Comparing the visual analog scale and verbally administered numeric rating scale in traumatic versus non-traumatic causes of pain in an academic medical level 1 trauma emergency department

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Introduction

Pain is said to be a subjective feeling or experience interpreted by oneself. We will all experience pain at some point in our lives. How one interprets our pain intensity differs from one person to the next because no two people will interpret pain in exactly the same way (McAloon, O'Connor, & Boyer, 2003).

Quantifying pain intensity is important and since pain is based on the patient’s interpretation, accurate pain assessment is a challenge. Several tools used for assessing pain are available today. A familiar tool easily administered verbally and currently recommended by the Joint Commission on Accreditation for Healthcare Organizations (JCAHO) for adults is the 11-point (0-10) Numeric Rating Scale (NRS) (as cited in Joint Commission on Accreditation of Healthcare Organizations pain standards for 2001, 2001) (Eder, Sloan, & Todd, 2003). Another scale is gaining popularity for use in clinical settings, the 10-cm (100 mm) horizontal Visual Analog Scale (VAS) due to its advantage for measuring pain on a continuous line (Marquie, et al., 2003).

Healthcare providers are taught to practice evidence-based medicine. Pain is a very common chief complaint and according to Todd et al. (2007) “pain is the most common reason for seeking health care and, as a presenting complaint, accounts for up to 78% of visits to the emergency department” each year (p. 460). Comparing the VAS and NRS may give a better understanding that what is being used to measure pain is in fact not the best method, “without valid and reliable instruments, any true effect of treatment can be obscured by measurement error” (Bijur, Silver, & Gallagher, 2001, p. 1153).

The primary purpose of the research study is to replicate and expand upon the Bijur, Latimer, & Gallagher (2003) study to compare the 11-point NRS and VAS. The secondary purpose will address a limitation found within the Bijur et al. (2003) study, to compare the NRS and VAS scores between all patients no matter the pain severity and categorize as having either a traumatic or non-traumatic cause of pain. The first research hypothesis states there will be a correlation between the NRS and VAS scores when assessing pain. The second research hypothesis states there will be a difference in NRS scores between traumatic and non-traumatic causes of pain. The final research
hypothesis states there will be a difference in VAS scores between traumatic and non-traumatic causes of pain.
Literature Review

Pain is a very common symptom assessed for the purpose of clinical research. Several scales are available but it appears the visual analog scale and numeric rating scale are the more popular to choose from. The visual analog scale consists of a 10 cm (100 mm) line. The far left is labeled “no pain” and the far right is labeled “worst possible pain”. The VAS is said to be a linear scale and represents ratio level data (Myles, Troedel, Boquest, & Reeves, 1999). Any change in the VAS score will accurately reflect a relative change in magnitude of the patient’s overall pain intensity. According to Lee (2001) in the series for acute pain in the emergency department the VAS is said to be widely used because of its reliability, validity and ratio properties. The numeric rating scale is an 11-point scale ranging from 0-10. The “0” is no pain and “10” is the worst possible pain. The NRS is verbally administered and the VAS requires a writing instrument and piece of paper.

The reliability of the visual analog scale to measure acute pain was tested by Bijur, et al. (2001) using two statistical tests, Intraclass Correlation Coefficient (ICC) and Bland-Altman Plot. The ICC found the VAS to have a higher reliability than the Bland-Altman Plot (Bijur, et al., 2001). The VAS has a greater reliability when pain was marked at the extremes of either end of the scale and less reliable for moderate pain (Bijur, et al., 2001). The reasons for these findings were said to reflect the floor and ceiling effect the VAS expresses (Bijur, et al., 2001). Findings between the VAS scores did not show any significant associations between sex, age, and locations of pain (Bijur, et al., 2001).

