

Correlation of the individual and total items scores of the six-item Hamilton Depression Rating Scale (HAMD6) and the six-item subjective depression scale (SDS6)

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ABSTRACT

Objective: To determine the correlation of the individual and total item scores of the classic objective six-item Hamilton depression rating scale (HAMD6) and a Likert style six-item subjective depression scale (SDS6) to see whether the SDS6 has clinical utility.

Method: This was a clinical audit study. 123 assessments were made on 58 depressed patients who were receiving routine acute and maintenance transcranial magnetic stimulation (TMS). The two sets of responses were compared using the Spearman rank correlation method.

Results: There were moderate to strong associations between the six items and the total scores of the SDS6 and HAMD6.

Conclusion: The SDS6 is a valuable companion to the HAMD6, it extends the assessments of mood by adding a subjective dimension, and is convenient to be used in primary care settings.

Introduction

A comprehensive assessment of mood requires both objective and subjective mood tools. For three decades, our group has used the 6-item Hamilton Depression Rating Scale (HAMD6) [1]. There being no companion subjective assessment scale, we developed a six-item visual analogue scale (VAS6) on a 10 cm line [2]. This worked reasonably well, however, some problems emerged: 1) some patients were uncertain which end of the scale indicated the greater quantity, 2) scoring required the availability of a ruler – which can be a challenge in this electronic era, and 3) reproduction (printing and photocopying) led to variations in the length of the lines which complicated score measurement.

To overcome some of the shortcomings of the VAS6, we developed a Likert style six-item subjective depression scale (SDS6) to accompany HAMD6, which was previously described in this journal [3]. Each item has two anchor points, one representing no pathology and the other representing extreme pathology, for example, for Item 1: “No depression” and

“Most depressed possible”. The scoring options were matched to those of the HAMD6: 0-4 for Items 1,2,4-6, and 0-2 for Item 3. The anchor points were arranged so that the scores increased in an alternating manner, increasing from left to right for Item 1, right to left for Item 2, and so forth.

To assess the usefulness and relevance of SDS6 a pragmatic and convenient approach was to compare SDS6 with a well-established scale. Such comparisons will guide the development of usage as well as future research involving the new scales.

To test SDS6 we used it alongside HAMD6 in a clinical setting. The results, reported earlier [4], demonstrated that overall there was a strong correlation indicating that SDS6 is a suitable complimentary tool to be paired with the classic HAMD6.

We had concerns about capturing the essence of HAMD6 item 6 which deals with retardation (both mental and physical), on the SDS6 single line. We opted for anchor points, “No concentration problems” and “Major concentration problems”, which does not take the physical symptoms into account.

The slightly modified SDS6 scale was tested in the same clinic with new clients/patients. With the new dataset we were able to further explore the correlation between SDS6 and HAMD6. In this paper we report the results of assessing correlation between the overall scores, as well as correlation between each items of SDS6 and HAMD6.

Method

This study was conducted in an outpatient transcranial magnetic stimulation (TMS) service. We used routine clinical audit data generated during standard clinical care sessions. Permission was sought from patients undergoing treatment for their anonymised and aggregated data to be used. Approval for this work was granted by the Medical Advisory Committee of Saint Helens Private Hospital, Hobart.

All patients treated in the clinic were experiencing treatment resistant major depressive disorder (MDD). Some were receiving acute treatment and others, maintenance treatment. Standard TMS was provided: 10 Hz stimulation was applied to the left dorsolateral prefrontal cortex at 120% of RMT. Seventy-five 4 second 4 second runs of stimulation were delivered daily. Patients are scored on the HAMD6 and the SDS6 (along with the Clinical Global Impression-Severity). During acute TMS treatment, mood is generally scored two or three times over four weeks, and during maintenance TMS (when treatment is provided once weekly), mood may be scored weekly, for extended periods.

Fifty-eight patients were involved: 39 females with an average age of 43.4 years and 19 males with an average age of 50.2 years. One hundred and twenty-three assessments were performed. Eight patients were assessed once – these were people who had recently commenced treatment or had withdrawn without completing treatment. Forty-three patients were assessed twice – they were treated for acute MDD, and we collected their first and last week assessments. Three patients were assessed three times, and four patients were assessed five times – these were long term maintenance TMS patients.

One way of exploring the performance of SDS6 is to test how well it relates to the well-established and well-used HAMD6. We used Spearman rank correlation coefficient to assess

correlation between items and between total score of the two scales. Stata version 15 was used to perform correlational analysis.

Results

Spearman rank correlations were significant ($p < 0.001$) for all 6 items as indicated in Table 1, with moderate to strong associations. A Spearman correlation coefficient of 0.88 (CI 0.83-0.92) for the total scores suggests the two scales are strongly correlated. Furthermore, large between items correlation coefficient, shown in Table 1, supports the strong correlation between the two scales.

Table 1. Spearman rank correlations between the HAMD6 items and the SDS6, N=123.

[The HAMD-6 item's 1) depressed mood, 2) anhedonia (inability to experience pleasure), 3) physical health concerns, 4) guilt feelings, 5) anxiety, and 6) retardation.]

	HMDS6	1	2	3	4	5	6
SDS6							
1. Depressed mood		0.60	-	-	-	-	-
2. Work and activity		-	0.63	-	-	-	-
3. Somatic symptoms		-	-	0.66	-	-	-
4. Feelings of guilt		-	-	-	0.64	-	-
5. Psychic anxiety		-	-	-	-	0.72	-
6. Retardation (mental & physical)		-	-	-	-	-	0.54
Total score		0.88					

Discussion

In an earlier study we reported the development of a subjective mood scale SDS6 to accompany HAMD6 scale [4]. In this study, a strong correlation coefficient (0.76; CI 0.69 – 0.83) between total scores of the two scales based on 65 patients who attended a TMS treatment SDS6 was deemed a suitable tool to accompany HAMD6. The current study, based on 123 observations, reported a very strong correlation between the two scales (correlation coefficient of 0.88, Table 1).

A question arises; given that SDS6 is a subjective scale, how well are the individual items on each scale being correlated? We explored this question. We considered 123 assessments from 58 individuals who were in various stages of depression, and most importantly, we demonstrated that the correlation between each separate item (including Item 6) is strong.

We had been concerned about Item 6 which deals with retardation – the HAMD6 reports both physical and mental aspects – nevertheless, a correlation coefficient of 0.54 suggest a fairly strong correlation between item 6 of the two scale.

The average HAMD6 total score was 6.20, and for the SDS6, 11.54. This complies with our clinical experience over the last two years, which suggests that the total SDS6 score is generally about twice that of the HAMD6.

We have demonstrated the SDS6 is a valid measure of self-reported depression symptoms (individually and in total) with moderate to strong correlations with the well-established HAMD6.

The response of patients has been universally positive. The problems which arose with the VAS system of quantifying subjective experience were removed. Staff found the Likert-style tool to be much easier and quicker to interpret and record.

In conclusion, SDS6 provides a user friendly and convenient tool to be used in primary care and psychiatric practice.

References

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