

The Signal

Measurement Comparability of Electronic and Paper Administration of Visual Analogue Scales: A Review of Published Studies

Visual analogue scales (VASs) in clinical trials ask patients to mark a position on a horizontal line to reflect how they feel or function with regards to a particular health construct. The relative position along the line provides the measure. For example, a VAS to measure pain may ask the patient to mark a line position that represents the severity of pain experienced, where the start of the line represents “no pain” and the end of the line “severe pain”.

Clinical outcome assessment (COA) measures developed on paper are traditionally represented as a 10 cm line as this makes measurement easy using a metric ruler to generate a value from 0 to 100 (measurement to the nearest millimetre).

When we migrate COA instruments from paper to electronic formats, we often think about two questions:

1. Should the electronic version also be 10 cm in length (which can be a challenge for some screen-based devices, at least in portrait mode), or does it matter if the line is shorter on the electronic screen?
2. Are the measurement properties of electronic and paper versions comparable, and can we be confident that the migration from paper to electronic version has not introduced a change or bias in measurement?

While a number of meta-analyses have looked more generally at the comparability of paper and electronic presentations of patient-reported outcome measures (PROMs), and have included a small number of PROMs containing at least one item using a VAS, these analyses have not considered the questions around migrating the VAS in isolation.

With the [Critical Path Institute's eCOA Consortium](#), I have performed a [review of published evidence exploring the comparability of paper and electronic VAS implementations](#).

Examining 24 published studies, we concluded:

“ The literature supports the hypothesis that electronic-VAS and paper-VAS provide comparable results regardless of the VAS length. ”

Despite this, it's important to follow best practices, like those published by the eCOA Consortium, when implementing a VAS scale electronically.

Read more in our open access article in [Therapeutic Innovation and Regulatory Science](#).



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