ZUNG SELF-RATING DEPRESSION SCALE INDICES BY AGE AND GENDER IN A PSYCHIATRIC OUTPATIENT POPULATION

A Thesis

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The present study was designed to assess the interaction between Zung Self-Rating Depression Scale (SDS) scores, age, and gender in a psychiatric outpatient population, as well as a comparison of SDS score means between a psychiatric and a normal population. The subjects consisted of 671 females (13 years to 89 years) and 378 males (13 years to 89 years). All subjects were clients of a private psychiatric clinic and completed the SDS as part of their admission.

The results indicate a significant SDS score difference between a psychiatric outpatient population and a normal population. A non-significant interaction existed when the factors Age and Gender were taken together, but when examined separately, significance was observed. Thus, it appears that SDS scores are affected by age and gender in such a sample.

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CHAPTER 1

INTRODUCTION

Depression is not only a diagnostic label, but a symptom as well. The symptoms of depression occur in four reaction systems, or symptom spheres: affective, cognitive, motor, and somatic. These spheres are used to classify both normal and abnormal behavior. In dealing with the affective sphere, one may view the term affect as being synonomous with mood. Here the primary measure spans from that of total euphoria to that of absolute depression. The cognitive sphere possesses two distinct expressions. The first involves clandestine activities normally associated with higher organisms and man, e.g., thinking, planning, and remembering. The second stage involves sensory functioning (vision, hearing, touch, taste, and smell). All the muscular demands within an individual's immediate milieu are met by the motor sphere. These responses are grouped as to whether they repulse an individual from a particular punishment, or attract him or her to a particular reward. Motor responses are of two sorts: social (including the behavior of single or multiple persons), or non-social (involving objects and events rather than persons). The somatic sphere is comprised of two different components. The first being the autonomic nervous system. This aspect includes various physiological responses such as increased heart rate, an increase in blood pressure, sweating, etc. The second is the creation of symptoms following prolonged existence of

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autonomic nervous system responses (Buss, 1966).

In applying the symptoms of depression to the four symptom spheres, we find that the most important symptoms occur in the affective and motor spheres. Affectively, the depressed person suffers from an absence of pleasure and richness in his or her present life, as well as life experiences of the past and those to come in the future. The motor sphere may be viewed as an extension of the affective sphere. The lifelessness extends into the realm of one's vivaciousness, leading to a classification of either retarded or agitated depression. The retarded depressive is characterized by sluggish movements, lethargy, or stuporousness. In the agitated depressive state, the individual is hyperkinetic. It should be noted that although mood is without a doubt discordant, the activity level is raised to the agitation of an anxiety state (Buss, 1966).

Analogous to a decreased activity level found in the motor sphere, the somatic sphere yields a drop in bodily functions including gastro-intestional activity, appetite (which results in weight loss), and ability to sleep (Buss, 1966).

In the cognitive sphere, one finds that perception, memory, and attention all function adequately. Depersonalization, i.e., a loss of sense of self, seems to be the most common symptom in this sphere. The ability to feel, love, and experience pleasure is lost by the individual in this reaction system. Delusions and hallucinations are rare, hallucinations more so than delusions. If delusions are

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present, they are usually of three types. The first revolves around guilt. The person feels responsible for such things as accidents and others' pains. The second involves belief of atrophy of the body. The individual believes this physical disintegration is deserved. The third kind of delusion is nihilistic, i.e., the world, as well as the depressed person, is viewed as doomed and downfall inevitable. The patient sees no plausible means of escaping the inevitable catastrophe (Buss, 1966).

There are three basic modes of depression to be considered: normal, neurotic, and psychotic. Normal depression is associated with stress resulting from a recent stimulus that is quite obvious to the individual. A person who suffers from a marital separation, divorce, loss of a job, being away from home for the first time, as well as what one may view as positive happenings like a promotion on the job or the birth of a child, may feel down-hearted, sad, angry, apathetic, and basically overwhelmed with the stressful event. Initially, the individual tends to withdraw from the world, particularly the stimuli that provoked the adverse feeling(s). Gradually, as the sadness surrenders, the individual will return to his or her normal, active self. Depression reaches the neurotic stage when the person overreacts to the anxiety of an event and fails to return to normal feelings and activities after a reasonable amount of time. The Diagnostic and Statistical Manual (1980) indicates this time period should not exceed two years, and may be characterized by periods in which the person feels fine. However, the majority of the time the person is exhibiting depressive symptomology, i.e., affectivly such persons experience a great deal of apathy and pessimism; motor fuctions (speech and movements) are slowed and dull. Psychotic depression is similar to neurotic depression, but is more advanced in symptom severity. As with most psychoses, the cognitive sphere reveals such symptoms as hallucinations and delusions. Within this form of depression the individual feels a stronger sense of helplessness, melancholy, guilt, and suicidal tendencies (Buss, 1966; Coleman, Butcher, & Carson, 1980).

