

# Evaluating the GAD-2 to screen for post stroke anxiety on an acute stroke unit



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## Why screen for post-stroke anxiety?

- Prevalence between 12.5 – 24.9% within first two years after stroke (Knapp et al., 2020)
- Associated with reduced social functioning and quality of life in stroke patients (Burton et al., 2013, D’alisa et al., 2005; Shimoda, 1998)
- It can be improved with clinical intervention (see Ahrens’ CBT meta-analysis, 2022)
- But unlike depression, very little research has been conducted to identify appropriate tools. The available tools are inappropriate for acute settings due to their utility or psychometrics.
- The GAD-2 has high clinical utility, does not include psychosomatic anxiety, but has not been validated. We sought to investigate the psychometric properties of GAD-2.

**Table 1**

Burton & Tyson (2015) Criteria for rating the clinical utility of post-stroke ‘mood’ screening measures

	Time to administer and score	Initial costs for purchase	Additional cost per record form	Need for specialist training	Total score/6
<b>0</b>	≥11 minutes	≥ £100	Additional cost	Training required	
<b>1</b>	6-10 minutes	<£100	No costs	No training	
<b>2</b>	≤ 5 minutes	Freely available			
<b>HADS-A</b>	2	0	0	1	3
<b>GAD-2</b>	2	2	1	1	6
<b>GAI</b>	1	2	1	1	5

**Table 2.**

Diagnostic Accuracy of HADS-A Post-Stroke

First author	Sample	Time since Stroke	Criterion	Cut off	Sensitivity	Specificity
<b>Johnson (1995)</b>	Not available	4 months post stroke	DSM-III diagnosis for anxiety	5/6	0.95	0.46
<b>O’Rourke (1998)</b>	105 patients from UK	6 months post-stroke	Structured Clinical Interview using DSM-IV for anxiety	6/7 8/9 10/11	0.83 0.50 0.42	0.68 0.87 0.92
<b>Sagan (2009)</b>	104 patients from Norway	4 months post stroke	SCI using DSM-IV criterion for anxiety	4/5	0.83	0.65
<b>Kneebone (2015)</b>	81 patients from UK	Subacute	SCI using DSM-IV for anxiety	5/6 8/9*	0.88 0.50	0.54 0.87

## Methodology

- 145 patients from clinical database used for SSNAP purposes
- Age (M = 71.95, SD = 12.75)
- Days after stroke (M = 4.39, SD = 3.29)
- % Male = 57.2
- Stroke: Left (25.5%), Right (23.4%), Bilateral (31%)
- Administered OCS, HADS-A, GAD-2 and PHQ-2
- Criterion Measure: No Anxiety HADS = 0-5; Clinical Anxiety on HADS-A = >8

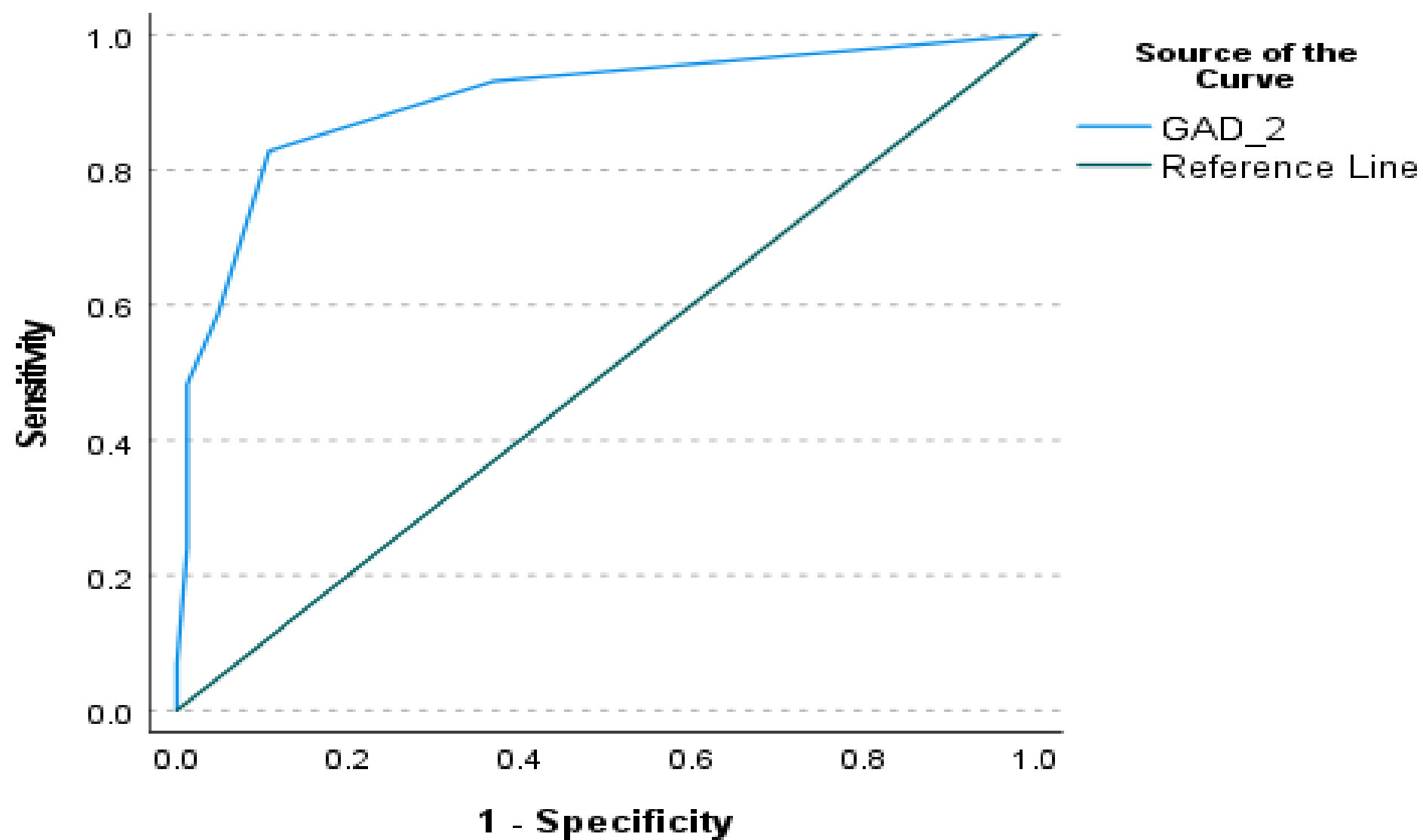


Figure 1. AUC (0.903) of GAD-2

## Results

- 20% classified as clinically anxious on HADS-A
- 58% were classified as ‘not anxious’ on HADS-A
- Bootstrapped Pearson correlation between HADS-A and GAD2 ( $r(145) = .65, p < .01$ )
- Bootstrapped Pearson correlation between PHQ-2 and GAD-2 ( $r(145) = .62, p < .01$ )

**Table 3.** Diagnostic Accuracy of GAD-2 (Base rate 20%)

Cut-off	Sensitivity	Specificity	PPV	NPV
<b>0/1</b>	.93	.63	.37	0.98
<b>1/2</b>	.83	.89	.64	0.96
<b>2/3</b>	.59	.95		
<b>3/4</b>	.48	.99		
<b>4/5</b>	.24	.90		

The results of this study suggest that the GAD-2 is a valid measure of screening for acute post-stroke anxiety, and recommends a cut off of 1/2. The GAD-2 could be used alongside PHQ-2.

## References:

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