

# A Comparison Of The Verbal Rating Scale And The Visual Analog Scale For Pain Assessment

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## Abstract

This survey was performed to determine if the simple Verbal Rating Scale (VRS) could be substituted for the Visual Analog Scale (VAS) to measure pain intensity in chronic pain patients. Eighty-five (85) chronic pain patients were surveyed using both VAS and VRS. Pearson correlation coefficient ( $r = 0.906$ ) and  $p$  value ( $< 0.0001$ ) showed excellent correlation between the two, although VRS showed a tendency to be higher than VAS ( $p=0.068$ ). We propose that the VRS provides a useful alternative to the VAS scores in assessment of chronic pain.

## METHODS

Eighty-five consecutive chronic pain patients who presented at the Pain Management Service at Louisiana State University Health Sciences Center, Shreveport (LSUHSC-S) were surveyed. A physician (resident or pain fellow) interviewed the patient and filled out survey forms. Patients were asked to rate their pain with the VAS and the VRS. The VAS consisted of a 10-cm line anchored by two extremes of pain (Figure 1). Patients were asked to make a mark on the line that represented their level of perceived pain intensity. For VRS (verbal rating scale), patients were asked to verbally rate his or her level of perceived pain intensity on a numerical scale from 0 to 10, with the zero representing one extreme (e.g. no pain) and the 10 representing the other extreme (e.g. "the worst pain possible"). Data were analyzed with correlation analysis and Student's  $t$ -test for paired data. Significance was defined as  $p < 0.05$ .

## RESULTS

Pearson correlation coefficient Figure 2 was 0.906 with significance ( $p$ -value) less than 0.001. This means the VRS and VAS measures correlate well as reliable measures of pain perception. Table I depicts the distribution characteristics of the VRS and VAS in our study population and shows that there was a tendency for VRS to be higher than VAS ( $p=0.68$ ). Whereas Figure 2 examines reliability of the VRS compared to the VAS, Table I looks at the validity of VRS compared to VAS. Table I also shows that the VRS mean SEM reported was 6.0824 0.2451 compared to the VAS of 5.8800 0.2577. The difference was 0.2024

0.1096, which is associated with a  $p$ -value of 0.068. VRS tended to be higher than VAS, although this did not reach significance. Figure 2 shows a scatter plot diagram comparing VAS and VRS for the 85 patients.

**Figure 1**

Table 1

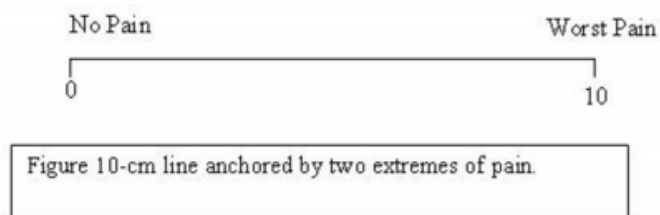
	Mean	N	Std. Deviation	Std. Error Mean
VRS	6.0824	85	2.2597	.2451
VAS	5.8800	85	2.3758	.2577
Difference	0.2024*	85	1.0105	0.1096

\*  $p=0.068$

Depicts the distribution characteristics of the VRS and VAS in our study population. The difference shows that VRS has a tendency to be higher than VAS, although this did not reach significance. ( $p=0.068$ )

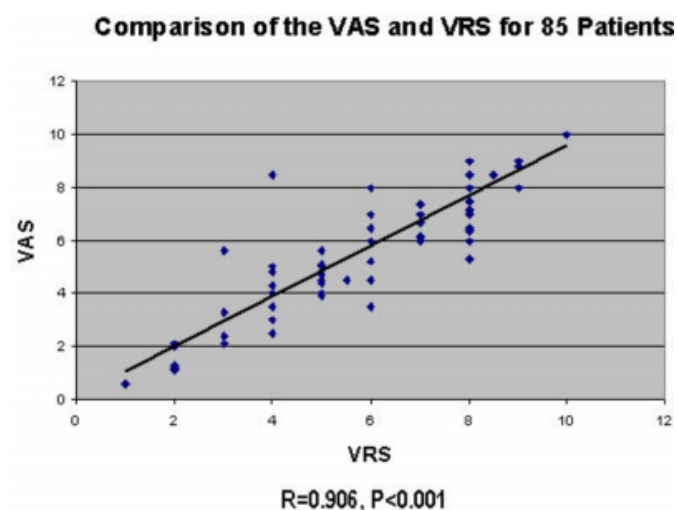
**Figure 2**

Figure 1: VAS Analog Scale



**Figure 3**

Figure 2: Shows a scatter plot comparing VAS and VRS for 85 patients. Correlation coefficient  $r = .906$  and  $p$  value



## DISCUSSION

Pain is a subjective sensation and therefore difficult to measure. It is, however, important to quantify it for several reasons; one of the most compelling reasons is that assigning a measurement of pain gives patients some sense of control over their condition and has positive effects on their coping abilities. Pain measurements also provide a means of assessing the efficacy of response to treatment and prognosis.

The VAS (1, 2, 3) is a well-studied method for measuring both acute and chronic pain, and its usefulness has been validated by several investigators. However, the VAS is comparatively time-consuming and requires ability to understand the abstract concept of the VAS line and then relate it to distance from a zero mark. It also requires the use of a paper and pen. As line length in VAS is the response continuum, many patients find it difficult to judge distance accurately. Therefore the VAS has some practical limitations in a clinic

setting.

The VRS as described above is easily assessed, takes less time than the VAS, and can be performed without the need of paper and pen. It is relatively simple to understand (e.g., 6 is a higher value number than 4 and so on), and thus provides a correlation which is more definitive than a distance mark. Comparisons between VRS and VAS have been performed by some investigators (4, 5, 6, 7, 8). These comparisons have defined VRS in different ways. Some physicians are employing the method that we have described above; however no study has been published which compares VRS with the VAS. Our analysis takes a measurement engineering approach by looking at the reliability and validity of VRS, using VAS as the standard. Reliability is assessed with an analysis of correlation, while validity is assessed with Student's t-test for paired data. The VRS is a simple instrument that can save time and compares favorably to the VAS.

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