Original Article

Patients’ Satisfaction with their Post-operative Pain Management in Armed Forces’ Hospitals of Athens, Greece

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Abstract
The purpose of this study was to investigate patients’ satisfaction with their post-operative pain management, identify the characteristics of their pain and explore any possible gaps in post-operative pain management in Armed Forces’ Hospitals in Athens. A total of 150 consecutive patients on their 2nd post-operative day, selected from different wards of the surgical sector of the three tertiary care Armed Forces’ hospitals in Athens, Greece, were included in the study. Data was collected using “The American Pain Society/Patient Outcome Questionnaire” For the 2nd post-operative day, 26.7% of the patients reported the level of their pain as ≥5 in the 0-10 VAS (mean = 3.15 ±2.14). A 90.7% of the respondents were generally satisfied with the management of their post-operative pain, whereas 53.3% of them were very satisfied with the response of nurses and 45.3% were very satisfied with doctors’ response when they were complaining of pain. The time for administration of a medication on demand was <10 min for 49.3% of the population. All patients who had undergone a major surgery were satisfied with the management of their pain (X² = 9.75, df=2, p=0.008). Patients who were dissatisfied with the management of their pain had generally suffered high levels of pain (R = 0.26, p<0.05). Even if pain impeded various patients’ activities, they generally did not wish further analgesia because of either the fear of addiction in opioids or the side effects of the medications. Moreover, patients consider pain as normal consequence of a surgery.

Key words:
Nursing care, pain management, patients’ satisfaction, post-operative pain, visual analogue scale

Introduction and background to the study
Pain is a universal experience and is estimated to be the most frequent reason for people to seek health care [1]. Pain has occupied scientists perhaps as much as any other health problem but, despite the advanced knowledge about pain, it remains a problem not completely resolved [2, 3]. Pain management is of high priority for post-operative patients [4] as almost 50% of the patients undergoing an operation experience moderate to severe pain after surgery [5]. It seems, however, that post-operative pain management is not as effective as it should be [6] as it is estimated that three quarters of post-operative patients suffer from inadequate pain management [7].

The Committee on Quality Assurance Standards of the American Pain Society (APS) has instituted surveys of patients’ satisfaction as a form of assessment of prompt recognition and treatment of pain [8]. However, the literature suggests that there is a complex and sometimes contradictory relationship between post-operative pain management and patients’ satisfaction. Several studies have identified that a high incidence of post-operative pain may still lead to high levels of patient satisfaction with their pain management [1, 9-11].

Patients’ satisfaction with pain management
“Patients’ satisfaction” is considered to be an important indicator of quality care in the health care settings [12-18] whereas patients are satisfied with the overall hospital care when they are primarily satisfied with nursing care they receive [19] in terms of nurses’ kindness, support, patience, knowledge, immediate
response to their needs and good personal relationships [20]. Moreover, there is an emphasis on the importance of explanations and information provided from nurses to patients, since patients feel more comfortable to talk to nurses [21]. In addition to this, patients’ satisfaction has been found to be influenced by contextual factors such as the patients’ knowledge about their illness and experiences they have from previous contacts with health services [14], whereas there is a relationship between the level of satisfaction and patients’ age [22-24], educational level [25, 26] and social class [27].

On the other hand, various studies have identified deficits in nurses’ and doctors’ attitude and approach to pain, possibly due to a lack of knowledge or a lack of experience in dealing with patients in pain [28]. Pain is often underestimated and undertreated [29, 30] despite the development of assessment tools to measure pain. Nurses are not always familiar with their use and may therefore make clinical decisions about the patients’ pain management subjectively by observing patients’ behavior [29]. This is a common phenomenon in clinical settings and it seems that pain assessment tools are widely used only in research [31].