Depression is assessed via many different routes. Among them is the clinical interview. Such an assessment is only as good as the interviewer and may be biased due to individual differences between clinicians, e.g., training, competence. An alternate method of assessing depression is through psychometric techniques. Currently, psychometric instruments designed to appraise depression range from crude to awkwardly complex.

The Minnesota Multiphasic Personality Inventory (MMPI) is one of the most respected (in terms of preferred use), as well as accurate (in terms of reliability and validity), devices presently being used to estimate depression (Hathaway & McKinley, 1943). Even though the MMPI is very complex in its initial structure, it is one of the simplest tests to administer and score. The interpretation proves the most laborous task in it's administration. Probably the most significant drawback in dealing with the MMPI is the fact that it requires approximately three hours for administration and scoring.

In an attempt to transcend the simple-complex dichotomy of current depression orientated psychometric devices, the Zung Self-Rating Depression Scale (SDS) was developed (see Appendix A). The SDS is a 20 item self-report device that assesses "the patient's mood, feelings of worthlessness and helplessness, and biological concomitants of depression (libido, psychomotor retardation, sleep and appetite disturbance)" (Raft, Spencer, Toomey, & Brogan, 1977, p. 999). The subject is requested to rate each item as to how it applies to him or her at the time the test is taken. Each of the 20 items is rated on a scale of 1 to 4 on four quantitative terms: none or a little of the time, some of the time, a good part of the time, most or all of the time. The SDS was devised so that ten of the 20 items are worded symptomatically positive (e.g., Morning is when I feel the best), and ten of the 20 items are worded symptomatically negative (e.g., I feel down-hearted, blue, and sad). The SDS index is obtained by dividing the sum of the raw scores of the 20 items by the maximum possible score of 80, then multiplying the result by 100. Thus, the SDS index ranges from 25 to 100. Severe to most extreme depression is identified by a score of 70 or above. Moderate to marked depression is synonymous with

a score of 60-69. Minimal to mild depression is recognized by a score of 50-59. Persons scoring below 50 are classified as possessing no psychopathology, or normal (Hedlund & Vieweg, 1979; Raft et al., 1977; Zung, 1965, 1967, 1972).

Zung (1972), using 152 inpatients (all male) with an age range of 22-75 years ($\underline{M} = 45$), and 73 outpatients (23 males and 50 females) having an age range of 14-72 years ($\underline{M} = 32$), reported a split-half reliability of .73. This coefficient proved significant at the .01 level.

In order to obtain a measure of internal consistency, Giambra (1977) made use of 91 (54 males and 37 females) college students, and 29 male correctional institution inmates. The age range for each group of subjects was 17-24 and 18-30, respectively. The items of the SDS were intercorrelated and set into a correlation matrix. A mean interitem correlation of .16 led to a Spearman-Brown estimate of internal consistency of .79.

Hedlund and Vieweg (1979) stated, "probably the most unequivocal evidence of construct validity for the SDS appears in its relationships with other standard clinical scales for depression" (p. 52). Hence, Giambra (1977), using 29 inmates (all male) of a correctional institution with an age range of 18-30 years, along with 54 male and 37 female (17-24 years) college students, reported an intercorrelation of .66 between the items of the Beck Depression Inventory (BDI) and the SDS.

In order to demonstrate the validity of the SDS, Biggs,

Wylie, and Ziegler (1978) correlated the scale with the Hamilton Rating Scale for Depression (HRS), as well as global ratings of depression by the treating physician. The subjects had completed a six-week course of treatment with a tricyclic antidepressant. During each weekly session the subjects completed the SDS and the HRS, thus resulting in 283 pairs of ratings. The correlation between the SDS and the HRS for all 283 rating pairs was .80. In dealing with the global rating by the physician and the SDS, a correlation of .69 was obtained.

Zung, Richards, and Short (1965), in testing a sample of 55 male and 97 female outpatients with both the MMPI and the SDS, reported a correlation of .70 between Scale D of the MMPI and the SDS.

