

To evaluate the utility of 10 warning signs questionnaire in assessment of cognitive function among elderly people

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ABSTRACT

Introduction: Routine screening of high-risk elderly people for early cognitive impairment using mini-mental state examination (MMSE) and its modifications may be constrained by demographic and other variables. Warning signs (as reported by family/caregivers) may be a useful alternative. The present data analysis was carried out with the aim to identify the role of 10 warning signs screen as an alternative tool for screening for cognitive impairment among elderly. **Materials and Methods:** For the purpose of this analysis (correlation), data available with us from a study conducted on the elderly population (60 years and above) from selected geographical areas (Migrant, Urban, Rural, and Tribal) of Himachal Pradesh was used. **Results:** A high statistically significant was found between scores on 10 warning signs screen and Hindi mental state examination/Bharmouri mental state examination (modifications of MMSE). **Conclusions:** Ten warning signs screen can be an important screening total for assessment of cognitive impairment in the elderly Indians.

Key words: Cognitive, elderly, evaluate, ten warning signs questionnaire, utility

Introduction

The most commonly administered psychometric screening assessment for cognitive functioning is the Mini-mental state examination (MMSE).^[1,2] A large amount of medical literature has been published on the relative sensitivity of MMSE in identifying overt dementia.^[3-5] However, its utility has been seen to have decreased when patients with mild cognitive decline are assessed.^[6-8] Importantly, use of MMSE has been constrained by demographic variables, with scores decreasing with advanced age and lower levels of education.^[9] Therefore, routine screening of high-risk elderly people for early cognitive impairment using

MMSE may be, therefore, constrained. However, identifying cognitive dysfunction in individuals at risk for dementia, as early as possible, is desirable so that appropriate treatment strategies can be implemented earlier in the course of the disease.

Use of warning signs as reported by Alzheimer's association may be an alternative.^[10] The fact that 10 warning signs are elicited from attendants/caregivers eliminates the constraints of education. They also reduce the chance of failure to respond among cognitively untestable individuals. The key, however, will lie in its (10 warning sign) ability to screen individuals with cognitive impairment.

We conducted a *post-hoc* analysis of the data from a study conducted by us on prevalence of dementia in selected geographical areas of Himachal Pradesh, wherein we had used both 10 warning signs and Hindi

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mental state examination (HMSE) and its Bharmouri mental state examination (BMSE); modifications of MMSE in the first phase of a two-phase study to estimate the prevalence of dementia.^[11] The purpose of this analysis was to explore the feasibility of using 10 warning signs as a questionnaire to screen individuals with cognitive impairment largely illiterate the elderly Indian population. For this purpose, a comparative analysis between HMSE/BMSE and 10 warning signs was used.

Materials and Methods

The data used for analysis in the present study were obtained from a study conducted on the elderly population (60 years and above) from selected geographical areas (Migrant, Urban, Rural, and Tribal) of Himachal Pradesh state in the North-West India and published elsewhere.^[11] A brief description of the source study is given here:

This cross-sectional study was conducted in two phases: (1) A screening phase and (2) a clinical phase. The screening also involved a detail of the sociodemographic profile of the study population.

Screening

The screening phase includes details on participant's age, sex, and educational status. During this process of seeking information on participant's details, a 10 warning signs questionnaire was also administered. A Hindi version of cognitive screen (HMSE) was used in the urban, rural, and migrant population. For the tribal population, a modified (Bharmouri) version, referred as BMSE of cognitive screen was used (the details are available somewhere else).^[12]

Clinical evaluation and diagnosis

A score below 24 (out of a possible score of 30) on cognitive screen was considered as a suspect case of dementia and was evaluated for clinical diagnosis. The clinical evaluation was carried out by a psychiatrist with the help from an internist and two public health specialists. After clinical, the study participants were classified as normal or demented.

For the purpose of this *post-hoc* analysis, the data of all 2000 participants was analyzed. The analysis focused on a comparative assessment of 10 warning signs and HMSE/BMSE.

Results

Table 1 provides details on the correlation between scores on 10 warning signs screen and scores on HMSE/BMSE. The details on correlation have also been reproduced in Figure 1. It is seen from Table 1 and Figure 1 that there is a clear cut negative correlation between scores on 10 warning signs screen and the scores HMSE/BMSE scale. As the scores on 10 warning signs screen, the scores on HMSE/BMSE fall both pointing to identification of the same clinical diagnosis i.e. dementia. The value of Pearson Correlation coefficient at -0.252 was found to be statistically highly significant [Table 1]. A high statistically significant points to a strong association between scores on 10 warning signs screen and the scores on HMSE/BMSE indicating the utility of 10 warning signs in assessment of cognitive impairment in elderly.

Discussion

The current study was conducted with the aim to explore the utility of using 10 warning signs as a screening instrument to identify cognitive impairment in largely illiterate Indian population. It has been observed that it may be difficult for elderly illiterate to navigate through various components of the mental state examination. This is not the same with 10 warning sign wherein assessment is dependent on details provided by caregivers who necessarily need not be illiterate or elderly.

Further in diagnosing mild dementia, reliable information obtained from caregivers about minor cognitive changes in a person suspected of dementia may be more important than quantitative assessment, which can be insensitive to mild impairment.^[13] Furthermore, the fact that family members are likely to be aware of signs and symptoms of possible dementia that may not be readily apparent to clinical staff. Important use of 10 warning signs screen

Table 1: Correlation of 10 question screening score and HMSE/BMSE score among 2000 elderly evaluated for cognitive impairment

	Ten warning signs questionnaire	HMSE/BMSE score
Ten warning signs questionnaire		
Pearson correlation	1	-0.252
Significance (two-tailed)	-	0.000
HMSE/BMSE score		
Pearson correlation	-0.252	1
Significance (two-tailed)	0.000	-

Correlation is significant at the 0.01 level (two-tailed). HMSE: Hindi mental state examination, BMSE: Bharmouri mental state examination

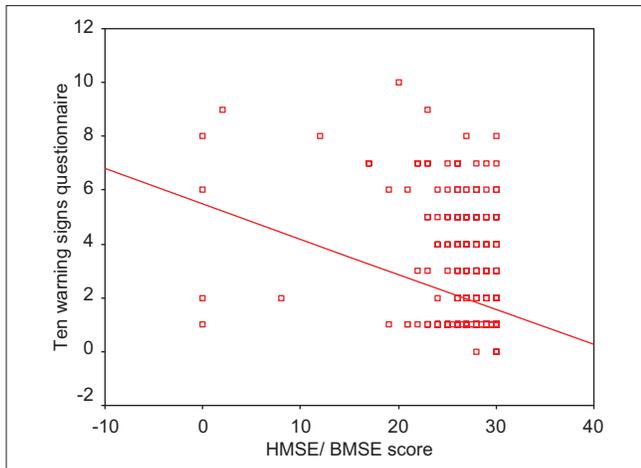


Figure 1: Correlation of 10 question screening score and Hindi mental state examination/Bharmouri mental state examination score among 2000 elderly evaluated for cognitive impairment

will make assessment of cognitive impairment easier in patients with a comorbid condition like visual or auditory impairment.

Conclusions

Ten warning signs screen can be an important screening total for assessment of cognitive impairment in the elderly Indians.

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Conflicts of interest

There are no conflicts of interest.

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