However, inadequate and inappropriate post-operative pain management is related to many different factors. Early discontinuation of opioid analgesia without a previous discussion with patients about their analgesia needs may be a cause for inadequate treatment [4, 32]. Patients’ fear about the side-effects and possible addiction to opioids may also affect patients’ willingness to ask for analgesia or to report pain [32-36]. Because of fears about addiction and side effects, many doctors and nurses do not prescribe or administer respectively the maximum therapeutic opioid dose [33, 35], although the UK’s Royal College of Surgeons (RCS) and Royal College of Anaesthetists (RCA) suggest that the overall incidence of opioid addiction in post-operative patients is about 0.033% [4].

**Aims of the study**

The aims set for this study were to evaluate patients’ satisfaction with their post-operative pain management, to identify the characteristics of their pain, to explore the gaps in post-operative pain management in the Armed Forces hospitals of Athens and to investigate patients’ beliefs about pain and analgesia.

**Material and Methods**

*The approach*

A survey design was employed to examine patients’ satisfaction with their pain management. The approach was quantitative and the data collection was accomplished through a self-report questionnaire.

*The settings*

The research took part in the three tertiary Armed Forces’ hospitals (Army, Navy and Air Force hospitals) based in Athens, Greece. The overall number of beds in the three hospitals was 1,245 with an average of 300 operations carried out weekly. All three hospitals had a full range of surgical services except operations requiring extracorporeal circulation procedures. Moreover, they had similar strategies in nursing and medical management. None of the hospitals had a pain clinic and there were no standardized rules or procedures to determine the way in which the management of pain should be addressed. Routine pain management included the prescription and administration of oral or parenteral analgesia mainly on a “pro re nata” (prn) basis.
Inclusion and exclusion criteria

Patients who had undergone elective surgery, who were alert and oriented, more than 18 years old, greek-speaking and on their 2nd post-operative day were included in the study. Patients in a critical situation, admitted in Intensive Care Unit (ICU) or who were known to have mental health disorders were excluded. The 2nd post-operative day was selected for the administration of the questionnaires as maximum post-operative pain seems to be experienced 12-48 hours post-operatively [7, 37] as well as patients could reflect on their first 24 hours following surgery.

A convenience sample was sequentially recruited from selected wards of all three hospitals. The wards were selected in a way to ensure that patients of both genders, all ages, having different eligibility criteria for access to military hospitals and having undergone different surgical procedures could be included in the study.

The instrument

The American Pain Society/Patient Outcome Questionnaire (APS/POQ) was adapted for the collection of data. Permission to adapt the questionnaire was obtained from the editors of “The Journal of American Medical Association” as the revised APS/POQ was firstly published in this journal [2] and from three different authors as well, who created and used this questionnaire in the past, in order to assess cancer and post-operative patients’ satisfaction with their pain management [38-40]. This questionnaire had also been widely used in other studies which examined inpatients’ satisfaction with pain management [38-44]. Moreover, the Agency for Health Care Policy and Research (AHCPR) had supported it as a tool for monitoring patient satisfaction with management of pain [42] and it had also been successfully used with Greek cancer patients for the evaluation of their satisfaction with their pain management [45]. The content and construct validity of the APS/POQ was established by a panel of experts consisting of members of the APS [2] and McNeill et al established the reliability of the instrument [39].

Since the study was undertaken in Greece, in order to preserve the equivalence of the tool, the instrument was translated from English into Greek and the Greek version was back translated from Greek into English, following Chang et al’s suggestions [46]. Afterwards, this was checked by three independent bilinguals. The content validity of the Greek-translated questionnaire was assessed by six health professionals with experience in the case of surgical patients and/or pain management. Internal reliability was tested on the Greek version of the questionnaire by Cronbach’s alpha, demonstrating a satisfactory degree of reliability varying from 0.91 to 0.77.

Ethical Issues

The research was approved by the Scientific Committees of all three hospitals. Since data was collected through a self-administered questionnaire, completion of the questionnaire implied consent to participate [47]. A covering letter attached to the questionnaire was given to all participants explaining the purpose of the research and emphasized anonymity, confidentiality and voluntary participation.

