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Experience of Barriers to Pain Management in Patients Receiving Outpatient Palliative Care

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Abstract

Background: Patient-reported barriers are an important obstacle to cancer pain management. For effective pain management, exploring patient-reported barriers and related factors is important.
Objectives: The study's objective is to determine factors associated with patient-reported barriers to cancer pain management.
Method: We conducted a secondary analysis of data from a prospective observational study examining opioid adherence in palliative care outpatients. We evaluated the association between high score on patient-reported barriers to cancer pain management, on the Barriers Questionnaire II (BQ-II), and patients' race, sex, smoking history, pain intensity, opioid dose, and depression.
Results: Of 196 patients evaluated (median age 55 years), 147 (75%) were white, 41 (21%) had gastrointestinal cancer, and 121 (62%) were receiving anticancer treatment when data were collected. The median pain score was 4 (interquartile range [IQR] 3–7); 98% were receiving strong opioids; and 63% were satisfied with their pain medication. The median Edmonton symptom assessment scale (ESAS) depression score was 1 (IQR 0–3). Mean (SD) BQ-II scores were 1.8 (0.9) for physiologic effects, 1.6 (0.9) for fatalism, 0.9 (0.9) for communication, 2.3 (1.1) for harmful effects, and 1.7 (0.8) in total. Only racial differences were associated with high total BQ-II score in multivariable analysis ($R2 = 0.05$, overall F test significance $= 0.02$). Pain related factors including opioids dose, pain intensity, and satisfaction were not associated with high BQ-II score.
Conclusion: Patients receiving palliative care expressed low barriers to pain control. There were minimal associations of BQ-II score with demographics and clinical factors.

Introduction

Pain is a frequent[1,2] and devastating cancer symptom that diminishes patients' quality of life.[3] Recognition of the importance of proper pain evaluation and management has led to the development of various guidelines for achieving adequate pain management by national and international organizations such as the World Health Organization (WHO),[4] the National Comprehensive Cancer Network (NCCN),[5] the British Pain Society,[6] and European Associations for Palliative Care (EAPC).[7]

Despite these efforts to achieve adequate pain management, studies have reported that the proportion of patients worldwide receiving adequate pain control is unsatisfactory.[8,9] Suggested reasons for poor pain control are health care professionals' attitudinal barriers, patients' financial barriers, patients' coexisting symptoms, and patient-reported barriers.

The Barriers Questionnaire II (BQ-II) addresses patient-reported barriers associated with concerns about effective cancer pain management or side effects, fatalistic beliefs about pain and pain management, concerns about distracting physicians, desire to be a good patient by not complaining about pain, fears of addiction, and concerns about side effects of pain medication.[10,11] It has been suggested that these barriers to cancer pain management are modifiable factors; however, educating patients about these barriers has produced varying results. Several studies using the patient education approach to pain management showed reduced patient-related barriers and improved pain symptoms;[12–15] however, a tailored

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barriers intervention resulted in significantly lowered attitudinal barriers scores but did not improve pain outcomes.[16]

Cancer pain is a complicated symptom that is frequently reported with other symptoms such as fatigue, depression, and anxiety. Coexisting depression might be one obstacle to pain management in cancer patients.[1] Our previous study in a Korean cancer patient population showed an association between depression and high barriers to pain management scores.[17] Moreover, results of a recent study suggested improvement in depression to be a predictor of improvements in cancer pain levels.[18] Identifying the factors associated with high patient-reported barriers to adequate pain management would improve the multimodal management of pain in cancer patients. In our other previous studies, alcoholism and smoking were associated with high opioid dose and high symptom expression.[19,20] These factors might be related to barriers to pain management.

We have recently conducted a study examining the frequency of opioid deviation in palliative care outpatients; however, factors associated with patient-reported barriers were not examined.[21] The current study aims to identify various patient characteristics associated with high patient-reported barriers.

