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EQUIVALENCE OF PAPER AND TOUCH SCREEN VERSIONS OF THE EQ-5D VISUAL ANALOG SCALE (EQ-VAS)

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OBJECTIVES: The EQ-VAS, a measure of self-reported health status, has been operationalized in ways that depart from the original format. This study examines the equivalence of the original paper-based vertical format with a touch screen-based horizontal format.

METHODS: Non-probability sampling was employed to recruit 314 subjects intended to reflect the primary socio-demographic characteristics of the general adult population. A two part questionnaire was administered in a randomized crossover design. One part was the original paper-based 20cm vertical EQ-VAS; the other part was touch screen computer-based (designed by Assist Technologies) and included, among other items/scales, a horizontal 15cm EQ-VAS, the SF-36, and socio-demographic items. The two EQ-VAS formats were completed roughly 10 minutes apart. To test for minimally important differences (MID) between EQ-VAS scores, a difference of half a standard deviation (~ 8 points on the 100 point scale) was used as the equivalence threshold.

RESULTS: The mean (SD) EQ-VAS score was 81.0 (15.4) on the paper and 79.6 (15.2) on the touch-screen. The mean (CI) difference between scores on the two formats was 1.4 (0.19 to 2.58) points and the mean absolute difference was 5.3 (4.22 to 6.44) points. The intraclass correlation coefficient (ICC) was 0.75, indicating good agreement between the two scores. Almost a third (30.1%) of the respondents reported identical scores on both formats and 80.1% of the respondents had difference scores within ± 8 points. Using nonparametric bootstrap techniques, both the mean difference and the mean absolute difference between scores on the two formats were significantly less ($p < 0.001$) than the equivalence threshold. In addition, data collected via touch screen may be more reliable since 22% of subjects did not complete the EQ-VAS paper format as instructed.

CONCLUSION: These results provide evidence for the measurement equivalence of this EQ-VAS touch screen format with the original paper format.