Original Research

Pain management in hospitals: patients’ satisfaction and related barriers

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Abstract

Background: Suboptimal pain control has been frequently reported in healthcare settings and documented to negatively impact patients’ health. Patients’ perception regarding pain management may influence their satisfaction regarding treatment.

Objectives: This study focuses on the assessment of patients’ satisfaction regarding pain therapy and defining patient-related barriers for its implication.

Methods: A cross-sectional study was conducted in two tertiary care hospitals from April till July 2017. A face-to-face interview questionnaire was filled regarding pain scores and patients’ attitudes regarding pain management. Both medical and post-surgical adult patients with all types of pain were eligible to participate. A descriptive analysis of patient satisfaction and perceptions regarding pain management was done.

Results: Results from 183 participants with a mean age of 49 (SD=17.33) revealed that pain was their main reason for hospitalization (71.6% of the cases). Numeric pain scores were recorded only in 14.2% of the patient medical files. Pain intensity documentation by healthcare professionals was found in 41.5% of the cases, and 7.7% of the patients had to wait for more than 30 minutes before getting the pain medication. Around 85% of the patients were satisfied with their pain management. Patients’ barriers to effective pain therapy were mainly fear of adverse effects, addiction, and additional costs (p<0.05).

Conclusions: Pain remains a prevalent problem that requires more efforts for improvement. Our study can effectively serve as a start for larger studies where barriers to pain management can be assessed as an independent variable affecting pain management practice.

Keywords

Pain; Attitude to Health; Pain Management; Patient Satisfaction; Inpatients; Surveys and Questionnaires; Lebanon

INTRODUCTION

Patient’s right to involvement in all aspects of his/her pain management is promoted by governing organizations and healthcare institutions.1-3 Patients’ satisfaction with treatment is crucial to measure performance and success of the healthcare setting.4 In fact, patients expect to receive optimal pain management resulting in fewer adverse effects.5-7 Despite pain-related position statements and the recommendation of the American Pain Society that pain should be assessed by health care providers (HCPs) as a “fifth vital sign”8,9, under-treatment of pain remains a global concern. Although the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the American Society of Anesthesiologists addressed patients’ rights to have effective pain management1,2, insufficient knowledge of pain management still leads to inadequate pain evaluation which might adversely affect patients’ quality of life, physical and psychological wellbeing.3,4,5 Suboptimal pain control has been frequently reported in acute care settings to negatively impact patients’ health and reduce patient satisfaction.5,10

In the Middle East, the literature pertaining to the adequacy of pain management is still inaccurate and only few observational studies addressed the management of pain in Lebanese hospitals with a focus on the different patient-related barriers to adequate pain management.11-13 Despite the emphasis of the National Committee for Pain and Palliative Care to set standards for the improvement of pain management in Lebanon, many patients still suffer from pain during hospitalization.14-16 For instance, a Lebanese study conducted by Ramia et al. found that documentation of pain intensity was not completed for more than 90% of surveyed patients17 which constituted a major problem for adequate pain assessment. Similarly, multiple studies on pain management showed that documentation of pain was not consistently done which deprived the patients from proper treatment.18-20 Thus, understanding patient’s satisfaction as well as defining the barriers inhibiting such an appropriate assessment needs further investigation.

Accordingly, this study aims at 1) assessing patients’ description of pain intensity and characteristics; and 2) evaluating overall patients’ satisfaction regarding pain management. Secondary objectives were 1) describing if pain assessment and evaluation were practiced and documented by HCPs according to patients’ statements, 2) assessing patients’ attitudes and perceptions towards their pain management during hospitalization and their barriers prohibiting adequate therapy and 3) identifying predictive factors that affect patients’ satisfaction regarding pain management.

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METHODS

Study design and setting

A prospective, descriptive, cross-sectional study was conducted from April till July 2017 in two private tertiary-care centers. Patients’ surveys were used to describe patients’ pain intensity as well as their attitudes and beliefs prohibiting its adequate management. Other information such as the methods of pain assessment and their documentation by HCPs were also obtained from patient medical charts, physician orders and nurses’ progress notes.