Methods

Patient selection

This study is a secondary analysis of data obtained from a previous cross-sectional study that examined the frequency of opioid deviation.[21] Briefly, we prospectively collected data from 198 patients seen by the MD Anderson Cancer Center Supportive Care Outpatient Clinic between May 26, 2010, and September 23, 2010.

From the previous study population, patients were eligible if they were age 18 years or older; had been diagnosed with advanced cancer (metastatic, locally advanced, or recurrent); were receiving opioids (around the clock and/or as needed); and had completed the Edmonton symptom assessment scale (ESAS). The institutional review board of The University of Texas MD Anderson Cancer Center approved this current study protocol and granted waivers of the requirements for informed consent and authorization.

Assessment tools

The Edmonton Symptom assessment system (ESAS)[22]. The ESAS consists of 10 self-reported symptoms including pain, fatigue, nausea, depression, anxiety, drowsiness, shortness of breath, sleep disturbances, appetite, and well-being. Each symptom is rated 0–10 (10 = worst). For this study we used the pain and depression score from the ESAS. ESAS has been used consistently for the assessment of mood and it has shown good association with the Hospital Anxiety and Depression Scale.[23] Depression score was classified as none (0–1), mild (2–3), and moderate to severe (4–10).[23]

Barriers Questionnaire II (BQ-II). The BQ-II is a modified version of the original Barriers Questionnaire by Ward and colleagues.[2] It consists of 27 questions about patients' barriers to pain management and is well validated (Cronbach's alpha score: 0.97). The BQ-II was developed to reflect patients' concerns and misbeliefs about cancer pain and pain management and has four subscales: physiologic effects (concerns of pain management effectiveness or side effects, 12 items); fatalism (hopelessness about pain and its medication, 3 items); communication (concerns about patients' pain complaints distracting physicians from treating the cancer, 6 items); and harmful effects (concerns about addiction to and reduced immunity from pain medication, 6 items). Each question scored from 0 (do not agree at all) to 5 (agree very much), and subscale score is calculated as the mean score of the items.

Cut down, annoyed, guilty, eye opener (CAGE) score. The CAGE questionnaire consists of four questions: "Have you ever (1) felt the need to cut down on drinking? (2) felt annoyed by criticism of your drinking? (3) had guilty feelings about your drinking? and (4) taken a morning eye opener?" Answering yes to two or more questions suggests a high suspicion of alcoholism.

Satisfaction with pain management. In the opioid compliance deviation study,[21] participants were asked, "Are you satisfied with your pain control?" and the answer was scored on a five-level Likert scale from 1 (not satisfied) to 5 (completely satisfied). We used this same scoring scale in our current study to gauge patient satisfaction with pain management. For our study, a score of 3 and higher was considered to represent satisfaction with pain medication.

Patient characteristics and opioid doses

Demographic data collected for the current study included patient age, sex, race, religion, marital status, occupation, smoking history, as well as clinical data, and were obtained from previous study records and medical records. Clinical data included cancer diagnosis, active anticancer treatment status, CAGE score, and morphine daily equivalent dose (MEDD). Opioid dosages, including both regular and as-needed doses in the last 24 hours, were used for calculation of the oral MEDDs. Opioids deviation was defined as use of opioids 70% less or 130% more than the prescribed dose as same as in our previous study.[21]

Statistical analysis

Descriptive statistics, including means, medians, SDs, IQRs, and percentages, were used to summarize patient characteristics. For each barrier score, univariate linear regression analysis of barriers' association with patient factors was performed. Variables found to be significant at the 0.10 level were then included in the multiple linear regression analyses. Control of type I error was achieved through Bonferroni correction, where a p-value = 0.000625 is required to achieve statistical significance based on 80 comparisons and an overall type I error rate of 5%. Analysis was performed using statistical software SAS (SAS version 9.2 for Windows; SAS Institute Inc., Cary, NC).

Results

Of the 198 patients from the earlier study, 196 were found to be eligible for this study. Two patients were excluded because they had no depression score on the ESAS. The clinical characteristics of our study patients are described in Table 1.

