Original Article

Measuring Patient Opinion of Pain Management

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Abstract
Pain management has been increasingly recognized as an important indicator of quality patient care. In this article, we describe the development of a measure of patients' perception of pain management. Based upon the American Pain Society's guidelines, the six-item Patient Opinion of Pain Management (POPM) scale demonstrated promising internal consistency, reliability, and validity in a sample of 241 patients from 11 hospitals. The POPM is discussed in the context of previous research on the assessment of pain management.


Key Words
Pain, patient opinion, patient satisfaction, pain management, outcome assessment, quality of health care

Introduction
We have come to recognize that the assessment and treatment of acute pain by health care professionals is often less than adequate.1–5 Quality improvement guidelines published by the American Pain Society (APS)6,7 and the Agency for Health Care Policy and Research (AHCPR)8 foster efforts to improve pain management, thus quality of care. These guidelines have in turn led to educational campaigns and clinical interventions, including multidisciplinary approaches, designed to implement these standards.9–14

While various methods have been proposed to assess quality of pain management, the AHCPR has stated “the mainstay of pain assessment should be the patient self-report.”8 Because “pain is whatever the experiencing person says it is, existing whenever he says it does,”15 it stands to reason that the management of such a phenomenon should be evaluated by the patient. The American Nurses Association also recognized the importance of patient opinion of pain management by including it as one of seven key indicators of nursing quality.16 Thus, both clinicians and researchers are presented with the challenge of capturing patient opinion about pain management as a reflection of quality care.

Researchers have used various methods to examine patient opinion of pain management. Some have used visual analog scales17,18 and others have asked questions to elicit views and attitudes regarding hospital pain management.19,20 Other investigators have used the APS guidelines to measure patient satisfaction with pain management.21–24

The first APS standards were published in 19916 and revised in 1995.7 The guidelines are intended to be used by clinicians to promote timely pain assessment and optimal pain relief. They are based on the assumption that inadequate...
quate communication often contributes to sub-optimal pain management. A system implementing these standards should “recognize and treat pain promptly; make information about analgesics readily available; promise patients attentive analgesic care; define explicit policies for use of advanced analgesic technologies; and examine the process and outcomes of pain management with the goal of continuous improvement.” The authors of the APS guidelines proposed a Patient Outcome Questionnaire to address components of the APS standards, in which patients report pain and matters relevant to improving pain management.

We describe the development of a tool based on the APS Patient Outcome Questionnaire to measure patient opinion of acute care pain management. Reliability and validity have been evaluated in a statewide sample of patients from acute care settings.

Methods

The Texas Nurses’ Association (TNA) contracted with the authors of this report as the research team for the project entitled Nursing Report Card Planning Project for Nursing’s Quality, Safety Initiative. The purpose of the study was to determine the feasibility of collecting nursing quality indicator data from hospitals throughout the state. Twelve acute care facilities in Texas volunteered to participate in this feasibility study. A Consensus Committee including representatives from participating hospitals determined that data for the following quality indicators would be collected: (a) nosocomial infection rate; (b) patient injury rate; (c) maintenance of skin integrity; (d) patient satisfaction with nursing care, educational information, overall care, and pain management; (e) nurse staff satisfaction.

Sample

Data on patient satisfaction was collected over 2–4 weeks during the month of August 1996 from patients discharged from 11 out of 12 Texas hospitals participating in the Nursing Report Card Planning Project. All data collection was conducted by hospital staff at the participating hospitals. One hospital did not collect data on this quality indicator because patient satisfaction was already being measured at the time. There were 1066 patient satisfaction questionnaires distributed by nurses on participating units to patients or their accompanying family members upon their discharge from 21 medical-surgical units. There were 241 completed questionnaires, yielding an overall response rate of 23%, ranging from 0–67% for all hospital units. Lack of interest, dissatisfaction, fatigue, or poor health may have contributed to the low response rate. Further, patients may have been distracted and misplaced the questionnaire upon returning home from the hospital. Particularly at busy times, nurses may have also neglected to stress to patients the importance of returning questionnaires.

