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ORIGINAL ARTICLE

A STUDY OF APPLICABILITY OF HAMILTON DEPRESSION RATING SCALE IN A TERTIARY PSYCHIATRY CLINIC OF KOLKATA

Ghosal Malay[1], Debnath Asish[2], Mondal Sukhendu[3], Chowdhary Ranadip[4], Mallik Sarmila[5]

[1]Professor & Head[1], Department of Psychiatry, N.R.S Medical College& Hospital, Kolkata, [2]RMO, [3]Post Graduate Trainee, Department of Psychiatry, [5]Associate Professor, Department of Community Medicine Calcutta National Medical College & Hospital [4]Post Graduate Trainee, Department of Community Medicine, R.G. Kar Medical College

ABSTRACT

Background: According to WHO, Depression has been ranked fourth in the list of most urgent health problem Worldwide. One of the thumbing blocks in assessing depression is the lack of objective set of measurements for its diagnosis. Most often used is still the Hamilton Depression Scale (HAM-D) besides Montgomery Asberg Depression Scale is increasingly used in antidepressant drug trials.
Objective: The objective of the study is to single out the unnecessary items of HAM-D, to develop a shorter form of the scale excluding such items and then validate it against Montgomery-Asberg Depression Rating scale (MADRS)—an acceptable, standard scale for measuring depression in socio-demographic set up like that of India.
Methods: After identifying the patients with inclusion and exclusion criteria; two separate clinician of Psychiatry department of Calcutta Medical College used HAM-D & MADRS, one used HAM-D & other MADRS in one time, and in other time it is reversed. Two are totally blind to each other, to whom they used what scale in each time. Then the data were analysed for reliability and validity of HAM-D in SPSS 16.0 version.
Results: The internal consistency of HDRS-17 is Cronbach's Alfa is 0.674.. Scale-mean with item 9 deleted is 20.27 & if item 17 is deleted then scale mean is 20.15. The Cronbach's alpha is very similar if the item-9 & 17 are deleted.
Conclusion: It can be concluded that as HDRS and MADRS have different levels of sensitivity over the severity spectrum of Depression, none of them is singularly satisfactory in assessment of Depression severity in the study population.

Key words: Hamilton Depression Scale (HAM-D), Montgomery-Asberg Depression Rating scale, Reliability, Validity

INTRODUCTION

According to WHO, Depression has been ranked fourth in the list of most urgent health problem World wide.[1] Studies quoted by Kapur & Singh and Venkoba Rao reveal that clinically recognizable depressive disorders are as common in India as in the Western world ;they were estimated to affect 3-5% in community survey carried at that time.[2] From the mental health point of view, it is important to make an accurate diagnosis, carry on a systematic follow up and provide optimum treatment of depression. One of the thumbing block in assessing depression is the lack of objective set of measurements for its diagnosis. Most often used is still the Hamilton Depression Scale (HAM-D) [3, 4] besides Montgomery Asberg Depression Scale is increasingly used in antidepressant drug trials.[5]

Hamilton Depression Rating Scale (HAM-D) has enjoyed a long and glorious reign as the most widely used depression-rating scale in the world. It was published by Max Hamilton in 1960 to measure the severity of depression in

previously diagnosed depressed patients and quantitatively evaluate antidepressant's efficacy particularly tricyclic antidepressant.[5, 7, 8]

Each of the 17 items HAM-D is concerned with semi-global symptoms these items were chosen because they are the most common symptoms of depressive illness. Some items are defined in terms of a series of categories of increasing intensity (e.g. Item, 2 Guilt), while others are defined by a number of term with equal values (e.g. Item 13, somatic symptoms). However some symptoms often found with atypical depression are not rated at all (hypersomnia, weight or appetite increase), and some so called endogenous symptoms are not covered, e.g. Quality of mood. In this scale, behavioral and somatic features account for at least 50% of the possible total score.[6]

Of the 17 items some items including somatic symptoms, increase the total score, particularly in the socio-demographic setting of developing nations like India. It has long been argued and demonstrated that in the patient-population of countries like India, somatic presentation of depression are more commonly encountered than in the developed countries. So extra emphasis on somatic symptoms may unduly increase severity in the depressive disorder and also misdiagnose somatoform disorder as depressive disorder. Also diurnal variation, one of the measurements of HAM-D, does not measure severity but only typing the depression. Depersonalization derealisation, paranoid symptoms, obsession –these items of HAM-D are very rare in depressive patients[6]. Montgomery and Asberg developed a depression rating scale that is superior to HAM-D, called Montgomery-Asberg Depression Rating scale to assess the severity of depression and also it can be used to monitor patients' state over time. It has 10 items. Each item score range from 0 (normal) to 6 (severe depression). Minimum score is 0 and maximum score is 60. The higher the score, the greater the degree of depression.[7]

So, aims of the present study are to single out the unnecessary items of HAM-D, to develop a shorter form of the scale excluding such items and then validate it against Montgomery-Asberg Depression Rating scale (MADRS)—an acceptable, standard scale for measuring depression in socio-demographic set up like that of India.

