

## CHAPTER 4

### NATURE AND PATTERN OF AGEING AND THE STATUS OF ELDERLY AMONG MUSLIM AND NON-MUSLIM POPULATION IN INDIA, WEST BENGAL AND MALDA DISTRICT

#### 4.1 Introduction

The present chapter presents nature and pattern of ageing and the status of elderly among Muslim and non-Muslim population in India, West Bengal and Malda district. Malda is one of the Muslim dominated districts of West Bengal. Studying the problem on population ageing over religion is most important because the amount of variation of magnitudes of population ageing over different categories of religion is highest among those of other categories.

Per cents of population and decadal growth rates of population in India according to religious groups and census wise is shown in Table 4.1.

**Table 4.1. Per cent of Population and Per cent Decadal Growth Rates of Population in India Religious Group and Census wise**

Religion	Per cent of population			Per Cent Decadal growth rate		
	1991	2001	2011	1981 - 1991	1991 - 2001	2001 - 2011
Overall	-	-	-	23.9	21.5	17.7
Hindu	81.5	80.5	79.8	22.7	19.9	16.8
Muslim	12.6	13.4	14.2	32.9	29.3	24.6
Christian	2.3	2.3	2.3	17.7	22.5	15.5
Sikh	1.9	1.9	1.7	25.5	16.9	8.4
Buddhist	0.8	0.8	0.7	36.1	22.8	6.1
Jain	0.4	0.4	0.4	4.1	25.9	5.4
Others	0.4	0.7	0.9	15.8	-	-

Source: The Indian Express, August 27, 2015 Written by Poonam Muttreja, Executive Director, Population Foundation of India

Sex ratio, literacy rate and work participation rate of all ages in India religious group wise according to Census of India 2011 is provided in Table 4.2. According to Census of India 2011, literacy rate (per cent) and work participation rate (per cent) in general population of India were lowest among Muslim population. Literacy rates, work participation among Muslim community were lowest among those of other religious communities. Sex ratio, literacy rate (per cent), work participation rate (per cent) of all ages is highest among Christian, Jain and Buddhist respectively. These are major determinants for the lowest per cent of elderly persons among Muslim population.

**Table 4.2. Sex ratio, Literacy Rate (per cent) and Work Participation Rate (per cent) of All Ages in India Religious Group Wise According to Census of India, 2011**

Religion	Sex ratio	Literacy rate (per cent)	Work participation rate (per cent)
Overall	943	74.1	39.8
Hindu	939	73.3	41.0
Muslim	951	68.5	32.6
Christian	1023	84.5	41.9
Sikh	903	75.4	36.3
Buddhist	965	81.3	43.1
Jain	954	94.9	35.5
Others	959	-	-

Source: Census of India, 2011 (Percentages were computed by researcher)

The main objectives of the present chapter are (a) to assess and compare the situations of population ageing and social security of the elderly persons among Muslims with non-Muslims in India, West Bengal and Malda district and (b) to provide an overview of population ageing in Muslim countries in the world. Malda district had 51.27, 47.99 and 0.74 per cents of total populations belonging to Muslim, Hindu and other religious communities respectively according to Census of India 2011. The study is based on both secondary and primary data. For the purpose of field survey, Malda district was selected purposively.