In an attempt to maintain patient confidentiality, only limited patient information was obtained. The mean age of participants \( (n = 223) \) was 57 years. Thirty-three percent were 70 years or older. Three patients were under 18 years of age. Seventy-seven percent of respondents were patients (as opposed to family members) and 57% were female. Fifteen percent \( (n = 35) \) of patient respondents did not indicate their hospital unit and 5% \( (n = 13) \) did not indicate the name of the hospital. Participating hospital sizes ranged from 98 to 1527 beds and most medical and surgical units had approximately 27 available beds with an average daily census of 21.7.

Description of Patient Self-Report Measure

The patient self-report measure had three components: patient satisfaction with nursing care, patient satisfaction with overall care, and patient opinion of pain management. Each is described here because they constituted one instrument for administration. Patient satisfaction with nursing care was defined as patient opinion about care received from nursing staff regarding nurses’ technical skills, educational information, and the trusting relationship during the hospital stay. These three components of patient satisfaction were measured using “Patient’s Opinion of Nursing Care” (PONC) originally developed by Risser and adapted by Hinshaw and Atwood. Patient satisfaction with overall care was defined as patient opinion about care received from nursing staff regarding global aspects of hospital care and was adapted from a subscale of “Patient Judgments of Hospital Quality” (PJHQ).
The subscale that is the focus of this report, Patient Opinion of Pain Management (POPM), was defined as patients’ opinions about how well nursing staff managed pain. The specific aspects of pain management explored included receipt of pain medication, nurses’ responses to reports of pain, pain medication wait time, and nurses’ verbalization of the importance of pain treatment.

Development of the POPM Tool

We elicited patients’ perceptions about how their pain was managed in the hospital, including factors that were likely to contribute to the

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<th>Table 1</th>
<th>Adaptation of the Patient Outcome Questionnaire</th>
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<td>American Pain Society Patient Outcome Questionnaire (7)</td>
<td>Patient Opinion of Pain Management (POPM)</td>
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</table>

6. Select the phrase that indicates how satisfied or dissatisfied you are with the results of your pain treatment overall.
   (1) Very dissatisfied
   (2) Dissatisfied
   (3) Slightly dissatisfied
   (4) Slightly satisfied
   (5) Satisfied
   (6) Very satisfied

5. How satisfied are you with the result of your pain treatment overall?
   Very dissatisfied
   Dissatisfied
   Uncertain
   Satisfied
   Very satisfied

6. How satisfied are you with the way your nurses responded to your reports of pain?
   Very dissatisfied
   Dissatisfied
   Uncertain
   Satisfied
   Very satisfied

7. When you asked for pain medication, what was the longest time you had to wait to get it?
   Less than 10 minutes
   11–20 minutes
   21–30 minutes
   More than 60 minutes

3. Did you ask for medication but never received it?
   Yes
   No

4. Was there a time that the medication you were given for pain didn’t help and you asked for something more or different to relieve the pain?
   Yes
   No

8. On average how long did you have to wait for pain medication?
   Less than 10 minutes
   11–20 minutes
   21–30 minutes
   31–60 minutes
   More than 60 minutes

(item created by Consensus Committee)
formulation of their opinions as suggested in the APS Patient Outcome Questionnaire. For the purposes of this study, some questions from this original 15-item APS Questionnaire were changed and others were eliminated (Table 1). The APS guidelines applied solely to the use of medications used in pain relief as opposed to the use of nonpharmacological measures of pain management, and items on the APS Questionnaire refer solely to management using pain medication. Because the purpose of the Report Card Project was to evaluate nurses, items were chosen and modified to reflect patient opinion of pain management by nurses, not physicians. Inpatients in this TNA Report Card Study were given questionnaires upon discharge and were asked to reflect upon their pain experiences for the duration of their hospital stay; therefore, APS guideline items referring to patients’ pain experiences in the past 24 hours were eliminated. To clarify and maintain consistency in response options, some original APS items were split into multiple items or reworded. Two screening items were used to eliminate those who had no pain during their hospitalization and those who had use of a patient-controlled analgesia (PCA) pump. A single item (“Did you have any pain while you were in the hospital?”) screened out participants reporting no pain. Those who had pain continued on to complete the POPM questionnaire. Item 1 (“Did you give yourself your own pain medication using the pump [PCA]?”) was developed by the research team for the purpose of this project because clinical representatives and the investigators anticipated differences in satisfaction with pain management between those who used PCA pumps. Another item (“On average how long did you have to wait for pain medication?”) was added at the suggestion of the Consensus Committee as a benchmark for patients’ perceptions of how long they had to wait for pain medication.