Data collection procedures

The questionnaires were distributed by the Senior Nurses of the selected wards of all three hospitals. Senior Nurses were provided with two check-lists, one concerning the type, route and dose of analgesia provided and the other the type of operation. Analgesia administered was coded as opioids, non-opioids analgesics or NSAID’s (Non Steroid Anti Inflammatory
Drugs) or in combination between them. Frequency of analgesia administered was coded as “on demand” or systematic or in combination of both. After completing the check-lists, Senior Nurses attached them to the questionnaires and delivered them to the respondents providing them with a sealed envelope.

Analysis was performed with SPSS 15.0 using descriptive statistics and X² test, Mann-Whitney U-test, Kruskal-Wallis and Spearman’s rank-order correlation test. Finally, content analysis was used in order to summarize and present the information obtained from the two open-ended questions. The level of statistical significance was determined to be ≤0.05.

Results

The data were collected over a four-week period from all three hospitals. One hundred-fifty consecutive patients from the three Armed Forces’ hospitals who met the eligibility criteria were included in the study. The total number of returned questionnaires was 106, going a response rate of 71%. As the 106 correspondents underwent 43 different types of operations, answers concerning type of operation were coded according to the operation’s severity (minor, intermediate or major surgery) after communication with nine consultants of different divisions of the surgical sector of the 401 Army General Hospital of Athens.

Experience of pain

Seventy five of the participants (70.8%) stated that they experienced some pain during their 1st post-operative day. Thus, following the questionnaire’s suggestions, these 75 patients completed the whole questionnaire; 64% of them (n=48) were informed by a doctor and/or a nurse about the importance of reporting and treating pain.

Patients’ experience of pain is presented in Figure 1. At the time of completion of the questionnaire (2nd post-operative day), the highest score (9 in the 0-10 VAS) was marked from a woman who had undergone hemorrhoidectomy whereas 4 patients (5.3%) marked 10 in the 0-10 VAS for their worst pain during the first post-operative day. Moreover, pain interfered more with patients’ general activity, mood, walking ability and sleep rather than relations with others and deep breathing and coughing (Figure 2).

Severity of surgery and analgesia

One hundred and four out of 106 checklists concerning the type of surgery and the analgesia prescribed for patients’ 2nd post-operative day were completed. A 36.8% of the patients (n=39) underwent minor surgery, 35.8% (n=38) intermediate severity surgery and 25.5% (n=27) major surgery. Only one patient, having undergone amputation of the thigh, had PCA (Patient-Controlled Analgesia) and 14.1% (n=15) of the participants did not have any analgesia prescribed during their 2nd post-operative day.

Waiting time to receive analgesia

Almost half of the patients (49.3%, n=37) recalled that the longest time they had to wait for medication was ≤10 minutes, whereas 25.3% of the patients (N=19) reported that they had never asked for pain medication and 81.3% (N=61) said that they did not request any change in their analgesic regimen.

Patients’ beliefs about pain and pain medications

Forty two patients (56%) said that although still in pain, they would not like to have a stronger dose of analgesia. Patients’ beliefs about pain and pain medications are presented in Table 1. Patients seemed not to be well enough
informed about notions like “people get addicted to pain medication easily”, “it is easier to put up with pain than with the side-effects that come from pain medicine” and “pain medicine should be “saved” in case the pain gets worse”.

Figure 1. Patients’ experience of pain (N=75)

Figure 2. Interference of pain with different activities (N=75)
Patients’ satisfaction with the management of their pain

90.7% of the patients were generally satisfied with their overall pain management. The proportion of satisfaction with the way that nurses or doctors responded to the patients’ reports of pain was similar (92%, N=69) but 53.3% (N=40) and 45.3% (N=34) of participants responded that they were “very satisfied” with nurses’ and doctors’ response to their reports of pain respectively (Figure 3). No significant difference was found relating patients’ demographic data or information on pain management to patients’ overall level of satisfaction. A significant difference was found between severity of surgery and overall level of satisfaction ($X^2=9.751$, df=2, p=0.008); all patients who underwent major surgery were satisfied with their overall post-operative pain management but almost one third of patients who underwent intermediate surgery were dissatisfied (Figure 4).