Zung (1972) reported a correlation between the SDS and the Depression Scale Inventory (DSI) of .87, yielding significance at the .01 level. This study utilized 152 inpatients and 73 outpatients with age ranges of 22-75 years ($\underline{M} = 45$) and 14-72 years ($\underline{M} = 32$), respectively.

Given the fact the SDS is a relatively new addition to existing psychometric divices designed to estimate depression, not a great deal of literature exists concerning it. More specifically, not a great deal of literature exists dealing with the effects age and gender have on a person's SDS index. For present purposes, background literature dealing with the SDS falls into two categories. The first deals with how males perform on the SDS as compared to how females perform on the same measure. The second deals with how SDS scores differ in various age classifications.

In both normal and patient groups, there is a tendency for increasing SDS scores with ascending age. It appears that subjects 65 years of age and older show the most pronounced elevations on the SDS (Hedlund & Vieweg, 1979; Raft et al., 1977; Zung, 1967, 1971, 1972). Zung (1980) stated that the elderly are more likely to be depressed than other age groups. This was believed to be due to such things as loss of family members and friends through death, decreasing physical attractiveness, dwindling health, loss of one's job, retirement, reduction or loss of income, and fear of one's own death.

Although the elderly show heightened SDS indices, they hold no monopoly on such a trend. Younger individuals, 19 years of age and less, show a tendency for elevated SDS scores (Hedlund & Vieweg, 1979; Zung, 1971, 1972). This may possibly be due to various life changes that these individuals are confronted with, e.g., puberty, school, romantic relationships, and entering the job world. In both the older and younger groups, there appears to be more changes and stressors befalling the individuals than the years in between (Zung, 1972).

With regard to a relationship between age and SDS scores across all age groups, there does not appear to be a significant pattern to date. Zung (1967) reported a Pearson r correlation coefficient of .06 between age and SDS scores. Zung concluded that the SDS was not affected by such factors as age and sex in a psychiatric outpatient sample. In dealing with a normal population, Knight, Waal-Manning, and Spear (1983) reported a correlation of -.09 between subjects' ages and SDS indices. It should be noted that the population studied was a rural New Zealand community of volunteers.

In dealing with how gender affects SDS scores, females tend to show slightly higher SDS scores than males in both normal and patient groups (Chevron, Quinlan, & Blatt, 1978; Hedlund & Vieweg, 1979; Knight et al., 1983; Raft et al., 1977; Selzer, Paluszny, & Carroll, 1978; Small, Teagno, & Selz, 1980; Weissman & Klerman, 1977; Zung, 1967, 1971). Hedlund and Vieweg (1979) and Chevron et al. (1978) found the relationship of higher SDS scores for females to be a non-significant one, while Knight et al. (1983) and Raft et al. (1977) discovered a significant relationship. Weissman and Klerman (1977) stated that women show a greater degree of depression with a ratio of 2:1 over men.

With regard to cultural effects of sex on SDS scores, Marsella, Sanhorn, Kameoka, Shizuru, and Brennan (1975) found a tendency for women to achieve higher SDS scores than men in Chinese-American, Japanese-American, and Caucasian-American subjects. To date there has been no hypothesized reason for such a pattern, i.e., higher SDS scores for female subjects than male, in either normal or patient groups.

Statement of the Problem

Hedlund and Vieweg (1979) indicate that, even though the SDS has been correlated with a number of demographic variables, "no clear SDS-age relationship has been demonstrated with psychiatric patients" (p. 53). Given this, the present study focused on the search for a significant difference in SDS scores between various age groups and gender within a psychiatric outpatient population. In addition, a comparison was made between mean SDS indices in a psychiatric and normal population.

CHAPTER 2

METHOD

Subjects

Six hundred and seventy one females (13 years to 89 years, $\underline{M} = 37.70$) and 378 males (13 years to 89 years, $\underline{M} = 38.86$) provided data. All 1,049 persons were clients of a private psychiatric outpatient clinic in a Midwestern city seen between 1973 and 1983. Approximately 10% of the client population had been hospitialized briefly in a psychiatric ward. The client sample was geographically diverse due to the presence of a large university in the community. Although specific client diagnoses were not available, it is reasonable to state that virtually all the adult classifications of DSM III were represented in this sample, according to Holmes, Fouty, Wurtz, & Burdick (1985), who used the same data base.

Procedure

As part of their admission, all clients completed the SDS, as well as other tests. Results were recorded on separate test data cards. Gender and client age were also recorded.