Table 1. Clinical Characteristics of Study Patients ($N=196$)

Patient characteristics	*Number (%) of patients*
Age (years)	
Median	55
IQR	46–63
Sex	
Female	107 (55)
Race	
White nonhispanic	147 (75)
Black	31 (16)
Hispanic	13 (7)
Other	5 (3)
Religious beliefs	185 (99)
Education	
Less than college	67 (39)
College and more	107 (61)
Marital status	
Single	20 (10)
Married	129 (66)
Divorced/separated	34 (17)
Widowed	13 (7)
Employed	97 (49)
CAGE[a] positive	19 (10)
Smoking history	
Never smoker	106 (55)
Ex-smoker	60 (31)
Current smoker	28 (14)
Cancer diagnosis	
Genitourinary/Gynecology cancer	43 (22)
Gastrointestinal cancer	41 (21)
Breast cancer	35 (18)
Lung cancer	30 (15)
Head and neck cancer	18 (9)
Other	29 (15)
Receiving active anticancer treatment	121 (62)

CAGE, Cut down, Annoyed, Guilty, Eye opener; IQR, interquartile range.
[a]CAGE is score for alcoholism; 2 or more score regarded as positive.

The median age was 55 years, and more than half of the patients (61%) had a college education or more. All of the patients had advanced cancer, and 62% of patients were receiving anticancer treatment.

Patients' pain and depression profiles are presented in Table 2. The median pain score of the ESAS was 4 (IQR 3–7), and 64% (126/196) of patients had experienced moderate to severe pain at the time of the survey. Ninety-eight percent of patients (192/196) had received strong opioids, and the median MEDD was 160 mg per day. Sixty-three percent of patients (124/196) were satisfied with their treatment. The median depression score was 1 (IQR 0–3), and 22% of patients (44/196) had moderate to severe depression.

The scores for the BQ-II are presented in Table 3. The mean score (SD) of the total BQ-II was 1.7 (0.8). Among the subscales of the BQ-II, the mean communication barrier score was the lowest score (0.9, 95% confidence interval, 0.8–1.1) and the mean harmful effect score was the highest score (2.3, 95% confidence interval, 2.2–2.5).

Table 2. Patient's Profile Related to Pain and Depression ($N=196$)

	N (%)
Median ESAS pain score (0–10)	4 (3–7)[a]
None (0)	16 (8)
Mild (1–3)	54 (28)
Moderate (4–6)	71 (36)
Severe (≥7)	55 (28)
Median morphine equivalent dose, mg/day	160 (68–330)[a]
Type of medication	
Weak opioid	4 (2)
Strong opioid	192 (98)
Satisfaction with pain management	*N (%)*
Completely satisfied	28 (14)
Very satisfied	35 (18)
Satisfied	61 (31)
Somewhat satisfied	57 (29)
Not satisfied	15 (8)
Median ESAS depression score (0–10)	1 (0–3)[a]
None (0–1)	106 (54)
Mild (2–3)	46 (23)
Moderate to severe (4–10)	44 (22)
Opioid deviation	17 (9%)

[a]Median (IQR).
ESAS, Edmonton Symptom Assessment Scale.

The results of univariate analysis of factors associated with barriers to pain management are presented in Table 4. Total BQ-II score was higher for nonwhite patients than for white patients ($p=0.02$); and a high score on the communication barrier subscale was correlated with a low level of education ($p=0.04$) and was associated with depression ($p=0.03$). However, after Bonferroni correction, no single variable was associated with a high score for barriers to cancer pain management.

