WORKING PAPER SERIES

HEALTH SEEKING BEHAVIOUR OF AGED POPULATION OF A RURAL BLOCK IN WEST BENGAL

Satyajit Chakraborty

Working Paper No. 8

May 2005

ACHUTHA MENON CENTRE FOR HEALTH SCIENCE STUDIES
Sree Chitra Tirunal Institute for Medical Sciences and Technology
Medical College P.O., Thiruvananthapuram, Kerala 695 011 India
Tel: 91-471-2524241, Fax : 91-471-2446433/2553469
E-mail : dvrajan@sctimst.ac.in Website: http://sctimst.ac.in

Health seeking behaviour of the aged

Satyajit Chakraborty

English
Working Paper

First published in May 2005

Printed at:
St. Joseph's Press for Achutha Menon Centre for Health Science Studies

Series Editors:
Dr. D. Varatharajan and Dr. P. Sankara Sarma

Editorial Assistants:
Ms. Jiji and Ms. Mini Divakaran

Contact Address:
Dr. D. Varatharajan,
Achutha Menon Centre for Health Science Studies,
Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST)
Medical College P.O., Thiruvananthapuram 695 011
Tel: 91-471-2524241, Fax: 91-471-2446433/2553469
Email: dvrajan@sctimst.ac.in

HEALTH SEEKING BEHAVIOUR OF AGED POPULATION OF A RURAL BLOCK IN WEST BENGAL

INTRODUCTION

Last two decades have seen drastic changes in population and the increase of aged (above 60 years) population (60.5% during 1980-2000) is more than that of general population (37.6%); the increases were 82.5% and 46.2% respectively in developing countries. Those above 80 years were 34.2 million in 1980 and are expected to reach 103.9 million in 2020, an increase of about 204%. [1] With increase in proportion of aged population, number of elderly with ailments is also on rise but the health care delivery system of most developing countries are not equipped to tackle the problem even while several researchers [2,3] have advocated immediate attention. In India, where the health care delivery system (public and private) has no component of geriatric care, the number of elderly ill and in need of specialized care in 2001 was about 27 million.[4]

The situation demands a definite health program for the elderly. This is more important for developing countries as resource availability is less and most elderly live in rural area. Health seeking behaviour forms an important component in formulating health programs as successful interventions depend on the accessibility and acceptability, both of which relate to broader social factors. In widest sense, health behaviour includes activities associated with establishing and retaining a healthy state plus dealing with any departure from that state. 'Illness behaviour' includes attention to pain and *symptomatology* and the process by which symptoms are defined, accorded significance, socially labelled to the extent of seeking help. Health seeking behaviour, which forms a part of this wide spectrum, gives an idea of what people do when diseased and the factors influencing their behaviour. The factors influencing may be characteristics of the subject, characteristics of the disease, and characteristics of the health services.[5]

This study is an attempt to understand the 'health seeking' behaviour of elderly depending on the disease profile, socio-economic characteristics of aged population, treatment features and the type of providers sought by the aged.

Demographic changes

Ageing is defined as a biological process with time dependent irreversible changes leading to progressive loss of functional capacity after the point of maturity. Till date, evidence suggests that maximum human life span, programmed into us by our gene, is around 120 years. Several psychologists had connected ageing to *incapacitance* but lack of health is not an exclusive feature of ageing. Epidemiologists studying people over 65 years of age have found that 95% have a normal ageing pattern that is no excessive increase in illness. Only 5% can be classified as having 'pathological ageing'. [6] This has resulted in a debate on age of ageing, or at what average age the individual passes the invisible frontier of failure to cope with the expected workload or responsibilities of the indigenous culture. This differs in various countries. In USA and Britain it is 65 years for men and 60 for women, while in Nigerian culture, for males it is 80 years and for females, menopause is equated with old age.[1] The United Nations (1954) and the World Assembly on ageing have generalized the boundary for defining old age to be 60 years.[7]

Elderly account for 17% of total population in developed countries and 7% in developing countries. Yet, 57.6% of 490 million of world's elderly population live in developing countries. In India, mortality figures improved since 1920s but the process of ageing intensified only in the 1990s as a result of fertility decline on successive birth cohorts. India has 4th largest elderly population in the world. The proportion of 60+ population in India increased from 5.1% of the total population in 1901 6.8% in 1991.[8]

Increase in elderly has ushered in the term 'population ageing', which according to demographers mean a population where fertility begins to decline and the youth dependency section of the population (children under working age) becomes proportionately less with rise in median age of the population. To call a population 'old' there is no precise limit of indicators. But a population with a median age of 30 years or more, or with an ageing index above 30, or proportion of the elderly to the total population above 10%, can be considered as 'old'. When all these conditions are met, life expectancy at birth crosses 70 years. As per these norms, even some of the developed countries may not be described as having 'old' population till 2020.[7] For developing countries, the challenge is not ageing per se, but the increased number of older persons**.** The size of elderly population is important in several spheres of life such as health, entertainment, social security, living arrangement and labour participation.

Ageing causes additional problem for the women. The increase in life expectancy becomes burden because of dependency, widowhood and ill health. Census of our country shows male predominance in sex ratio in elderly, in rural as well as urban area. However a reverse trend was observed in urban elderly with a shift in sex ratio from masculinity, 106.1 in young old (60 –69 years) to 103.6 in middle old (70-79 years), to *feminity* in old-old (80+ years) with sex ratio of 95.2 in 1991.[9] Sex ratio is more in favour of women in developed countries. According to Goldstein and Griswold, the current ratio of men to women is 69 to 100 at age 65 and 36 to 100 by age 85.[10]

Socio-economic characteristics

Literacy

Any person having ability to read and write with an understanding of any language is defined as literate in India. According to 1991 census, literacy among elder person was 40.6% in males and 12.7% in females. The disparity is more in rural areas with 33.6% males and 7.5% females being literate. This is due to inadequate infrastructure and most of these aged people had spent much of their lives prior to the present accelerated level of socio-economic development.[11]

Marital status

Marital status of elderly is important because married fare better than the single on a number of dimensions such as economic, social, emotional and care given during the progression through the older life. Elderly population has increasing proportion of women in general and widow in particular. As per 1991 census, currently married males accounted for 80.7% against 44.2% for females. The reasons are longer life for women compared to men and the universal tendency for women to marry men older than themselves. However, there has been a decline in proportion of widows among elderly women during the last 30 years from 75% in 1961 to 54% in 1991.[11] As women's longevity increases, their widow life is expected to be longer in future.[12]

Living arrangement

Family structure in India has been hit by urbanization. Elderly, who mostly depended on family for care, got affected. Several studies have been done on the living arrangement of elderly.[8,11,12] Elderly in nuclear households have a feeling of helplessness while the aged are looked upon as burden in poverty-ridden households. Intra-family relationship seems to be higher among widows compared to widowers; it is also lower in joint families. There are

examples (in developed countries) showing elders don't want old age homes rather want to stay with their families/children. In Britain, USA and Denmark, the percentage of elders (65+) living with their children or in the vicinity of less than 10 minutes journey is 65.4, 60.7 and 52.1 respectively. The difference between developing countries like India and advanced countries in this regard was that elders in advanced countries can afford to establish separate household to a much larger extent.