Several studies in the past have focused on the minimum clinical significant change in pain using the visual analog scale as the measurement tool. Gallagher, Liebman, & Bijur (2001) focused on testing the minimum clinical significant change in patients who presented to the ED with a more heterogeneous cause of pain (Bijur, et al., 2003). Patients with acute pain (defined as < 24 hours) were asked to rate and mark their pain on the VAS in 30-minute intervals for 2 hours (Gallagher, et al., 2001). This study used a VAS labeled “least possible pain” on the far left and “worst possible pain” on the far right. Patient’s who present to the ED can have intermittent pain. The pain may not be present at the time the patient is asked to rate their pain when using the VAS. In this case, the patient would need the option of “no pain”. Results identified the
minimum clinical significant change to be 13 mm (95% CI: 10, 16 mm) demonstrating
the sensitivity the VAS has for reporting small changes in pain severity by patients
(Gallagher, et al., 2001).

Gallagher switched his focus from pain located in several areas of the body to a
more specific area, the abdomen. The study's purpose was to test the reliability, validity,
and identify the minimum clinically significance for the VAS in patients who presented to
the ED with acute abdominal pain (Gallagher, Bijur, Latimer, & Silver, 2002). Data
analysis using the ICC and Bland-Altman Plot showed a strong linear relationship
between scores; the mean and median scores increased in a linear and graduated
fashion; the minimum clinically significant change in pain using the VAS to be 16 mm
(95% CI: 13, 18 mm) (Gallagher, et al., 2002).

Bijur, et al. (2003) compare the NRS and VAS to measure acute pain (defined as
< 24 hours) and to find the minimum clinically significant difference in pain to validate
the NRS. It is from this study that we will be replicating and expanding upon for the
purpose of the study. This was an observational, cohort study enrolling 108 patients
who completed both the NRS and VAS at 0, 30, and 60 minutes (Bijur, et al., 2003). At
the completion of each measurement, patients were asked to compare their current pain
from the previous measurements using “much less pain,” “a little less pain,” “about the
same pain,” “a little more pain,” or “much more pain” (Bijur, et al., 2003). Data were
analyzed by the Pearson Product Moment Correlation with regression analysis of the
VAS scores to assess its similarity with the NRS scores to determine if the NRS can be
substituted for the VAS (Bijur, et al., 2003). Findings support a strong correlation
between the VAS and NRS scores (r = 0.94; 95% CI = 0.93-0.95) and a minimum
clinically significant difference of 1.3 cm (95% CI: 1.3 to 1.4 cm) for the VAS and 1.4 cm
(95% CI: 1.0 to 1.5 cm) for the VAS (Bijur, et al., 2003). With a NRS score of 0, the VAS
score is predicted to be -0.34 (CI 95%: -0.67 to -1.01) (Bijur, et al., 2003). According to
Bijur et al. (2003) the use of the NRS is a valid measurement tool for assessing acute
pain because of the minimum clinical significance almost identical to the VAS
measurements if taken one minute apart. This study will go a step further and identify
what was found to be a limitation from the Bijur study and that is to see if the NRS and
VAS can be validated as equal measures of acute pain (defined < 72 hours) in both traumatic and non-traumatic causes of pain.

Statistical analysis for our study will reflect a study conducted by Fosnocht and colleagues to look at the correlation of a change in VAS and verbal descriptor scale (VDS) for pain relief in the ED using the Spearman Rho Correlation (Fosnocht, Chapman, Swanson, & Donaldson, 2005). VDS refers to “much less, a little less, about the same, a little more, or much more” pain and not the 11-Point verbally administered Numeric Rating Scale. The change in pain intensity between the VAS and VDS shows a moderate correlation (0.677. P < 0.001) (Fosnocht, et al., 2005). There is a large range for changes in VAS scores for every point in the VDS (SD = 15-25 mm) (Fosnocht, et al., 2005). The VAS is inadvisable for its use because it is said to not reflect a true interval scale and is limited due to the “ceiling effect” from patients reporting the max amount of pain available (Fosnocht, et al., 2005). By using the VAS these researchers have suggested patients cannot rate their pain freely, rather the subjects are limited to the max of 10 cm (100 mm).
Methods

This was a pre-experimental, observational, and prospective clinical study. A convenience sample of 110 subjects was enrolled from an Academic Medical Level 1 Trauma Emergency Department. The patient’s confidentiality was maintained at all times. The patients’ decision to enroll in the study or not, did not interfere with their treatment throughout their hospital stay. To ensure both validity and reliability, utilization of the same script and instruments from subject to subject were used at all times.