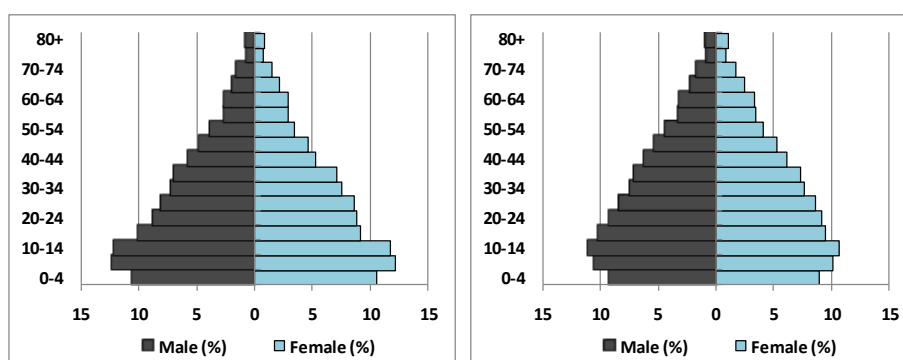
## **4.2 Data and Methodology**

For collecting secondary data, we have mentioned Hindu population as non-Muslim one. Secondary data relating to population ageing of this district were collected from Census of India 2001 and 2011. According to Census of India 2011, in Malda district, (a) percentages of total population in rural and urban areas were 86.4 and 13.6 respectively and (b) percentages of elderly populations in rural and urban areas were 85.3 and 14.7 respectively. Primary data were collected following the sampling methods as follows. ‘English Bazar’ town was selected at random from the towns of Malda. One ward out of the wards of the selected town was selected at random. Again for collecting data from rural areas, one block ‘Kaliachak-I’ with 89.4 per cent Muslim population from more Muslim populated blocks and one block ‘Gazole’ with 24.1 per cent Muslim population from less Muslim populated blocks were selected at random (Block (Pachayat Samity) wise per cent of Muslims to total population in Malda district for census 2001 and 2011 is given in Appendix–C.1). From each of those two selected blocks, two villages were selected at random. At the last stage, from each of selected ward and villages, 25 households having at least one elderly person were selected at random. Two types of

questionnaire were used: ‘Household Questionnaire’ for collecting data related to household details and ‘Elderly Persons Questionnaire’ for collecting data from each elderly person of the household. Rural with more than or equal to 50 per cent Muslim population was mentioned as rural (more Muslim) and rural with less than 50 per cent Muslim population was mentioned as rural (less Muslim). Then for collecting primary data, three defined localities of residence, namely, urban, rural (less Muslim) and rural (more Muslim) with 25, 50 and 50 sampled households were taken respectively. According to Census of India, 2011, about 75 per cent of households do not have elderly family members, therefore considering the proportions of population in rural and urban areas of Malda district, taking sample sizes 100 from rural and 25 from urban areas, that is the ratio of sample sizes from rural and urban areas in the ratio 4:1 (proportional allocation) may be justified. Again, taking sample size more than 25 from each sampled village/ward may or may not be possible.

### 4.3 Age-sex Distribution of Total Population in India, West Bengal and Malda District

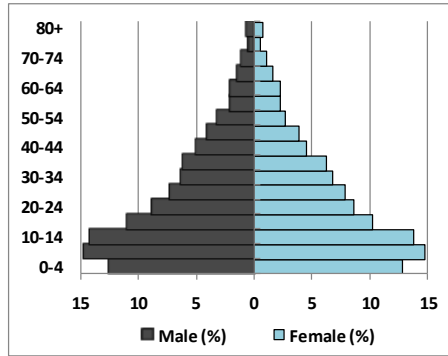
Age-sex distribution of total population in Malda district has been presented through the following population pyramids (Figures 4.1- 4.9). The change from a very broad base in 2001 to a shrunken base in 2011 indicates a decline in fertility leading to an increase in the proportion of elderly population, in this case shape of population pyramid has slightly become broad base in 2011 compared with that in 2001). Shapes of population pyramids in case of Hindu and Muslim populations are shrunken base and broad base respectively indicates that the rate of ageing in Hindu population is higher than Muslim.