There was also a statistically significant difference related to patients’ age ($X^2=10.237$, df=3, p=0.017) and marital status ($X^2=9.648$, df=4, p=0.047), where older patients and patients who were widows, divorced or separated respectively were as a rule satisfied with their pain management by nurses. In addition to this, all patients over 50 years old were satisfied with their pain management by nurses whereas several younger patients were dissatisfied. No associations were found between patients’ gender ($z=-0.048$, NS), age ($r_s=-0.082$, NS), and educational background ($r_s=0.103$, NS) and their level of post-operative pain. The findings revealed weak inverse correlations between pain severity and patients’ satisfaction since patients who were dissatisfied with their overall post-operative pain management ($r_s=-0.26$, p<0.05) and with nurses’ ($r_s=-0.271$, p<0.05) and doctors’ ($r_s=-0.20$, NS) response to their pain, experienced higher post-operative pain intensity scores.

Data revealed no correlations and no significant differences between time-elapse and patients’ satisfaction ($r_s=-0.015$, NS for overall satisfaction, $r_s=-0.058$, NS for satisfaction with nurses’ response and $r_s=-0.074$, NS for satisfaction with doctors’ response to patients’ complaints of pain).

Reasons for patients’ satisfaction or dissatisfaction

Although seven patients stated that they were dissatisfied with their overall pain management, only four justified their dissatisfaction; one patient (patient 5, underwent spinal surgery, marking 1 in the 0-10 VAS for the intensity of her pain) stated that she was “satisfied” with the overall pain management and from nurses’ response to her reports of pain but she was dissatisfied from doctors’ response to her pain because “when admitted at the A&E complaining of back-pain, doctors treated me very bad”.

Another patient (patient 67, underwent inguinal hernia repair, marking 4 in the 0-10 VAS for the intensity of his pain) mentioned that there was a “remarkable delay” in administration of analgesia. This patient was slightly dissatisfied not only with doctors’ and nurses’ response to his pain, but with his overall pain management as well and he said that he had to wait more than an hour in order to receive analgesia.

The third patient (patient 86, underwent laparoscopic cholecystectomy, marking 2 in the 0-10 VAS for the intensity of her pain) was slightly dissatisfied with doctors’, nurses’ and her overall pain management because she “needed a stronger pain medication”.

The last patient (patient 35, underwent internal fixation of the patella, marking 7 in the 0-10 VAS for the intensity of his pain) was dissatisfied with
all his post-operative pain management and with doctors and nurses as well because “when I was complaining of my pain, everybody was answering that I should be patient as pain could be much worse…….”

On the other hand, three other patients, although satisfied, commented in this section. One patient (patient 68, underwent amputation of the thigh, marking 4 in the 0-10 VAS for the intensity of his pain) said that he was “slightly satisfied” stating that “I was given a wrong medication that could not provide analgesia for my bone-pain but to be sure without any delay”.

Two other patients commented positively about their satisfaction stating that “I am very satisfied with my overall pain management because all the staff did their best for my treatment” (patient 65, underwent laparoscopic cholecystectomy, marking 2 in the 0-10 VAS for the intensity of his pain) and “I am really very satisfied” (patient 96, underwent craniotomy, marking 7 in the 0-10 VAS for the intensity of her pain).

Why are patients still in pain reluctant to request a stronger dose of pain medication?

