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Research

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Self-perceived pain characteristics, pain management practices and patient satisfaction in the emergency department of District General Hospital, Kalutara.

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Abstract

Introduction: The incidence of admissions to Emergency Department (ED) is rising in Sri Lanka and services are being expanded to accommodate the growing demand. The pain management practices in the ED and their outcomes influence the quality of care provided and thereby the evaluation indicators.

Objectives: To describe the characteristics of self-perceived pain, pain-management practices, patient-satisfaction of care and associated factors in the ED of the District General Hospital, (DGH) Kalutara.

Method: A descriptive cross-sectional study conducted in the ED of the DGH Kalutara from June to August 2020. Study population included those admitted to the ED with a GCS of more than 13. Patients below the age of sixteen and pregnant mothers were excluded. Four hundred twenty-seven patients were recruited. A structured interviewer-administered questionnaire and a data extraction sheet were used as study tools. Data were analyzed by the Statistical Package of Social Sciences (SPSS) version 26.

Results: Out of a total of 427 subjects the response rate was 96% with 408 participants being recruited with a male to female ratio of 3: 2. Nearly two thirds of the study sample experienced pain with more than 10% of them having a level of pain of 9-10. The median (IQR) of pain score was 4 (0 to 7). Approximately 40% had not been told that they would be given analgesics and nearly half asked for analgesics. While majority had favorable evaluations on the "information given by ED staff on pain", "medications given" and "overall care of ED", many were dissatisfied on the "information given on modes and side effects" of analgesics. The median (IQR) of the pain satisfaction score was 13.0 (12.0 to 15.0) and correlated with the total satisfaction on ED care. The pain-satisfaction score increased when they were informed that analgesics is given and when the patients asked for analgesics ($P < 0.001$), irrespective of age and gender ($P > 0.005$).



Conclusions and recommendation: The pain-satisfaction score showed a diverse variation and increased with information on pain medication and with intensity of pain. It correlated with the total satisfaction on ED care. More research is encouraged in order to determine more ways of improving patient satisfaction with regards to pain management in ED care.

Keywords: *Emergency Department, Pain, Pain management, Patient Satisfaction*

INTRODUCTION

Pain is one of the commonest symptoms leading to ED visits in all parts of the world, and causes considerable burden to these busy settings.^[1] As an example, In United Kingdom, where twenty million people visit EDs annually, 70% of patient visits are due to acutely painful conditions.^[2] Pain, is the presenting complaint of wide range of diseases to which patients seek treatment from the emergency departments. Since it is not surprising to know that 70% of patients presenting to an ED, were in pain^[1,2,3,4]. Acute injuries, chest, abdominal and back pain are among the commonest painful presentations to emergency departments.^[5]

In spite of pain being one of the major and frequent complaints, assessment and management of pain is not up to the expected standards in most of the EDs worldwide.^[6] After recognizing the gravity of the problem, many interventions have been implemented to address the issue. Application of Numerical Rating Scale (NRS) to assess pain and guidelines with time frames to treat the pain according to severity is one such intervention.^[7]

Numerical rating scale ranging from 0-10 (NRS) is the recommended tool to assess the pain in the emergency departments in United Kingdom^[7] and has been validated by studies carried outside UK as well and found as an appropriate tool to assess the pain in the ED settings^[8]. The best practice guideline to manage pain by the Royal College of Emergency Medicine has recommended assessment of pain within twenty minutes of arrival and reassessment in sixty minutes^[9].

It has been shown, that assumption of the intensity of pain by health care workers instead of using a validated scale to identify the intensity was inaccurate in 50% of times^[10].

Oligo analgesia is also a common occurrence in the ED settings. In one study forty-two percent of patients who have not received analgesics desired pain relief but only 31% of patients had expressed their concern, also in the same study 74% of patients were found to be discharged with moderate to severe pain^[6].

Irrespective of the nature and the severity of the illness, every patient expects adequate and prompt pain relief and it has shown repeatedly that adequate pain relief contributes to better outcomes and patient satisfaction. In a systematic review, effective pain management has been found as one of the five major elements correlate with patient satisfaction.^[11,12]

Optimum pain management practices in ED-settings would have many beneficial outcomes like "improved quality of life, compliance and the satisfaction of the clients over the healthcare system. Sri Lanka which has recently been recognized as an upper-middle income country, has excellent healthcare parameters in comparison to other similar settings. However, in Sri Lanka, literature on severity of pain among the patients visiting the EDs, pain assessment and management practices are rare to be found. Hence this study was planned with the hope of providing eye-opening findings related to this vital aspect of healthcare delivery.

The objective of the study was to describe the characteristics of self-perceived pain, pain-management practices and patient-satisfaction of care and its associated factors in the Emergency Department of the District General Hospital, Kalutara.