Economic conditions

Elders as a group are not homogenous. They can be grouped into[6]

i) Ill-derly meaning older people who tend to be poor and subject to chronic illness and

ii) Well-derly meaning older people who tend to be well off both physically and financially.

In USA, poverty among older people (65+) varies according to gender, age, living arrangement etc. Among married men of all races, less than 6% are in poverty group, where as 60% of older black women living alone fall into poverty group. In India and other developing countries, work area includes mostly the informal sector (agriculture) and hence, there is no fixed age of retirement. It has been seen that the aged in rural area continue to work till their physic permits due to this and due to poverty. About 46% of men in the 60-64 age group pursued agriculture in rural areas.[12] Number of economically active elderly in India has increased from 10.1 million in 1950 to 26.4 million in 2000.[7]

Morbidity in elderly

About 35-50% of the elderly may report arthritis, 40% hypertension, 30% hearing impairment, 15-40% defective vision, deformity and cataract, 10% diabetes and about 8% varicose vein[1,6] Some chronic diseases tend to occur more in women and tend to increase with age.[11,13] Kerala has the highest number of chronically ill elderly while West Bengal has higher incidence of blood pressure and heart disease than the national average.[12]Majority of the elderly in India complained of some diseases such as vision defects, cancer, blood pressure, heart disease, respiratory illnesses, and diabetes.[14,19] There are about 0.35 million cancer patients and about 89/1,000 with mental illnesses among the elderly.[17] A study done among rural elderly showed that 88% had vision defects, 40% locomotor difficulties, 17% cardiovascular, 16% respiratory illnesses, 14% problems related to central nervous system, 13% dermatological, 10% gastrointestinal, 8% acoustic, 4% psychiatry, and 2% neoplasm.[18] It is also evident that many of the aged suffered from more than one combination of ailments.[20] Morbidity pattern of India's elderly is given in Table-1.

Table-1. Morbidity (%) among elders by age and sex[16]

Health problem	Age 60-69 years		Age 71-79 years	
	Male	Female	Male	Female
Vision	18.51	21.52	29.58	34.64
Hearing	9.02	10.22	16.97	21.00
Cough	20.01	15.84	25.75	21.63
Joint pain	28.95	37.09	39.43	45.34
Piles	2.91	1.93	3.41	1.79
Bl. Pressure	10.59	11.31	11.57	12.94
Heart disease	3.91	2.53	4.69	3.38
Diabetes	4.04	2.96	4.65	3.14

Health seeking behaviour

In developed countries, utilization of health care by elders is on the rise.[6, 20] This has already raised the issue of 'inter generational equity' as treatment expenditure for elderly is 3 times greater than that for children.[21] In developing countries, elders form a weak group in respect of availing social benefits.[22,23] The inequities in elderly based on class, gender and race are expected to influence the parameters of ageing population. Women's issues are extremely important in considering social policies for elder population. Epidemiological transition in less developed countries has created necessity for health care transition from systems based on cure to one that highlight prevention and long time care.[24] Scarcity of resources is prevalent in all less developed countries, so making best use of the limited resources by integrating health care for elderly people with established health services, particularly existing primary health care system needs priority.[25]

In India, about 30% of the elderly suffering from illnesses seeks treatment and over 55% don't receive even minimum care and personal help.[19] However, in Kerala, 90% of the elderly, irrespective of sex, consult (90% allopathic, and 10% ayurvedic/homeopathic) doctors. Recognition of disease by elderly, his/her response to it, reaching a provider, or changing the provider depends on several factors such as age, literacy, poverty, social activity, and status of health, marriage, and socio-economy.[8, 26,29] The most common source of health care is the government facility.[11] About 26% of high class, 22% of middle class, and 17% of low class used government hospitals.[29] Low class mostly uses private clinics not hospitals.

In Bangladesh, over 50% of the elderly don't avail government facilities due to lack of appropriate and sympathetic care. Distance and long waiting time are other deterrents.[30]

Rationale

Definite health program for the aged is a need in India in the context of increase in proportion of elderly population. Several studies have covered the demographic and socio-economic conditions of the elderly including morbidity but there are only a few studies on health seeking behaviour particularly among rural elderly population. West Bengal has 7.3% (about 5.86 million) elderly (above 60 years); about two-third of them live in rural areas.[31] Rapid modernization has affected even the village life style particularly in those villages surrounding Kolkata. Public sector is the only health care provider in rural areas. Study among this group of elderly, using primary data, would enable the understanding of the health seeking behaviour of the elderly.

In this study, an attempt has been made to know the disease profile and socioeconomic characteristics of the rural elderly in West Bengal, and their health care seeking.

Objectives

· To find out the extent and nature of chronic and acute diseases among elderly.

· To describe the socio-economic and demographic characteristics of the elderly population in relation to chronic and acute diseases.

· To find out the health seeking behavior of the elderly population.

METHODOLOGY

This study, undertaken during January-March 2004, is a cross sectional and descriptive one.

Study area

West Bengal has 19 districts and North 24 Parganas, a district situated at north-eastern border of Kolkata, was selected for the study. The district has 6746 sq. km. area, 8,930,295 people, 4 divisions, 27 municipalities, 22 blocks, and 1,851 villages. It has a life expectancy of 66.1 years (2002) among men and 69.3 years among women, crude birth rate of 20.7, crude death rate of 7.1, infant mortality rate of 52, (Source: C.M.O.H office records). It is an agricultural district with some industries bordering Kolkata. Since it has border with Bangladesh, the district has a special challenge of dealing with the refugee influx. Land

reform and local self-government since 1977 had brought some changes in rural areas but disparity in employment opportunity has its affect on village family structure. Rural areas in this district are served mostly by the public sector facilities. The district was chosen because it is rural even with cosmopolitan city nearby.