Independent variables

This study incorporates two independent variables. The first is the age of the client. This factor consists of eight levels: less then 19 years, 20-29 years, 30-39 years, 40-49 years, 50-59 years, 60-69 years, 70-79 years, and 80-89 years. The second independent variable is sex. This factor includes two levels (male and female).

Dependent variable

The dependent variable is the clients' SDS scores.

CHAPTER 3

RESULTS

When males and females were grouped together the SDS index mean was 59.04 (<u>SD</u> = 13.21). Males yielded a mean SDS index of 56.47 (<u>SD</u> = 13.04), while females demonstrated a mean of 60.49 (<u>SD</u> = 13.09). A <u>t</u>-test indicated the difference between the male and female means was significant, $\underline{t}(1047) = 3.71$, <u>p</u> < .001.

A <u>t</u>-test was used to test for significance between mean SDS scores in the Knight et al. (1983) normal population and the present psychiatric population for each age level in both males and females (see Table 1). Males at all age levels in a psychiatric population revealed significantly higher SDS scores than did males in a normal population, <u>p</u> < .001. Females, as well, revealed significantly higher SDS scores in a psychiatric population than a normal population, <u>p</u> < .001, at all age levels except the 80-89 age classification.

The effects of age and gender were analyzed via the Statistical Analysis Systems general linear models procedure. This analysis of variance (ANOVA) is routinely used with unbalanced data, as in this case. The results indicated no significant interaction between the factors Age and Gender, $\underline{F}(7,1033) = 1.00$, $\underline{p} > .4311$. However, a difference did emerge when each factor was considered separately. With regard to the Gender factor, the main effect was significant, $\underline{F}(1,1033) = 23.15$, $\underline{p} < .0001$. Such a finding is consistent with past

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Table 1

< 19

20-29

30-39

40-49

50-59

60-69

70-79

41

101

86

48

48

31

16

56.20

58.96

52.74

57.42

53.92

59.10

59.19

			- <u>-</u> .				
Males							
		Psychiatric			Normal		
Age	<u>N</u>	<u>M</u>	SD	<u>N</u>	<u>M</u>	<u>SD</u>	

11.65

13.54

13.02

13.95

11.57

12.05

13.42

46

136

111

88

81

58

28

33.00

30.61

30.67

30.52

33.40

33.46

33.86

5.57

6.60

6.28

7.11

7.06

6.49

6.93

Mean SDS scores by age in a psychiatric and normal population

80-89	7	60.86	11.33	4	30.30	5.90				
			Females							
	Psychiatric Normal									
Age	N	M	SD	<u>N</u>	<u>M</u>	<u>S D</u>				
< 19	66	61.17	13.92	47	37.20	7.12				
20-29	191	62.85	12.49	132	34.37	6.80				
30-39	153	59.68	13.00	109	35.28	8.23				
40-49	106	59.16	12.94	85	34.45	7.30				
50-59	81	58.51	14.96	85	36.85	6.98				
60-69	49	60.29	10.09	78	37.18	7.51				
70-79	22	57.95	14.08	34	34.83	7.43				
80-89	3	58.00	15.62	3	33.67	5.51				

findings in that females tend to score slightly higher on the SDS than males. When factor Age was probed, signifiance was achieved as well, $\underline{F}(7,1033) = 2.82$, $\underline{p} < .0066$. This indicates what might be expected, that as an individual becomes older, depression becomes more prominent.

Post hoc analysis of each main effect was conducted by the use of <u>t</u>-test applications. With regard to the gender factor, females in the < 19, 20-29, 30-39, and 50-59 age classifications showed significantly higher SDS scores than males, $\underline{p} < .05$ or greater.

In dealing with the age factor, significance was achieved by the 20-29 age classification when compared to the 30-39, 40-49, and 50-59 age classifications, $\underline{p} < .05$. All other comparisons yielded non-significant differences (see Appendix B).

CHAPTER 4

DISCUSSION

The present research corroborated a number of past research findings, but at the same time it broke new ground by yielding discoveries that either refuted past findings, or exposed novel ones. In dealing with the difference in SDS scores between males and females, the present findings echo those of Hedlund and Vieweg (1979), in the sense that females tend to show slightly higher SDS scores than males in a psychiatric population. Zung (1967) observed that this difference was not significant. However, Raft et al. (1977), supported by the present study, contend that this is not the case. There does appear to exist a significant difference between mean SDS scores in male and female groups.