Study population

The study targeted all inpatient adults with pain of any origin during their hospital stay. Eligible patients were alert adults who have been hospitalized for at least 24 hours and prescribed at least one analgesic. Patients were distributed among four different hospital units: Internal Medicine (IM), Obstetrics and Gynecology, Coronary Care Unit (CCU) and orthopedics unit. Excluded patients were pediatrics (<18 years old) or older adults (>85 years old) with cognitive impairment. Patients admitted to the emergency room (ER), or discharged within 24 hours or less, and those who were missing a complete medical record were also excluded from the study.

Tool for data collection

Face-to-face questionnaires, divided into two sections, one for the description of pain and patients’ satisfaction and another for patient’s perceptions regarding pain therapy, were developed in English and then translated to Arabic. It consisted of 8 data collection pages, with most of the questions requiring a “yes” or “no” answer. The first set of questions regarding pain score and intensity was developed in congruence with the American Pain Society Patient Outcome Questionnaire (APS-POQ) (Internal reliability: alpha Cronbach’s score of 0.89) and modified to align with the study requirements.21,22

Patient-related barriers were incorporated from the Barriers Questionnaire-13 (BQ-13) (Internal reliability: alpha Cronbach’s score of 0.86) obtained from the study conducted by Boyd-Seal et al.23

Participating patients were asked to voluntarily fill out the questionnaires that included the following sections: 1) Demographic features including age, gender, educational status, living place, income, health insurance and marital status; 2) pain intensity measured with the items “least” and “most” severe based on numerical rating scales (NRS) with answer options ranging from 0 to 10, where 0 reflects no pain and 10 worst pain possible; 3) pain interference with activities (walking, sitting, and standing) and sleep (turning, repositioning in bed, difficulty falling asleep and difficulty staying asleep); and 4) overall patient satisfaction measured using a 4-point Likert scale including strongly dissatisfied, dissatisfied, satisfied, and strongly satisfied that was assessed after 48 hours from the initiation of the first prescribed analgesic. Patient satisfaction categories were then divided into two groups: strongly dissatisfied or satisfied and satisfied or strongly satisfied.

Statistical analysis

Completed questionnaires were analyzed using SPSS version 22.0. Descriptive statistics were used to describe patients’ characteristics. Means and standard deviations were calculated for continuous variables. Pain characteristics, including severity, method of pain assessment, patterns of pain, pharmacologic and non-pharmacologic and psychological therapies were incorporated in the analysis. Pain management was categorized as good (patient satisfaction was >80%) or poor (<80%). Study population characteristics and barriers were compared using the Chi-Square test. A P-value < 0.05 was considered statistically significant.
pharmacological therapies were summarized. Relationship between categorical variables such as appropriateness of therapy and its relationship with patients’ satisfaction were examined using Pearson’s Chi². Fisher’s exact test was used when a condition of any expected cell count in a 4x4 table is less than 5. An alpha level of ≤5% was used to detect statistical significance. A forward stepwise likelihood ratio logistic regression was then conducted for multivariable analysis to identify the predictive factors associated with patients’ satisfaction. The dependent variable was satisfaction of the patients and variables that showed significant results in the univariate analysis (p < 0.001) were considered the independent variables. Such a restrictive criterion was considered because of the small sample size of the study. The Hosmer-Lemeshow goodness-of-fit test was used to assess the overall fit of the model, and adjusted odds ratios (aOR) were calculated.