Description of Patient’s Opinion of Nursing Care

This 25-item scale consisted of three subscales and was found to be sufficiently reliable and valid based on five studies in which the instrument developers were involved. Alpha coefficients averaged 0.79, 0.88, and 0.78 for the technical, trusting, and educational subscales, respectively. Construct validity estimates were established by convergent/discriminant technique, discrimination, and predictive modeling. Responses were scaled from 1, strongly agree to 5 strongly disagree. In this study, overall reliability was 0.95 (n = 235): (a) patient satisfaction with nurses’ technical skills (seven items, alpha = 0.87); (b) patients’ satisfaction with the trusting relationship (11 items, alpha = 0.89); and (c) patients’ satisfaction with educational information (seven items, alpha = 0.80). Another item (“I received adequate information so I know what to do when I get home”) was added to the educational information subscale by the research team as requested by clinical representatives from participating hospitals.

Description of the Patient Judgments of Hospital Quality Subscale

This 6-item subscale (alpha = 0.88 in the current study) measured patients’ overall satisfaction with the hospital experience. The scales for these items were made consistent by applying a 5-point scale: 1, strongly agree to 5 strongly disagree; 1, very dissatisfied to 5, very satisfied, and 1, definitely would not to 5, definitely would.

Procedure

The entire 42-item overall patient self-report questionnaire was submitted to clinical representatives from participating hospitals for input and verification prior to patient distribution. Data collection forms for patient questionnaires were designed using Teleform creating scan forms to ease data entry and manageability. Because some patients admitted to Texas hospitals speak only Spanish, the English version of the patient satisfaction questionnaire was translated into Spanish by a professional translation service. Prior to patient distribution, the Spanish version of the questionnaire was back translated and checked for accuracy by a bilingual research assistant.

Following approval by the Institutional Review Board, nurses were instructed to give all patients the questionnaires, either English or Spanish versions, as part of their discharge materials. Patients received a cover letter explaining their rights as subjects as well as instructions for how to participate in the study. Participants were asked to complete the questionnaires and mail them using preaddressed, postage-paid envelopes. The completed ques-
Questionnaires were mailed to the TNA office and were delivered unopened to the research team. Questionnaires were omitted from analyses when the respondents left 20% or more of the items blank. Completed questionnaires were optically scanned and the data were transported from Teleform to SPSS for Windows, then checked for accuracy.

**Results**

**Responses to Individual Pain Management Subscale Items**

Eighty-five percent (207/241) of the sample completed the pain management subscale (Table 2). Ten cases were missing two or more items and were excluded from the analysis. Those who reported having pain in the hospital, but still answered the pain scale questions and means of the complete set of data.

As shown in Table 2, the majority of patients reported that they were satisfied with their pain management (item 5) and over half of the patients indicated that they had to wait less than 10 minutes to receive pain medication (item 7). Items 1 and 2 are descriptive and were included as part of this scale with the intent of enriching data analysis. The last seven