Thirty nine out of the 75 patients (52%) who completed the whole questionnaire and were in pain answered this question and indicated the reason for not asking for a stronger dose of pain medication. Almost half of those patients (51.2%, N=20,) said that “pain is tolerable” whereas 8 patients (20.5%) stated that they “do not like to take any kind of medications”. Four patients (10.25%) said that they were “in a little pain”, three patients (7.7%) said that “pain is always expected after any kind of surgery”, two patients (5.1%) stated that they “are afraid of medications’ side-effects and addiction” and another two patients (5.1%) believed that “only doctors could decide on their patients’ pain treatment”. One of the patients (patient 57) stated that pain is normally expected after surgery and added that “decrease of pain means improvement of health” whilst another (patient 97) added that “if pain medications would relieve all of the pain, the word “pain” should not exist anymore”.

Discussion

The findings of this study demonstrated that 90.7% of the surgical patients hospitalized in Armed Forces hospitals of Athens are satisfied with their post-operative pain management despite experiencing moderate to severe levels of pain. These findings are similar to other studies’ findings [9-11, 44, 48, 49] where the percentage of satisfied patients ranged from 81% to 93%. Dissatisfaction ratings were associated with high levels of post-operative pain confirming those of similar studies correlating either general or post-operative pain levels with patients’ satisfaction scores [10, 38, 39, 41, 42, 44].

It seems that Greek patients appreciate doctors’ and nurses’ willingness to provide good pain management, as suggested by many authors [10, 39, 42]. On the other hand, for almost half of the patients “time-elapse” for administration of analgesia was very short (<10 minutes) and the majority of patients (64.3%) who requested a change in their analgesic regime did not have to wait for this change more than one hour. However, this study does not reveal any correlation between patients’ satisfaction and waiting time to receive analgesia, supporting findings of similar studies [38, 42] although, many other studies suggest that the less the waiting time, the higher the level of patients’ satisfaction is [40, 43, 50]. Even if analgesia should be administered systematically [4, 51], this study revealed that more than half of the patients (50.9%)
were prescribed “on demand” analgesia. Considering this in relation to short waiting time for receiving analgesia, patients could be satisfied from their post-operative pain management as they had their analgesia administered straight away after requesting it.

Patients’ satisfaction in relation to the severity of their surgery

All patients who underwent major surgery were satisfied with their overall post-operative pain management whereas several patients undergoing intermediate and minor surgery were dissatisfied. This phenomenon could be explained considering that patients undergoing major rather than minor surgery need more intensive nursing and medical care, so doctors and nurses spend much more time with them, giving patients more opportunities to express their pain. Moreover, as there was no formal assessment of patients’ level of post-operative pain in any of the Armed Forces hospitals of Greece, doctors usually prescribed analgesia based on their personal evaluation of the severity of surgery; that is, the more severe the surgery, the stronger the analgesia prescribed.

Nevertheless, pain management is equally important no matter the type of surgical procedure the patients have undergone [44] as many patients having undergone so-called ‘minor’ operations may experience high levels of pain [4]. The present research supports this issue since a patient who had undergone hemorroidectomy experienced the highest score of her current pain among all the participants. Therefore, assessment of pain must be individualised and should not be predicted according to health professionals’ judgment on the severity of the operation [52].

Patients’ beliefs about pain and pain medication

This study demonstrated that more than half of the patients, although in pain, would not like to have a stronger dose of analgesia. Patients might be reluctant to ask for a stronger medication than this one prescribed by their doctor since Greek patients believe that only doctors have the authority to decide on their patients’ pain and generally speaking, patients are “afraid” of pain medications, although pain interferes with many activities (sleep, walking, deep breathing and coughing) which are essential for patients’ recovery after surgery.

Why do patients still experience high levels of post-operative pain?

