

We also concluded that patients with cancer who also have another chronic disease have a strong belief that may result in barriers to optimal pain management. Living with a chronic disease causes the patients to endure more medical difficulties and to experience uncertainty in their health status and unprecedented changes in their lives. Moreover, these patients would have to use more medicine and survive additional pain experiences caused by other diseases.[28] Therefore, these patients may negatively perceive the cancer process and analgesic usage.

In our research, patients could mark each option, such as "worst pain," "least pain," "average pain," and "pain now," independently on the VAS while filling out the BPI. According to these results, a patient's expression of pain intensities was generally low. It could be suggested that the fact that most of the patients had short disease durations, that is, half of the patients had no metastasis and 75.5% of the patients were using adequate analgesics according to the PMI, could have affected these results. According to the BPI, the patients with "average" pain intensity of more than 5 for the past 24 hours had higher total BQ-II mean scores, indicating that, as the pain intensity increases, patient-related barriers to optimal pain management also increase accordingly. Other studies have also specified a positive relationship between "average" pain intensity of more than 5 for the past 24 hours and total BQ-II mean score.[14,16] It has been emphasized that in reducing patient-related barriers, it was important to lessen or eliminate the pain experienced by these patients.

In our research, patients who used adequate analgesics for their pain (PMI score ≥ 0) and whose pain level was effectively controlled, had fewer false beliefs regarding barriers to optimal pain management. Similar results have also been obtained previously.[14,16,18] Our assessment was that the administration of adequate analgesics for pain and effectively controlling the pain level could reduce patient-related barriers to optimal pain management.

Conclusions

Evaluating the data obtained from the study, it is highly recommended that pain and pain management training programs be planned and applied for cancer patients. As such, nurses who accompany patients throughout diagnosis, treatment, and care, should identify patient-related barriers with standard scales like the BQ-II, and incorporate them into the standard care plan and application procedures to eliminate these barriers.

Acknowledgment

The authors thank the GMMA Department of Medical Oncology personnel.

References

1. Lundorff L, Peuckmann V, Sjogren P. Pain management of opioid-treated cancer patient in hospital setting in Denmark. Acta Anaesthesiol Scand 2008;52:137–142.

2. Portoney RK, Lesage P. Management of cancer pain. Lancet 1999;353:1695–1700.

3. Komurcu S. Cancer pain. Turkish J Surg Med Sci 2006;2:54–57.

4. Yıldırım KY, Uyar M, Fadıloglu C. Cancer pain and its influence on quality of life. Agri 2005;17: 17–22.

5. Kimberly L, Pargeon MA, Hailey B. Barriers to effective cancer pain management: a review of the literature. J Pain Symptom Manage 1999;18: 358–368.

6. Ferrell BR. The impact of pain on quality of life. Nurs Clin North Am 1993;308:609–623.

7. Kara H, Abay E. Psychiatric approach to chronic pain. Anatolian J Psychiatry 2000;1:89–99.

8. Boström B, Sandh M, Lundberg D, Fridlund B. Cancer patient' experiences of care related to pain management before and after palliative care referral. Eur J Cancer Care 2004;13:238–245.

9. Ozkan A Pain assessment in cancer patients. Proceedings of the XIII Turkish Pediatric Oncology Group National Pediatric Cancer Congress, Cappadocia, Turkey, 2004.

10. Aydinli I. Cancer pain. Klinik Gelisim 2004;17: 3–15.

11. Yıldırım KY, Uyar M. Barriers to effective cancer pain management. Agri 2006;18:12–19.

12. Gunnarsdottir S, Serlin RC, Ward S. Patient-related barriers to pain management: the Icelandic barriers questionnaire II. J Pain Symptom Manage 2005;29:273–285.

13. Yates PM, Edwards HE, Nash RE, et al. Barriers to effective cancer pain management: a survey of hospitalized cancer patients in Australia. J Pain Symptom Manage 2002;23:393–405.

14. Gunnarsdottir S, Donovan HS, Serlin RC, Voge C, Ward S. Patient- related barriers to pain management: the barriers questionnaire II (BQ-II). Pain 2002;99:385–396.

15. Potter VT, Wiseman CE, Dunn SM, Bolye FM. Patient barriers to optimal cancer pain control. Psychooncology 2003;12:153–160.

16. Ward SE, Goldberg N, Miller-McCauley V, et al. Patient-related barriers to pain management of cancer pain. Pain 1993;52:319–324.

17. Lin CC. Barriers to the analgesic management of cancer pain: a comparison of attitudes of Taiwanese patient and their family caregivers. Pain 2000;88:7–14.

18. Wells N, Johnson RJ, Wujcik D. Development of a short version of the barriers questionnaire. J Pain Symptom Manage 1998;15:294–297.

19. Orhan ME, Bilgin F, Ergin A, Dere K, Guzeldemir E. Pain treatment practice according to the WHO analgesic ladder in cancer patients: eight years experience of a single center. Agri 2008;20:38–44.

20. Peker L, Celebi N, Canbay O, et al. Doctors' opinions, knowledge and attitudes towards cancer pain management in a university hospital. Agri 2008;20:20–30.

21. Yıldırım YK, Fadıloglu C, Uyar M. Knowledge and attitudes of Turkish oncology nurse about cancer pain management. Pain Manage Nurs 2008;9: 17–25.

22. Yalcin B, Senler FC, Buyukcelik A, et al. The opinions of the cancer patients about pain management: a questionnaire study. Turk J Cancer 2004;34: 114–117.

23. Tulunay M, Tulunay FC. Pain determination and pain measure. In: Erdine S, ed. Pain, 1st ed Istanbul: Alemdar Ofset, 2000: 91–107.

24. Chang MC, Chang YC, Chiou JF, Tsou TS, Lin CC. Overcoming patient-related barriers to cancer pain management for home care patient. Cancer Nurs 2002;25:470–476.

25. Breitbart W, Passik S, McDonald MV, et al. Patient-related barriers to pain management in ambulatory AIDS patients. Pain 1998;76:9–16.

26. Vallerand AH, Bohler DC, Templin T, Hasenau SM. Knowledge of and barriers to pain management in caregivers of cancer patient receiving homecare. Cancer Nurs 2007;30:31–37.

27. Guner IC. Breast cancer and spouses support. Gaziantep Tıp Derg 2008;1:46–49.

28. Akdemir N. Cancer and nursing care. [Turkish]. In: Akdemir N, Birol L, eds. Medical diseases and nursing care, 2nd ed Ankara: Sistem Ofset, 2003: 243–304.