Following approval by the IRB, the student researcher approached patients who presented to the emergency department with a chief complaint relating to pain using a standardized protocol created by the student researcher (see Appendix A for protocol). The student researcher explained the study and procedure to the patient answering any questions he/she may have had. If the patient agreed to consent, a copy of the consent form was given to the subject and another copy put in their chart. The inclusion and exclusion criteria were then reviewed. The inclusion criteria indicated the patient must be ≥18 years old, English speaking, both cognitive and visual acuity intact, and onset of pain ≤72 hours. Using the data collection form (DCF) created by the researchers for the purpose of the study, additional information was recorded to include: gender, chief complaint, cause of pain, final ED discharge diagnosis, and traumatic versus non-traumatic cause of pain (see Appendix B for DCF).

Using two diagrams, one representing the front of the body and the other diagram representing the back of the body, the subject documented the location of their pain with an “X” using one or both of the two diagrams. The patient was then asked to record where they felt the pain was the worst right now in their own words (see Appendix C for diagrams).

Using the 11-Point NRS the subject was asked to rate their pain at this very moment on a scale from 0 to 10 where “0” is no pain and “10” is the worst possible pain. Next, the VAS was administered with a writing instrument and the subject was asked to mark where they felt their pain was at that moment. The far left represents “no pain” and the far right represents “worst possible pain” (see Appendix D for scales). According to Gallagher, et al. (2001) the far left labeled “least possible pain” was replaced with “no pain” for the purpose of this study. The scales were alternated for half of the subjects to
be asked the VAS first and the other half to be asked the NRS first. The time of both measurements were recorded and scales completed within 1 minute of one another because pain is assumed to not change during that given time period (Bijur, et al., 2001). Each VAS score was measured using a digital ruler to the one hundredths of a millimeter (0.01) and recorded on the DCF at the completion of the study.

According to Myles et al. (1999), there is controversy regarding which statistical test should be used to analyze the VAS data in the literature. For the purpose of this study, a more conservative approach was taken and the VAS scores were treated as interval data and analyzed using the Spearman Rho Correlation in SPSS. Out of the 110 patients consented, only the 100 who met all inclusion criteria and no exclusion criteria were analyzed.
Results

At the completion of the study 120 patients were approached in the Academic Medical Level 1 Trauma Emergency Department at The University of Toledo Medical Center. Out of the 120 approached 110 consented and 10 refused. Out of the 110 who consented 100 met all inclusion and no exclusion criteria. According to Table 1, 55 females and 45 males enrolled. When categorizing the cause of pain as traumatic versus non-traumatic, the majority was non-traumatic (72 subjects). Twenty-eight had traumatic causes for their pain. The NRS was asked first for 53 of the subjects and the VAS was asked first for the remaining 47 subjects. The mean age of subjects was 42 years and the mean time between the onset or change in pain and arrival into the ED was 22.5 hours (Table 2).

To test the first research hypothesis, the Spearman’s Rho Correlation analyzed the VAS and NRS scores for comparison resulting in p < 0.001 (Table 3). The mean VAS score for traumatic causes of pain was 54.70 mm and 56.91 mm in non-traumatic causes of pain (Table 4). According to the Levene's Test for Equality of Variances, equal variances assumed and the p value for comparing VAS scores between traumatic and non-traumatic causes of pain is .738 when using the t-Test for Equality of Means (Table 5). The NRS scores were calculated using the nonparametric Mann-Whitney U formula to compare the NRS scores between traumatic and non-traumatic causes of pain resulting in a p value = .911 (Table 6).
Discussion

A small sample size of 100 patients, majority females with non-traumatic causes of pain, met all inclusion criteria for the study. The mean age of subjects was 41.58 years and the mean time between the onset or change in pain and arrival into the ED was 22.46 hours.