Table 5 presents the results of multiple linear regression for factors associated with barriers to pain management according to the subscales and total score of the BQ-II. In the multiple regression model, with fatalism as a dependent variable and with sex, religion, and pain score as independent variables, female sex was associated with a high fatalism score. In the multiple regression model, with communication as a dependent variable, low education level and a no-smoking history were associated with high communication barrier scores; variation in this model accounts for explained 11% of the overall variance. Nonwhite race was associated with a high

Table 3. Scores for Barriers to Pain Management from Barriers Questionnaire II (Mean ± Standard Deviation)

Barrier	*Median score (IQR)*	*Mean score ± SD*	*95% confidence interval*
Physiologic effects	1.8 (1, 2.5)	1.8 ± 0.9	1.6–1.9
Fatalism	1.7 (1, 2)	1.6 ± 0.9	1.5–1.7
Communication	0.8 (0, 1.4)	0.9 ± 0.9	0.8–1.1
Harmful effect	2.5 (1.5, 3)	2.3 ± 1.1	2.2–2.5
Total score	1.6 (1.1, 2.2)	1.7 ± 0.8	1.6–1.8

IQR, interquartile range; SD, standard deviation.

Table 4. Univariate Analysis of Barriers to Pain Management (Median and IQR)

	Physiologic effects		*Fatalism*		*Communication*		*Harmful effects*		*Total score*	
Factor	*Median (IQR)*	p	*Median (IQR)*	p	*Median (IQR)*	p	*Median (IQR)*	p	*Median (IQR)*	p
Age	1.8 (1, 2.5)	0.9	1.7 (1, 2)	0.3	0.8 (0, 1.4)	0.8	2.5 (1.5, 3)	0.97	1.6 (1.1, 2.2)	0.8
Sex										
Female ($n=89$)	1.9 (1.1, 2.5)	0.3	**1.7 (1.3, 2)**	**0.01**	**1 (0.3, 1.7)**	**0.07**	2.5 (1.7, 3)	0.9	1.7 (1.2, 2.2)	0.2
Male ($n=107$)	1.6 (0.9, 2.4)		**1.7 (1, 2)**		**0.5 (0, 1.3)**		2.5 (1.5, 3.2)		1.5 (1, 2.2)	
Race										
White ($n=147$)	**1.8 (0.9, 2.3)**	**0.07**	1.7 (1, 2)	0.7	**0.7 (0, 1.3)**	**0.07**	**2.3 (1.5, 3)**	**0.1**	**1.6 (1, 2.1)**	**0.02**
Black ($n=30$)	**1.8 (1, 2.5)**		1.7 (1, 2)		**0.9 (0.2, 1.3)**		**2.5 (1.7, 3.2)**		**1.7 (1.2, 2.5)**	
Hispanic ($n=13$)	**2.5 (2.1, 2.7)**		1.3 (1, 2)		**1.7 (0, 2.5)**		**3.2 (2.7, 3.5)**		**2.4 (1.8, 2.7)**	
Other ($n=5$)	**1.6 (1.5, 1.8)**		2 (1.3, 2.7)		**1 (0.2, 1.5)**		**2.8 (1.5, 3.2)**		**1.5 (1.5, 2.2)**	
Religion status										
Religious ($n=185$)	1.8 (1, 2.5)	0.1	**1.7 (1, 2)**	**0.097**	0.8 (0, 1.5)	0.4	2.5 (1.5, 3)	0.9	1.7 (1.1, 2.2)	0.4
No religion ($n=2$)	0.8 (0.5, 1)		**2.7 (2, 3.3)**		0.4 (0.3, 0.5)		2.4 (2.2, 2.7)		1.3 (1.2, 1.4)	