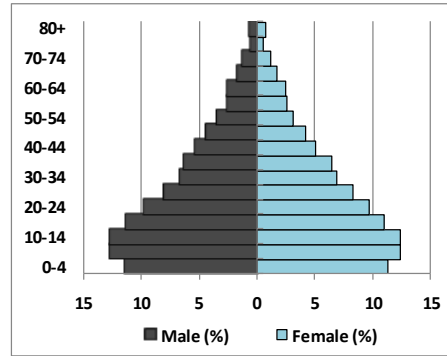
India (Hindu): 2001

India (Hindu): 2011

Figure 4.1: Population Pyramids for India (Hindu) for 2001 and 2011

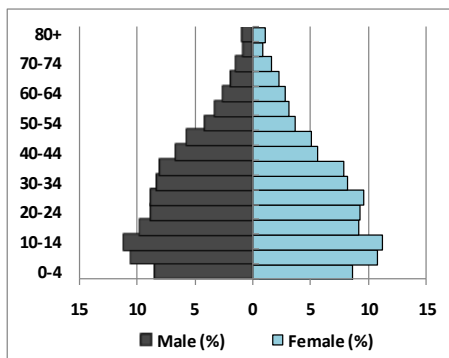


India (Muslim): 2001

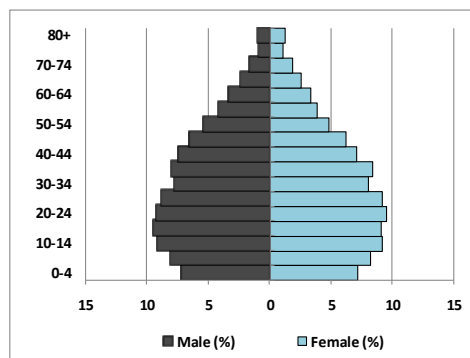


India (Muslim): 2011

Figure 4.2: Population Pyramids for India (Muslim) for 2001 and 2011

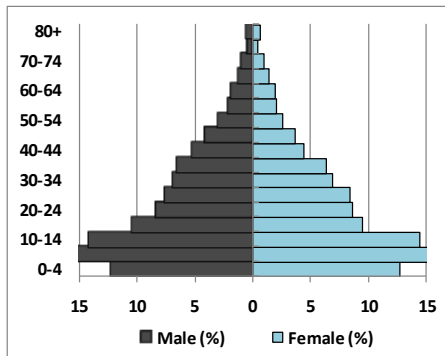


West Bengal (Hindu): 2001

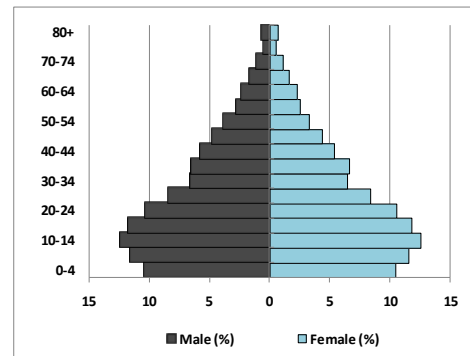


West Bengal (Hindu): 2011

Figure 4.3: Population Pyramids for West Bengal (Hindu) for 2001 and 2011

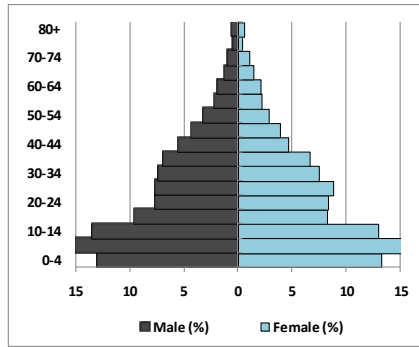


West Bengal (Muslim): 2001

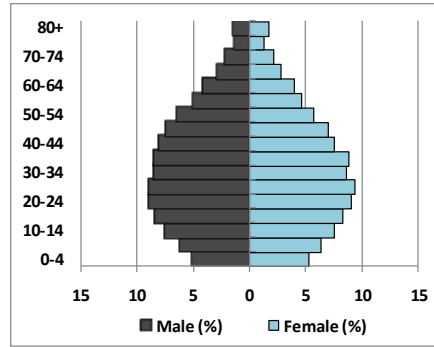


West Bengal (Muslim): 2011

Figure 4.4: Population Pyramids for West Bengal (Muslim) for 2001 and 2011

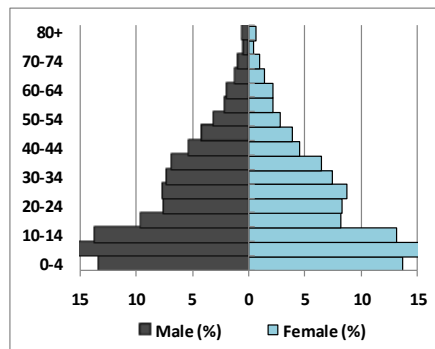


Malda (Total): 2001

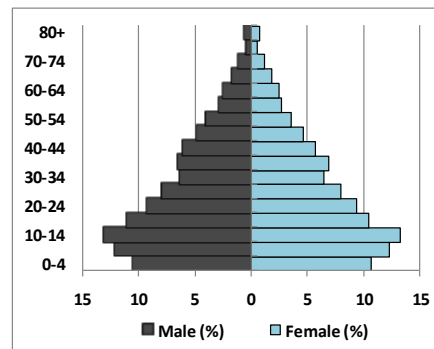


Malda (Total): 2011

Figure 4.5: Population Pyramids for Malda district (Total) for 2001 and 2011

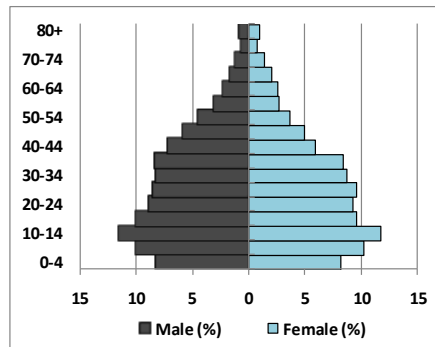


Malda (Rural): 2001

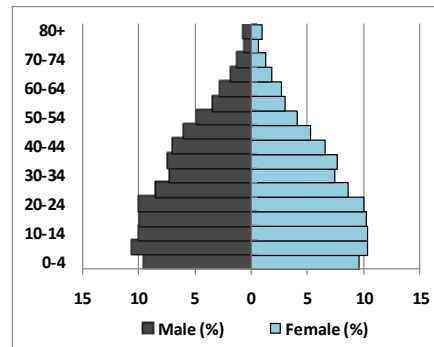


Malda (Rural): 2011

Figure 4.6: Population Pyramids for Malda district (Rural) for 2001 and 2011

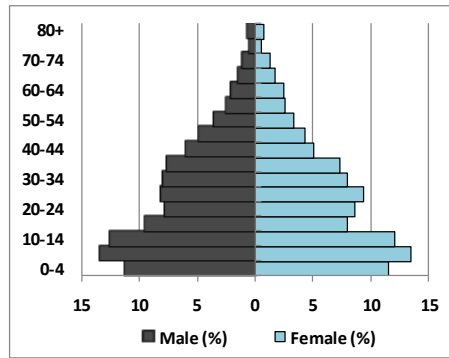


Malda (Urban): 2001

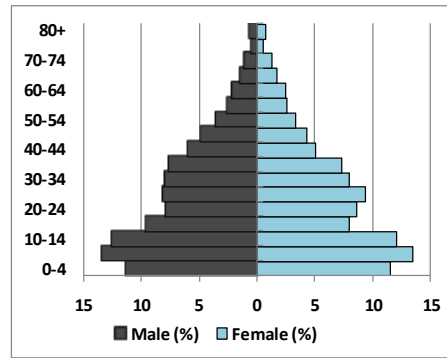


Malda (Urban): 2011

Figure 4.7: Population Pyramids for Malda district (Urban) for 2001 and 2011

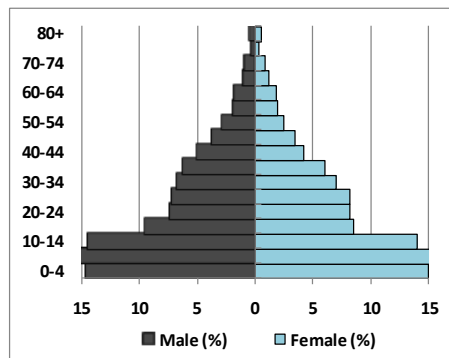


Malda (Hindu): 2001

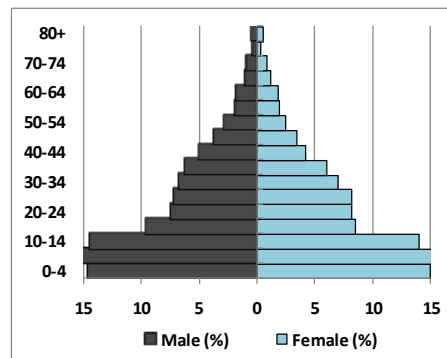


