

# Zung Self Rating Depression Scale in Parkinson's Disease: A Validity Study In Veterans

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**Objective:** To determine the validity of Zung Self Rating Depression Scale (SDS) in assessing depression in Veterans with Parkinson's disease (PD)

**Background:** SDS is an efficient screening tool for depression. A common concern regarding its use in PD is the presence of several somatic items that overlap with PD symptoms. This project was designed to identify those items.

**Design/Methods:** 179 subjects were screened for depression and excessive sleepiness using SDS and Epworth Sleepiness Scale (ESS). Depression and excessive sleepiness were defined as having SDS score > 49 and ESS score ≥ 10 respectively. SDS itemized scores were compared between the depressed and non-depressed groups with and without the inclusion of ESS scores.

**Table 1: Demographic distribution of study subjects**

Demographics	N (All) Frequency (%)	Sleepy Frequency (%)	Non-Sleepy Frequency (%)	Depressed Frequency (%)	Not Depressed Frequency (%)	Zung scores
						Mean (SD)
<b>Gender</b>						
Men	175 (97.8%)	107 (98.2%)	68 (97.1%)	104 (98.1%)	71 (97.3%)	52.5 (11.0)
Women	4 (2.2%)	2 (1.8%)	2 (2.9%)	2 (1.9%)	2 (2.7%)	55.0 (13.5)
<b>Total</b>	<b>179 (100%)</b>	<b>109 (100%)</b>	<b>70 (100%)</b>	<b>106 (100%)</b>	<b>73 (100%)</b>	<b>52.2 (11.0)</b>
<b>Ethnicity</b>						
White	144 (80.5%)	84 (77.1%)	60 (85.7%)	86 (81.1%)	58 (79.5%)	52.4 (11.0)
Black	16 (8.9%)	10 (9.2%)	6 (8.6%)	9 (8.5%)	7 (9.6%)	52.0 (9.1)
Hispanic	19 (10.6%)	15 (13.8%)	4 (5.7%)	11 (10.4%)	8 (11.0%)	50.5 (12.7)
<b>Age</b>						Correlation coefficient -0.058 p-value = 0.44
Mean (SD)	70.7 (9.5)	70.6 (9.7)	70.9 (9.1)	70.2 (10.2)	71.4 (8.3)	
<b>Hoehn &amp; Yahr (HY)</b>						Correlation coefficient -0.002 p-value = 0.98
Mean (SD)	2.55 (0.8)	2.6 (0.8)	2.4 (0.8)	2.7 (0.8)	2.4 (0.7)	
Median	2.5	2.5	2.25	2.5	2.0	
<b>Zung score</b>						**P-value =0.037 for EES comparison
Mean (SD)	52.2 (11.0)	54.1 (10.9)	49.2 (10.6)	59.4 (7.4)	41.7 (5.8)	
Median	52.5	55	49.4	57.5	42.5	

\*\*The distribution of Zung scores did not differ by gender or ethnicity, but did differ for the category of Sleepy/Non-sleepy [Mann-Whitney U Test]. Zung scores were not correlated with either age or HY.

**Results:**

106 subjects (59.2%) were depressed. There was a statistically significant difference in scores of 19 of the 20 items of SDS between the depressed and not depressed groups, correctly identifying depression. The scores regarding item 4 (I have trouble sleeping at night) were not significantly different. When the ESS scores were included, the significant difference between the SDS scores was maintained for 18 items. In addition to item 4, the responses to item 8 (I have trouble with constipation) were also not significantly different between the groups. The alpha coefficient for SDS (0.807) indicated high levels of internal consistency.

**Table 2: Detail for Zung Scale Items along with diagnostic criteria type and reverse scoring indicators**

Zung scale items	Reverse scored items	Chi-square p-value	Depressed Median score	Non-depressed Median score
1. I feel down-hearted and blue		< 0.0001	2	1
2. Morning is when I feel the best	*	0.013	2	1
3. I have crying spells or feel like it		< 0.0001	1	1
4. I have trouble sleeping at night		0.236	2	1
5. I eat as much as I used to	*	< 0.0001	3	2
6. I still enjoy sex	*	< 0.0001	4	2
7. I notice that I am losing weight		0.005	2	1
8. I have trouble with constipation		0.083	2	2
9. My heart beats faster than usual		0.002	1	1
10. I get tired for no reason		< 0.0001	2	1
11. My mind is as clear as it used to be	*	< 0.0001	4	2
12. I find it easy to do the things I used to	*	< 0.0001	4	3
13. I am restless and cannot keep still		< 0.0001	2	1
14. I feel hopeful about the future	*	< 0.0001	3	1
15. I am more irritable than usual		< 0.0001	2	1
16. I find it easy to make decisions	*	< 0.0001	3	2
17. I feel that I am useful and needed	*	< 0.0001	3	2
18. My life is pretty full	*	< 0.0001	3	2
19. I feel that others would be better off if I were dead		0.002	1	1
20. I still enjoy the things I used to do	*	< 0.0001	2	1

For Chi-square, scores were dichotomized to 1 vs. 2,3, or 4 and Depression yes/no crossed with Sleepy yes/no.



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Diagnostic Criteria Question Type		
Pervasive affect	Physiological	Psychological

**Conclusions:** Only two of the eight somatic elements of Zung Self Rating Depression Scale (SDS) did not detect depression in PD. Overall, however indicators of internal consistency and validity suggest that SDS may be a useful screening tool for depression in Veterans with PD.