METHODS

An observational descriptive-cross sectional study conducted at the Emergency Department of DGH-Kalutara. The data were collected from the patients admitted to the ED from June 2020 to August 2020.

Consecutive sampling was done. Patients presenting to the ED with a Glasgow Coma Scale (GCS) of more than 13 at the time of admission were included and patients below the age of sixteen and pregnant mothers were excluded from the study. Sample size was calculated with the following formula given by Charan & Biswas^[13]. Assuming a non-response of 10%, the needed sample size at data collection stage was 427 participants. All patients who fulfill the eligibility criteria were recruited for the study.

An interviewer-administered questionnaire and a data extraction sheet were used. The data extraction sheet was to extract the medical details from the Bed Head Ticket. Intensity of the pain was assessed using the numerical rating scale. Patients were assessed after 2 hours of admitting to Emergency department or at the discharge/disposition from ED, whichever was the earliest using the interviewer administered questionnaire. Relevant data regarding, time and mode of analgesics, dosages were extracted from the BHTs.

Data were entered in to a pre-designed sheet in Statistical Package for Social Sciences (SPSS version 23). Demographic data were described using relevant measures of locations and measures of dispersions. Characteristics of pain was described according to the sub-groups. Patients with pain was sub-grouped according to anatomical location (e.g. headache, chest, abdominal and acute musculoskeletal pain). Normality assessment was done for the numerical variables like age and pain severity. Relevant numerical descriptive methods (e.g. mean with standard deviations or median with Inter-Quartile Range) were used to describe these. As the numerical variables were found to be non-normally distributed, associations of the client-satisfaction score were explored with non-parametric Mann Whitney U test and Spearman Correlation coefficient. The significance level was regarded as 5%.

Ethical clearance was obtained from the Ethics Committee of the National Institute of Health Sciences (Approval No- NIHS/ERC/20/03R). Informed consent was obtained from the participants of the study. Permission to carry out the study was obtained from the Director of the District General Hospital, Kalutara.

RESULTS

The response rate was 96% with 408 participants being recruited. The male to female ratio was 3:2. The age of both genders was with overlapping inter quartile ranges reflecting a fair similarity. Comorbidities were present more among the females (41.7% in females compared to 27.8% of males). Nearly one seventh of the total sample was on long term medications and one tenth were suffering from a chronic pain. Table 1 shows the characteristics of the study participants.

Table 1: Characteristics of the study participants

| | Males(N=245) | Females(N=163) | Total |
|--------------|---------------------|----------------------|----------------------|
| Age | | | |
| -Mean(SD) | 47.39 (16.5) | 48.45 (17.7) | 47.82 (17.9) |
| -Median(IQR) | 47.00(37.0 to 60.0) | 52.00 (35.0 to 63.0) | 48.00 (36.0 to 61.0) |

| Comorbidities | | | |
|------------------------------------|------------|------------|-------------|
| -Yes[N(%)] | 68 (27.8%) | 68 (41.7%) | 136 (33.3%) |
| -No[N(%)] | 177(72.2%) | 95 (58.3%) | 272 (66.7%) |
| Suffering from chronic pain | | | |
| -Yes[N(%)] | 22 (9.0) | 22 (13.5) | 44 (10.8) |
| -No[N(%)] | 219 (89.4) | 140 (85.9) | 369 (88.0) |
| -Missing*[N(%)] | 4 (1.6) | 1 (0.6) | |
| Long term medications | | | |
| -Yes[N(%)] | 27 (11.0) | 28 (17.2) | 55 (13.5) |
| -No[N(%)] | 214 (87.3) | 133 (81.6) | 347 (85.0) |
| Missing*[N(%)] | 4 (1.6) | 2 (1.2) | |

*Excluded from the analysis as data items were missing

The distribution of the pain score which was given out of a maximum score of 10, is shown in Table 2. Approximately two fifth of the sample (42.2%) had

responded as having no pain on admission and 12% had been with the highest level of pain (score of 9 or 10). The median (IQR) of the pain score was 4 (0.0 to 7.0)

Table 2: Distribution of level of pain

| Level of pain | Frequency | Percentage |
|---------------|-----------|------------|
| 0 | 172 | 42.2 |
| 1-2 | 3 | 0.7 |
| 3-4 | 46 | 11.3 |
| 5-6 | 67 | 16.4 |
| 7-8 | 71 | 17.4 |
| 9-10 | 49 | 12.0 |
| Total | 408 | 100.0 |

While from more than three fourth, the first contact doctor asked whether they were in pain, nearly 60% of them were told that they were given

medications for pain relief. Nearly half (48.7%) of those who had pain on admission, asked for a medication for pain relief.