Malda (Hindu): 2011

Figure 4.8: Population Pyramids for Malda district (Hindu) for 2001 and 2011



Malda (Muslim): 2001



Malda (Muslim): 2011

Figure 4.9: Population Pyramids for Malda district (Muslim) for 2001 and 2011

#### 4.4 Ageing in Malda district compared to West Bengal and India

Per cent distribution of population by age groups according to censuses 2001 and 2011 along with per cent decadal growth rate of elderly persons in general and elderly population over 2001–11 among Hindu and Muslim populations in India, West Bengal and Malda district are provided in Table 4.3. For all religious communities, per cent of population aged 0–14 years decreased over 2001–2011, but there were increasing trends in per cent of population for other age-groups. Per cent decadal growth rate of elderly persons in total population over 2001-2011 among Muslim population was lowest. In India, West Bengal and Malda district, comparing Hindu and Muslim populations, (a) per cent of persons in the age group 0-14 years was higher among Muslims than Hindus indicating higher birth rates among Muslims than Hindus, (b) per cent of persons in the age group 15-59 years (normal working age group) was lower among Muslims than Hindus indicating lesser work participation among Muslims than Hindus and (c) per cent of persons in the age group 60+ years (per cent of elderly persons) was lower among Muslims than Hindus. These variations between Hindus and Muslims are very prominent in Malda district.