RESULTS
Baseline characteristics
A total of 200 patients were eligible to participate in the study. 82 were selected from the first hospital and 118 from the second hospital. Of them, 183 (91.5%) patients met the inclusion criteria and completed the questionnaire whereas 17 (8.5%) were excluded. The most common reason for exclusion was lack of follow-up due to hospitalization of less than 48 hours (Figure 1). The mean age was 49 (SD=17.335) [range 19-85]. There was a similar distribution of the gender groups (57.4% females, 42.6% males). Patients were distributed as follows: 127 (69.4%) from IM, 15 (8.2%) from CCU, 29 (15.8%) from obstetrics and 12 (6.6%) were from the orthopedics unit. 53.9% of the patients underwent surgeries (obstetrical, orthopedics, or any type of surgery such as gastric sleeve, appendectomy, etc.). The majority of patients were covered by national social security fund (NSSF) (54.6%) or private insurances (13.1%) or both (8.2%). Around 64% were admitted with health coverage of a second medical class versus 21.9% (13.1%) or both (8.2%). Around 64% were admitted with health coverage of a second medical class versus 21.9% (13.1%) or both (8.2%). Around 64% were admitted with health coverage of a second medical class versus 21.9% (13.1%) or both (8.2%).

Patients interviewed (200)

Patients excluded (17; 8.5%)
- 2 less than 18 years old (from hospital 1)
- 11 admitted for less than 48 h (5 from hospital 1 and 6 from hospital 2)
- 4 discharged the same day (1 from hospital 1, and 3 from hospital 2)

Patients included (183; 81.5%)

Figure 1. Patient inclusion procedure.
minophen, ketoprofen and meperidine were provided with sufficient education when compared to 27 patients (96.4%) with a HCP. Tawil S, Iskandar K, Salameh P. Results have shown that pain scores significantly decreased (p<0.001). In general, the majority of patients reported to be satisfied (68.3%, n=125) and 30 patients strongly satisfied (16.4%) regarding pain management therapy. Only 28 patients (15.3%) were either dissatisfied or strongly dissatisfied. When comparing between categories of pain severity, it was shown that 25 patients (16.2%) with mild to moderate pain were satisfied or strongly satisfied versus 129 (83.8%) with severe pain. Again, only one patient with mild to moderate pain was either dissatisfied or strongly dissatisfied when compared to 27 patients (96.4%) with severe pain. This trend failed to show any statistical significance (p=0.078).

### Secondary endpoints

Several unfavorable management practices related to pain assessment and management were reported in both medical and surgical services. These included the following findings: (1) pain status not being discussed with a HCP prior to analgesic administration (76 patients (41.5%) were properly assessed versus 39.9% (n=73) not sufficiently assessed and 11.5% (n=21) not assessed at all); (2) pain score was not recorded on medical files (54.6%, n=100); (3) patients not being provided with sufficient education regarding the importance of pain reporting and management (53.6%, n=98) nor followed-up appropriately in the next 48 hours (75.4%, n=138); (4) patients having to wait for more than 30 minutes before getting the pain medication when requested (7.7%, n=14); and (5) patients asked about pain medications but were not given (10.9%, n=20). Among the cases in which pain assessment was done before initiation of pain treatment, pain score was recorded only in 14.2% of the medical files with the NRS being the most frequently used scale (12.6%). Nurses were the most involved HCPs to report pain since 16.9% of pain cases were assessed by nurses solely versus 39.9% (n=73) not sufficiently assessed (p=0.078). In general, the majority of patients reported to be satisfied (68.3%, n=125) and 30 patients strongly satisfied (16.4%) regarding pain management therapy. Only 28 patients (15.3%) were either dissatisfied or strongly dissatisfied. When comparing between categories of pain severity, it was shown that 25 patients (16.2%) with mild to moderate pain were satisfied or strongly satisfied versus 129 (83.8%) with severe pain. Again, only one patient with mild to moderate pain was either dissatisfied or strongly dissatisfied when compared to 27 patients (96.4%) with severe pain. This trend failed to show any statistical significance (p=0.078).

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effects, 58 (31.7%) reported that they are afraid of them such as constipation (15.8%), drowsiness (10.9%), confusion (8.2%) and nausea (13.6%); (3) 91 patients (49.7%) were afraid from receiving more injections and 62 (33.9%) were afraid from additional costs; (4) regarding cultural beliefs, 78 patients (42.6%) report that pain medication should be saved for more severe pain, 103 (56.3%) are afraid that step-up therapy may be associated with more severe illnesses, and 57 (31.1%) are convinced that good people should avoid talking about pain; (5) regarding the HCP-patient relationship, 71 (38.8%) agree that complaining may distract the physician on focusing on the main health problem whereas 101 (55.2%) report that miscommunication between the HCP and the patient may lead to inadequate assessment.

