Indian J. Psychiat. (1982), 24(3), 258—267

GEROSPSYCHIATRIC MORBIDITY SURVEY IN A SEMI-URBAN AREA NEAR MADURAI

A. VENKOBA RAO[1], M.D., Ph.D., D.Sc., DPM., FAMS., FRCPsych., FAPA., MRANZCP.
T. MADHAVAN[2], MBBS., D.P.M.

SUMMARY

Tiruppuvanam, with a population of 15,668 a semi-urban area near Madurai was chosen for a door to door survey to assess the psychiatric and physical morbidity in all those aged 60 and above. There were 686, in this age group. The socio economic status, family structure, social integration, occupation, literacy, physical illness and handicaps in the total population were assessed and compared with the psychiatrically morbid group. The prevalence of psychiatric morbidity was estimated at 89/1000. 48.84% suffered from physical morbidity. 57% of the psychiatric group suffered physical morbidity and 85% from sensory handicaps. The findings indicated that lack of social integration rather than social isolation, and lack of occupation were significantly related to psychiatric morbidity. The type of family structure did not relate to the degree of social integration. Depressive illness contributed to 67% of total psychiatric morbidity. some intervention measures are suggested.

To maintain optimum health is relatively inexpensive. It is by no means difficult to fall ill. Illness is a luxury. These remarks apply admirably to those advanced in years. The principles of primary health care namely, health, maintenance, illness prevention, diagnosis and treatment, rehabilitation, pastoral care and certification are most appropriate in no other area than Geriatrics next perhaps to the infants and very young children (Pritchard, 1978). A gain in life expectancy, an outstanding achievement of our century has brought with it new challenges. In India, those above the age of sixty form 7% of the country's population and they are estimated to number 41 millions : about the population of Spain. Being a signatory to the Alma Ata Declaration, the country has to plan suitably for the health of these "older adults," by 2000 A.D. The aged are saddled with burdens, devitalized by 'losses' and are close to death. From Fifteen to Twenty per cent of the elderly have mental health problems. The psychiatric illness is known to increase with age. In the West 25% of the reported suicides occur in old people (Abdellah, 1981). Physical handicaps and defects, sensory deficits and somatic illness too afflict the ageing frame. In order to organize services for the aged, some primary data are necessary. The first is the knowledge of the size of the problem : namely, how many old people are there in the country who are psychiatrically affected? How many are physically ill and handicapped? What mental and physical illnesses are common among them? What are the existing supports for the 'senior citizens' in terms of health care, economic support, social and family care, nutritional and spiritual needs? For those who are healthy and capable of working what could be done to occupy them? Those who are too much weighed down by age—how best to maintain them in optimal health? This communication attempts to answer some of these questions. There have been earlier publications from the Geropsychiatric clinic of the Institute of Psychiatry, Madurai Medical College & Govt. Rajaji Hospital, Madurai, and the present one is in the nature of an extended study (Venkoba Rao, 1979, 1980a, b, 1981; Venkoba Rao & Madhavan, 1981).

1. Professor & Head,
2. Postgraduate students,
} Institute of Psychiatry, Madurai Medical College & Govt. Rajaji Hospital, Madurai-625 020.

AIMS

The aims of the study were :

(1) To estimate the prevalence of psychiatric morbidity in persons aged sixty and over in the community and to categorise the illness diagnostically;

(2) To assess the prevalence of physical disability amongst the community;

(3) To assess the factors of family jointness, socio-economic status, social integration, occupation, literacy in the total geriatric population and to compare the data with the psychiatrically morbid.

Tiruppuvanam, a semi-urban locality, about 20 km. from Madurai was chosen for the study. A community psychiatric centre as an extension service of the Institute of Psychiatry, Govt. Rajaji Hospital has been functioning in that place for the last three years. Certain findings on the geriatric patients attending this centre were reported recently (Venkoba Rao et al., 1982).

Description of area : Tiruppuvanam is to the east of Madurai on the Madurai-Ramnad Road, over the southern bank of the Vaigai river. It is easily approachable by road as well as by train. It is administered by a Town Panchayat under the control of an Executive Officer. The town is the headquarters for the Tiruppuvanam Panchayat Union which has under its jurisdiction 43 villages grouped into 24 revenue blocks.

