Study on Factors Associated with Depression among Elderly and Comparison of Two Scales Used for Screening

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Abstract

Background: Depression is one of the most frequent illnesses found among the elderly. ICD-10 scale and Geriatric Depression Scale (GDS) are used commonly for screening and hence it is important to identify the scale which can be used more effectively in community settings. **Objectives:** (1) To analyze the factors responsible for the elderly depression and (2) to compare two scales used for the screening (ICD-10 and GDS). **Materials and Methods:** A cross-sectional house-to-house survey was carried in Sayla taluka of Surendranagar district by directly questioning the subjects after oral and written consent. The selection of taluka was done using simple random sampling and sample size was calculated on the basis of estimated geriatric population. 306 subjects were interviewed using a predesigned, pretested, and validated questionnaire. **Results:** GDS showed the prevalence of 16% whereas ICD-10 showed 22%. The factors associated with depression were physical health, poor economical situation, and avoidance by family members. The agreement between the 2 scales using Cohen`s kappa statistic showed excellent agreement. **Conclusion:** Community-based multiphasic screening programs is needed for early diagnosis of geriatric depression. ICD-10 having lesser number of questions can be used in the 1ˢᵗ phase of screening and those found positive can then be tested by GDS.

Keywords: Elderly depression, geriatric depression scale, ICD-10, screening

INTRODUCTION

Depression, one of the most frequent of all medical illnesses, has longer duration of episode, high rates of chronicity, relapse and recurrence, physical and psychosocial impairment, and morbidity and mortality.[1] Depression reflects a range of biological and social factors and is difficult to diagnose in older people as compared to their younger counterparts due to difference in its presentation. Older people tend to underreport depressive symptoms and may not acknowledge being sad, down, or depressed. This could be due to age, shame, and lack of understanding for the disorder or a belief in not talking about depression or admitting to not coping.[2]

The most common psychiatric disorder among the elder population is depression, and although India is the second most populous country in the world in terms of elderly population >60 years of age, depression in the elderly is an important health problem in the country.[3-5] Elderly populations with depression suffer from various medical disorders and are at a higher risk for chronic diseases such as coronary heart disease, cancer, diabetes mellitus, and hypertension, and due to these conditions, they die prematurely.[6]

Screening for depressive symptoms among elder population is often neglected by health service providers until in the later stages of illness. To improve the quality of life of elderly people, it is necessary to initiate early diagnosis and treatment as early as possible.[7] Although there are many instruments available to measure depression, the Geriatric Depression Scale (GDS), which was first created by Yesavage *et al*., has been tested and used extensively with the older population. The GDS may be used with healthy, medically ill, and mild

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to moderately cognitively impaired older adults. It has been extensively used in community, acute care, and long-term care settings. The GDS was found to have 92% sensitivity and 89% specificity when evaluated against diagnostic criteria.[8] ICD-10-CM (Clinical Modification) has codes for both physical and mental disorders. ICD-10 defines three typical depressive symptoms (depressed mood, anhedonia, and reduced energy), two of which should be present to determine the depressive disorder diagnosis.[9,10]

As both the scales are available for diagnosis, it is important to identify the scale which can be used more effectively for screening of depression among the elderly as it is imperative to integrate the mental health program with the primary health care for early diagnosis and prompt treatment of such common mental disorders in highly vulnerable age group, i.e., the elderly. This study is an attempt to have a better understanding regarding the same.

MATERIALS AND METHODS

The study was undertaken in one (out of 14) of the randomly selected talukas (blocks) of Surendranagar district of Gujarat. The sample size was computed as 2.5% of the geriatric population of the district (7% of total population district as per Census 2001 which amounted to 12,220. One village, Sayla, in the taluka was randomly selected. Details regarding all the houses were sought from the local Gram Panchayat after which all the houses in the village were numbered and one house was selected randomly as the 1st house for the survey. The houses were surveyed in only one direction avoiding cross selection of houses from a given lane. All residents, aged 60 years and more and consenting were included. Those having any form of serious mental illness were excluded. Total 306 elderly subjects were interviewed, and examined if necessary, using a prestructured, validated, and pretested questionnaire after taking written informed consent.