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes (n)</th>
<th>No (n)</th>
<th>Missing (n)</th>
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<tbody>
<tr>
<td>1. Did you give yourself your own pain medication using the pump (PCA)?</td>
<td>yes (n = 45)</td>
<td>no (n = 159)</td>
<td>missing (n = 3)</td>
</tr>
<tr>
<td>2. Were you in pain but did not ask the nurses for medication?</td>
<td>yes (n = 38)</td>
<td>no (n = 165)</td>
<td>missing (n = 4)</td>
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<tr>
<td>3. Did you ask for medication but never received it?</td>
<td>yes (n = 21)</td>
<td>no (n = 176)</td>
<td></td>
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<tr>
<td>4. Was there a time that the medication you were given for pain didn’t help and you asked for something more or different to relieve the pain?</td>
<td>yes (n = 62)</td>
<td>no (n = 134)</td>
<td></td>
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<tr>
<td>5. How satisfied are you with the result of your pain treatment overall?</td>
<td>very satisfied (n = 4)</td>
<td>dissatisfied (n = 10)</td>
<td>uncertain (n = 12)</td>
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<tr>
<td>6. How satisfied are you with the way your nurses responded to your reports of pain?</td>
<td>very satisfied (n = 3)</td>
<td>dissatisfied (n = 9)</td>
<td>uncertain (n = 9)</td>
</tr>
<tr>
<td>7. When you asked for pain medication, what was the longest time you had to wait to get it?</td>
<td>&lt;10 minutes (n = 116)</td>
<td>11–20 minutes (n = 44)</td>
<td>21–30 minutes (n = 18)</td>
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<tr>
<td>8. On average how long did you have to wait for pain medication?</td>
<td>&lt;10 minutes (n = 129)</td>
<td>11–20 minutes (n = 48)</td>
<td>21–30 minutes (n = 12)</td>
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<tr>
<td>9. Early in your care did the nurses make it clear to you that they consider treatment of pain very important and that you should be sure to tell them when you have pain?</td>
<td>yes (n = 164)</td>
<td>no (n = 33)</td>
<td></td>
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*Reversed scored.

*Descriptive items 1 and 2 were not part of the POPM.

*Item 4 was dropped from POPM analysis.
items elicited patients’ opinions regarding the administration of analgesia by their nurses, temporal factors, and nurses’ verbalization of the importance of pain management.

**Reliability**

Cronbach alpha coefficients were computed as a measure of internal consistency. The seven-item pain scale (see Table 2, items 3 through 9) yielded alpha coefficients of 0.81 for the 187 English-speaking participants and 0.93 for the 10 Spanish-speaking participants. The initial Cronbach alpha coefficient computed on the total sample was 0.83 (n = 197).

One item, number 4 (Table 2), was dropped from the analysis because the item total correlation was low (0.23) on the seven-item scale, most likely due to its complex, conditional statement: “Was there a time that the medication you were given for pain didn’t help and you asked for something more or different to relieve the pain?” The resulting six-item scale yielded alpha coefficients of 0.84 for the 187 English-speaking participants and 0.93 for the 10 Spanish-speaking participants, for an overall alpha of 0.86 (n = 197).

Because the six items’ rating scales were not uniform (i.e., two items were dichotomous and four items were on a scale of 1–5), z scores were created before items were summed. A constant of 5 was added to all original scores to make all scores positive, as shown in the following formula (Eq. 1)29:

\[
Z = \frac{X_i - \bar{X}}{S} + 5
\]

where \( S \) equals the standard deviation.

The mean score, therefore was 5.00, with scores ranging from 0.85 to 5.94. High scores reflect a more positive opinion of pain management.

**Factor Analysis**

Principal components factor analysis with varimax rotation was undertaken to explore the underlying structure of this scale. Fifty-eight percent of the variance was accounted for by the first factor, suggesting that this could be considered a unidimensional scale. All the item loadings were above 0.60 on this factor. The intercorrelations among the six items ranged from 0.24 to 0.76.

**Correlations of Pain Management Scale and Other Ratings**

Bivariate correlations were computed between total scores on the patient opinion of pain management scale and other patient satisfaction measures available in this study. Correlations between the POPM and other patient satisfaction subscales were moderate to high (Table 3). All correlations were significant at \( P < 0.001 \) and were above 0.50.

Patients who were older tended to have higher POPM scores. Although the bivariate correlation of 0.18 was significant at the 0.05 level due to the large sample size (n = 182), this correlation is small, accounting for only 3% of the variance. A two-tailed test indicated no difference (t = 1.83, \( P = 0.07 \), df = 1/178) between males and females in opinion of pain management at the 0.05 level of significance. Because the assumption of equality of variance was violated, a nonparametric statistical test was performed. The Spearman rank order correlation coefficient was also nonsignificant (\( r = 0.04, \text{NS} \)). There were also no significant differ-