Tiruppuvanam has an area of 11.29 sq. km. with 2,606 houses and 2720 households. Its population as per 1971 census was 12504 (M : 6316, F : 6188) and in 1981 it rose to 15668 (M : 7868 and F : 7800) registering a growth rate of 25.30 over the decade. The whole town is divided into 13 wards. The houses are situated on either side of the national high way. Six primary and two secondary schools and a higher secondary school cater to the educational needs of the locality.

Health care is provided by a Government Hospital with eight beds and two medical officers. Besides, there are six registered medical practitioners and an equal number of indigenous healers. The township has a public library and two cinema theatres. There are three important temples of worship dedicated to Siva and Vishnu. At the outskirts is a healing shrine of Bhadrakali. Apart from these there are many smaller temples, a mosque and a church. The police station is located in the central part of the town.

People of Tiruppuvanam belong to one of the four major castes viz. vellalars (pillai), servars (Ahamudiars, Thevars), Nadars and Harijans. In addition, there are Thevars, a few Brahmins and Christians and a sizeable number of Muslims. A colony called 'Burma Colony' houses several repatriates from Burma. Two harijan colonies exist at either ends of the town. Though divided by castes, the population is a homogeneous one, without any clashes between the communities. The literacy rate is about 50% (M : 3899; F : 2000). The bulk of the population lives on daily wages, from agricultural or non-agricultural labour.

Those aged sixty and above form 4.4% (686) of the total population of Tiruppuvanam, yielding an average of *One aged individual for every four houses*. This is lower than the national figure of 7%.

METHODOLOGY

An examination schedule was devised as for any epidemiological studies, consisting of four parts. The schedule was evolved keeping in mind the population to be surveyed and to screen for mental symptoms. Part I of the schedule pertains to socio-demographic data on personal particulars and the socio economic status scale (ICMR) as well as the social integration schedule. Part II relates to the detailed physical examination. Part III lists psychological

symptoms with which the material is to be screened. The psychological symptoms are arranged under eleven groups, with a check-list of 30 questions. The main categories of psychological symptoms are rated on a four point scale (absent, mild, moderate, severe) and a cut-off point of 6 was taken as the score for proceeding to Part IV of the proforma which is a detailed standard psychiatric status examination. An instruction manual was prepared giving the details of the schedule, mode of administration and other details.

The team of Psychiatrists and social workers visited the place once or twice a week. The members were divided into 3 teams who collected data from different parts of area. Prior to the start of the survey, the team members underwent training in the use of the screening device. A high degree of interrater reliability was achieved between the members of the team. The study began on 1st March 1982 and ended on 30th June 1982. The team made twenty visits during the period.

Commencing from the eastern end of the town a door to door survey was made. The inmates were enquired for the presence of any one aged sixty and above in the house. A high degree of coverage was possible. If due to some reason, any one was not available on first visit, he was contacted during the subsequent visit.

The criteria for inclusion of a person in this study are :

1. He or she must be aged 60 years or over at the time of index evaluation;
2. He/She must have been a resident of Tiruppuvanam atleast during the preceding one year. Those staying for less than a year but intended to stay permanently were also included. Visitors, guests and others who had been staying for less than a year were excluded.

Age determination is one of the basic requirements of the study. This arrived at on the basis of the following :

1. Ascertaining the date of birth : out of 686 ten could tell their exact dates of birth.
2. Literacy : Age as given by the person if he/she was literate, was found acceptable.
3. Biological milestones like menopause especially in women.
4. Children's ages and the presence of grand or great grand children.
5. Enquiring the number of children the person had during the year of India's indepeendence.
6. Physical appearance : Skin, teeth, arcus senilis, cataract, etc.
7. Other information given by the family members and colleagues of the person.

After the inclusion criteria were fulfilled the proforma and the schedules were adminstered and data gathered. If a score of 6 or of 3 on of any of the items was obtained on screening schedule, a detailed psychiatric status was then carried out in the conventional way by two psychiatrists independently either at the community psychiatry centre or at the Institute of Psychiatry, Govt. Rajaji Hospital and diagnosis arrived at. Five equivocal cases, in whom though the schedule aroused a suspicion of presence of psychiatric symptoms were excluded since the two diagnoses did not tally.