Table 3: Details regarding the management of the pain relief

| | Frequency | Percentage |
|---|-----------|------------|
| First contact doctor asked whether "you are in pain" (n=407) | | |
| -Yes | 313 | 76.9 |
| -No | 94 | 23.1 |
| Being told that "pain medication will be given to you" (n=237) | | |
| -Yes | 145 | 61.2 |
| -No | 92 | 38.8 |
| Asked for the pain medication (n=236) | | |
| -Yes | 115 | 48.7 |
| -No | 121 | 51.3 |

Table 4 shows the distribution of the responses for the Likert scale on the level of satisfaction on pain management (measured by the four questions

mentioned in first four rows of the table) and overall care (last row). In general, most were having favourable evaluations on the "information

given on the pain” and on “the medications given at ED for pain”. However, relatively higher proportions of unfavorable responses were observed on the “information provided on modes

of analgesics available” and on the “information given on side effects on analgesics”. The median (IQR) of the pain satisfaction score was 13.0 (12.0 to 15.0).

Table 4: Satisfaction over the pain management and overall care

| | Extremely satisfied | Satisfied | Neutral | Dissatisfied | Extremely dissatisfied |
|---|---------------------|---------------|--------------|--------------|------------------------|
| About the information provided by the ED staff regarding your pain (n=236) | 123 (52.3) | 74 (31.5) | 21 (8.9) | 15 (6.4) | 2 (0.9) |
| About the information provided about the modes of analgesics available for your condition (n=236) | 45 (19.1) | 34 (14.4) | 24 (10.2) | 89 (37.7) | 44 (18.6) |
| About the information given about the side effects of analgesics (n=236) | 2 (0.8) | 13 (5.5) | 37 (15.7) | 97 (41.1) | 78 (36.9) |
| About medication given at the ED for pain (n=235) | 115 (48.9) | 103 (43.8) | 14 (6.0) | 1 (0.4) | 2 (0.9) |
| About the overall care provided by the ED (n=402) | 283 (70.4) | 101 (25.1) | 16 (4.0) | 2 (0.5) | 0 (0.0) |

Table 5: Distribution of the time elapsed from admission to administration of pain medication (n=231)

| Time elapsed | Frequency | Percentage |
|-------------------------|-----------|------------|
| 1. Less than 5 minutes | 8 | 3.5 |
| 2. 5 to 15 minutes | 103 | 44.6 |
| 3. 16 to 30 minutes | 84 | 36.4 |
| 4. More than 30 minutes | 36 | 15.6 |

Leading Causes for painful presentations:

The commonest cause of painful presentation to ED was chest pain followed by fractures due to trauma and soft tissue injuries. The associations of the pain satisfaction score and the selected categorical covariates are shown in Table 6. There were no significant differences of the pain satisfaction score between the patients'

characteristics like gender and presence of comorbidities. However, a higher level of satisfaction was seen in the group that was told by the first contact doctor that pain medication would be given ($p < 0.001$). The satisfaction was more in the group that asked for pain medication. ($p < 0.001$).

Table 6: Associations of the pain-satisfaction scores

| Covariate | Median | IQR | Significance of the association |
|---|--------|--------------|---------------------------------|
| Gender | | | |
| -Male | 13.0 | 12.0 to 15.0 | P= 0.918 |
| -Female | 13.0 | 12.0 to 15.0 | |
| Comorbidities | | | |
| -Yes | 13.0 | 11.0 to 15.0 | P=0.849 |
| -No | 13.0 | 12.0 to 15.0 | |
| First contact doctor asked whether “you are in pain” | | | |
| -Yes | 13.0 | 12.0 to 15.0 | P=0.385 |
| -No | 10.0 | 10.0 to 10.0 | |
| Being told that “pain medication will be given to you” | | | |
| -Yes | 14.0 | 12.0 to 16.0 | P<0.001* |
| -No | 12.0 | 11.0 to 14.0 | |
| Asked for pain medication | | | |
| -Yes | 15.0 | 12.0 to 16.0 | P<0.001* |
| -No | 12.0 | 11.0 to 13.0 | |

*Statistically significant

While age did not show a significant association with the pain satisfaction score ($p=0.112$), it was

correlated significantly with the total satisfaction score of the ED ($r_s=0.309$, $p<0.001$).

Table 7: Associations of the pain satisfaction score with age and satisfaction on total ED care

| Covariate | Spearman correlation coefficient (r_s) | Significance |
|-------------------------------|--|--------------|
| Age | -0.104 | P=0.112 |
| Satisfaction on total ED care | 0.309 | P<0.001 |

DISCUSSION

This is the first study done in an ED setting in Sri Lanka exploring pain management practices as well as the satisfaction of the patients on pain relief. The findings revealed that “being told that the pain medication would be given” and “having asked for pain medication” significantly associated with an increased level of patient satisfaction. These associations were observed irrespective of the age and gender. Furthermore, it also revealed that the pain satisfaction score is significantly correlated with having a higher overall satisfaction over the total ED care.