<table>
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<th>Table 3</th>
<th>Correlations of POPM with Other Subscales</th>
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<tr>
<td>Patient’s Opinion of Nursing Care (PONG) (25)</td>
<td>Patient Opinion of Pain Management (POPM) (n = 197)</td>
</tr>
<tr>
<td>(1) Patient satisfaction with nurses’ technical skills (n = 235)</td>
<td>0.61* (n = 191)</td>
</tr>
<tr>
<td>(2) Patients’ satisfaction with the trusting relationship (n = 235)</td>
<td>0.54* (n = 191)</td>
</tr>
<tr>
<td>(3) Patients’ satisfaction with educational information (n = 235)</td>
<td>0.56* (n = 191)</td>
</tr>
<tr>
<td>Patient Judgments of Hospital Quality (PJHQ) (26)</td>
<td></td>
</tr>
<tr>
<td>(1) Patients’ overall satisfaction with the hospital experience (n = 236)</td>
<td>0.69* (n = 195)</td>
</tr>
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</table>

*All correlations significant at \( P < 0.001 \).
ences found in patient opinion of pain management among those who completed the questionnaires themselves or those whose questionnaires were completed by a family member ($t = 0.30, NS, df = 1/178$).

There were 45 of 194 respondents who reported the use of a PCA pump (Table 2, item 1). No differences in total POPM scores ($t = 0.91, NS, df = 192$) were found between those who used PCA pumps when compared to those who did not use pumps. Moreover, for those using PCA pumps and those not using PCA pumps there were no significant differences in the reported longest length of time (Table 2, item 1) and average length of time (Table 2, item 8) patients waited for pain medication ($t = 1.19, NS, df = 192$ and $t = 0.60, NS, df = 192$, respectively).

There were 34 patients who responded that they were in pain, but did not ask the nurses for medication. A chi-square analysis was conducted to determine if there was an association between having pain and not reporting it (Table 2, item 2) and remembering the nurse telling them that treatment of pain is important and that patients should tell nurses when they have pain (Table 2, item 9). The associated chi-square test with continuity correction was nonsignificant (chi-square = 0.00, NS, $n = 194$), indicating that those who reported they were in pain but did not ask for pain medication were no more likely than those who did ask for medication to indicate that the nurses had told them that treatment of pain was very important. In other words, 80% of patients who asked for medication and 80% of those who did not ask for medication agreed that early in their care nurses stressed the importance of the treatment of pain. However, there was a statistically significant difference in POPM scores overall between those who were in pain and asked for pain medication versus those who did not ask nurses for medication (two-tailed $t = 2.34, P = 0.03, df = 192$), indicating more favorable opinions of pain management among those who asked for pain medication.

Although the researchers did not provide a comments section for participants, 27 respondents took it upon themselves to write comments on the questionnaire or on a separate piece of paper. Three comments were negative, but not about nurses. For example, two of the comments were about the meals served in the hospital and the other was about a nuclear medicine supervisor. Of the 24 comments about nursing care, 15 were positive, 6 negative, and 3 both positive and negative.

Five of the six negative comments about nursing care specifically addressed their dissatisfaction with an aspect of pain management. For instance, in reference to “How satisfied were you with the quality of care provided by your nurses?”, one patient expressed dissatisfaction: “at the end of my stay only . . . most importantly, no pain med until I ‘chased’ a nurse down . . . and told her I really needed some.” Another patient commented “my pet peeve was nurses waking me to (a) ask do you want anything and (b) do you want a pain pill . . . .” Three patients commented on the item, “When you asked for pain medication, what was the longest time you had to wait to get it?: “anesthesia always had to be called up because nothing was ordered”; “one time I asked for extra strength Tylenol and never got any”; and “instructions were 4 to 6 hours some nurses would not give pain medicine until 6 hours.” Another dissatisfied patient made a general comment that nurses were “slow, too busy.”

Four of the five negative comments about nursing care specific to pain management could be matched to patient satisfaction questionnaires and 9 of the 15 positive comments specific to nursing care related to pain management could be matched to participants’ questionnaires. Since there were so few comments, inferential statistics were not performed as a means of establishing validity. The mean scores for the POPM, however, for positive commentors (mean = 5.3, $n = 9$) and negative commentors (mean = 4, $n = 4$) differed in the expected direction.