Out of 22 blocks in the district, 6 are in 'Sundarbans' forest area and were excluded from the study due to inaccessibility. Among the rest, one block (138.8 sq km., and 165,771 population (density 1,194)) was selected by lottery method. The block has 71 villages (618-6,146 inhabitants) and each village is expected to have 45-450 elderly given that 7.3% of the population in West Bengal are elderly.

Sampling design

Cluster sampling method was followed and villages under each PHC were grouped into three. This was done to avoid preference to any one PHC. Considering time constraint 15 villages were taken as cluster for study. From 3 groups of villages, 5 were selected from each group by simple random method to form the 15 clusters (size 964 – 6,146).

Sample size

Assuming a prevalence of chronic disease in aged as 46% (NSSO study in 1991 found it to be 45% in rural area), with an accuracy of ± 6% for a 95% confidence interval and with a design effect of 1.5, the required sample size was estimated to be about 420.

Selection of sample

Sample size of 420 and the cluster of 15 villages yielded a sample of 28 elderly from each village. In the selected villages, one side (north, south, east or west) from a central place was chosen by lottery. All houses of that side were surveyed for elderly (above 60 years) till the required number of 28 was achieved. If it was not possible to obtain the required number from the chosen side, then another side was chosen using the lottery from the same central place.

If there were more than one elderly is the same household, then all were included. The absentees were excluded. Some were unable to understand/answer questions due to illness. In such cases, help was sought from the relatives. Verbal consent was obtained from the respondents and where necessary verbal consent of relatives was also obtained.

Tool used

Pre-tested structured questionnaire was used for data collection. Some open-ended questions were included to elicit responses as to the causes of irregular treatment and for choosing the first provider, in between provider and current provider.

Dependent variables

Chronic and acute diseases that elders perceived to be suffering from at the time of interview were recorded. **Chronic diseases** are those health conditions from which the patient was suffering for more than 3 months (National Centre for Health Statistics, CDC). 42nd and 52nd rounds of NSSO survey had enquired about the health conditions of the elderly.[14,16] Based on that, respondents in this study were asked about the chronic illnesses (visual, hearing, gastric, and urinary problems, mental illness, joint pain, chronic cough, piles, blood pressure, diabetes, heart ailment, cancer, etc.).

Chronic conditions were recorded as answered by the respondents. Along with this, perception of the patient of the disease as severe, non-severe and indifferent was recorded. Each was asked about possession of any records on treatment of any form.

Acute diseases were health conditions of short duration and sudden onset. Any such health conditions experienced with in 2 weeks before the date of interview were recorded.

Treatment of chronic conditions was enquired and grouped as 1) **regular** and 2) **irregular.** Treatment was considered irregular if it consisted any of these conditions as delay in starting treatment, irregular medication and no treatment. In case of acute illness the time taken by respondent to seek any treatment was recorded.

Providers sought for treatment of chronic health conditions. As study was conducted in rural area, followings were recorded as providers; a) Unqualified practitioner, b) Qualified private practitioner, c) Nursing home/private hospital, d) Rural government facility, e) Specialists of government hospital, f) Homeopath/ ayurveda/ kaviraji and g) Medicine shop. For respondents having treatment it was noted as first provider, in between and current provider. Some with multiple diseases had more than one first provider but as it was few so during data entry it was neglected.

Explanatory variables

Several conditions affect health-seeking behavior. They may be at individual, household and community level. A study done in Bangladesh had used education, occupation, sympathetic

care, distance, long waiting time at hospitals as independent variables, [30] where as age, gender, education, social status, residence (rural/urban), economic status, living arrangement, widowhood and command over resources were used as explanatory variables in a study done by Indrani Gupta and others.[16]

Age was recorded as stated by respondent. Elders completed 60 years and above were included in sample. Most studies in India, including NSSO has used 60 years as cut-off age. As for grouping of age, NSSO in its 42nd round had used 60-64, 65-69 and 70 & above as age groups for elderly. Some had grouped 60-69 as young old, 70-79 as middle old and 80+ as old-old, [11] while others used 60-69 as young old and 70+ as old-old.[9] In this study, groups used were 60-64, 65-69, 70-74 and 75 years and above. **Education** was recorded as illiterate, read & write and formal schooling and above. It was further grouped as literate and illiterate. Present and past **Occupation** of respondents were recorded as agriculture, service, business, labourer, household, others and at home meaning no work. For analysis it was further grouped as agriculture, household, at home and others (including business, service, labourer and others). **Income and assets** was another variable; along with it, sources of income and types of assets (house, land, etc.) were noted. **Use of tobacco** (any form) and alcohol was noted. **Attitude toward ageing** was recorded; respondents were asked to state their feelings on being old and it was recorded as healthy, despair, non-committal and others.

Affect of illness on daily physical activity was recorded as stated by respondent based on 'RAND 36-item health survey 1.0'schedule. Scores given as 1, 2, 3 depending on whether activity was a) limited a lot, b) limited a little and c) not limited at all. 1 equated to 0, 2 as 50 and 3 as 100. It was added and divided by number items applicable for the respondent. As 84.2 was considered as normal, so following groupings were done a) above 80- no effect, b) 71 to 80- mildly affected, c) up to 70- affected. **Satisfaction with last treatment** was considered for treatment of chronic illness and was recorded as no, yes and cannot say. **Marital status** was noted as never married, married, widowed and separate but for analysis it was grouped as a) with spouse meaning current married and b) without spouse. **Living arrangement** was recorded and grouped as a) alone and with spouse, b) spouse and children and c) children only. **Socio-economic status of household** was considered too. Type of house was found to represent economic disparity in rural area. Estimation of income or expenditure was difficult to elicit and so avoided during survey. Thus scoring was done as a) Pucca house- 4, b) Kuchha-pucca house- 2, c) kuchha house-1, d) Motor cycle-2, e) Power tiller-2, f) Television-1 and g) Cooking gas-1. Households were grouped as upper-income group with 7 or above score, middle-income group with score 4 to 6 and lower-income with score up to 3.

