ORIGINAL ARTICLE

Patient Satisfaction Evaluation: Validated Tools for Emergency, Post-Operative, and Chronic Pain Management

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Abstract

Introduction: Pain is a multifaceted experience, and its management remains a global healthcare challenge. Despite advances, pain is frequently undertreated in emergency, post-operative, and chronic pain settings. Accurate pain assessment and effective management strategies are essential to improve patient outcomes and satisfaction, particularly in resource-limited settings like Bangladesh. So, this article emphasis to throw some lights to evaluate pain reduction and patient satisfaction using validated tools in emergency, post-operative, and chronic pain settings.

Methods: A multicenter prospective observational study was conducted between 2016 and 2018 in the Department of Physical Medicine and Rehabilitation, Department of Obstetrics and Gynecology at Bangabandhu Sheikh Mujib Medical University, and Emergency Departments of Shaheed Suhrawardy Medical College Hospital. A total of 300 patients, divided equally among emergency (n=100), post-operative (n=100), and chronic pain (n=100) groups, were selected via random sampling. Pain was assessed using the Visual Analogue Scale (VAS), and patient satisfaction was measured using the MISS-21, APS-POQ-R, and PSRS scales. Data were analyzed using SPSS version 26.0.

Results: The mean baseline pain scores for the emergency, post-operative, and chronic pain groups were 7.63, 6.31, and 7.26, respectively. After proper intervention, pain scores were reduced significantly to 4.27, 4.47, and 5.02 ($p<0.05$ for all). The MISS-21 subscales for the emergency group showed strong satisfaction for distress relief (6.58±0.46) and rapport (6.50±0.41), but discomfort in communication comfort (1.32±0.46). Post-operative satisfaction using APS-POQ-R revealed "good" (54.12±1.43) and "excellent" (49.45±1.86) satisfaction levels. Chronic pain satisfaction assessed with PSRS showed 46% of participants had "good" satisfaction (scores 61–70). Pain intensity showed a moderate negative correlation with PSRS ($r=-0.328$, $p=0.001$) but not with MISS-21.

Conclusion: Validated tools effectively recorded significant pain reduction and patient satisfaction across emergency, post-operative, and chronic pain settings.

Keywords: Post-operative Pain management, Chronic Pain management, Visual Analogue Scale (VAS)

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Introduction:

Pain is highly subjective, personal and multifaceted experience, encompassing psychological, behavioral, emotional, cognitive, and sensory dimensions.[1] In 1995, Dr. James Campbell, speaking before the American Pain Society, emphasized the critical importance of addressing pain by advocating for its recognition as the "fifth vital sign" (P5VS).[2] This landmark call underscored the urgent need to improve pain management in healthcare. Despite this, pain remains a frequently undertreated condition among hospitalized patients. In emergency settings, acute pain often arises from inflammation, tissue damage, or injuries, including neuropathic pain, which accounts for over 20% of patients visiting Emergency Departments (EDs).[3] Recent studies indicate a significant prevalence of moderate to severe postoperative pain, affecting 41–61% of patients in developed countries and 60–80% in

developing countries. Alarmingly, despite advancements in healthcare, the American Pain Society reports that this prevalence has remained persistently high, with more than 80% of patients experiencing inadequate pain relief after surgery.[4–6] On the other hand about 51.6 million people (20.9%) suffer from debilitating chronic pain.[7] Differentiating between types and severities of pain is essential, as effective management strategies must be tailored to the underlying cause and intensity.

Assessing pain accurately in critically ill patients presents unique challenges. This complexity often stems from factors such as altered levels of consciousness due to sedation, head trauma, or compromised physiological states. In such situations, clinicians are frequently compelled to rely on their interpretation of pain-related behaviors in the absence of appropriate assessment tools [1]. Traditional methods for evaluating pain, such as verbal or numeric rating scales and visual analogue scales (VAS), may not be applicable or effective in these circumstances, further complicating the assessment process.[8]

Downey and Zun (2010) highlighted a significant correlation between pain reduction and patient satisfaction levels among individuals presenting to the emergency department with pain as their primary complaint.[9] High levels of patient satisfaction are strongly linked to improved health outcomes, reduced frequency of medical visits, and shorter hospital stays.[10] Conversely, dissatisfaction with treatment, particularly medication, can have significant negative repercussions. It may increase the likelihood of patients filing formal complaints, pursuing legal action against healthcare providers, or spreading unfavorable opinions about a clinic or its services, potentially harming its reputation.[11] However, pain often remains undertreated due to several factors. These include insufficient knowledge of the fundamental pharmacokinetics and pharmacodynamics of opioids, as well as an overly cautious approach to their use, driven by unfounded fears of addiction, tolerance, or adverse effects that might prolong hospital stays. Additionally, pain is sometimes misinterpreted as anxiety or agitation, further complicating treatment. The lack of appropriate and validated tools for pain assessment also contributes to this persistent issue.[12]

Pain management remains a global concern, including in Bangladesh, where the current state of pain management in emergency departments, postoperative care, and chronic pain settings has not been adequately studied. A comprehensive understanding of the current status of pain management is required, encompassing medical education on the topic, prescribers' existing knowledge and perceptions about pain management medications, their prescribing behaviors, the outcomes of these therapies, and how these outcomes correlate with patient satisfaction levels. To achieve this, evaluation tools will need to be translated, validated, and implemented to assess the current pain management practices in Bangladesh.