Results detailing the socio-demographic factors and their association with patients’ satisfaction are presented in Table 3. Both genders were equally satisfied (81.1% males vs. 87.2% females, p=0.263). Patient satisfaction failed also to show any statistically significant difference between those who had first class coverage or not (p=0.515). However, being an elderly which is defined by an age over 65 years was associated with more dissatisfaction when compared to a younger age group (27.3% versus 12.7%; p=0.035).

Patients who had proper pain assessment were more satisfied when compared to those who were not properly assessed (27.1% versus 20.1%, p<0.001). A total of 137 patients (91.3%) who think that their pain treatment was helpful were significantly satisfied (p<0.001). Those who did not receive timely medication administration (<30 minutes) and those who asked for pain medication but were not provided were more dissatisfied (71.4% versus 10.9% and 65.0% versus 7.7% respectively; p<0.001). More details about pain assessment conditions and their relationship with patient satisfaction are listed in Table 4.

As for patients’ perceptions, fear of addiction and side effects such as constipation or drowsiness were significantly associated with patient dissatisfaction (p<0.001). Again, 66.1% and 76.9% of those who were afraid of additional costs and injections were considered satisfied or strongly satisfied when compared to those who were not afraid [90 (97.8%) and 74 (91.4%); p<0.001 and p=0.001 respectively]. Moreover, only 64.2% who believed that complaining about pain may lead to distraction of the HCP were satisfied versus 96.8% with no such belief (p<0.001). The same trend was shown with the patients who believed that good communication between the patient and the HCP is important for appropriate pain management (p<0.001).

**Multivariable analysis**

A multivariable analysis for patients’ satisfaction with all variables with p<0.001 was done: (1) Patients perceptions and opinions such as fear of addiction, additional costs and side effects, in addition to lack of communication between HCPs and the patients as well as fear of distracting HCPs by complaining about pain were also taken into consideration. (2) Pain assessment methods such as proper assessment of pain by a HCP, waiting more than 30 minutes before receiving pain medications and asking for analgesics but not being provided. The stepwise forward approach was adopted. Five models were obtained; the Omnibus Tests of Model Coefficients was found significant (<0.001) suggesting that the model is fit and suitable to the data. The Hosmer and Lemeshow goodness-of-fit test was found to be non-significant (0.175) emphasizing that the model is fit with its data. The overall percentage from the classification table was 95.8% suggesting that the entered

| Table 3. Sociodemographic predictive factors associated with patient’s satisfaction with pain management |
|-------------------------------------------------------------|
| Gender | |
| Male | 14 (18.9%) | 60 (81.1%) | 0.311 |
| Female | 14 (12.8%) | 95 (87.2%) | |
| Age | |
| 19-65 | 87 (69.6%) | 38 (30.4%) | 0.035 |
| >65 | 19 (12.7%) | 131 (87.3%) | |
| Health coverage | |
| Self-payer | 4 (17.4%) | 19 (82.6%) | 0.685* |
| NSSF or/and insurance | 20 (14.4%) | 119 (85.6%) | |
| MOH coverage | 3 (25.0%) | 9 (75.0%) | |
| Others | 1 (11.1%) | 8 (88.9%) | |
| First class coverage | |
| No | 21 (14.6%) | 123 (85.4%) | 0.515 |
| Yes | 7 (18.9%) | 30 (81.1%) | |
| Highest level of education | |
| Not completed | 9 (13.2%) | 59 (86.8%) | 0.24 |
| High school degree | 15 (20.5%) | 58 (79.5%) | |
| University degree | 4 (9.5%) | 38 (90.5%) | |
| Income status | |
| Poor | 3 (13.6%) | 19 (86.4%) | 0.82* |
| Fair | 7 (12.3%) | 50 (87.7%) | |
| Good | 1 (5.9%) | 16 (94.1%) | |
| Marital status | |
| Single | 4 (11.8%) | 30 (88.2%) | 0.28 |
| Married or divorced | 24 (17.3%) | 115 (22.7%) | |
| Widowed | 0 (0.0%) | 10 (100.0%) | |