Dependency was grouped in three; a) Fully dependent- those who had no income and had to depend on other's income for daily living. Some possessed house but it had no monetary implication. b) Partially dependent- those who had some form of income but support of others was necessary. c) Not dependent- those elders who had individual income and were not dependent on others. **Household size** was recorded as total (including elderly), adult (18 to 59 years) and elderly members (>60 years) present in household. Any form of service including medicine shop and unqualified medical practice were included. Whether any other persons accompanied them while going for treatment was also asked. **Cost of treatment per month** for treating chronic diseases was recorded. The source financing (self, spouse, son, daughter, relative and begging or other outside help) was also recorded. **Distance to reach first provider** was recorded as stated by respondents. It was grouped as a) up to 0.5 km, b) 0.6 to 1.5, c) 1.6 to 3 and d) above 3km. **Road condition** was recorded as good or bad.

Data entry

All data were first entered in excel spread sheet, cleaned and then entered in SPSS for analysis. Associations between variables were calculated using Chi Square statistical tests and stepwise method of multiple logistic regressions. Responses to open ended questions were coded, grouped and then entered for analysis.

RESULTS

The survey covered 420 elderly of 15 villages with 98.1% being self-respondent and only 1.9% needing other family members to answer the interview schedule. Before discussing the morbidity status of elderly, a few background characteristics of the studied elderly is given in the following section.

Socio-demographic characteristics of the studied sample of elderly

Age and sex distribution of the respondents are given in Table-2. Overall, literacy rate of the elderly was 38.1% (males 68.6%, females 19.6%); formal schooling was 32.1% in males and only 5% in females. Occupation status of the subjects is given in Table-3. Distribution of occupation according to age shows that 30.8% of males of age 60-64 and 25.6% of males in age group 65-69 were continuing with the agricultural work. Females continuing with household work were 78.9% in 60-64 and 72.1% in 65-69 age groups. While 23.6% were engaged in agricultural work during their prime age, 6.7% were still continuing with it in their old age. Even 3.6% were working as labourer.

Table-2. Distribution of study population according to sex & age groups

Sex	Age (yrs)				Total
	60-64	65-69	70-74	75 & above	
Male	39 (33.9)	39 (31.2)	45 (40.2)	36 (52.9)	159 (37.9)
Female	76 (66.1)	86 (68.8)	67 (59.8)	32 (47.1)	261 (62.1)
Total	115 (100)	125 (100)	112 (100)	68 (100)	420 (100)

Table-3. Present occupation status of elderly study population

Sex	Present occupation					
	Farming	Business	Labour	Domestic	Others	None
Male (n = 159)	28 (17.6)*	12 (7.5)	9 (5.8)	7 (4.4)	12 (7.5)	91 (57.2)
Female(n = 261)	0 (0.0)	1 (0.4)	6 (2.3)	157 (60.1)	7 (2.7)	90 (34.5)
Total (n = 420)	28 (6.7)	13 (3.1)	15 (3.6)	164 (39)	19 (4.5)	181 (43.1)

* Figures in parenthesis indicate percentages.

About 28% of males in the 75+ age group were without spouse including the never married (Table-4). But in females, 36.8% were without spouse even in 60-64 years; it was 97% in 75+. Majority of males (75.5%) lived with spouse and children while majority of females (63.2%) lived with children only. About 4% (1.9% of males and 5% of females) of elderly lived alone. About two-third of the males and 8.8% of females had some form of income. About 14% of females and 88.7% of males possessed some assets (house/land). Occupation fetched income in the case of 14% while 4.8% had pension and 9.8% had earnings from other sources (rent, land etc).

Table-4. Distribution of elderly population according to marital status

Sex	Age groups	Marital status		Total
		No spouse	With spouse	
Male	60-64 years	2 (5.1)*	37 (94.9)	39 (100)
	65-69 years	4 (10.3)	35 (89.7)	39 (100)
	70-74 years	5 (11.1)	40 (88.9)	45 (100)
	≥ 75 years	10 (27.8)	26 (72.2)	36 (100)
Female	60-64 years	28 (36.8)	48 (63.2)	76 (100)
	65-69 years	56 (65.1)	30 (34.9)	86 (100)
	70-74 years	60 (89.6)	7 (10.4)	67 (100)
	≥ 75 years	31 (96.9)	1 (3.1)	32 (100)
Total		175 (67)	86 (33)	261 (100)

* Figures in parenthesis indicate percentages.

About 60% of the elderly belonged to lower economic group while 21.2% belonged to high economic category. Over 70% (90.8% for females) were fully dependent and 12.6% were partially dependent on others. Use of tobacco in any form was high (53.6%) among the elderly (65.4% in males, 46.4% in females); males mostly used “bidi” while females chewed tobacco leaf. Alcohol consumption was reported to be very low. Twenty eight percent (35.2% of males, 23.8% females) of the elderly had ‘healthy’ attitude towards old age whereas 26.2% (20.8% of males, 29.5% of females) were despair.

Morbidity among the elderly

It was found that 72.6% (males 71.7%, females 73.6%) of the elderly were reported to have some form of chronic diseases. Prevalence increased with age (Table-5). Table-6 shows the effect of chronic disease on daily physical activity of respondents, which was calculated using ‘RAND 36 health item’ scale. As the table indicates, physical activity of 56.4% of elderly with chronic disease was affected. More importantly, 54.4% of them were suffering from more than one chronic disease with similar distribution in both sexes.

Table-7 illustrates the prevalence, perceived severity and treatment seeking for chronic diseases among the elderly. Visual problem, joint pain and blood pressure were highly prevalent among women while chronic cough, which included bronchitis, asthma and T.B., was more among males. Diabetes, heart ailment, cancer, chronic cough and others (included CVA, fracture etc.) were perceived as serious (above 90%) and some form of treatment sought (near 100%).

Table-5. Distribution of chronic diseases in sampled elderly population

Sex	Age groups	Chronic diseases		Total
		Absent	Present	
Male	60-64 years	16 (41.0)*	23 (59.0)	39 (100)
	65-69 years	13 (33.3)	26 (66.7)	39(100)
	70-74 years	11 (24.4)	34 (75.6)	45 (100)
	≥75 year	6 (16.7)	30 (83.3)	36 (100)
Female	60-64 years	29 (38.2)	47 (61.8)	76 (100)
	65-69 years	30 (34.9)	56 (65.1)	86 (100)
	70-74 years	6 (9.0)	61 (91.0)	67 (100)
	≥ 75 years	4 (12.5)	28 (87.5)	32 (100)
Total sample		115 (27.4)	305 (72.6)	420 (100)

* Figures in parenthesis indicate percentages.