METHODS & MATERIALS

Inclusion Criteria:

All patients of first episode of major depressive disorder diagnosed by DSM-IV-TR, attending the Psychiatry outdoor department in Calcutta Medical College & Hospital, patients aged in between 18 to 60 years of age group of Bengali speaking were taken in the study.

Exclusion Criteria: Any organic disorder including Medical, Surgical and Gynecological disorder associated with depression, any type of substance abuse, any other associated diagnosed Psychiatric co-morbidity or past history of any Psychiatric illness, treatment resistant depression, pregnant & lactating mother were excluded.

Study Location and Design: Scoring of two clinician rated instruments, HAM-D & MADRS are done by assessing the severity of first episode of Major Depressive disorder (diagnosed by DSM-IV-TR) patients attending Psychiatry outdoor department of Calcutta Medical College after using structured interview guide which increase the reliability of HAM-D and form shorter version of HAM-D. After that it is to be validated with MADRS.

Study duration: One year. (Jan 2006- Dec 2006)

Sample size: 103 patients who were attending Psychiatry department of Calcutta Medical College & Hospital who were suffering from 1st episode Major Depressive disorder as diagnosed by DSM-IV-TR and satisfied the inclusion & exclusion criteria during the study period.

Procedure:

First permission of the ethical committee was taken. We identified Bengali speaking of both sex between 18-60 years of age, coming to our Psychiatry department of Calcutta Medical College & Hospital and who met the criteria for Major Depressive disorder as defined in the diagnostic & statistical manual of Mental disorders, fourth edition, text revision (DSM-IV-TR) as first episode we strongly followed the inclusion & exclusion criteria. Then informed consents were taken from the study subjects.

Before giving Hamilton Depression rating scale and MontgomeryAsberg depression rating scale, structured interview guide were used to improve the reliability of the scale. Two separate clinician of Psychiatry department of Calcutta Medical College used HAM-D & MADRS, one

used HAM-D & other MADRS in one time, and in other time it is reversed. Two are totally blind to each other, to whom they used what scale in each time. In this way each patient coming to Psychiatry department of Calcutta Medical College fulfilling inclusion & exclusion criteria were given HAM-D first by one clinician that took 15-20 minute & MADRS by another clinician that took also 15 minute.

Total score calculated in HAM-D & MADRS & total score calculated in each patient. After taking all these data from each of 103 patients, they are to be put into computer and analysis is to be done to assess exact reliability & validity of HAM-D. Reliability, internal consistency of total 17 items are to be seen, and also after dropping each item, internal consistency is to be seen. We also see inter item co-relation of each pair item with total item, each item with total 17 items HAM-D. Also we compare total score of 17 items in HAM-D & total score of MADRS. Also we seen whether concordance present in severity assessment of both HAM-D & MADRS. All these computer data analysis is to be done to search any redundant & useless item present in 17 item HAM-D in Indian context. Then exclude that unimportant item in Indian context. This short form of HAM-D is to be validated with MADRS, any standardized severity of depression measuring instrument.

RESULTS AND ANALYSIS

Table No.1 shows that 31.1% & 25.2% of study population belongs to 40-49yrs and 20-29 yrs age group. Male and female proportion is almost same in the study population. Almost 71% people are married. 62.1% people were from rural area and 55.3% belongs to nuclear family. 48.5% of study population belongs to upper lower socioeconomic status (according to Modified B.G Prasad Scale).

Table 2 shows item wise scoring pattern of HDRS. It shows that item 9 & 17 were hardly ever endorsed by subjects. Mean of item 9 is 0.08 and mean of item 17 is 0.02. But other items scored much higher by the subject.

On the other hand, item deletion does not improve the internal consistency. HDRS total with deletion of item 9 & 17 showed similar correlation with MADRS as shown by HDRS-17. Scale-mean with item 9 deleted is 20.27 & if item 17 is deleted then scale mean is 20.15. These are very similar if other items are deleted one by one and correlated with MADRS. Similarly Cronbach's Alfa after item 9 is deleted is 0.679 and with item 17 deleted is 0.685. They are very similar with Cronbach's Alfa if other items are deleted one by one.