In the present study GDS-15 (containing 15 questions) and ICD-10 scale were used in the field. In the present study, GDS-15 (containing 15 questions) and ICD-10 criteria were used in the field.[11,12] Both the scales were translated into local language and piloted tested after that. The data collection was carried out by health workers who were trained for screening using both the scales in local language. On each of the subjects,

both the GDS and ICD-10 criteria were employed for the diagnosis of depression. Factors commonly associated with depression were asked for to all the subjects and statistical interpretations were drawn.

RESULTS

A total of 306 elderly subjects were studied. Majority of them were in the age group of >65 years and females. Nearly 58.8% of the subjects were currently unemployed. Most of the subjects were skilled or unskilled workers. With respect to education, 58% in rural were illiterates and the literates were mostly educated up to primary and only 4% were graduates. Most of the subjects were married and 29% of the subjects, who was widow/widower. The GDS showed the prevalence of depression of 16% whereas ICD-10 showed the prevalence of 22%.

Table 1 shows the responses to certain personal questions which were asked to the study subjects to assess factors associated with depression. As the data were collected from the rural areas, it was not surprising to see that 81.04% of the subjects were living with their children and 55% of them had a happy attitude toward life, but it was noteworthy to see that nearly 41% were not happy and about 4% had no interest in life.

Table 2 shows responses to questions related to their perceptions and feelings. It was seen that nearly 55% of them did not have the feeling of "being wanted" in the family. Nearly 70% felt that they did not contribute enough to the family and hence felt worthless. Only 9% of the subjects felt that they were cared upon by the family members. About 28% felt that they were being cared upon partially and majority felt that they were not being cared upon at all. Nearly 23% of the subjects had had an adverse event in the family like the death of a near and dear one or a major debt. About 65% felt that their poor economical situation was a major cause of a worry. A majority of 70% felt that the physical health was a cause of worry. About 31% had other family members with similar problems. When the statistically association was sought for, the association was not found statistically significant using Chi-squared test at 5% level of significance.

Table 3 depicts the agreement between the 2 scales sought using the Cohen`s kappa statistic; it was seen that they shared an excellent agreement (KW = 0.85). Significance

Table 1: Response to personal questions (*n*=306)

Personal questions	Sex		Total (*n*=306), *n* (%)
	Males (*n*=144), *n* (%)	Females (*n*=162), *n* (%)	
Do you stay with your children?			
Yes	116 (80.6)	132 (81.5)	248 (81)
No	28 (19.4)	30 (18.5)	58 (19)
Attitude toward life			
Happy	63 (43.8)	105 (64.8)	168 (55)
Not happy	72 (50.0)	54 (33.3)	126 (41.1)
Loss of interest	9 (6.2)	3 (1.9)	12 (3.9)

of kappa was found highly significant at 1% level of significance ($Z_C > Z_{0.0001}$). Thus, both the scales can be used together for the diagnosis of depression.

DISCUSSION

The prevalence of depression based on GDS scores was found to be 16% in the present study, whereas ICD-10 showed the prevalence of 22%. This difference could be because GDS scale contains 30 questions and thus is more specific. Studied in India showed that there is a variation in the prevalence rates for depression in elder samples of community. A study by Sengupta and Benjamin also showed that the prevalence of depression based on GDS score was found to be 8.9%.[13] Another study by Jain and Aras[14] also reported that the prevalence rate of elderly depression was 45.9% and a study by Pracheth *et al.*[15] also showed the prevalence rate of 29.36%.

It was seen that most of 81.04% of the elderly population were living with their children, but 41% of did not have a happy attitude toward life. Those living in nuclear family were at higher risk of suffering from depression and it was explained by the support offered by relatives by sharing of responsibilities in many issues. A study by Seby *et al.*[16] and Sekhon *et al.*[17] also showed the role of type of family in depression. Sengupta and Benjamin[13] showed the nuclear family as an independent risk factor for depression. Similar findings are reported in the present study where majority living with children had a lesser prevalence of depression.