Table-6. Effect of chronic disease on daily physical activity of respondents

Sex	Effect on physical activity		
	Affected	**Mildly affected**	**Not affected**
Male (N = 113)	38 (33.6)*	22 (19.5)	53 (46.9)
Female (N = 192)	85 (44.3)	27 (14.1)	80 (41.6)
Total (N = 305)	123 (40.3)	49 (16.1)	133 (43.6)

** Figures in parenthesis indicate percentages.*

Prevalence of acute disease in elderly was found to be 12.4% with 5.5% suffering from fever, 2.4% respiratory disease, 1.9% diarrhoea and 1% with injury. Females had a higher prevalence of 14.2% compared to 9.4% among men.

Association between the prevalence of chronic diseases and socio-economic and demographic conditions in elderly is reported in Table-8. In addition to the variables reported in Table-8, association between the prevalence and variables such as education, income, tobacco use and socioeconomic status was also estimated. The results are reported in Table-9.

Table-10 reports the results concerning the association between the occurrence of chronic diseases and some of the socio-economic characteristics. As it can be seen, Chi Square is significant for all the variables. However, there was no significant association between the prevalence of acute diseases and the socio-economic characteristics.

Table-7. Prevalence, severity and treating seeking of the elderly for chronic diseases

Chronic diseases	Prevalence (%)	Perceived severity (%)			Treatment records available (%)	Received treatment (%)
		Severe	Not Severe	No Opinion		
Vision roblems	34.0	69.2	27.3	3.5	41.3	53.8
Hearing problems	4.8	35.0	55.0	10.0	5.0	5.0
Mental problems	3.1	69.2	7.7	23.1	23.1	61.5
Joint pain	19.5	89.0	9.8	1.2	35.4	91.5
Chronic cough	14.0	91.5	1.2	7.3	72.9	98.3
Piles	3.8	68.8	31.2	0.0	50.0	75.0
Hypertension	12.9	85.2	13.0	1.8	79.6	100.0
Diabetes	4.8	95.0	5.0	0.0	90.0	100.0
Cardiac ailments	4.5	100.0	0.0	0.0	94.7	100.0
Urinary ailments	3.8	87.5	12.5	0.0	93.8	100.0
Gastric problems	7.6	84.4	9.4	6.3	59.4	100.0
Cancer	0.5	100.0	0.0	0.0	50.0	100.0
Others	7.4	93.5	6.5	0.0	77.4	90.3

Table-8. Chronic disease and socio-economic characteristics of the elderly

Variables	Indicator	Prevalence (%)	Chi Square P value
Present occupation	*Agriculture*	35.7	0.000
	Household work	64.0	
	Others	72.3	
	None	86.2	
Marital status	*With spouse*	68.3	0.044
	Without spouse	77.6	
Individual asset	*No*	76.5	0.035
	Yes	67.2	
Attitude towards ageing	*Healthy*	59.3	0.000
	Despair	88.2	
	Non committal	71.9	
Age groups	*60-64*	60.9	0.000
	65-69	65.6	
	70-74	84.8	
	75 & above	85.3	

Table-9. Effect of education, income, tobacco use and socioeconomic status

Variables	Indicator	Prevalence of chronic diseases (%)	
		Male	**Female**
Education	Illiterate	72.0	76.7
	Literate	70.6	60.8
Chi square P- Value		0.51	0.02*
Personal income	No	81.7	72.7
	Yes	64.6	82.6)
Chi square P- Value		0.30	0.01*
Tobacco use	No	83.6	74.3
	Yes	64.4	72.7
Chi square P- Value		0.01*	0.78
Socioeconomic status	Lower	72.2	76.4
	Middle	69.4	58.3
	Upper	69.7	78.6
Chi square P- Value		0.94	0.03*

* Significant at 5% level

Table-10. Living arrangement and episodes of chronic diseases

Variables	Indicator	Prevalence of chronic diseases (N = 305)		Chi Square P value
		Single	**More than one**	
Living arrangement	*With spouse*	9 (34.6)**	17 (65.4)	0.03*
	Spouse & children	73 (54.1)	62 (45.9)	
	Children only	57 (39.6)	87 (60.4)	
Age group	*60-64*	40 (57.1)	30 (42.9)	0.04*
	65-69	41 (50.0)	41 (50.0)	
	70-74	34 (35.8)	61 (64.2)	
	75 & above	24 (41.4)	34 (58.6)	
Marital status	*With spouse*	80 (52.3)	73 (47.7)	0.02*
	W'out spouse	59 (38.8)	93 (61.2)	
Attitude towards ageing	*Healthy*	32 (45.7)	38 (54.3)	0.002*
	Despair	31 (32.0)	66 (68.0)	
	Non committal	76 (55.1)	62 (44.9)	

● Significant at 5% level ** Figures in parenthesis indicate percentages

Characteristics of treatment

The results showed that 78.4% ((80.2% for women and 75.2% for men) of the elderly had no or irregular treatment when confronted with chronic illnesses. Among those who sought any care, only 13.5% (10.8% for women and 20.0% for men) did so before 24 hours of their illness. About one-third (37.8% for women and 20.0% for men) sought care after 48 hours. About half (53.8% for women and 41.7% for men) of the elders were always accompanied by some one when they sought care while 26.8% (24.2% for women and 31.1% for men) of them were not accompanied by any; the rest were accompanied occasionally.

Table-11. Cost of treating chronic diseases

Sex	Cost of treatment per month (Rs.)			
	0 - 50	51 - 150	151 - 300	> 300
Male (N = 103)	19 (18.4)*	35 (34)	28 (27.2)	21 (20.4)
Female (N = 173)	66 (38.2)	62 (35.7)	34 (19.7)	11 (6.4)
Total (N = 276)	85 (30.8)	97 (35.1)	62 (22.5)	32 (11.6)

* Figures in parenthesis indicate percentages.

Cost of treating chronic ailments of the elderly is given in Table-11. Treatment cost included cost for medicine, investigations, consultancy and transport. Table-11 shows that 30.8% (38.2% for women and 18.4% for men) spent less than Rs. 50/- per month while 11.6% (6.4% for women and 20.4% for men) spent more than Rs. 300/- per month on the treatment of chronic illnesses. Results (Table-12) indicated that the cost of treatment was borne mostly (59.3%) by the sons (43.0% for women and 69.0% for men). One-fourth (8.7% for women and 50.0% for men) of the elderly bore their own expenses.

