

## The Agreement between State-Trait-Anxiety-Inventory (STAI) and Beck Anxiety Inventory (BAI) on Measuring Anxiety Level Among Adult Patients Before Venepuncture Procedure

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**Objectives:** Venepuncture procedure is painful, and anxiety associated with venepuncture is common. There are many tools for assessing the anxiety level in an outpatient setting. Hence, this study assessed the agreement between State-Trait-Anxiety-Inventory (STAI) and Beck Anxiety Inventory (BAI) on measuring anxiety levels among adult patients before the venepuncture procedure.

**Methods:** A cross-sectional study was conducted among patients while waiting for venepuncture procedure in the Phlebotomy Unit, UiTMCMC, from April until May 2020. The Malay validated version of the STAI and BAI were used to assess the anxiety level. Data were analysed using IBM SPSS Version 26.0. The differences between data sets were plotted as described by Bland-Altman to determine the agreement between these two assessment tools.

**Results:** A total of 330 patients participated in the study with a mean age of  $46.34 \pm 14.34$  years old, and gender were equally distributed. The scores of state-anxiety (STAI-S), trait-anxiety (STAI-T) and BAI were  $30.04 \pm 20.74$ ,  $29.51 \pm 19.11$ , and  $40.98 \pm 20.45$ , respectively. The score of anxiety using BAI was higher compared to STAI-S ( $p < 0.001$ ) and STAI-T ( $p < 0.001$ ). There was a positive correlation between STAI-S and BAI ( $r = 0.600$ ,  $p < 0.001$ ) and between STAI-T and BAI ( $r = 0.740$ ,  $p < 0.001$ ). The mean difference between the STAI-S and BAI was  $-10.94$  (95%CI:  $-53.01, 26.87$ ) and between the STAI-T and BAI was  $-11.47$  (95%CI:  $-42.26, 19.32$ ). However, very few patients' scores outside the 95% limit of agreement (LOA) for both differences.

**Conclusion:** The STAI and BAI have an agreement on measuring anxiety levels among patients waiting for venepuncture procedures based on a good degree of concordance. However, the anxiety score using BAI was significantly higher compared to STAI. Thus, healthcare providers can use both assessment tools in clinical practice, especially in measuring anxiety in the outpatient setting.

**Keywords:** state-anxiety, trait-anxiety, Beck Anxiety Inventory, agreement, venepuncture

DOI: <http://dx.doi.org/10.31344/ijhhs.v6i0.428>

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