Education										
Less than college ($n=67$)	1.9 (1, 2.6)	0.3	1.7 (1, 2)	0.5	**1 (0.2, 1.7)**	**0.04**	2.7 (1.7, 3.2)	0.5	1.7 (1.2, 2.5)	0.2
College and more ($n=107$)	1.7 (0.9, 2.3)		1.7 (1, 2)		**0.7 (0, 1.2)**		2.3 (1.5, 3)		1.6 (1, 2.1)	
Marital status										
Married ($n=129$)	1.8 (1, 2.3)	0.4	1.7 (1, 2)	0.7	0.7 (0, 1.3)	0.3	2.3 (1.5, 2.8)	0.3	1.6 (1.1, 2.1)	0.3
Divorced/separated ($n=34$)	1.7 (0.8, 2.5)		1.7 (0.7, 2)		0.8 (0, 1.8)		2.5 (1. 7, 3.2)		1.7 (0.9, 2.3)	
Single ($n=20$)	2 (1, 2.6)		1.7 (1, 2.2)		1.1 (0.7, 1.8)		2.5 (1.6, 3.3)		1.8 (1.3, 2.6)	
Widowed ($n=13$)	2.3 (1.2, 2.7)		1.7 (1.3, 2)		1 (0, 1.4)		2.5 (2.3, 3.7)		2 (1.2, 2.6)	
Employment										
Employed ($n=97$)	1.8 (1., 2.4)	0.98	1.7 (1, 2)	0.3	0.8 (0, 1.5)	0.8	2.5 (1.5, 3.2)	0.8	1.7 (1.1, 2.2)	0.9
Unemployed ($n=99$)	1.7 (0.9, 2.5)		1.7 (1.3, 2)		0.8 (0.2, 1.3)		2.5 (1.5, 2.8)		1.6 (1, 2.3)	
CAGE										
Positive ($n=19$)	1.8 (1.4, 2.5)	0.5	2.0 (1, 2.3)	0.5	1 (1, 1.5)	0.8	2.5 (2.5, 3)	0.7	1.6 (1.4, 2.2)	0.6
Negative ($n=177$)	1.8 (1.8, 2.5)		1.7 (1.7, 2)		0.8 (0.8, 1.3)		2.4 (1.5, 3)		1.6 (1, 2.2)	
Smoking history										
Never smoker ($n=106$)	1.8 (1.2, 2.5)	0.2	1.7 (1, 2)	0.5	**1 (0.3, 1.7)**	**0.09**	2.5 (1.5, 3)	0.97	1.8 (1.2, 2.2)	0.2
Ever smoker ($n=88$)	1.5 (0.9, 2.5)		1.7 (1, 2)		**0.7 (0, 1.3)**		2.5 (1.5, 3)		1.5 (1, 2.1)	
Active anticancer treatment										
Yes ($n=121$)	1.8 (1, 2.5)	0.4	1.7 (1, 2)	0.2	0.8 (0.2, 1.3)	0.9	2.5 (1.5, 3.2)	0.9	1.7 (1.1, 2.2)	0.4
No ($n=75$)	1.7 (0.9, 2.3)		1.3 (1, 2)		0.7 (0, 1.5)		2.4 (1.7, 2.8)		1.5 (1, 2.1)	
ESAS pain score	1.8 (1, 2.5)	0.8	**1.7 (1, 2)**	**0.07**	0.8 (0, 1.4)	0.2	2.5 (1.5, 3)	0.7	1.6 (1.1, 2.2)	0.8
MEDD	1.8 (1, 2.5)	0.4	1.7 (1, 2)	0.2	0.8 (0, 1.4)	0.8	2.5 (1.5, 3)	0.4	1.6 (1.1, 2.2)	0.6
Satisfaction with pain management										
Yes ($n=124$)	1.8 (0.9, 2.5)	0.7	1.7 (1, 2)	0.2	0.7 (0, 1.5)	0.9	2.5 (1.5, 3)	0.9	1.7 (1, 2.2)	0.9
No ($n=72$)	1.6 (1, 2.3)		1.7 (1, 2.3)		0.8 (0.2, 1.3)		2.5 (1.7, 3)		1.6 (1.2, 2.1)	
ESAS depression score	1.8 (1, 2.5)	0.3	1. 7 (1, 2)	0.6	**0.8 (0, 1.4)**	**0.03**	2.5 (1.5, 3)	0.6	1.6 (1.1, 2.2)	0.3
Opioid deviation										
Yes ($n=17$)	1.9 (1.2, 2.8)	0.3	2 (1.2, 2.2)	0.27	1 (1, 1.3)	0.9	2.5 (1.7, 2.9)	0.7	1.7 (1.2, 2.3)	0.5
No ($n=179$)	1.8 (0.9, 2.4)		1.5 (1, 2)		0.8 (0, 1.5)		2.5 (1.5, 3)		1.6 (1, 2.2)	