RESULTS

A total of 686 (M : 291, F : 395) individuals aged sixty and above formed the study population which was screened for the presence of psychiatric and physical morbidity. Four hundred and sixty one were between 60-70 years of age. There were 180 septagenerians, 39 octagenerians, 5 non-ogenerians and a female centenarian (105 years). Two thirds were formed by the "Young Old" (60-70 years) and a third by "Old old" (70 years and above).

Table 1 offers the socio economic status of the population (60 and above) based on the ICMR scale.

TABLE 1. *Socio economic status*

Group	Male (N=291)	Female (N=395)	Total (N=686)	%
I ..	1	1	2	0.3
II ..	8	3	11	1.6
III ..	17	9	26	3.8
IV ..	222	203	425	62.0
V ..	43	179	222	32.3

It is evident from the table that most of the people (94.3) (barring 39 in group I, II and III) belonged to Class IV and V. A significant number of females belonged to the Class V as compared to the males.

TABLE 2. *Family structure*

Type of family	Male (N= 291)	Female (N= 395)	Total (N= 686)	%
Living alone ..	10	74	84	12
Nuclear family ..	120	80	200	29
Joint family ..	99	80	179	26
Extended family	62	161	223	33

More than half (59%) were either in Joint or Extended family while less than a third in nuclear type. Twelve percent were living alone—females more than males.

Table III offers the literacy status of the study population.

TABLE 3. *Literacy*

Education	Male (N=291)	Female (N=395)	Total (N=686)	%
Illiterate	72	336	408	59.5
Primary	155	45	200	29
Secondary	61	14	75	11
Collegiate	3	..	3	0.5

A literacy rate of 42% equalled the rate of 47.1% in the general population of the town (1971 Census).

Table IV and V give the marital status and occupation of the study population.

TABLE 4. *Marital Status*

Marital status	Male (N=291)	Female (N=395)	Total (N=686)	%
Married ..	219	117	336	49
Widowed ..	70	261	331	48
Separated	1	17	18	3
Single ..	1	..	1	0.2

TABLE 5. *Occupation*

Occupation	Male (N=291)	Female (N=395)	Total (N=686)	%
Labourers	58	61	119	16
Agri. Labourers	32	6	38	6
Agriculturists ..	57	5	62	9
Pensioners ..	31	14	45	7
Business ..	28	21	49	7
Not employed	74	61	135	19
Housewife ..	..	223	223	33
Others* ..	11	4	15	2

*Others includes Priests, astrologers, indigenous medical practitioners, Faith healers, etc.

Many are casual or agricultural labourers, working on daily wages. The incapacitated ones took to lighter work on a lesser income. While 5% of the people received pension from the Government, 2% received from their former employers. 95% who were in business did petty business to meet their life's needs with difficulty.

Table VI offers the level of social integration achieved by the study population.

TABLE 6. *Level of Social Integration achieved by the Geriatric Population*

Level of social integration	Male (N= 291)	Female (N= 294)	Total (N= 686)	%
Well integrated	183	175	358	52
Moderately integrated ..	76	170	246	36
Not integrated	27	46	73	11
Isolated ..	5	4	9	1

It is noticed from the table that half of the population was well integrated (52%) and a third moderately integrated (36%). The level of social integration is a global assessment based upon the patients' integration within the home, with the society and his own activity level. The isolated group comprised 1% and those not integrated 11%.

Prevalence of Psychiatric morbidity :

Sixty one revealed psychiatric symptoms following administration of the screening schedule and psychiatric examination. An overall prevalence rate of 89 per thousand population is arrived at for the total geriatric population. The prevalence rate of those between 60 and 70 is 71.5; between seventy and eighty 124 and 155 for those above eighty.

Diagnostic categories :

Table VII offers the diagnostic categories amongst them.

Depression alone contributed to 67 of the total psychiatric morbidity. The prevalence of depressive illness in the geriatric population is estimated at 60 per thousand. Out of 61, ten were taking treatment for their physical condition with the general practitioners. Two of the depressed patients were attending the Institute of Psychiatry, Madurai.

