

# AGE ESTIMATION IN THE ELDERLY: RELEVANCE TO GERIATRIC RESEARCH IN DEVELOPING COUNTRIES

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## SUMMARY

*The accurate estimation of age is an important area in geriatric research. The lack of suitable records in developing countries coupled with illiteracy makes this process difficult. Fifty patients were studied in order to assess their age by means of a checklist which contained significant personal and historical events. The average patient was found to under-report his age by three years.*

## INTRODUCTION

There have been dramatic increases in survival throughout Asia in the postwar period. Consequently, Asian countries will be the first among the currently less developed nations to have to accommodate an ageing population (Martin, 1988). India, with the second largest population in the world, will have by the year 2000, twice as many elderly (above 65 years of age - a somewhat arbitrary cut off in all societies) as in 1980, reaching a figure of 60 millions (Channabasavanna, 1987). This figure may double again in another twenty five years (Martin, 1988).

Psychiatric problems in the elderly had not been given much attention till the 1970's. From then on, interest in both clinical and research issues have been addressed by many workers. Studies done by Nandi et al (1975) and Rao (1981) have shown that 2-3% of patients attending psychiatric care service are 60 years and above in age, whereas upto 6% of those who attended the Psychiatric clinic at this study center in 1991 were 60 years and above in age.

Under living conditions where persons are not particular about keeping records of date of birth and other chronological events in one's life, the accurate determination of the age of an individual, especially for research purposes becomes difficult. This problem is greater when an attempt is made to compare geriatric research in India with that in other populations whose age can be accurately assessed based on valid official records. Concern is often expressed that such cross-research comparison might be faulted as the fundamental factor of age of research subjects itself may not be valid as, for example, in the WHO multicentre study on the epidemiology of dementias (WHODEMS) in which Madras was a research center.

This study was conducted with an aim to identify the extent of inaccuracy in age reporting by elderly subjects and to develop a simple and quick method to facilitate as accurate an assessment of age as possible for research purposes.

## METHODOLOGY

50 consecutive subjects who reported their age as 60 and above attending the central registration of the out patient department of Sri Ramachandra Medical College and Research Institute in Madras formed the study group. This is a public general hospital with all basic medical,

surgical and other specialty services. Thirty eight patients of the study group were physically ill with no psychiatric or neurological disorder and the remaining 12 were non-patients who came with some other patients to the hospital. There were 26 males and 24 females with about two-thirds coming from rural areas and only 36% being literate. All the subjects were asked their age and this was noted. Subsequently they were asked their age at the time of different personal life events and historical dates as in the checklist (Appendix).

The events chosen were that which are generally well remembered by any individual irrespective of socio-economic or educational background. Some of the historical events are, however, specific to the Madras region. The informant accompanying the subject, if any, was also interviewed to verify the chronological events given by the subject. This was done with the informants of 18 subjects, all of whom featured in the chronological check list, as they were either children or grand children. All of them could give accurate and valid record of their own ages. In 6 subjects there were discrepancies in the assessed age from one item to another. In these, the most commonly assessed age was taken as the valid one.

## RESULTS

38 subjects reported their age as 65 years and above, 8 as between 60 and 64 and 4 subjects did not know their age. Only two persons could give their year of birth and only one of them his date and month of birth. All the remaining subjects could be assessed based on the check list, with 42 subjects using personal life events for estimating their age. About half of the subjects (n=26) reported their age based on their age at the time of the historical events given in the check list; all the others, except two, based their age assessment on both personal and historical events. Only two held any job which was associated with retirement and hence that event was helpful in assessing the ages of only these two subjects.

On comparing the reported age and the assessed age, in only 6 subjects did they tally with each other. 32 subjects reported a younger age and 8 reported an age more than their final assessed age. The under assessment ranged from 1 to 11 years with a mean of 3.3 years and a mode of 2. The range of over-assessment was between 1 and 6 years with a mean of 1.7 years and a mode of 1. Both the literate and illiterate did not differ much in reporting a wrong age, as 77% of the former and 93% of the later did so. Both

males and females erred equally in reporting their age, though females never over-estimated their age. All the 4 subjects who did not know their age were females.

### DISCUSSION

The subjects taken for the study are typical of the general population that would be encountered in any primary care setup in a developing country like India. The lack of valid records of one's age for almost all subjects is a common experience as they probably never felt the need for maintaining such records 6-7 decades ago, though such an attitude is changing now as was evidenced by the accurate self reporting of age by the younger informants of the subject.

The doubt that the age reported by the geriatric population in low-literacy poor socio-economic societies in developing countries would be so erroneous as to impede cross-national comparisons in research seems to be allayed by the findings of this study. Though the elderly are almost always wrong in their self-assessment of age, this error ranged only between -3 and +2 years. Literacy does not seem to make one remember age accurately, at least in the population studied. It is probable that none of them had experienced a need to report an accurate age for purposes such as employment, national census data etc. The inaccuracy in the reported age might be more in psychiatrically or neurologically impaired elderly subjects because of the nature of symptoms which might interfere with proper age estimation. However, this could be overcome if a reliable informant could respond to a chronological check list to the extent possible.

This study shows that a fairly valid assessment of age can be made in the elderly who lack proper verifiable records, using a short check list of some of the important personal and historical events in the past. The choice of these time-markers in this study was about events that had occurred during the early life of the subjects, as the authors felt that such events would be better remembered than events later in life. For example, the age at menarche is very well remembered by all women as it is a very significant event during adolescence and is often celebrated as a family event in many families in Southern India. Moreover the early adulthood of the present geriatric population was a period of major national and international events, the likes of which have not occurred since. However, nothing precludes the inclusion of more recent

events in one's life. As the study aimed to produce a short check list which can be easily memorized and administered by an assessor, many other events which could be utilized in assessing the age were excluded. The check list has a provision for cross-checking of the temporal relationship between various events, to facilitate identifying discrepancies and inconsistencies in subject's responses. Rao and Madhavan (1982), have used a similar method as in this study for assessing the age of elderly subjects attending the Geropsychiatric clinic at Madurai. They presumed that any age reported by literate subjects was accurate, which does not seem to be the case in our experience. They did not assess multiple historical events to allow better cross-checking of the assessed age. Their report also does not contain details about the degree of inaccuracy in the age reported by the subjects.

In conducting any geriatric research, an initial assessment of the discrepancies in the reported age needs to be assessed in the target population. If a large number of subjects are being evaluated, a standard correction of the reported age of those who lack records may be done based on the findings of the initial pilot study of the population; the most frequent error could be taken as the standard correction. For example, in the population featured in this study, 3 years could be added to the reported age of all those who did not have proper records, as the mean under-estimation of age by 3 years occurred in 64% of the subjects. The above described method needs to be tested in different regions to test out its validity for different populations.

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