Table 1: Socio-demographic Profile of the Study Population (n=103)

Variables	No. (%)
Age (yrs.)	
10-19	3 (2.9)
20-29	26 (25.2)
30-39	34 (33)
40-49	32 (31.1)
50-59	6 (5.8)
≥60	2 (1.9)
Sex	
Male	52 (50.5)
Female	51 (49.5)
Marital Status	
Married	73 (70.9)
Unmarried	30 (29.1)
Education	
Illiterate	18 (17.5)
Primary	09 (8.7)
Middle School	35 (34)
Secondary	06 (5.8)
Higher Secondary	07 (6.8)
Graduate	17 (16.5)
Post-graduate	11 (10.7)
Habitant	
Rural	64 (62.1)
Urban	39 (37.9)
Family Type	
Joint	46 (44.7)
Nuclear	57 (55.3)
Socioeconomic status	
Upper	0 (0)
Upper Middle	9 (8.7)
Lower Middle	27 (26.2)
Upper Lower	50 (48.5)
Lower	17 (16.5)

DISCUSSION

All items of HDRS, except 9 and 17, show positive correlation. Items 9 and 17 was rarely endowed by any subject but when we drop 9 and 17 one by one, no change in internal consistency occurred and after dropping item 9 and 17, resultant 15 item scale show almost same correlation with MADRS total.

Table 2: Item-wise scoring pattern of HAMD

Scale Variable	Mean	SD
HAMD 01 (Depressed Mood)	1.25	0.724
HAMD 02 (Feelings of Guilt)	0.99	0.923
HAMD 03 (Suicide)	1.51	1.154
HAMD 04 (Insomnia Early)	1.44	0.788
HAMD 05 (Insomnia Middle)	0.96	0.713
HAMD 06 (Insomnia Late)	1.23	0.952
HAMD 07 (Work & Activities)	2.48	0.85
HAMD 08 (Retardation)	1.1	0.65
HAMD 09 (Agitation)	0.08	0.362
HAMD 10 (Anxiety Psychic)	1.76	0.72
HAMD 11 (Anxiety Somatic)	1.26	0.98
HAMD 12 (Somatic Symptoms: GI)	1.02	0.804
HAMD 13 (Somatic Symptoms: General)	78	0.484
HAMD 14 (Genital Symptoms)	1.13	0.848
HAMD 15 (Hypochondriasis)	1.95	1.004
HAMD 16 (Loss of weight)	1.21	0.836
HAMD 17 (Insight)	0.2	0.451
Scale Variable	**Mean if item deleted**	**Cronbach' alpha if item deleted**
HAMD 01 (Depressed Mood)	19.1	0.634
HAMD 02 (Feelings of Guilt)	19.36	0.66
HAMD 03 (Suicide)	18.83	0.681
HAMD 04 (Insomnia Early)	18.91	0.663
HAMD 05 (Insomnia Middle)	19.39	0.638
HAMD 06 (Insomnia Late)	19.12	0.667
HAMD 07 (Work & Activities)	17.87	0.662
HAMD 08 (Retardation)	19.25	0.653
HAMD 09 (Agitation)	20.27	0.679
HAMD 10 (Anxiety Psychic)	18.59	0.647
HAMD 11 (Anxiety Somatic)	19.09	0.664
HAMD 12 (Somatic Symptoms: GI)	19.33	0.66
HAMD 13 (Somatic Symptoms: General)	19.57	0.655
HAMD 14 (Genital Symptoms)	19.22	0.679
HAMD 15 (Hypochondriasis)	18.4	0.625
HAMD 16 (Loss of weight)	19.14	0.663
HAMD 17 (Insight)	20.15	0.685

There is statistically significant correlation between 15-item HDM and MADRS (r=.703; p value=.000).

This study showed that the Hamilton Depression Rating Scale (17-item version) is a consistent and reliable scale for measuring depression even in the third world population. A few items, namely items 9 and 17 probably did not match the socio-cultural and/or educational background of the study population resulting in low yield on those items. However, dropping those two items did not improve the internal consistency to a significant level in the present study. However, the individual items in the scale needs further detailed work-up on a demographically more stable, i.e. more accurately representing sample—for that a larger, community-based sample will be primarily important.

Because our sample size was small and not community-based, only two scales were used for comparison [MADRS] and no follow up studies were done. It can be concluded that as HDRS and MADRS have different levels of sensitivity over the severity spectrum of Depression, none of them is singularly satisfactory in assessment of Depression severity in the study population. Moreover, scoring pattern according to HDRS and MADRS are not truly comparable or representative of each other, i.e. a certain MADRS–scoring cannot be projected to or expected from HDRS-scoring and vice versa. In other words, a more gender, socioeconomic status and educational status sensitive scale to rate Depression needs to be developed for Indian population.

CONCLUSION

In case of continuing the use of Hamilton Depression Rating Scale, research needs to be done to decide whether all the seventeen items are really required for the developing countries like India and whether it is possible to cut down the redundant items, if any, that unnecessary inflates the score found in assessment of severity measurement of depression.

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Correspondence:
Dr. Ranadip Chowdhury
Department of Community Medicine,
3rd Floor Academic Building,
RG Kar Medical College & Hospital,
1, Khudiram Bose Sarani, Kolkata 700004.
E-mail: ranadip84@gmail.com,