About half of them (56.0% for women and 48.5% for men) received care from a centre located less than 1.5 km from their residence. Only 13.0% (11.6% for women and 15.5% for men) travelled more than 3 km. Association between the socioeconomic status and treatment regularity is brought out by Table-13. As indicated by the table, all variables listed had significant effect on the treatment regularity. Higher income, asset, healthy attitude, availability of

Table-12. Who bore the cost of treatment?

Sex	Cost of treatment borne by				
	Self	Spouse	Son	Daughter	Others
Male (N = 100)	50 (50)*	1 (1)	43 (43)	3 (3)	3 (3.0)
Female (N = 171)	15 (8.7)	22 (12.9)	118 (69)	8 (4.7)	8 (4.7)
Total (N = 271)	65 (24)	23 (8.5)	161 (59.3)	11 (4.1)	11(4.1)

* Figures in parentheses are percentages

Table-13. Socioeconomic status and treatment regularity

Variables		Treatment of chronic disease (N = 305)		Chi Square P value
		Regular	**Irregular**	
Personal income	*No* *Yes*	38 (17.1)** 28 (33.7)	184 (82.9) 55 (66.3)	0.002*
Personal asset	*No* *Yes*	30 (16.1) 36 (30.3)	156 (83.9) 83 (69.7)	0.003*
Attitude towards ageing	*Healthy* Despair *Non committal*	33 (47.1) 7(7.2) 26 (18.8)	37 (52.9%) 90 (92.8) 112 (81.2)	0.000*
Persons accompanying (N = 276)	*No,* always, *Yes,* *occasional*	12 (16.2) 42 (30.9) 12 (18.2)	62 (83.8) 94 (69.1) 54 (81.8)	0.027*
Effect on physical activity	*Affected* *Mildly affected* *Not affected*	15 (12.2) 7 (14.3) 44 (33.1)	108 (87.8) 42 (85.7) 89 (66.9)	0.000*
Cost of treatment (N = 276)	*Rs. 0 - 50* *Rs. 51 - 150* *Rs. 151 - 300* *Above Rs. 300*	5 (5.9) 19 (19.6) 28 (45.2) 14 (43.8)	80 (94.1) 78 (80.4) 34 (54.8) 18 (56.3)	0.000*
Distance to 1st provider (N = 276)	*< 0.5 km* *0.6 - 1.5 km* *1.6 - 3 km* *> 3 km*	17 (18.3) 13 (24.1) 17 (18.3) 19 (52.8)	76 (81.7) 41 (75.9) 76 (81.7) 17 (47.2)	0.000*
SES of household	*Lower* *Middle* *Upper*	16 (8.6) 18 (34) 32 (47.8)	169 (91.4) 35 (66) 35 (52.2)	0.000*
Dependency	*Fully* *Partially* *Independent*	38 (17.2) 13 (34.2) 15 (32.6)	183 (82.8) 25 (65.8) 31 (67.4)	0.009*
Education level	*Illiterate* *Literate*	32 (16.2) 34 (31.5)	165 (83.8) 74 (68.5)	0.002*

* Significant at 5% level ** Figures in parenthesis indicate percentages.

bystanders, higher socioeconomic status, higher literacy, and lower dependency enhanced the regularity of the treatment.

Results of step-wise multiple logistic regression

Socio-economic characteristics showing statistical (Chi Square) significance were further analysed using step-wise multiple logistic regression tests. Regular treatment was taken, as '0' and irregular treatment was taken as '1' as binary outcome. Socio-economic factors, except cost per month, were entered as categorical independent variables. Stepwise logistic regression after adjusting for all these factors showed individual income, socio-economic status of households, affect of disease on daily physical activity, attitude towards ageing and accompanying persons to be related with treatment characteristics (Table-14). Upper socio-economic status of households, diseases having no affect on daily physical activity, individual income and presence of accompanying persons had negative relation, while 'despair' attitude towards ageing had positive relation with treatment being irregular. However, no association could be established statistically between time sought for treatment of acute disease and various socio-economic factors due to paucity of cases.

Monetary constraint was stated as a single dominant (75.3%) factor contributing to the irregular treatment. Other reasons holding the elderly back from seeking treatment regularly are distance (51.0%), and lack of support to accompany them (41.4%).

Table-14. Treatment and socioeconomic factors: logistic regression results

Variables	Odds Ratio	P value	95% C.I. Adjusted Odds Ratio)	
			Lower	Upper
No personal income	1			
Some personal income	0.386	0.025	.168	.885
Lower socio-economic status	1			
Middle socio-economic status	0.329	0.013	.138	.789
Upper socio-economic status	0.135	0.000	.058	.314
Physically affected	1			
Physically affected (mild)	0.708	0.555	.226	2.224
Physically unaffected	.248	0.001	.106	.578
Healthy attitude to ageing	1			
Attitude of despair to ageing	5.899	0.001	2.015	17.266
Non-committal to ageing	2.594	0.019	1.166	5.769
No accompanying persons	1			
Always accompanied	0.215	0.002	.081	.574
Occasionally accompanied	0.594	0.361	.195	1.814

Treatment seeking of the elderly

About 40% of the elderly with chronic illness went to Less Than Fully Qualified (LTFQ) practitioners first (Table-15) while 23.9% went to government rural facility (sub-centre, PHC, Block PHC and rural hospitals). 2.6% went to specialists in government hospitals whereas 13.6% chose qualified private practitioners.

Table-15. First contact point for treatment of chronic diseases*

Sex	None	LTFQ	Private	Govt.		Homeo. /Ayur.	Pharmacy
				Rural	Specialist		
Male n = 113	10 (8.8)	47 (41.6)	19 (16.8)	26 (23.0)	3 (2.7)	3 (2.7)	5 (4.4)
Female n = 192	19 (9.9)	74 (38.5)	22 (11.5)	47 (24.5)	5 (2.6)	15 (7.8)	10 (5.2)
Total n = 305	29 (9.6)	121 (39.7)	41 (13.4)	73 (23.9)	8 (2.6)	18 (5.9)	15 (4.9)

* Figures in parenthesis indicate percentages. LTFQ – Less than fully qualified

Location and geographic and time convenience were the reasons cited by 64.9% of the elderly as the reason for choosing the first contact point. Over 40% chosen the first contact point based on cost of care. Other reasons cited were quality of care (13%), faith in the provider (7.2%), lack of alternative (4.2%), and emergency (4.0%). Over 40% of the elderly, who sought treatment for their ailments, went beyond the first contact point. About 17% went to government specialists while 11.1% sought care from private providers. The proportion of the elderly who sought the follow-up treatment was high for men (45.1%) compared to women (32.3%). The major (49.6%) reason for seeking care from the second provider was the ineffectiveness of the first treatment while 47.4% of the first providers referred the elderly to the second provider. About 27% of the elderly, who chose LTFQs as their first contact point, continued with them for even follow-up treatment.