**Table 4.3. Per cent Distribution of Elderly Population by Age Groups According to Census of India, 2001 and 2011 among Hindu and Muslim Populations in India, West Bengal and Malda District**

	Religion		Age groups (years)						Per Cent Decadal growth rate in	
			0 - 14		15 - 59		60 + (Per cent of elderly)		general population 2001 - 11	elderly population 2001 - 11
			2001	2011	2001	2011	2001	2011		
India	Hindu	Person	34.9	30.2	57.5	60.9	7.6	8.9	16.1	35.3
		Male	35.0	30.7	57.7	60.9	7.3	8.4	15.7	35.1
		Female	34.5	29.8	57.5	60.9	8.0	9.3	16.5	35.6
	Muslim	Person	41.2	36.4	53.0	57.2	5.8	6.4	9.1	39.1
		Male	41.3	36.6	53.1	57.1	5.6	6.3	9.2	39.1
		Female	41.2	36.1	52.9	57.3	5.9	6.6	9.0	39.1
West Bengal	Hindu	Person	30.2	24.4	62.0	66.2	7.8	9.4	23.9	33.0
		Male	30.0	24.3	62.6	66.6	7.4	9.1	26.6	35.8
		Female	30.5	24.4	61.2	65.9	8.3	9.7	21.5	30.4
	Muslim	Person	42.3	34.2	52.7	59.6	5.0	6.1	10.9	47.0
		Male	41.6	34.0	53.5	59.9	4.9	6.0	11.4	48.6
		Female	42.8	34.5	52.0	59.2	5.2	6.2	10.3	45.4
Malda	Hindu	Person	37.1	31.1	56.8	61.7	6.1	7.2	13.2	39.2
		Male	37.1	30.8	57.3	62.4	5.6	6.8	13.4	44.8
		Female	37.2	31.3	56.2	61.1	6.6	7.6	13.0	34.2
	Muslim	Person	45.7	38.8	49.9	55.6	4.4	5.6	10.6	59.9
		Male	45.6	38.5	50.1	55.8	4.3	5.7	11.2	65.3
		Female	45.8	39.0	49.6	55.4	4.6	5.6	9.9	54.5

Source: Census of India, 2001 and 2011(Percentages were computed by researcher)

Per cent of elderly persons in different elderly age-groups among Hindu and Muslim communities in India, West Bengal and Malda district is provided in Table 4.4.