ESAS, Edmonton Symptom Assessment Scale.
Bolded variables were picked up for multiple linear regression.
Bonferroni *p*-value cutoff is 0.000625.

total BQ-II score in the multiple regression analysis. However, with the Bonferroni correction, no variables remained significant using a *p*-value cut-off of 0.000625.

Discussion

In this study conducted in patients receiving outpatient palliative care, scores for barriers to pain management were relatively low for physiologic effect, fatalism, communication, and for total barrier score. Racial differences showed a potential association with high physiologic barrier score and high total BQ-II score, and a high level of education showed a possible association with low communication barrier scores in multiple regression analysis. Barriers to pain management have been reported to be associated with pain related factors; however, pain related factors were not shown to have any association with high barrier scores.

In finding relatively low pain management barrier scores among the study population, our study is similar to the first validation study of BQ-II with North American patients.[11]

Table 5. Barriers to Pain Management According to Subscales and Total Score (*P* Values in T-Test)

	Physiologic effects	*Fatalism*	*Communication*	*Harmful effects*	*Total score*
Sex[a]		0.03	0.07		
Race[b]	0.07		0.12	0.10	0.02
Religion		0.18			
Education[c]			0.02		
Smoking status[d]			0.04		
Pain score		0.18			
Depression score			0.14		
Unadjusted R^2	0.04	0.06	0.11	0.03	0.05
Overall F test significance	0.070	0.020	0.007	0.100	0.020

[a]Reference group: male.
[b]Reference group: white.
[c]Reference group: less than college.
[d]Reference group: never smoker.
Bonferroni *p*-value cut-off is 0.000625.

In contrast, studies conducted in other countries, including Denmark,[24] China (specifically Hong Kong),[25] Iceland,[26] Jordan,[27] and Lithuania,[28] have reported consistently higher barrier scores than those reported by that first validation study. Those higher scores are consistent with the results of our previous study, which focused on Korean cancer patients.[17]

Comparing to the Korean study, which was conducted in an oncology clinic,[17] differences in results might be attributed to differences in the study populations, such as in race, clinical characteristics, and medical services received, or to the relatively lower pain management barrier scores in the current study (see Table 6). However, the most important difference might be the increased time that the palliative care team spends communicating with patients in a palliative care clinic compared with health care provider–patient communication in regular oncology clinics, where the discussion must focus on cancer management and planning in addition to pain and symptom management. Moreover, an interdisciplinary palliative care team spends much more time educating patients and family members about pain and symptom management. This might explain the differences in patients' perceptions of barriers to pain management between palliative care clinics and oncology clinics. It also suggests that pain management needs an interdisciplinary team approach.

In addition to differences in palliative care management and communication practices, the two populations differed in levels of analgesic medication administered. Almost 100% of the North American study population was receiving strong opioids (98% versus 78% for the Korean study population).[4]

Table 6. Comparison of Mean Scores of Barriers Questionnaire II (Mean ± Standard Deviation) for Current Study vs. Kwon et al.[17]

	Current study (United States)	*Kwon et al.*[17] *(Korea)*	P
Physiologic effects	**1.8 ± 0.9**	**2.5 ± 0.9**	**< 0.0001**
Fatalism	1.6 ± 0.9	1.6 ± 1.0	0.7
Communication	**0.9 ± 0.9**	**1.5 ± 1.0**	**< 0.0001**
Harmful effect	**2.3 ± 1.1**	**2.8 ± 1.1**	**< 0.0001**
Total score	**1.7 ± 0.8**	**2.3 ± 0.8**	**< 0.0001**

The North American study population also had a higher median MEDD level than the Korean population had (median 160 mg/day versus 60 mg/day). A higher MEDD level might reflect a population that had more experience with pain management. It is possible that these patients perceived fewer barriers to pain management owing to their previous experiences. Further study that focuses more on longitudinal pain management might explain the differences in these findings.