SUMMARY AND CONCLUSIONS

This study looked at the morbidity and the treatment seeking pattern among the elderly. For sampling, a pattern similar to the 42nd and 52nd rounds of the NSSO was chosen.[14,16] A pre-tested structured interview schedule was used as tool for the survey. The survey conducted by this study had more women respondents probably because the interview was conducted during the daytime when men might have gone out for work or otherwise. However, proportion of men was high among the 75+ age group.

Literacy rate among the sample elderly was relatively high than that of West Bengal.[11] Proximity of the area to cosmopolitan city might be the reason for this. Over 40% of the men and 65.5% (60% did household work) of the women were engaged in some form of work. State level census data for West Bengal (1991) showed the work participation rate as 54.1% for the elderly men and 6.4% for the elderly women indicating similar work trend in the state. About 60% of the elderly belonged to the low socio-economic households.

About two-third of the elderly women and 13.2% of the elderly men lived without spouse; Over 90% of the elderly women above 70 years were widows. The proportion of the elderly living without spouse was high in the sample compared to the figures for the state.[11] About 9% of the elderly women and 62.3% of elderly men had income. This is similar to the results of the 42nd NSSO round.[12]

Over 50% of the elderly (65.4% men and 46.4% of women) used some form of tobacco. The rate estimated by the NFHS-II was low. Over 70% (similar to both sex) of the elderly had chronic illnesses and 54.4% of them more than one disease. Prevalence of acute disease was low (12.4%) among the elderly compared to 60-65% in the state.[12] Other studies too showed variation in elderly morbidity.[15, 19] One-third had vision problem, 19.5% had problems in the joints, 14% had cough, and 12.9% had blood pressure. Blood pressure, vision and joint problems were high among women while chronic cough, piles, heart ailments and urinary problems were high among men. Studies on morbidity pattern, once again, varied in their results.[14, 16,18,19]

Mental and vision ailments received the maximum attention from the elderly. Over 60% of them sought treatment for mental illnesses where it was 53.8% for vision problems. Hearing impairment received the least (5%) attention. Chronic disease conditions of the elderly were associated with present occupation, marital status, assets, age, and attitude towards ageing. Elderly with no work had more disease (86%), which might be due to inclusion of persons with increased age in 'at home' category, and disease was seen to increase with age.

Prevalence of chronic disease was seen more in elders without spouse, having no individual assets and attitude of despair towards ageing. Further analysis in males and females separately showed illiteracy and lower and upper socio-economic status to be associated with more prevalence of illness in females, while in case of males, prevalence was more in those having no income and not using tobacco. Relation between increased prevalence of illness and lower socio-economic status seen only in women, indicate gender role along with poverty. Illness might have been more in upper socio-economic group of females due to sedentary life-style. Use of tobacco in elders might indicate money in hand, which implies better economic condition. Thus males not using tobacco might be relatively poor and be vulnerable to diseases.

Similarity to other studies, prevalence of multiple chronic diseases depended on age, marital status and attitude towards ageing. Over 60% had prevalence of multiple diseases. Similar results were seen in a study where spousal support and economic variables played an important role in reporting and seeking care in elderly.[16] Other studies showed marital status, socio-economic status, illiteracy and adverse familial relationship to have impact on psychological and physical health during ageing.[26, 27,28]

Majority (78.4%) of the elderly population with chronic disease had irregular (no, delayed, or discontinuous) treatment. One-third sought treatment from within 0.5 km and spent up to Rs. 50/- per month on treatment; over 10% travelled more than 3 km and spent in excess of Rs. 300/- per month. Illiteracy, economic dependency, low socio-economic status, no accompanying persons, and negative attitude towards ageing were some of the reasons for variation in treatment.

Less than fully qualified practitioners were the most (39.7%) preferred option for treatment followed the rural government centres (23.9%). LTFQs attracted the elderly on a continuous basis even for treatment follow-up. Major reasons for choosing the first provider were geographic and time convenience and treatment cost. About 15% of the elderly sought follow-up care from other than the LTFQs. They sought second opinion due to referral or because the first treatment was ineffective. Similar results were shown by a study where 60% of those who changed providers was due to recommendation of previous provider.[29]

Strength and limitations of study

The strength of the study was that it was based on community survey and performed by one investigator with medical background. But there were some limitations like limiting the study to only one district of West Bengal due to time constraint and want of manpower. All the

diseases were recorded as perceived by the elderly population and no clinical or diagnostic tests were done to confirm or refute the same. Treatment was not only limited to modern allopathic system, but also other forms including unqualified practitioners, medicine shops and homeopaths were included in study. This might have exposed the important role played by these unqualified providers but at the same time raise questions regarding the authenticity of the morbidity characteristics.

Conclusions

This study among the elderly (> 60 years) residing in a rural area neighbouring a cosmopolitan city showed that 72.6% of the elderly were suffering from chronic illnesses. Majority had multiple illnesses and the prevalence increased with age. Marital status and living arrangement were associated with the prevalence. Education and socio-economic status in case of elderly women and individual income in case of men were found to influence the disease prevalence. Attitude towards old age too played a role in the prevalence and treatment practices.

Treatment of chronic illnesses was irregular for the majority (78.4%) of them. The step-wise multiple logistic regression model showed that income, socio-economic status, absence of any affect on daily physical activity and accompanying persons were found to be inversely related to irregular treatment.

Significant gap was seen between need and treatment provision particularly for visual and hearing problems. Rural government facilities and unqualified practitioners were the two most frequented providers as first contact. Qualified private practitioners were seen to play a major role in peri-urban rural area. Homeopaths and medicine shops were not first choice of rural elderly but their substantial presence as current provider (30%) indicates inadequacy of rural government facility as regards health needs of aged. At the same time decline in proportion of specialists of government hospitals as current provider show inability of elderly population to continue such treatment. Responses of elderly seeking treatment showed distance, cost, availability of provider, recommendation of previous provider, not to attend provider personally, concern for disease and concern for quality of care as reasons for changing and selecting providers.