To compare the VAS in traumatic versus non-traumatic causes of pain, the Levene’s Test for Equality of Variances resulted in a p value = .906. A p > alpha = 0.05 allows equal variances to be assumed. The t-Test for Equality of Means calculated a p value = .738, therefore, we fail to reject the null hypothesis. By failing to reject the null hypothesis there is no statistically significant correlation between traumatic (M = 54.70 s = 30.133) and non-traumatic (M = 56.91 s = 29.419) causes of pain when using the VAS. The variability among groups is approximately equal allowing the VAS to be used for either a traumatic or non-traumatic cause of pain.

To compare the NRS scores between traumatic and non-traumatic causes of pain the Mann-Whitney U formula was used calculating a p value of .911. With a p > alpha = 0.05, we fail to reject the null hypothesis. Therefore, there is no statistically significant correlation between traumatic and non-traumatic causes of pain when using the NRS to assess pain.

The VAS has been found to represent either ratio or interval data. According to Myles, et al. (1999) the VAS was found to represent ratio level data indicating any change in the VAS score will accurately reflect a relative change in magnitude of the patient’s overall pain intensity. According to Fosnocht, et al. (2005) the VAS was considered to be ratio data rather than interval and the Spearman’s Rho Correlation was calculated to compare the VAS to NRS. Bijur, et al. (2003) used the Pearson Product Moment Correlation with regression analysis to compare the NRS and VAS scores treating the VAS scores as interval data. For the purpose of this study the VAS scores are interval data not normally distributed and therefore the Spearman’s Rho Correlation is the best statistical test to use for comparing the VAS to NRS scores. The Spearman’s Rho Correlation resulted in p < 0.001. With a p value < alpha = 0.01, we fail to reject the null hypothesis. Therefore, there is no statistically significant correlation between the NRS and VAS. The NRS and VAS both measure pain similarly making the
scales interchangeable with one other. With p = 0.000, there is no tendency of the VAS scores to increase or decrease as the NRS scores increase and vice versa.

**Limitations**

Several limitations can be found from this particular study. The convenience sample of subjects does not accurately reflect the entire population as a whole. Patient's demographics such as age and ethnicity have been shown to influence how they rate their pain but for the purpose of this study were not collected (Marquie, et al., 2003). A true level 1 trauma patient presenting with pain were not enrolled due to their critical status. The hours spent by the researchers for enrolling patients was limited and patients who presented during the overnight hours were missed.

When comparing the mechanics of the NRS and VAS, the NRS is quick and easily understood. The VAS is more time consuming because it requires pen and paper. Finally, instructions on how to use the VAS were overall more difficult to understand. Most importantly, due to the patients' awareness of being observed, the Hawthorne Effect is likely and may have altered the subject's responses to their VAS and/or NRS scores.
Conclusion

In conclusion, the NRS and VAS, no matter the cause of pain as traumatic or non-traumatic, can both be used in the ED to assess patients who present with acute pain. Further research is suggested to include a larger sample population during all hours of operation and to test how specific causes of pain categorized as traumatic or non-traumatic will affect the correlation between the NRS and VAS. Not all pain is acute. Therefore, pain beginning > 72 hours prior to arrival into the ED should be considered when comparing the VAS scores to NRS scores.

Due to its limitations, the VAS may not always be practical for a quick and easy way to assess pain in the ED setting. However, patients and health care practitioners working in the ED now have a choice as to which scale they prefer because both scales are shown to be interchangeable with one another according to Spearman's Rho Correlation.
Reference List


# Tables

## Table 1

*Frequency of Gender, Scale Asked First, Traumatic and Non-Traumatic Injuries*

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>Scale Asked First</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRS Asked First</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>VAS Asked First</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Cause of Pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traumatic</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Non-Traumatic</td>
<td>72</td>
<td></td>
</tr>
</tbody>
</table>
Table 2