**Table 4.4. Per cent of Elderly in Different Elderly Age-groups Among Hindu and Muslim Communities in India, West Bengal and Malda District**

			60-64	65-69	70-74	75-79	80+	60+
India	Hindu	Person	3.2	2.3	1.6	0.8	1.0	8.9
		Male	3.1	2.1	1.6	0.7	0.9	8.4
		Female	3.3	2.4	1.7	0.8	1.0	9.3
	Muslim	Person	2.4	1.6	1.2	0.5	0.7	6.4
		Male	2.4	1.6	1.1	0.5	0.6	6.3
		Female	2.4	1.7	1.2	0.5	0.8	6.6
West Bengal	Hindu	Person	3.3	2.4	1.7	0.9	1.1	9.4
		Male	3.3	2.3	1.6	0.9	1.0	9.1
		Female	3.3	2.5	1.8	1.0	1.2	9.7
	Muslim	Person	2.3	1.6	1.1	0.5	0.7	6.1
		Male	2.3	1.6	1.0	0.5	0.6	6.0
		Female	2.3	1.6	1.1	0.5	0.7	6.2
Malda	Hindu	Person	2.7	1.8	1.2	0.6	0.7	7.2
		Male	2.7	1.8	1.2	0.5	0.7	6.8
		Female	2.8	2.0	1.3	0.6	0.8	7.6
	Muslim	Person	2.2	1.5	1.0	0.4	0.5	5.6
		Male	2.2	1.5	1.0	0.4	0.5	5.7
		Female	2.2	1.5	1.0	0.4	0.6	5.6

Source: Census of India, 2011(Percentages were computed by researcher)

It is noticeable that per cent of elderly persons is higher among Hindus than Muslims in all elderly age groups, particularly in Malda district. This variation between Hindus and Muslims is very prominent in oldest-old age group (80+ years). It is also noticeable that in India, West Bengal and Malda district, per cent of elderly female was higher than that of elderly male. In India, West Bengal and Malda district; Hindu population was mature, whereas Muslim population was youthful.

Sex ratio of elderly persons and general population among Hindu and Muslim communities in India, West Bengal and Malda district according to census 2011 is provided in Table 4.5. It was observed that in India, West Bengal and Malda district (a) sex ratios of elderly persons and general population of Hindu Community were higher than those of Muslim community and (b) in both Hindu and Muslim communities, (1) sex ratio of elderly persons was higher than that of general population, (2) sex ratio of general population was less than 1000, (3) sex ratio of elderly persons mostly is greater than 1000 indicating elderly females live longer than elderly males.

**Table 4.5. Sex ratio of Elderly and General Population in India, West Bengal and Malda District**

		60-64	65-69	70-74	75-79	80+	60+	All ages
India	Hindu	1016	1048	992	1054	1136	1035	939
	Muslim	961	1009	954	1046	1121	995	951
West Bengal	Hindu	954	1004	1027	1058	1188	1015	948
	Muslim	930	974	1002	1020	1109	979	951
Malda	Hindu	981	1036	1076	1114	1211	1044	936
	Muslim	914	963	943	961	1036	947	952

Source: Census of India, 2011 (Sex ratios were computed by researcher)

Per cent distribution of households with number of elderly persons in Malda district according to census 2011 is provided in Table 4.6. More than 70 per cent households in Malda district did not have any elderly member in the household.

**Table 4.6. Per cent Distribution of Households with Number of Elderly in Malda District**

Number of elderly in household	Total	Rural	Urban
None	75.5	75.9	72.8
1	19.2	18.8	21.5
2	5.2	5.2	5.4
3	0.1	0.1	0.2
4	0.0	0.0	0.0

Source: Census of India, 2011 (Percentages were computed by researcher)

According to Census of India 2011, in both rural and urban areas, per cent of households without any elderly family member in Malda district was higher than those of



India and West Bengal that is because Malda district is Muslim dominated one and its per cent of elderly persons was lesser than those of India and West Bengal.