Our finding of relatively low barrier scores might also reflect easier access to opioid management and education in North America, as has been demonstrated in the North American cohort.[3] Alternatively, our lower barrier scores may reflect cultural differences between North American and other cohorts in attitudes and beliefs about cancer pain management.[3] More research is needed to establish the effects of cultural differences. Overall, the barriers were much lower in this population. There is a trend not enabling to find the differences in association with the problems when their intensities are low. Because the clustering of results was in the low end, associations are hard to find. More research has to be done in a population with higher perceptions of barriers.

Although it is not statistically significant after Bonferroni correction, among demographic variables, race showed a trend of association with subscales of physiologic effects, communication, harmful effects, and total BQ-II score using univariate analysis. Race was also the only factor associated with total BQ-II score in multivariable analysis. This finding is important because it suggests that patients' sociodemographic factors, except racial differences, might not be strong determinants of their perceptions of barriers to pain management.

Nonwhite patients showed higher pain management barriers in total score than did white patients ($p = 0.02$), and although the differences were not statistically significant after the Bonferroni correction, minorities' barrier scores for physiologic effects, communication, and harmful effects were higher than scores for white patients (see Table 4). Another study reported that Chinese-American patients showed higher total barrier scores than those of Caucasian-American cancer patients.[29] Higher scores in minorities might be related to issues of access to health care or to beliefs among minorities about problems associated with opioids. The proportion of nonwhite minorities (48/196) may not be sufficient to explain differences in scores between minorities in America and white

Americans. Further study of these issues in minority races in North America is needed to answer this question.

Low level of education showed weak association with high barrier scores in the communication subscale through both univariate and multivariate analyses (see Tables 4 and 5). Total barrier scores showed no differences with other sociodemographic factors such as smoking history and CAGE positivity. Therefore, much more research is needed to establish the predictors of high pain management barrier scores.

Our previous study, which looked at a population of Korean cancer patients, found an association between high barriers scores in cancer pain management and depression;[17] however, the current study found no significant association in this respect (see Table 5). This discrepancy might be explained by the fact that these two studies each used different tools to measure depression: the Beck Depression Inventory for the Korean population and the depression section of the ESAS for the North American population. This explanation is particularly persuasive, because the frequency of depression was similar in both study populations (45.3% in the Korean group and 45.6% in the North American group; $p = 0.5$).

Another interesting finding of our study is that, contrary to previous studies, neither pain score nor opioid dose nor satisfaction with pain management was related to high barrier score. Those previous studies had suggested that high pain score, less pain relief, and inadequate pain management were associated with higher barrier score;[11,24,30,31] however, those studies not only found higher barrier scores than our study found but also included patients who were not newly consulted or whose symptoms were already under interdisciplinary management.

We did not collect data on pain duration and management or education and counseling about symptom management. This may have limited our capacity to establish an association between pain related factors and patient-reported barriers to pain management. Despite the moderate level of pain, we found that the barrier to pain management was low in the palliative care setting. Low barrier scores might be a limitation to identifying the factors associated with patient-reported barriers to pain management. Prospective studies among patients with high barrier scores, perhaps those newly introduced to opioids and also without palliative care involvement, might help to define the barriers better. Moreover, our study population consisted of highly educated individuals and mostly Caucasians. A more diverse population may help to identify the factors associated with a higher barrier score.

Patient-reported barriers to pain control were low in this patient population receiving palliative care. There might be an association between barriers and race that needs to be further investigated. Our finding suggests that barriers expressed lower by patients in a palliative care clinic of North America as compared to an oncology clinic in another world region, and the reasons for these needs to be studied in further research. Moreover, comparison between cancer pain patients and noncancer pain patients can help to understand the factors related to barriers to pain management.

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