**Discussion**

The study produced a short, six-item opinion of pain management scale that has demonstrated satisfactory internal consistency reliability using an initial sample of 197 patients drawn from various statewide medical–surgical units. The fact that the POPM was adapted from the APS Patient Outcome Questionnaire and that clinical representatives reviewed the items support its content validity. Previous research using the APS guidelines did not report
reliability of measures designed to assess patient satisfaction with pain management.21–24

The moderate correlations between POPM scores and scores on overall satisfaction with hospital experience and nursing care support prior research suggesting that opinions about pain management may be a key component in measuring patient satisfaction.31 In other words, if patients have favorable opinions about their pain management, they may be more likely to be satisfied with their overall hospital experience. The majority of patients in this study were satisfied with the way nurses responded to their reports of pain, a finding similar to that found in previous studies.21,24 Findings for the items, “How satisfied are you with the result of your pain treatment overall?” and “How satisfied are you with the way your nurses responded to your reports of pain?” parallel findings by a study22 in which participants indicated satisfaction on similar items over 70% and 77% of the time, respectively.

Younger patients had a less favorable opinion about their pain management than older patients, a finding consistent with other studies;18,20 the mean difference between the two groups in this sample was small. There were also no differences in opinions of pain management between patients who had PCA pumps and those who did not, a finding supported by previous research.17,18 The finding that patients who asked for pain medication had higher POPM scores than those who did not ask for medication supported the issue raised by Ward and Gordon23—the necessity to educate both nurses and patients about the need for collaborative pain management.

The findings need to be viewed with caution due to methodological issues such as shared method variance. Patients’ opinions of their pain management may have been influenced by their responses to the previous 32 items about satisfaction with their nurses and hospital care.

Because so many patients in this study expressed positive opinions about their pain management, the resulting distribution of scores was skewed. The subscale, POPM had the worst skew in response distribution (−1.96) compared to other measures of patient satisfaction (satisfaction with nursing care, educational information, overall care) with skewness associated with response distribution ranging from −0.31 to −1.74. This limited range of scores could result in attenuated correlations with other variables.

Another limitation of the current study is that the sample for this study was nonrandom with a potential selection bias. Nurses may have given questionnaires only to patients whom they thought would express satisfaction with their hospitalization as opposed to those they thought would express dissatisfaction.

It has been noted that there are sometimes discrepancies between patients’ self-reports of pain and their behaviors or physiological indicators. Some patients deny severe pain because they fear overmedication or believe they should be stoic about their suffering. Other patients report much more severe levels of pain than what might be expected from their physiological indicators. For this reason, AHCPR states that comprehensive pain management should include evaluation of physiological responses, behavioral responses, patients’ cognitive coping strategies, as well as patient self-report.

Qualitative data may further explicate patient perceptions of pain management and how it relates to patients’ overall satisfaction with hospitalization. This study lends support to the idea of soliciting patients’ specific perceptions of the problems in regard to the nursing care they received as opposed to having them respond to overall questions about their satisfaction with nursing care.19,23,32 For example, it is important to find out why 38 patients were in pain but did not ask the nurses for medication and why 23 patients asked for medication but never received it. In the future, a comments section would appear to be useful in further explaining the results of patient ratings.

Implications for Practice

The six-item POPM scale could be used by health care professionals or researchers with a limited time for data collection with patients in acute care settings. Non-nurses could survey patients upon discharge, or patients could be given a preaddressed, stamped postcard with the six items. Collection of these data would raise pain management awareness among the staff by providing valuable information about patient opinion of this aspect of their care. The resulting information could be used also to enhance staff development in this key area of
quality care. Despite the importance of assessing patients’ perceptions of pain management, however, it should be noted that other indicators of pain, such as physiological responses, behavioral responses, and the patients’ cognitive attempts to manage pain must also be considered in deciding how best to manage pain in the clinical setting.8

Conclusions
The findings of this exploratory study are useful and were generally supported by prior studies. Future research is needed to further establish the reliability and validity of the tool with other patients in the acute care setting. Possible differences in POPM scores by key variables such as gender or by which person completes the tool (i.e., patient or family member) should also be explored.

Acknowledgment
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