Per cent distribution of households having elderly head by locality of residence and sex in Malda district according to census 2011 is provided in Table 4.7. Since elderly females are expected to live more years than elderly males, per cent of elderly female heads was almost twice of that of elderly male heads. Nearly 20 per cent of households in Malda district were having elderly heads. According to Census of India 2011, per cent of households having elderly head in Malda district was less than those in India and West Bengal.

**Table 4.7. Per cent Distribution of Households Having Elderly Head by Locality of Residence and Sex in Malda District**

Locality of residence	Sex of elderly head		
	Person	Male	Female
<b>Total</b>	18.0	15.3	37.5
<b>Rural</b>	17.6	15.0	37.2
<b>Urban</b>	20.7	17.6	38.6

Source: Census of India, 2011 (Percentages were computed by researcher)

As per Census of India 2011, in India and West Bengal, per cent of working elderly persons (main worker + marginal worker) among Hindu and Muslim populations is provided in Table 4.8. In case of Hindu population, elderly persons of West Bengal were less in working position than those of India; but in case of Muslim population, per cent of working elderly persons are almost same in India and West Bengal. Elderly persons of rural areas were more in working position than those of urban areas of India and West Bengal. Work participation among Muslim elderly females was very low compared that among Hindu elderly females in India, West Bengal and Malda district.

**Table 4.8. Per cent of Working Elders among Hindu and Muslim Populations in India and West Bengal Locality of Residence and Sex wise**

		Hindu			Muslim		
		Person	Male	Female	Person	Male	Female
<b>India</b>	<b>Total</b>	42.3	60.7	24.6	39.1	62.1	16.0
	<b>Rural</b>	47.7	66.6	29.5	43.8	67.6	19.7
	<b>Urban</b>	28.2	45.2	11.6	31.6	53.2	10.1
<b>West Bengal</b>	<b>Total</b>	29.9	49.0	11.2	39.6	61.9	11.4
	<b>Rural</b>	33.9	56.5	12.8	38.0	64.7	11.1
	<b>Urban</b>	24.2	38.8	8.8	32.8	51.7	12.3

Source: Census of India, 2011 (Percentages were computed by researcher)

As per Census of India 2011, in Malda district, 65.8 per cent of elderly males, 18.0 per cent of elderly females in rural area engaged in economic activity in the capacity of main or marginal worker (occasional worker). In urban areas it was only 47.6 per cent

of elderly males and 12.3 per cent of elderly females engaged in economic activity. Proportion of elderly non-workers in urban areas was remarkably higher than that in rural areas. Per cent of elderly working in Malda district according to Census of India, 2011 is provided in Table 4.9.

**Table 4.9. Per cent of Elderly Working in Malda District**

	Main worker			Marginal worker			Main worker + Marginal worker		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
<b>Total</b>	30.0	51.8	8.3	10.1	11.3	8.9	40.1	63.1	17.2
<b>Rural</b>	30.8	53.5	8.2	11.0	12.3	9.8	41.8	65.8	18.0
<b>Urban</b>	25.5	41.9	8.5	6.7	5.7	3.8	30.2	47.6	12.3

Source: Census of India, 2011 (Percentages were computed by researcher)

Per cent distribution of marital status of elderly persons in Malda district according to Census of India 2011 is provided in Table 4.10. Per cent of currently married elderly males was more than twice that of currently married elderly females. Again per cent of currently married elderly males in Malda district was more than those in India and West Bengal, but per cent of currently married elderly females in Malda district was lesser than those in India.

**Table 4.10. Per cent Distribution of Marital Status of Elderly in Malda District**

	Never married		Currently married		Widowed		Separated		Divorce	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<b>Total</b>	2.1	1.9	86.7	39.3	10.9	58.1	0.3	0.4	0.1	0.3
<b>Rural</b>	2.0	1.8	86.6	39.8	11.1	57.7	0.3	0.4	0.2	0.3
<b>Urban</b>	2.8	2.8	86.8	36.1	10.0	60.3	0.3	0.4	0.1	0.3

Source: Census of India, 2011 (Percentage were computed by researcher)

Distribution of number of disabled persons per 1000 elderly persons in Malda district is provided in Table 4.11.