The domains covered in the present study reflects a timely topic to be explored given the fact that ED-

related events are happening with a higher incidence, as suggested by data from several sources [9,14,15,16]. The findings will guide quality improvement interventions associated with emergency departments. [17].

Level of pain significantly influences the quality of life of the patients. It is very important in the point of view of a healthcare system that pain relief of the clients is given an adequate emphasis. This becomes more important when it comes to ED settings, where the patients have been found in pain in relatively higher frequencies. [1,2,3,4]. The findings of the present study in relation to the prevalence of pain are similar to the global literature, with nearly 60% having classified themselves as with some kind of pain (Table 2.) The higher variation observed (IQR from 0 to 7) in

the present study too is compatible with the findings of the documented literature which says that a higher variation is observed among the patients in relation to the severity of pain^[5,18].

More than 10% of the participants were suffering from a chronic pain (Table 1). More explorations need to be done on the associations of the chronic pain on the level of satisfaction of pain relief. Since the self-estimation of chronic pain could be affected by recall bias, the said association was not explored in the present study.

Previous literature of the pain management practices, and the patient satisfaction have yielded mixed interpretations^[11,12,19]. The present study included a comprehensive evaluation on the association of satisfaction over pain management on the satisfaction of total care. A significant positive correlation was observed between these two variables suggesting that when the patients' perception on the quality of pain management is favorable, it in turn increases the overall satisfaction of the ED care. Since the patient satisfaction on a particular health system is regarded as an important aspect of evaluation, this reflects the necessity of attending to quality pain management of the clients in ED settings, as far as the clinicians, administrators and policy planners are concerned.

The findings of Table 6 and 7 points towards important insights for the health system. Firstly, when the patient was told that the pain medications be given their satisfaction on pain relief significantly increased compared to those who were not told so. This suggests that as health staff member, sparing few seconds in informing the clients that pain medication will be give would provide much favorable results. This should be emphasized in staff capacity development and evaluation sessions. Secondly among the patients' who asked for medication, a higher level of satisfaction was observed. This can be interpreted in several ways. Firstly, there can be subjective component in the self-quantification of the level of pain done by the patients. Secondly, it should be explored whether the health staff tends to prescribe medications with higher potency for those who are asking for medications.

This study included convenience sampling. However, this was considered in interpretations and over-generalization of the findings was not being done. The pain quantification was done as self-perceived by the participants. In the absence of an objective method in doing so, this method becomes the most appropriate. Measures were taken to ensure valid responses from the clients. The ordinal scales used were comprehensively elaborated to the participants with examples before getting their responses. The level of satisfaction could be influenced by the potency of the analgesics which were given. Whether there is an association between the type of analgesics and the level of satisfaction was not assessed in this study. This would be a future avenue of research in relation to the pain management in ED settings.

CONCLUSIONS AND RECOMMENDATIONS

Nearly two thirds of the study sample experienced some level of pain with more than 10% of those complaining of severe pain. Nearly 40% were not told that they would be given a pain relief medication and nearly half asked for a pain medication. While majority had favorable evaluations on the "information given by ED staff on pain", on the "medications given" and "overall care of ED", more were not satisfied on the "information given on modes of analgesics" and "side effects of analgesics". The pain-satisfaction score showed a diverse variation and correlated with the total satisfaction on ED care. The pain-satisfaction score increased when they were informed that pain medication is given and when the patients asked for pain medications, irrespective of age and gender.

The importance of improving the patient satisfaction on pain relief needs to be emphasized among staff members as it significantly affects the patient perceptions and therefore the overall evaluation of care by them. Simple measures like informing the patient about the relevant details about pain medications must be promoted. More research must be encouraged with reference to comparisons of different modes of pain relief and their outcomes.

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Author Contributions

Dr. P.D.S.Kawiratne is the principal author, who had planned the research, written the research proposal and actively involved in collecting data and writing the final report.

Dr. C.M.A.D. Chandrasekara involved in literature reviewing and proof reading of the research proposal and the final report.

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Availability of data and materials

Statistical data had been uploaded as a supplemental file to SLJM site when submitting the manuscript. Hard copy of data is available and can be submitted if a request has been made.

Ethics approval and consent to participate

Ethical clearance was obtained from the Ethics Committee of the National Institute of Health Sciences Kalutara. (Approval No-NIHS/ERC/20/03R).

Competing interests

None

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