Recommendations

- Rural government facilities lacked essential geriatric care facilities. As a result, the elderly had to be satisfied with LTFQs or travel to reach better facilities.
- Since the elderly used the LTFQs as their first contact point (and for some, even the only contact point), government may devise a scheme to involve them in helping the elderly.
- Attitude towards ageing was found to be an important determinant of health status and health care seeking behaviour. Hence, health care delivery staff (including medical officers) needs to be equipped to undertake proper counselling.
- Rural community volunteers may also be promoted to accompany the elderly in seeking health care.
- Steps such as old age pension are required to be taken to enhance the income of the elderly. Only 4.8% of the elderly received the government sponsored old age pension. More specifically, elderly women and those over 70 years of age need to be targeted.
- Female literacy played a role in shaping the health of the elderly. So, more emphasis needs to be given to promote female literacy. .
- To address the needs regarding visual and hearing problems, peripheral health staffs to be equipped to treat basic hearing and vision problems with proper referral. Restarting ‘cataract camps’ on large scale should be given a thought.
- Practice by qualified private practitioners in rural areas should be encouraged but regulations should be brought to check unnecessary charging by them, which often push rural people below poverty line.
- Introduction of ‘user charge’ at upper tiers of government hospitals might be reconsidered specially for aged population as socio-economically they form a vulnerable group

References

1. Tout ken. Ageing in developing countries. New York: Oxford University Press, 1989

2. Guralnik JM, Fried LP, Salive ME. Disability as a public health outcome in ageing population. *Annu Rev Public Health* 1996; 17: 25-46

3. Santos-Eggimann B. Evolution of the needs of older persons. *Aging Clin Exp Res* 2002; 14(4): 287-92

4. Chanana HB, Talwar PP. Aging in India: its socio-economic and health implications. *Asia Pac Popul J* 1987; 2(3): 23-38

5. Kroeger A. Anthropological and socio-medical health care research in developing countries. *Soc Sci Med* 1983; 17(3): 147-161

6. Moody Harry R. Aging: concepts and controversies. California; Pine Forge press, 1994

7. Devi D Radha. Global trends of population ageing and India: reflection on labour force. In: Murali Desai and Siva Raju, editors. Gerontological social work in India: some issues and perspectives. Delhi: BR. publishing corporation, 2000.p 81-99

8. Raju Siva S. Ageing in India: an overview. In: Murali Desai and Siva Raju, editors. Gerontological social work in India: some issues and perspectives. Delhi: BR. publishing corporation, 2000.p 27-57

9. Reddy P Jayarami, Rani D Usha. Perspectives on elderly in India: rural urban analysis. In: Murali Desai and Siva Raju, editors. Gerontological social work in India: some issues and perspectives. Delhi: BR. publishing corporation, 2000.p 59-79

10. Goldstein Marion Zucker, Griswold Kim. Practical geriatrics: gender sensitivity in health care for elderly men and women. *Psychiatr serv* 1998; 49(3): 323-325

11. Rajan S Irudaya, Mishra US, Sankara Sarma P. India's elderly- burden or challenge. New Delhi; Sage, 1999

12. Dandekar Kumudini. The elderly in India. New Delhi; Sage, 1996

13. Guralnik JM, et al. The impact of disability in older women. *J Am Med Womens Assoc* 1997, summer; 52(3), 113-20

14. Reddy PH. The health of the aged in India. *Health transit revs 1996*; 6 (suppl): 233-244

15. Khokhar A, Mehra M. Life style and morbidity profile of geriatric population in an urban community of Delhi. *Indian J Med Sci* 2001; 55(11): 609-15

16. Gupta Indrani, Sankar Deepa. Health of elderly in India: a multivariate analysis, *Journal of health and population in developing countries* 2003:1-11

17. Jai Prakash Indira. Ageing in India. WHO, 1992 available from: http:// www.who.int/hpr/ageing/ageinginindia .pdf

18. Rao A Venkoba. Health care for rural aged, Indian council of medical research, New Delhi, 1990

19. Kumar S Vijaya. Growing old in rural India, problems and perspective. In: S. Vijaya Kumar, editors. Challenges before the elderly: an Indian scenario. New Delhi; MD publication, 1995

20. Guralnik J, Harlik R. Demographics, Chapter 2. In: Mark H. Beers et al, editors. The merk manual of geriatrics.3rd.ed.Washington; Wiley, 2000

21. Soldo BJ, Agree EM. America's elderly. *Popul Bull* 1998; 43(3): 1-53

22. Brodsky J, et al. Care of the frail elderly in developed and developing countries: the experiences and the challenges. *Aging Clin Exp Res* 2002: 14(4): 279-86

23. Restrepo HE, Rozental M. The social impact of aging populations: some major issues. *Soc Sci Med* 1994; 39 (9): 1323-38

24. Gutierrez- Robeldo LM. Looking at future of geriatric care in developing countries. *J Gerontol A Biol Sci Med Sci 2001;* 57 (3): M162-7

25. Jitapunkul S, Bunnag S, Ebrahim S. Health care for elderly people in developing countries: a case study of Thailand. *Age Ageing* 1993; 22 (5): 377-81

26. Jai Prakash Indira. Issues in mental health and psychological well being of older persons. In: Murali Desai and Siva Raju, editors. Gerontological social work in India: some issues and perspectives. Delhi: BR. publishing corporation, 2000.p185-200

27. Yadava KNS, et al. Ageing and health hazards in rural northern India. *Health and population perspective and issues*1996; 19 (1): 1-18

28. Siva Raju S, Anand SC. Physical health of older persons: differentials and determinants. In Murali Desai and Siva Raju, editors. Gerontological social work in India: some issues and perspectives. Delhi: BR. publishing corporation, 2000. p 117-156

29. Gupta Indrani, Das Gupta Purnamita. Health seeking behavior in urban Delhi: an exploratory study, *Journal of health and population in developing countries* 2003; 3(2): 1-20

30. Kabir M. Effects of social change on the health of the elderly: evidence from a micro study. *Journal of family welfare*1992; 38(1) 44-55

31. International Institute for Population Studies. NFHS 2:West Bengal. Mumbai; IIPS, 2000