Referring to age, Hedlund and Vieweg (1979) reported that higher SDS scores were found in the age group consisting of individuals less than 19 years of age. The present study revealed different findings, and indicated that individuals less than 19 years of age do not show the most extreme increases in SDS scores, It seems that it is the age classification consisting of persons 20 to 29 years of age that demonstrate the highest SDS indices when one examines the younger subjects of the psychiatric spectrum. Zung stated in 1972 that only conjecture can be made that the age group consisting of individuals 19 years of age and less is one period "in the lifespan of an individual when changes in the

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internal milieu and environmental stresses may be greater than during the years in between" (p. 176-177). It is the contention of the present research that the decade in which the individual remains in his or her 20's the stresses mount to an extent to which depression is more pervasive. However, it should not be overlooked that as a person becomes older, he or she is more prone to suffer from depression. Such factors as death of friends and loved ones, atrophy of physical appearance and health, job loss and retirement, as well as as the fear of one's own death, may undoubtedly contribute to elevated depression.

Regarding the significant difference between SDS score means in both psychiatric and normal populations, it is clearly obvious that depression would be more abundant in a psychiatric population than in a normal population. Zung (1967) stated that "the outcome of the SDS was not affected by the patient's age and sex" (p. 546). This finding is clearly not supported by the present investigation. It appears that age and gender do play a key role in determining SDS scores in a psychiatric outpatient population.

In summary, the present work puts forth data on the SDS that may be appropriate for use with the vast range of persons presenting themselves to the mental health professional. Such factors as the age and gender of the client should be taken into consideration when one employs the SDS. Thus, increasing the psychological consultant's effectiveness in dealing with

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APPENDIX A

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Zung Self-Rating Depression Scale

		None OR		61 1 m	11
		a Little	Some of	Good Part	Most OR A
nge Sex	Uate	of the fine	the time	or the lime	or the Lin
1. 1 feel down-hearted, blue and and	<u></u>	1	2	3	4
2. Morning is when I feel the best		4	3	22	1
3. I have crying spells or feel like it	-	<u> </u>	2	3	- 1
4. I have trouble sleeping through the	e night	1	2	3	1
5. I eat as much as I used to		4	3	2	1
6. I enjoy looking at, talking to and	being with actractive		1	' '	
women/men		4	<u> </u>		
7. I notice that I am losing weight		<u> </u>	2	3	4
8. I have trouble with constipation		1	2	3	1
9. My heart beats faster than usual		l	2	3	4
10. I get tired for no reason		1	2	3	4
11. My mind is as clear as it used to t)¢	1	3	7.	ł
12. I find it easy to do the things I us	ed to	-4	3	2	l
13. I am restless and can't keep still		1	2	3	4
14. I feel hopeful about the future		4	3	2	1
15. I am more irritable than usual		1	2	3	4
16. I find it easy to make decisions		4	3	2.	1
17. I feel that I am useful and needed		4	3	2]
18. My life is pretty full		4	3	2	1
19. I feel that others would be better of	ott if I were dead	I	2	3	4
20. I still enjoy the things I used to d	0	4	3	2	1

SDS Index =		SDS Index	Equivalent Clinical Global Impression		
	Kaw Score Total	Below 50	Within normal range, no psychopathology		
	Maximum Score of 80	50-59	Presence of minimal to mild depression		
		60-69	Presence of moderate to marked depression		
		70 & over	Presence of severe to most extreme depression		

APPENDIX B

Post hoc analysis of age factor

Age		< 19	20-29	30-39	40-49	50-59	60-69	70-79	80-89
< 19	$\left(\frac{t}{df}\right)$	_	1.531 (397)	1.345 (344)	0.389 (259)	1.390 (234)	0.312 (185)	0.314 (143)	0.171 (115)
20-29	$(\frac{t}{df})$		-	3.786* (529)	2.234* (444)	3.374* (419)	1.069 (370)	1.355 (328)	0.364 (300)
30-39	$(\frac{t}{df})$			_	1.046 (391)	0.261 (366)	1.607 (317)	0.553 (275)	0.657 (247)
40-49	$(\frac{t}{df})$				-	1.130 (281)	0.707 (232)	0.060 (190)	0.323 (162)
50-59	$(\frac{t}{df})$					-	1.668 (207)	0.658 (165)	0.710 (137)
60-69	$\left(\frac{t}{df}\right)$						-	0.585 (116)	0.049 (88)
70-79	$(\frac{\mathrm{t}}{\mathrm{d}\mathrm{f}})$							-	0.324 (46)
80-89	$\left(\frac{t}{df}\right)$								_

* <u>p</u> < .05