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The reliability of Mini Nutritional Assessment (MNA) questionnaire in screening malnutrition among elderly aged 60 years and above

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ABSTRACT

Background: Malnutrition in old age is a significant problem. Mini Nutritional Assessment (MNA) questionnaire is a widely used international questionnaire to evaluate the nutritional status of elderly. **Objective:** To estimate the reliability of Mini Nutritional Assessment (MNA) questionnaire among elderly aged 60 years and above in Indian context. **Method:** Reliability of the Mini Nutritional Assessment (MNA) questionnaire, an eighteen-item nutritional screening instrument used in the elderly was assessed using cronbach's alpha. **Result:** On evaluation of Mini Nutritional Assessment (MNA) questionnaire containing information of 190 elderly persons, the Cronbach's alpha was obtained as 0.800. **Conclusion**: Screening for malnutrition among elderly was done by using Mini Nutritional Assessment (MNA) questionnaire is found to be reliable in Indian context.

Keywords: Malnutrition, Mini Nutritional Assessment (MNA) questionnaire, Reliability.

Introduction

The WHO has predicted that ageing populations will present new challenges to health care. The health of the elderly will be an important issue defining the health status of a population. In India, the elderly (aged 60 years and above) constitute 7.7% of the total population of 1.04 billion and this number is increasing.[1] With national health policy focusing on maternal health, child health and communicable diseases, the health status of the elderly has not been given due consideration. Since nutrition of the elderly affects immunity and functional ability, it is an important component of elderly care that warrants further attention. The magnitude of malnutrition among the elderly in India is under-reported.[2] The few studies that have been done show that more than 50% of the older population is under-weight and more than 90% has an energy intake below the recommended allowance. [3]

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There is no gold standard for estimating malnutrition among the elderly. Mini Nutritional Assessment (MNA) has been widely used for screening malnutrition. It is an eighteen-item validated nutritional screening instrument that has a sensitivity of 54–90% when compared with a detailed nutritional assessment. It is simple and non-invasive, which facilitates its use in the community.[4] However in India, no study was done to estimate the reliability of the questionnaire. The aim of the present study is to estimate the reliability of Mini Nutritional Assessment (MNA) questionnaire from the data obtained from a survey done at the urban field practice of Department of community medicine, PSG institute of Medical Science and Research.

Materials & methods

Data

In the year 2014, the urban health centre of PSG Institute of Medical Science and Research conducted a study for screening for malnutrition in the elderly population. In the study 190 elderly were screened for malnutrition. This study is aimed to conduct reliability

of Mini Nutritional Assessment (MNA) questionnaire among elderly using Cronbach's alpha.

Sample size

With an expected Cronbach's alpha=0.80 with α=0.05 and β=0.10, the minimum sample size required for the study is 50.

Statistical methods

Cronbach's alpha is used to measure the internal consistency of a set of questions. It measures the interrelatedness of a set of items, although a high value for alpha does not imply unidimensionality (where the items measure a single latent construct). There are two versions of alpha: the normal and standardized version. The normal alpha is appropriate when items on a scale are summed to produce a single score for that scale (the standardized alpha is not appropriate in these cases). The standardized alpha is useful though when items on a scale are standardized before being summed.

The formula for Cronbach's alpha is:

$$\propto = \frac{N^2(\text{Mean}(\text{Cov}))}{\text{Sum}(\frac{\text{Var}}{\text{Cov}})}$$

Where N is the number of items in the scale, mean (cov) is the mean inter-item covariance, and sum (var/cov) is the sum of all the elements in the variance-covariance matrix. Standardized alpha is equivalent to the above, except that the average inter item correlation replaces the average covariance and the sum of the correlation matrix replaces the sum of the variance-covariance matrix.

Outcome evaluation

If the items in a test are correlated to each other, the value of alpha is increased. Cronbach's alpha , $\alpha \geq 0.9$ is defined to have excellent internal consistency , $0.7 \leq \alpha < 0.9$ as good internal consistency , $0.6 \leq \alpha < 0.7$ as acceptable internal consistency , $0.5 \leq \alpha < 0.6$ as poor internal consistency and $\alpha < 0.5$ as unacceptable internal consistency. According to this we evaluated the reliability of Mini Nutritional Assessment (MNA) questionnaire.

Results and discussion

Analyses were performed using SPSS software version 19.0. The Cronbach's alpha for the eighteen items was 0.80, which indicates that the items form a scale that has good internal consistency.

Conclusion

Screening for malnutrition among elderly was done by using mini nutritional assessment (MNA) questionnaire is found to be reliable in Indian context.

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