This study aimed to evaluate pain reduction and level of patient satisfaction by selected tools in Emergency, Post-Operative, and Chronic Pain settings.

Methods:

The study was a multicenter, prospective observational study, conducted in the Department of Physical Medicine and Rehabilitation and the Department of Obstetrics and Gynecology at Bangabandhu Sheikh Mujib Medical University, as well as the Emergency Departments of Shaheed Suhrawardy Medical College Hospital. The study spanned from 2016 to 2018. The research protocol was submitted to the Institutional Review Board (IRB) of Bangabandhu Sheikh Mujib Medical University for a comprehensive review of its scientific and ethical aspects, ensuring the necessary approval was obtained prior to commencement. The participants of the study were selected by simple random sampling where random numbers were generated by computed program. The study included three distinct patient groups—those presenting with acute pain in the Emergency Department (n=100), patients experiencing post-operative pain (n=100), and individuals with chronic pain (n=100)—each with carefully defined inclusion and exclusion criteria to ensure consistency and reliability of the findings.

For the Emergency Department, eligible participants were patients aged 18 years or older presenting with acute abdominal pain managed conservatively, who were expected to remain in the emergency room for more than two hours. Patients had to be able to provide consent and communicate effectively with physicians. In the post-operative group, the study included patients aged 18 years or older who had undergone uncomplicated lower abdominal cesarean sections and were required to remain in the post-operative room for at least 12 hours. For the chronic pain group, participants were adults aged 18 years or older with a diagnosis of chronic low back pain attributed to conditions such as lumbar herniated discs, degenerative disc disease, or sacroiliac joint dysfunction.

Pregnant women, breastfeeding mothers, children, patients presenting with chest or labor pain, those requiring surgery or minimally invasive procedures for pain management,

individuals with chronic low back pain resulting from trauma, compression fractures, deformities, tumors, infections, or osteoarthritis, as well as patients treated with antidepressants or those unable to adequately respond to queries due to educational limitations were excluded from all 3 groups.

Assessment of validated tools used[13]:

1. Visual analogue scale (VAS)
2. Medical Interview Satisfaction Scale (MISS)
3. Revised American Pain Society Outcome Questionnaire (APS- POQ-R)
4. Participant Satisfaction Reporting Scale (PSRS)

After pain minimizing intervention, pain was assessed by VAS at 15 minutes, 30 minutes, 60 minutes and 90 minutes interval in ED and translated Bangla version of MISS- 21 was used after treatment and prior to the patients' discharge to assess the satisfaction level of pain. APS-POQ-R was used to assess patients' satisfaction with post-operative analgesia on the first post-operative day. PSRS was used for chronic pain satisfaction assessment.

For MISS-21 scale, subscale distress relief and rapport had categorization of >5: strong satisfaction, 3-5: moderate satisfaction and <2: dissatisfaction. For communication comfort and compliance, >4: excellent, 2-3: moderate and <1: discomfort/poor compliance.

For PSRS scale, categorization was done as: 41–50 (dissatisfaction or below-average satisfaction), 51–60 (moderate satisfaction), 61–70 (good satisfaction), 71–80 (high satisfaction), 81–90 (very high satisfaction).

All collected information was stored with confidentiality and coded, cleaned and analyzed by SPSS version 26.0.

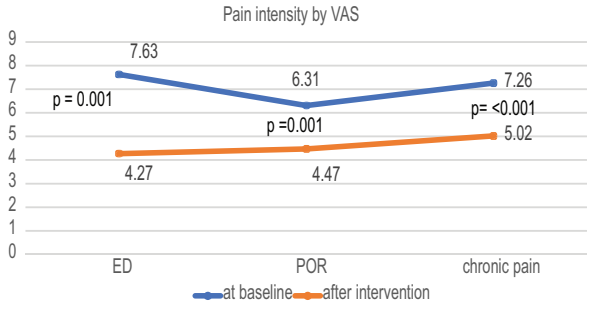
Results:

The demographic data for the three groups, Emergency Department (100 participants), Post-Operative Room (100 participants), and Chronic Pain Group (100 participants), are as shown in table 1: The mean age for the Emergency Department group was 32.03±11.65 years, for the Post-Operative Room group was 30.1±5.55 years, and for the Chronic Pain Group was 38.53±10.90 years. Regarding sex distribution, in the Emergency Department group, 48% were male and 52% were female. In the Chronic Pain Group, 36% were male and 64% were female

Table I

Distribution of the participants according to demographic characteristics among 3 groups (n=300)

Demographic variables	Emergency department (100)	Post-operative room (100)	Chronic pain group (100)
Age (in years)			
<20	18 (18%)	5 (5%)	-
21-30	39 (39%)	52 (52%)	33 (33%)
31-40	18 (18%)	37 (37%)	18 (18%)
41-50	18 (18%)	6 (6%)	18 (18%)
>50	7 (7%)	-	7 97%)
Mean±SD	32.03±11.65	30.1±5.55	38.53±10.90
Sex			
Male	48 (48%)	-	36
Female	52 (52%)	100	64
Total	100	100	100



Paired sample t-test

Figure 1: *Distribution of the participants according to pain intensity (measured by VAS) among 3 groups (n=300)*

Figure 1 shows the mean values for three groups—Emergency Department (ED), Post-Operative Room (POR), and Chronic Pain—at baseline and after the intervention. At baseline, the mean values were 7.63 for ED, 6.31 for POR, and 7.26 for Chronic Pain. After the intervention, the mean values reduced to 4.27 for ED, 4.47 for POR, and 5.02 for Chronic Pain. All 3 groups showed statistical significance.

The satisfaction-related variables for the three groups are shown in table 2. In the Emergency Department group, the MISS-21 subscales showed the following mean scores: 6.58±0.46 for Distress Relief (DR), 1.32±0.46 for

Table II

Distribution of the participants according to patient satisfaction (n=300)

Demographic variables	Emergency department (100)	Post-operative room (100)	Chronic pain group (100)
MISS-21			
Distress relief subscale (DR)	6.58±0.46 (strong satisfaction)		
Communication comfort subscale (CC)	1.32±0.46 (significant discomfort)		
Rapport subscale (R)	6.50±0.41 (strong satisfaction)		
Compliance Intent subscale (CI)	3.70±0.39 (moderate willingness)		
Overall (21 items)	5.12±0.24		
APS-POQ-R			
Satisfaction level: good		54.12±1.43	
Satisfaction level: excellent		49.451.86	
PSRS score			
41-50 (below average satisfaction)			8%
51-60 (moderate satisfaction)			33%
61-70 (good satisfaction)			46%
71-80 (high satisfaction)			11%
81-90 (very high satisfaction)			2%

Communication Comfort (CC), 6.50±0.41 for Rapport (R), and 3.70±0.39 for Compliance Intent (CI). The overall score across all 21 items was 5.12±0.24.

For the Post-Operative Room group, satisfaction levels assessed using the APS-POQ-R revealed a mean score of 54.12±1.43 for participants who reported "good" satisfaction and 49.45±1.86 for those who reported "excellent" satisfaction. In the Chronic Pain Group, the distribution of PSRS scores was as follows: 8% scored between 41-50, 33% scored between 51-60, 46% scored between 61-70, 11% scored between 71-80, and 2% scored between 81-90.

For the MISS-21 scale, Pearson's correlation was -0.106 with a p-value of 0.292, indicating a weak negative correlation that is not statistically significant. For the PSRS scale, Pearson's correlation was -0.328 with a p-value of 0.001, indicating a moderate negative correlation that is statistically significant.

Table III

Correlation of pain intensity with MISS- 21 and PSRS scale

Scales	Prearson's correlation	P value
MISS-21	-0.106	0.292
PSRS	-0.328	0.001

Discussion:

Pain management is difficult all over the world, which found to be more wearisome in Bangladesh. The present study was conducted to assess the quality of pain management in Bangladesh. In order to improve the situation, the developed countries establish guidelines or protocols and design strategies to treat pain appropriately.

The Emergency Department group had a mean age of 32.03±11.65 years but a few articles found a slightly higher mean of ages[14,15] in such department. The Post-Operative Room group had a mean age of 30.1±5.55 years. The Chronic Pain group, with a mean age of 38.53±10.90 years. For patients suffering from chronic pain, mean age was found to be 45.9 years [16]. The Emergency Department group showed a female dominance of 52%, while the Post-Operative Room group was entirely female-dominated at 100%, as we took post LUCS patients. In the Chronic Pain group, females were dominant as well, comprising 64% of the participants. Female dominance was similarly distributed in patients of chronic pain but not true for emergency department.[16] Male predominance was found in Emergency department.[12,14,15]