TABLE 7. *Diagnostic categories*

Diagnosis	Male (N=28)	Female (N=33)	Total (N=61)	%
Depression ..	20	21	41	67
Organic Brain syndrome ..	2	4	6	10
Schizophrenia (Graduate cases) ..	3	3	3	5
Anxiety states ..	1	2	3	5
Alcoholism ..	4	1	5	8
Possession States	1	2	3	5

Socio Demography :

The following tables furnish the various demographic data of the psychiatrically ill people (Table VIII-XII).

TABLE 8. *Age group of the psychiatric group*

Age group	Male (N=28)	Female (N=33)	(Total N=61) N	%
60—69 ..	15	18	33	54.2
70-79 ..	9	12	21	34.4
80-89 ..	3	2	5	8.2
90 & above ..	1	1	2	3.2

TABLE 9. *Literacy status of the psychiatric group*

Literacy	Male (N=28)	Female (N=33)	(Total (N=61) N	%
Illiterate ..	6	27	33	54.2
Primary ..	14	4	18	29.4
Secondary ..	7	2	9	14.7
Collegiate ..	1	..	1	1.7

TABLE 10. *Occupation of the psychiatric group*

Occupation	Male (N=28)	Female (N=33)	Total (N=61) N	%
Labourers ..	3	4	7	11
Agri. labourers	..	..	..	..
Agriculturists ..	3	..	3	5
Pensioners ..	3	3	6	10
Business ..	2	3	5	8
Not employed ..	13	12	25	41
Housewife ..	..	11	11	18
Others ..	4	..	4	7

TABLE 11. *Socio economic status of the psychiatric group*

Socio economic status	Male (N=28)	Female (N=33)	Total (N=61) N	%
I ..	..	..	..	..
II ..	1	..	1	2
III ..	..	3	3	5
IV ..	22	16	38	62
V ..	5	14	19	31

TABLE 12. *Family structure of the psychiatric group*

Family type	Male (N=28)	Female (N=33)	Total (N=61) N	%
Living alone ..	..	10	10	16
Nuclear family ..	13	7	20	33
Joint family ..	12	5	17	28
Extended family	3	11	14	23

A general concordance is observable in the distribution on the factors of age, socio economic status and family structure, literacy between psychiatric group and the study group. A significant difference was observed between the two groups on 'Social Integration' as 'occupation variables (Tables XIV & XV).

Physical Morbidity :

Table XIII offers the physical illnesses encountered in the study group during the survey.

TABLE 13. *Physical illnesses in the study group*

Diagnosis	Male	Female	Total	
Anaemia ..	17	50	69	
Nutritional deficiency ..	1	3	4	
Hypertension ..	9	23	32	
Congestive cardiac failure ..	4	3	7	
Other cardiac conditions ..	2	2	4	
Diabetes Mellitus	8	11	19	
Parkinsonism ..	3	1	4	
Peripheral Neuritis ..	5	13	18	
Strokes ..	11	5	16	48.84%
Arthritis ..	27	45	72	
G. I. Problems ..	7	1	8	
Respiratory infections ..	21	10	31	
Bronchial Asthma	7	4	11	
Neoplasms ..	3	3	6	
Glaucoma ..	0	3	6	
Fractures ..	2	4	6	
Skin condition ..	8	10	18	
Urinary & kidney disease ..	4	0	4	
Hernia, Hydrocele	5	0	5	
No illness detected ..	146	205	351	51.2%

More than one or two illnesses were invariably encountered in many individuals. 48.8% of the total population were suffering from one or more physical illnesses and the sensory handicaps in 85%. 51.20% were free from physical illnesses and handicaps. Fifty seven percent of the psychiatrically morbid suffered from physical illnesses. If sensory deficits (visual and auditory) are included the figure shoots up to 85%. Four (6.6%) in the psychiatric group alone were free from any form of physical ailment suffering from mental illness only.