*The Mean Age and Onset of Pain*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>100</td>
<td>1.00</td>
<td>81.55</td>
<td>22.4591</td>
<td>23.38706</td>
</tr>
<tr>
<td>Age</td>
<td>100</td>
<td>18</td>
<td>95</td>
<td>41.58</td>
<td>18.035</td>
</tr>
<tr>
<td>Valid N (list wise)</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3

*Spearman’s Rho Correlations*

<table>
<thead>
<tr>
<th></th>
<th>NRS</th>
<th>VAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman's Rho Correlation Coefficient</td>
<td>1.000</td>
<td>.923**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>NRS</th>
<th>VAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS Correlation Coefficient</td>
<td>.923**</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.</td>
</tr>
<tr>
<td>N</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Note. Correlation is significant at the 0.01 level (2-tailed).
Table 4

*Mean VAS Scores in Traumatic Versus Non Traumatic Injuries*

<table>
<thead>
<tr>
<th>VAS</th>
<th>Traumatic vs. Non-Traumatic</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS Traumatic</td>
<td></td>
<td>28</td>
<td>54.7021</td>
<td>30.23307</td>
<td>5.71351</td>
</tr>
<tr>
<td>Non-Traumatic</td>
<td></td>
<td>72</td>
<td>56.9143</td>
<td>29.41890</td>
<td>3.46705</td>
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</table>
Table 5

*Independent Samples Test for the VAS*

<table>
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<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>F</td>
</tr>
<tr>
<td>VAS Equal variances assumed</td>
<td>-.331 48.067</td>
<td>.742</td>
</tr>
<tr>
<td>VAS Equal variances not assumed</td>
<td>-.331</td>
<td>48.067</td>
</tr>
</tbody>
</table>

Note. Alpha = 0.05
Table 6

*Mann-Whitney Test for the NRS*

<table>
<thead>
<tr>
<th>NRS</th>
<th>Traumatic versus Non-Traumatic</th>
<th>N</th>
<th>Mean Rank</th>
<th>Sum of Ranks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traumatic</td>
<td>28</td>
<td>49.98</td>
<td>1399.50</td>
<td></td>
</tr>
<tr>
<td>Non-Traumatic</td>
<td>72</td>
<td>50.70</td>
<td>3650.50</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NRS Test Statistics

- Mann-Whitney U: 993.500
- Asymp. Sig. (2-tailed): .911

a. Grouping Variable: Traumatic vs Non-Traumatic

Note. Alpha = 0.05
Appendix A: Protocol

1. Patient/potential subject checks in to Emergency Department Registration desk
2. Presenting complaint given at registration
3. Patient returns to waiting area until called by triage.
4. Patient is called to triage, assessed, and assigned an acuity level.
5. Patient is taken back to a treatment room or asked to return to waiting area and take a seat.
6. Researcher waits in nurses’ station in Emergency Department treatment area watching the tracking board for chief complaints.
7. If a patient presents with a chief complaint relating to pain, the student researcher asks the nurse for permission to approach patient. When nurse gives approval, student researcher approaches the patient.
8. Student researcher explains the study and the procedure to the patient and answers questions.
9. If the patient does not consent, student researcher records “refusal to consent” in Data Collecting Form (DCF). The patient will be generated at Study ID # based on their order of refusal. For example: R-7 will be given to the seventh patient who refuses consent.
10. If the patient consents a copy of the signed and dated consent form is given to the subject, a copy is placed in the subjects’ permanent medical record, and the original is kept for filing. The consent form is attached to the DCF but will be removed shortly in order to maintain anonymity.
11. Each subject is generated a Study ID # by emergency center location and order of consent. For example: “1-9” would be the study ID for the 9th person to enroll at UTMC. UTMC = 1; Bay Park Community Hospital = 2
12. Inclusion & Exclusion criteria reviewed and documented on the data collecting form (DCF) by the student researchers.