*Fisher’s exact test
variables could explain more than 50% of the variability of the dependent variable. The Nagelkerke R square was 0.762 indicating that 76.2% of the variation of patient satisfaction is due to the variation of the independent variables included. Results of both significant and non-significant variables in the equation are presented in Table 5. Results have shown that patients’ satisfaction significantly decreased because of some prejudgments such as patients’ fear of side effects (aOR=0.098) and additional treatment costs (aOR=0.007). When it comes to the involvement of HCPs in the therapy, it was shown that satisfaction significantly decreased when the patient had to wait for more than 30 minutes before getting the analgesic (aOR=0.006) or if he/she asked for additional therapy but were was not given (aOR=0.024). Proper pain assessment and asking about pain intensity by a HCP significantly increased patient’s satisfaction (aOR=30.403).
Table 5. Multivariable analysis for the predictors of patient satisfaction

| Independent variables in logistic regression model | ORa | 95% CI | p-value |
|---------------------------------------------------|-----|--------|---------|
| Did you ask for pain medication but were not given? | 0.024 | 0.003 – 0.208 | 0.001 |
| Was your pain properly assessed prior to pain medication administration? | 30.403 | 1.587 – 82.603 | 0.23 |
| Did you have to wait more than 30 minutes before receiving a pain medication? | 0.006 | 0.000 – 0.291 | 0.009 |
| Fear of side effects | 0.098 | 0.011 – 0.848 | 0.035 |
| Fear of additional costs | 0.007 | 0.000 – 0.375 | 0.015 |

(Dependent variable is patient satisfaction. ORa= Adjusted odds ratio; CI= Confidence interval)

DISCUSSION

Our results have shown that pain was prevalent and consistently experienced by hospitalized patients in varying intensities (71.6%). These results are comparable with many other studies which demonstrated that pain is present in more than 40% of hospitalized patients. Around 86% of the patients in our study were categorized to have severe pain on their first day of hospitalization. This is in congruence with the definition of pain by the International Association for the Study of Pain whereby ‘pain’ is referred to as an emotional experience that is highly subjective.

An intervention-necessitating finding in our current study is the lack of documentation of pain scores in 54.6% of surveyed patients. When compared to Zeitoun et al., it was shown that 49.1% of the patients who were interviewed were undertreated based on the subjective pain scales they were provided, which deprived them from proper treatment. Moreover, in the study conducted by Ramia et al., documentation of pain was not consistently done for the majority of patients. On the other hand, inadequate follow-up by a HCP was one of the major concerns of this study. In fact, only 24.6% of the hospitalized cases were followed up during the first 48 hours whereas the majority of them did not receive proper follow-up or were inconsistently followed up. These results are consistent with Zeitoun et al. in which it was shown that 22% of the patients had adequate follow-up.

As for the patients’ opinions and perceptions regarding therapy, their satisfaction was highly dependent on adequate pain assessment by HCPs and their involvement in therapy. Fear of side effects and treatment costs were barriers that affected patients’ satisfaction negatively. This lack of patients’ knowledge and involvement in pain treatment was also identified by the First National Pain Medicine Summit as one of the top barriers to receiving adequate patient care. Similarly, Ramia et al. reported that an average of 92% of surveyed patients were either satisfied or strongly satisfied with their pain management and identified patient satisfaction to be higher when doctors and nurses were more involved in pain intensity assessment and immediate provision of treatment. Our findings are also supported by Bourdillon et al. and Thorson et al. reporting that pain assessment prior to administration of pain medications as well as timely administration of analgesics leads to better pain relief.