At baseline, the mean pain score in the Emergency Department group was 7.63, which significantly decreased to 4.27 after analgesia use; the baseline intensity of which was found similar to another original research on ED.[17] In the Post-Operative Room group, the baseline mean score

of 6.31 significantly reduced to 4.47 after analgesia. Similarly, in the Chronic Pain group, the baseline mean score of 7.26 significantly decreased to 5.02 following the use of analgesia. Similar observation was found for ED by a couple of original researches on ED.[18,19] Although a few of studies assessed main intensity before and after pain management but they used different tools than the present study.[20–22]

The pain management in the emergency department was dependent on analgesics supply of the hospital. The present study found that the satisfaction level of the patient was not dependent on the pain management. There were highly significant positive correlations between scores on the MISS-21[13] and all aspects of satisfaction depend on the intensity of pain. In this study, Pearson's Correlation of the subscale of MISS-21 was done. The overall (21 items) r value was (-0.106) which indicated that inverse relationship between pain severity and patient's satisfaction. This study also provided the evidence for MISS-21 psychometric properties which suggested that it was a valid and reliable instrument for the assessment patient satisfaction with pain management in emergency department. It means when pain intensity decreased the satisfaction level would be increased.

Phillips et al. (2013)[23] investigated the relationship between pain intensity and patient satisfaction by evaluating 88 patients who treated with opioid analgesics at a 1018-bed acute care institution. A 14-question survey was adapted from a questionnaire developed by the American Pain Society to assess patient pain control and overall satisfaction with our institution's pain management strategies. This study found no association between pain intensity score and patient satisfaction with overall pain management (Spearman's rank correlation coefficient = "0.31). The majority of the patients were satisfied or very satisfied with their overall pain management, regardless of their pain intensity score. MISS-21 was validated and its' sub scale rated the distress relief, communication comfort, rapport and compliance intent subscale which was focused on both the pain management and physician-patients relationship and more effective for use in emergency pain management.

In case of postoperative pain, APS-POQ-R was used to assess the patient satisfaction level after cesarean section. The cross-cultural research for validation of this tool was done. The mean value of patient satisfaction with the pain treatment was 7.42 ±1.34. In this study about 80% pain relieved in 53 patients, 70% in 26 patients, 60% in 4 patients, 50% in 7 patients, 30% in 4 patients and 90% pain relieved in 6 patients. Dolin et al. (2002)[24] mentioned in their study that different pain measurement tools provided comparable data. This study explained the evidence from published data which was related to the incidence of moderate to severe pain after surgery and suggested that used analgesics techniques were inappropriate to achieve the goal. Milutinovic et al. (2009)[25] used the SCQIPP (Strategic and Clinical Quality Indicators in Postoperative Pain) in their study, which contain 14 items. The mean score for the individual items of SCQIPP questionnaire was between 2.0 and 4.7 (scale range 1–5) and the percentage of patients answers "strongly agree" ranged from 4.4 to 77%. The present tools are easier to apply and items are more focused on the factors which are related to the patient satisfaction level during post-operative period.

Participant Satisfaction Reporting Scale (PSRS) was used to evaluate the satisfaction level in chronic low back pain. The purpose of this study was to develop a tool to evaluate the satisfaction with treatment of chronic low back pain, evaluate the reliability of this instrument, and then examine predictors and consequences of satisfaction. The correlation(r) value of PSRS score with pain severity after one week was -0.328. The result indicated inverse relationship between the pain severity and patients' satisfaction level. The patient's satisfaction level measured by PSRS score in 46 patients was about 61% to 70%.

The Pain Service Satisfaction Test (PSST)[10] was done in fifty adult patients receiving services for chronic low back pain in a university pain clinic completed the PSST as part of a survey mailed to their homes. Findings supporting the validity of the PSST included significant positive correlations between the management and satisfaction. These tools predicted that about 60% participants were satisfied with the treatment.[10] The PSRS was the tools which used in this study in outpatient department and this tool demonstrated correlation between the pain management and patient satisfaction.

The current study rated that satisfaction with care significantly higher than satisfaction with improvement. These differences suggested that patients discriminate between quality of care with more interpersonal impression and quality of treatment as a more outcomes-oriented hypothesis. This discrepancy between treatment and care may partly explain the often-inconsistent relationship between satisfaction and symptom relief in the pain patient, where patients express high levels of satisfaction despite limited pain relief.

Conclusion:

These three validated tools were able to record significant reduction of pain and associated patient satisfaction. The purpose of this study was to evaluate the patient satisfaction with treatment of pain and exploring the relationship between satisfaction and compliance. Patients rated satisfaction with care higher than satisfaction with improvement, highlighting a distinction between interpersonal aspects of care and treatment outcomes.

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Conflict of interest: none

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