Many post-operative patients experienced high levels of post-operative pain despite the plethora of analgesic regimes and advanced technology available. As suggested by many authors [11, 38, 40, 43, 53-55], inadequate pain relief might be the result of lack of knowledge either from patients or from doctors’ or nurses’ point of view as well. Besides that, pre-operative information provided to surgical patients was completely unstructured. On the other hand, according to the study’s findings it seems that, although the majority of patients believe that medications could control their pain, they are reluctant to request a stronger dose of analgesia because they are afraid of addiction and/or medication’s side effects and they believe that only doctors can decide on their pain management. This phenomenon in a broader view reflects the medical dominance in the whole Greek health care system where doctors represent power and authority over patients’ treatment. Thus, in Armed Forces’ hospitals and generally in all the hospitals of Greece it is always the doctor that determines the treatment of their patients without involving them in the
decision-making process. Moreover, lack of special education on pain management could be the reason for fear of addiction and/or side-effects not only from the patients’ point of view but from the nurses’ and doctors’ point of view as well, since - although the majority of patients had prescribed opioids, especially patients undergoing major surgery-, this was limited to the minimum therapeutic dose.

The preferred route of administration of analgesia was through IM injections on “prn” basis. From the 106 respondents, only one patient had PCA and 5 patients had epidural analgesia. The Audit Commission recommends epidural administration of opioids for major abdominal or thoracic surgery [52]. Young recommends IV administration of opioids through PCA, particularly for the first 48 hours post-operatively combined with supplementary administration of NSAID’s as in this way, the dose of opioids required for effective pain management may be reduced [56]. The RCS/RCA recommends continuous IV infusion of opioids at a constant rate as this method results in steady concentration of opioids, adequate for uninterrupted pain relief [4]. Carr suggests “aggressive” management of post-operative pain by systematically administration of opioids through epidural catheters or PCA’s [51]. Pain must be assessed and regularly re-assessed and recorded and pain management must be individualized according to each patient’s personal needs, “around the clock” and focused on preventing rather than relieving pain [4, 38, 51, 52, 56, 57].

Limitations of the study
In this study, neither patients’ expectations about their level of post-operative pain and pain relief were investigated, nor their previous experiences of pain which might influence their pain assessment. Moreover, nor the way that nurses assess and manage pain and evaluate pain relief was explored. This study, despite providing information on doctors’ prescriptive practice of analgesia, it did not explore exactly what analgesia patients actually received. Finally, the severity of surgery was evaluated from the surgeons’ point of view. This might have possible bias as patients could have a totally different opinion about the severity of their surgery.

Recommendations and implications for practice
Qualitative, in-depth research could provide further information on patients’ satisfaction with their pain management and the reasons contributing to patients’ satisfaction despite experiencing high levels of post-operative pain. Some issues like the level of pain and pain relief expected after surgery, the relationship between patients’ expectations and post-operative patients’ satisfaction and their previous experiences of pain should also be explored.

Since patients experience post-operative pain, investigation of patients’ points of view for improvement of their own post-operative pain management and exploration of doctors’ and nurses’ beliefs, attitudes and knowledge about pain and its assessment and management and, finally, examination of the relationship between analgesia prescribed and analgesia actually administered to patients, could provide information for inadequate post-operative pain relief.

In order to promote the quality of care provided to post-operative patients and to improve their pain management, doctors and nurses working in the Greek Armed Forces’ hospitals should be educated in the management of pain. They should understand that management of pain should be individualized to each patient’s needs and according to its socio-cultural personal beliefs and values so different management strategies should be used with different patients. They should
also acknowledge patient’s expectations and support them to participate into their own care in order to fulfill these expectations. Patients and their significant others should be informed and educated on admission by paying particular attention to patients’ fears and misconceptions about addiction to opioids and analgesics’ side-effects when used for post-operative pain relief. The development of Acute Pain Services could play an important role in the effective management of post-operative pain. These should be multidisciplinary including different health care providers such as anesthetists, surgeons, nurses, pharmacists, financial managers and physiotherapists [4].

However, clinical practice in post-operative pain management could be improved in order to further maximize the level of patients’ satisfaction and to promote quality care. Improvement of post-operative pain management could be accomplished through introduction of guidelines, education, individualized patient care, audit and clinical research.

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