DISCUSSION

The earlier reports on prevalence of mental illness in the aged were based on hospital studies (Sarada Menon & Ahmed, 1971; Venkoba Rao et al., 1972). Geropsychiatric clinic (Venkoba Rao, 1979; 1981), Community mental health centre (Venkoba Rao et al. 1982) general epidemiological studies involving the community of all age groups (Dube, 1970; Elnagar et al, 1971; Nandi et al, 1975; Thacore et al, 1975) and random sampling of the elderly in the community (Ramachandran et al, 1979). In the present enquiry, the overall prevalence rate of psychiatric morbidity for those sixty and above is estimated at 89 per thousand population. This increases from 71.5 for those over sixty but below seventy, through 124 for those in their seventies to 155 in those over eighty. Projecting this to the estimated national figure of 41 million of those above 60, there are in India today 3.65 million psychiatrically ill among them. The prevalence is comparable to that in children in whom it varies from 12 to 20 percent (Geil et al, 1982) and the figure for general population from various Indian epidemiological studies referred to earlier. However, the prevalence is less than the one reported from United Kingdom by Kay et al (1964) which was 263 per thousand. The physical illnesses abound among the elderly and the combined physical and psychiatric morbidity is appallingly high. 57% of the mentally ill have physical illness and 85% sensory deficits. This adds up to the suffering of the aged. A minimum of three clinical diagnoses in the aged person was our experience, apart from social, economic, spiritual and family needs. Depression was the commonest clinical condition encountered in the aged (67% Prevalence : 59/1000). This is higher than hitherto reported in India (Nandi et al 1975; Ramachandran and Sarada Menon, 1980). This fits in with the accepted notion that depression is the major mental illness of the aged. This figure is higher than the one from the authors Geropsychiatric clinic figure (43%). This indicates that there is a large segment of 'invisible' depression in the community which escapes detection. There were only two depressives as indicated already who were receiving treatment from the local medical practitioners while the rest never sought any aid.

It is interesting to observe the possible causes for this phenomenon. Various factors offer themselves towards this : lack of realisation that they are ill and need treatment; failure to preceive the illness in them by the family members; lack of funds to visit the hospital for treatment, or accepting the symptoms of illness as part of ageing and not as something alien even in the old age. The most likely cause appears to be the failure to perceive the illness by the family members who mistake that all that occurs in the aged results from ageing. The depressive symptomatology is less disturbing to the family members and more in keeping with the general tendency towards the elderly person's withdrawal. This is in keeping with the observations o Wig & Murthy (1981) in respect of perception of depressive disorders, by rural population. This is in contrast with the organic brain syndromes who form nearly thirty five percent of the geriatric clinic attendances (Venkoba Rao, 1981). Few such cases were seen in the community, indicating thereby that symptoms of brain damage like disorientation , memory disturbance, habit deterioration, delirium and wandering quickly receive attention of the family and hence are taken to the clinic. Bergman et al (1978) report that social support facilitates the hospitalization of the elderly demented. This discrepancy between hospital and community finding clearly highlights that the failure to recognize the depressive illness in the aged either by the family members or by the old patient himself prevent the treatment seeking rather than

the questionable rural-urban difference in the symptomatology or the latter's colouring by the ageing process. There is supportive evidence of this. Venkoba Rao (1981) found that symptoms of depression in those above and below sixty did not significally differ. Nandi et al (1975) have reported no difference in the symptomatology of urban and rural depression and they responded similarly to antidepressants. It is likely too that crippling physical illnesses and visual and auditory failure cloths the underlying depressive symptomatology and prevent treatment seeking by interfering with mobility and accepting the physical disabilities as the evils of ageing. These findings offer a clue that training the general practitioners and other health personnel in the recognition of depressive illness in the elderly would be fruitful and the use of antidepressants may alleviate the depression in the community. Neither Mania nor late Paraphrenia were seen in the study in contrast to the experience in the clinic (Venkoba Rao and Madhavan, 1982). The reasons may be similar as in the case of Organic Brain Syndromes.