This study provided optimistic data that 84.7% of the patients were either satisfied or strongly satisfied; this is in congruence with previous literature on patient engagement and satisfaction with care, which can be explained by the fact that only 7.7% of the patients had to wait for more than 30 minutes before getting the pain medication when requested and only 10.9% of them did not get any additional analgesic for their increasing pain. Moreover, almost half of the recruited participants were provided with sufficient education regarding their pain status and therapy. Accordingly, such favorable practices involving patient engagement in the care process could explain our positive findings of patient satisfaction despite the substantial pain that was still being experienced.

Another finding in our study was the statistically significant association of older age with dissatisfaction in regards to pain management; this can be explained by the fact that elderly have lower pain threshold and tend to have more medical and cognitive problems that may affect negatively their satisfaction. In addition, older adults are more likely to experience adverse reactions from pharmacologic agents which might modify the treatment. This finding, supported by Cavalieri was also addressed in published literature where it has been speculated that pain perception may be different in older adults because of an atypical presentation of diseases. It was stated that physicians need to be skillful in pain assessment and knowledgeable of both pharmacologic and non-pharmacologic approaches to providing optimal analgesia.

To our knowledge, this study is among the few epidemiological studies conducted in the region to assess patients’ satisfaction regarding pain management and evaluate the obstacles that may affect their satisfaction. Moreover, this is the first study to statistically evaluate patients’ related barriers to adequate pain control during hospital stay. It addressed an essential clinical problem that remains suboptimally managed. In fact, Daher et al. identified potential impediments to adequate pain control in Lebanon including national policy (restrictive laws and regulations that govern the medical use of opioids) and barriers in the provision of health services, but only mentioned some of the patient-related concerns without statistical evaluation. Furthermore, in the study conducted by Nasser et al., the aim was to evaluate physicians’ assessments of their own competency in pain management and identify physician-related barriers to effective pain control whereas barriers to adequate pain management from patients’ perspective were not mentioned. In addition, this study’s tool for data collection is based on a validated questionnaire which significantly high Cronbach alpha scores to evaluate pain management during hospitalization. However, some limitations must be underlined. First of all, many participants might not recall previous medical actions and decisions regarding their pain which might introduce a recall bias; in this case, investigators were encouraged to collect missing information from patient medical charts, physician orders and nurses’ progress notes. Another limitation is the presence of many interviewers with face-to-face questionnaires which may lead to interviewer bias. For this
sake, prior training and the use of a single translated version of questionnaire were applied to limit this type of bias. Moreover, the existence of contraindications or precautions that may influence the choice of pharmacologic medications and the preference of one drug over another may play the role of confounding factors that may also affect negatively the external validity of our study. To add, many underlying conditions such as chronic comorbidities or other mental or psychiatric disorders like depression or anxiety may reduce patients’ satisfaction regarding pain treatment which might affect negatively the generalizability of the results. Aside from being a descriptive, non-interventional study with voluntary convenience sampling method at a limited number of sites, a follow-up of pain was done after 48 hours from the beginning of pain therapy which strengthens our findings.

CONCLUSIONS

Despite the growing evidence on pain management, pain is still a prevalent problem that needs more attention and evaluation. Identified patient barriers that hamper pain management must be overcome and active patient participation in their care might be an effective way to improve pain management. Thus, institutions should place their money and effort on continually evaluating the quality of pain management, educating both the patients and health care professionals and stressing on adherence to clinical guidelines which are paramount for effective pain management. A prompt evaluation of pain should be warranted as soon as possible in order to limit patients’ suffering.

Our findings may help build the national database on pain management from the perspective of the patients and help regional authorities to better understand their patient needs and improve the implementation of acute pain management services.

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CONFLICT OF INTEREST

We declare that the corresponding is full-time employee at the Lebanese Order of Pharmacists, Drug Information Center Department. Katia Iskandar is the chief pharmacist of the Lebanese Canadian Hospital and a professor at the Lebanese University and Beirut Arab University. Pascale Salameh is a full-time Professor at the Lebanese University and the chair (non-profit position) of the scientific committee at the Lebanese Order of Pharmacists. We have no other conflict of interest to declare.

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