Societal modernization has brought in its wake break down in family values and also the framework of family support. When the parents move with their children, they are not able to adjust them self to the new environment. The changes in the family structure along with economic insecurity result in the elderly losing their relevance and significance in their own house and increasing feelings of loneliness. The current study reflects similar findings even in the rural areas.[18]

The current study depicted majority of the subjects as worried due to their physical health. A study conducted by Sharma *et al.*[19] showed that the result of the prevalence of depression was significantly higher among individuals having more than three chronic diseases. The same result was found in the studies conducted by Kennedy *et al.* where the prevalence of depression was highest among those with four or more comorbid chronic conditions.[20]

When the agreement between the 2 scales (ICD-10 and GDS) was sought using the Cohen`s kappa statistic, it was seen that they shared an excellent agreement and thus both can be used together for the diagnosis of depression. Study conducted by McCrea *et al.* compares case-finding using GDS and ICD-10. This too showed an agreement between the two scales.[21] The high levels of agreement reiterate that they can be used together. As the number of questions for assessment in GDS is higher than in ICD-10, it is more specific and hence both the tools can be used in multiphase screening for elderly depression in the community. Being easy to administer, ICD-10 can be used initially and those found positive can

Table 2: Factors associated with depression (*n*=67)

Factors associated	Sex		Total (*n*=67), *n* (%)	χ^2, *P*
	Males (*n*=34), *n* (%)	Females (*n*=33), *n* (%)		
Feel wanted within family?				
Yes	12 (35)	18 (54.5)	30 (44.8)	1.8, 0.2
No	22 (65)	15 (45.5)	37 (55.2)	
Contributing to the family?				
Yes	12 (36.4)	9 (26.5)	21 (31.3)	0.2, 0.7
No	22 (63.6)	24 (73.5)	46 (68.7)	
Do family members care?				
Yes	3 (9)	3 (8.8)	6 (8.9)	0.01, 0.9
No	22 (64.7)	21 (63.6)	43 (64.2)	
Partially	9 (27.3)	9 (26.5)	18 (26.9)	
Any adverse event in life?				
Yes	6 (17.6)	9 (27.3)	15 (22.4)	0.4, 0.5
No	28 (82.4)	24 (72.7)	52 (77.6)	
Poor economic condition as a cause of worry?				
Yes	19 (55.9)	24 (72.7)	43 (64.2)	1.4, 0.2
No	15 (44.1)	9 (27.3)	24 (35.8)	
Physical health cause of worry				
Yes	25 (73.5)	21 (63.6)	46 (68.7)	0.4, 0.5
No	9 (26.5)	12 (36.4)	21 (31.3)	
Any other family member with similar problem				
Yes	11 (32.4)	10 (30.3)	21 (31.4)	0.01, 0.9
No	23 (67.6)	23 (69.7)	46 (68.6)	

Table 3: Agreement levels among the two scales using Cohen's Kappa statistic (*n*=306)

GDS	ICD-10		Total
	Positive	**Negative**	
Positive	43	06	49
Negative	24	233	257
Total	67	239	306

Cohen's kappa statistic (KW=0.85), 1% level of significance ($Z_C > Z_{0.0001}$).
GDS: Geriatric Depression Scale, ICD: International Classification of Disease, KW: Kruskal-Wallis

be administered with GDS. Those found positive at both the scales can then be referred to the nearest NCD center for further evaluation. Multiphase screening of these types can help in easy identification of difficult-to-diagnose diseases such as depression, especially in elderly where they show atypical presentations.

Conclusion

One can conclude that major reasons for feeling depressed were not being cared by family members, feeling of unworthiness, feeling of being unwanted (avoidance), economic dependency, poor physical health, and other family issues. Thus, it can be concluded that family has got a major role to play in keeping the elderly mentally healthy. Old age depression is positively associated with age, presence of chronic disease, and disturbed family life. The abovementioned factors must be addressed while formulating health services and designing the interventions. Community based multi-phasic screening programmes can be carried out using both the scales i.e. ICD-10 and GDS. ICD-10 having lesser number of questions can be used in the 1st phase for screening and those found positive in this can then be tested by GDS (Gold standard). Setting up geriatric mobile clinics to cater the medical needs of the elderly is the need of the hour. Amalgamation of elderly care in the primary health-care facilities and an upscale of the routine screening for the health issues is a must to address their growing health concerns. This can go a long way in improving the mental health of the elderly who need it the most.

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Conflicts of interest
There are no conflicts of interest.

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