While 54.8% of the 'normal' persons were socially well integrated, only 26.2% of the psychiatric group fellinto this is category. Conversely 29.5% among the psychiatrically morbid, and 8.8% among the normal were "not integrated." (Table XIV) This finding runs counter to the theory of 'Disengagement' of Cummings and Henry (1961) which ensures positive mental health to those aged who withdraw themselves from other voluntarily. Lack of "social integration" existed prior to the onset of morbidity in our series. Disengagement theory has been disproved by others too (Kastenbaum, 1977). That social isolation does not affect the elderly in the Indian setting has been observed earlier (Venkoba Rao et al, 1972). Some authors attribute social isolation to physical defects (Ramachanbran and Sarada Menon, 1980). However, the present study has highlighted that it is the lack of social integration rather than social isolation that is the lot of the Geropsychiatric patients. Living in the family either joint or extended does not guarantee integration with the family the aged are like "lonely islands." On the other hand, living alone does not signify social isolation. Probably measures to enhance integration like guidance and counselling to family members, financial support to the elderly so that they are accepted by the family advising placements in the accepting relations' homes, visits by the social workers are called for. The recent Vienna Meet declared that the family care was the best for the elderly. In the present study 12% of the healthy and 16% of the psychiatrically morbid were living alone whereas more than 50% were either in the joint or extended family and the remaining 30% in the nuclear type. Thus family setting continues to be available for the elderly and the advantage may be taken of this to augment the cater to the elderly. A comprehensive health care comprising general medical and psychiatric in addition to the supports already mentioned will enthuse the family to keep their elderly within the family fold. This lessens the burden imposed on the family. Various voluntary organizations, helping agencies and Government departments have

TABLE 14. *Social integration of the normal and psychiatrically ill*

Social integration	Normal	Psych. ill	X^2	'p'
Well ..	54.8 (342)	26.2 (16)	16.97	0.001
Moderate ..	35.2 (221)	40.9 (25)	0.69	NS
Not integrated	8.8 (55)	29.5 (18)	13.8	0.001
Isolated ..	1.1 (7)	3.2 (2)	1.04	NS

to funnel their resources in this direction. A high percentage (41%) of the psychiatrically morbid was without work compared with the "normal" (19%) (Table XV).

TABLE 15. *Occupation of the normal and psychiatrically ill*

Occupation	Normal %	Psych ill %	X^2	'P'
Labourers ..	24	11.5	4.87	0.05
Agriculturists ..	9.4	5	1.30	NS
Pensioners ..	6.2	9.8	0.88	NS
Business ..	7	8.2	0.10	NS
Not employed ..	17.6	41	12.7	0.001
Housewife ..	34	18	6.65	0.01
Others ..	1.8	6.6	2.86	NS

It may be the result of associated physical illness, physical defect and mental illness. However, considering the two occurrence of physical morbidity in the "normal" population, being out of work may possibly be a causative factor among the depressives. The value of work and exercise in the depressive has been stressed by many writers and should be incorporated in the comprehensive programme (Winokur, 1981). It serves to enhance their self esteem which is low in depression. In Tamil Nadu, the aged receive a monthly pension of Rs. 35/-, a set of clothes twice a year on the Pongal and the Independence days and two Kilos of rice per week. Recently an announcement to the effect that aged would be served free food daily from early next year will help augment the total care by way of meeting the nutritional needs and prevenvention of nutritional deficiencies. These by themselves are not enough to take us nearer the problems. They, nevertheless are indicative of the growing awareness of the needs of the elderly.

ACKNOWLEDGEMENT

The authors express their deep appreciation for the help rendered by Dr. S. Sabesan, Tutor and Drs. Prabhakar, Ashraf Ali, Ganesan, Ram, Haroon Ibrahim and Lakshmi Narayanan, postgraduate students of the Institute of Psychiatry, Govt. Rajaji Hospital and Madurai Medical College, Madurai in the survey work.

Thanks are due to Dr. S. Gnanadesikan, Director of Medical Education, Tamilnadu and Dr. K. B. Kalyanasundaram, Dean, Madurai Medical College & Govt. Rajaji Hospital, Madurai for permission and encouragement. Our sincere thanks are due to Mr. Kamal Batcha, Proprietor, National Pharma, Thanjavur, Tamil Nadu for financial assistance.

REFERENCES

ABDELLAH, F. G. (1981). New directions in the care of elderly. In : Recent Advances in Nursing Care of the ageing. (Ed.) Laurel Archer Copp, Churchill Livingston, page 3.

BERGMANN, K., FOSTER, E. M., JUSTICE, A. W., AND MATHEWS, V. (1978). Management of the demented elderly patient in the community. British J. of Psychiat., 132, 441.