   Inclusion Criteria: English Speaking
   Age > 18 y/o
   Onset of pain < 72 hours
   Cognitive and visual acuity intact

   Exclusion Criteria: Non-English Speaking
   Age < 18 y/o
   Onset of pain > 72 hours
   Cognitive and/or Visual deficits
   Patient is too ill to participate
   Patient is an acquaintance of researcher

13. If the subject does not meet all inclusion criteria, the reason(s) for exclusion is/are documented on the DCF.
14. If the subject meets all inclusion criteria, the student researcher asks subject what caused their pain and records on the DCF.
15. The subject is asked to verbalize and document location of their pain using the following statement:
Location of Pain:
“Can you please tell me where you feel your pain is the worst right now?”
“On this diagram, can you please mark with an “X” where you feel your pain is the worst right now?”

16. The order the scales are asked will be alternated between every other subject by quoting the following statements:

NRS:
“On a scale from 0 to 10, where 0 is no pain and 10 is the worst possible pain, what number would you rate your pain right now?”

VAS:
“Looking at this line, the far left is no pain and the far right is the worst possible pain, draw a straight line up and down where you feel your pain is right now?”

17. The subject is thanked for their participation
18. Review chart for subjects’ gender and final discharge diagnosis from the Emergency Department and document on the DCF.
19. Once final discharge diagnosis recorded on DCF, separate DCF from the consent form
20. The DCF and Consent forms are secured in sealed envelopes and taken to UT for the next steps
21. The DCF is reviewed by an Emergency Medicine Physician who determines whether the cause of pain is traumatic or non-traumatic.
22. A researcher will measure the VAS using a PE digital ruler and records the results on the DCF.
23. Raw data will be entered into the principal investigator’s computer and analyzed using SPSS v. 170.
24. Original data forms will be secured in the principal investigator’s office.
Appendix B: Data Collecting Form

Inclusion Criteria:
- English Speaking: Yes  No
- Age ≥ 18 y/o: Yes  No  Age of Patient: ______
- Onset of pain ≤ 72 hours: Yes  No  Onset of Pain: ______
- Cognitive and visual acuity intact: Yes  No

Exclusion Criteria:
- Non-English Speaking: Yes  No
- Age < 18 y/o: Yes  No
- Onset of pain > 72 hours: Yes  No
- Cognitive and/or Visual deficits: Yes  No
- Patient is too ill to participate: Yes  No

Nurse consents: Yes  No
Patient consents: Yes  No

Chief Complaint:
__________________________________________________________________________

Cause of Pain:
__________________________________________________________________________

Scale asked first: NRS  VAS

Results:
NRS Value: __________
VAS Value: __________ (this will be measured later using a digital caliper)

Chart Review:
Gender: ________________
Final ED Discharge Diagnosis: ________________________________
   Traumatic  Non-traumatic
Appendix C: Location of Pain

On this diagram, can you please mark with an “X” where you feel your pain is the worst right now?

Can you please tell me where you feel your pain is the worst right now?

______________________________________________________________________

______________________________________________________________________
Appendix D: Scales

NRS:
“On a scale from 0 to 10, where 0 is no pain and 10 is the worst possible pain, what number would you rate your pain right now?”

0 1 2 3 4 5 6 7 8 9 10

VAS:
“Looking at this line, the far left is no pain and the far right is the worst possible pain, draw a straight line up and down where you feel your pain is right now?”
Abstract

Objective: Pain in the Emergency Department is a very common chief complaint. There are two very common scales used to assess pain, the Visual Analog Scale and Numerical Rating Scale. The purpose of this study is to determine how the two scales compare to one another, and in patients categorized as having either a traumatic or non-traumatic cause of pain.

Method: Patients at a level 1 trauma center emergency department in an academic setting were approached. Demographics, VAS, and NRS scales were obtained. The subject’s confidentiality was maintained at all times.

Results: A small sample size of 100 patients enrolled and comparison of the NRS to VAS scores were calculated using the Spearman Rho Correlation formula.

Conclusion: The NRS and VAS are interchangeable with one another. No matter the cause of pain, traumatic or non-traumatic, either scale can be used to assess the patient’s acute pain (< 72 hours).