CUMMING, E. AND HENRY, W. E. (1961). Growing old, the process of Disengagement. Basic Books, New York.

DUBE, K. C. (1970). A study of prevalence and bio-social variables in mental illness in a rural and in urban community in Uttar Pradesh, India. Acta Psychiat. Scand., 46, 327.

ELNAGAR, M. N., MITRA, P., AND RAO, M. N. C. (1971). Mental Health in an Indian Rural Community, British J. of Psychiat., 118, 499.

GIEL, R., DE ARANGO, M. D., HARDING, T. W., IBRAHIM, H. H. A., LADRIDO-IGNACIS, SREENIVASAMURTHY, R., SALAZAR, M. C., WIG, N. N. AND YOUM'S, Y. O. A. (1981). Childhood Mental disorders in primary health care—Results of observations in four developing countries. *Pediatrics*, 68, 677.

KASTENBAUM, R. (1977). The foreshortened life perspective : *In :* Wilcox, S. A., Sutton, M. (eds.) Understanding death and dying. Alfred Publishing House, New York, P. 137.

KAY, D. W. K., BEAMISH, P. AND ROTH, M. (1964). Old age mental disorders in New Castle, Part I. British J. of Psychiat., 110, 146.

NANDI, D. H. N., AJMANI, S., GANGULI, A., BANERJEE, G., BORAL, G. C., GHOSH, A., AND SANKAR, S. (1975). Psychiatric disorders in a Rural Community in West Bengal. Indian J. of Psychiat., 17, 87.

PRITCHARD, P. (1978). Manual of Primary Health Care. Oxford University Press, Oxford.

RAMACHANDRAN, V., SARADA MENON, M., RAMAMURTI, B. (1979). Psychiatric disorders in subjects Aged over Fifty. Indian J. of Psychiat., 22, 193.

RAMACHANDRAN, V., SARADA MENON, M. (1980). Epidemiological Study of Depression in old age. *In : Depressive illness*, Eds. A. Venkoba Rao and S. Parvathi Devi, Vaigai Achagam, Madurai, page 59.

SARADA MENON, M. AND AMEEN AHMED. (1971). Mental Disorders in later age. Bombay Hospital J., 13, 5.

THACORE, V. R., GUPTA, S. C., SURIYA. (1975). Psychiatric Morbidity in a North Indian Community. British J. of Psychiat., 126, 364.

VENKOBA RAO, A., VIRUTHAGIRINATHAN, M. AND MALATHI, R. (1972). Mental illness in patients aged fifty and over. Indian J. of Psychiat., 14, 319.

VENKOBA RAO, A. (1979). Geropsychiatry in Indian Culture. Canadian J. of Psychiat., 24, 431.

VENKOBA RAO, A. (1980a.) Mental Health and ageing in India. Paper presented at World Psychiatric Association Regional Symposium, Hong Kong, May 1980.

VENKOBA RAO, A. (1980b). Geropsychiatry in India. Working paper presented before *World Health Organization Scientific Group meeting* on Classification of Psychiatric disorders in the elderly, Louvain, Belgium, September 19.

VENKOBA RAO, A. (1981). Mental Health and ageing in India. Indian J. of Psychiat., 23, 11.

VENKOBA RAO, A. AND MADHAVAN, T. (1981). Late paraphrenia : A report from Geropsychiatric Clinic, Madurai, India. Indian J. of Psychiat., 23, 291.

VENKOBA RAO, A., VASUDEVAN, P. M. AND MADHAVAN, T. (1982). Psychosocial aspects of geriatric population : A Community study in a rural area near Madurai, India. In : Readings in Transcultural Psychiat., (Eds) Ari Kiev, and A. Venkoba Rao, Higginbothams Limited, Madras, page 197.

WINOKUR, G. (1981). Depression : The Facts. Oxford University Press, Oxford.

WIG, N. N. & MURTHY, R. S. (1981). Rehabilitation of depressed patients in a developing country. In : Rehabilitation of patients with schizophrenia and with depressions. (Eds.) John K Wing, Paul Kielholz, Wilhelm Martin Zinn, Hans Huber Publishers, Bern Stuttgart Vienna, 82.