**Table 4.11. Distribution of Number of Disabled Persons per 1000 Elderly in Malda District According to Locality of Residence**

	Disability Type								
	Total Disabilities	In Seeing	In Hearing	In Speech	In Movement	Mental Retardation	Mental Illness	Any Other	Multiple Disabilities
<b>Total</b>	52	16	8	1	11	2	2	6	7
<b>Rural</b>	54	16	8	1	11	2	2	6	8
<b>Urban</b>	42	12	7	2	9	2	1	5	5

Source: Census of India, 2011 (Numbers were computed by researcher)

Disabilities due to vision and movement were more serious problems for the elderly persons in both rural and urban areas of Malda district. These disabilities of elderly persons were more acute in Malda district than West Bengal as a whole.

Per cent distribution of literacy of elderly persons in India and West Bengal according to sex among Hindu and Muslim communities for the Censuses of India 2001 and 2011 is provided in Table 4.12. There were improvements of literacy among elderly persons over 2001-2011 among Hindu and Muslim communities in India and West Bengal. Among elderly persons of Hindu community, literacy level among elderly persons in West Bengal was much higher than that in India as a whole. But literacy level of elderly persons belonging to Muslim community in West Bengal was lesser than that in India as a whole. Per cent decadal growth rate of literacy among Muslim community was lesser than that among Hindu community; again it was least among Muslim community in West Bengal.

**Table 4.12. Per cent Distribution of Literacy of Elderly in India and West Bengal According to Sex Among Hindu and Muslim Communities**

	Census	Hindu			Muslim		
		Person	Male	Female	Person	Male	Female
India	2001	35.9	53.0	19.4	32.4	48.1	16.6
	2011	43.3	59.4	27.7	38.1	52.6	23.5
	% Decadal growth	64.1	77.8	50.9	52.7	64.2	41.1
West Bengal	2001	52.9	73.3	33.6	31.7	50.6	12.9
	2011	58.5	75.1	42.1	34.4	51.0	17.5
	% Decadal growth	75.5	80.2	70.2	40.1	51.8	27.6

Source: Censuses of India, 2001 and 2011 (Percentages were computed by researcher)

Per cent distribution of literacy of elderly persons in Malda district according to sex for the Censuses of India 2001 and 2011 is provided in Table 4.13. There were significant gaps in the literacy level of elderly persons in Malda district between (a) rural and urban areas and (b) males and females.

**Table 4.13. Per cent Distribution of Literacy of Elderly in Malda District According to Sex**

Census	Total			Rural			Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
2001	28.7	45.5	13.2	24.9	41.8	9.3	63.8	79.7	49.1
2011	30.7	44.5	17.0	26.2	40.3	12.2	56.8	68.0	45.2
% Decadal growth	35.0	42.5	26.1	29.5	36.9	20.8	51.2	59.4	41.7

Source: Censuses of India, 2001 and 2011 (Percentages were computed by researcher)

#### 4.5 Ageing in Malda District on the Basis of Survey Data and Comparisons among Muslim and Non-Muslim Populations in Malda District

Sampling units (s.u) of sampling frame were considered the households having at least one elderly person purposively because our study is based on elderly persons.

Per cent distribution of households with number of elderly persons versus number of households, number of generations of family members and number of elderly generations in the survey households of Malda district are provided in the Table 4.14. Number of elderly persons in the survey households was 1 to 3; it was 1 in most of the households, 3 in some households in rural (less Muslim) area. Number of generations of family members and number of elderly generations were 3 and 1 respectively in most of the households. Number of generations in the households in urban area was at least 2. Per cent of households having exactly 1 elderly person in the households in urban, rural (less Muslim) and rural (more Muslim) areas were 76, 76 and 84 respectively.

**Table 4.14. Per cent Distribution of Households with Number of Elderly, Number of Generations of Family Members and Number of Elderly Generations in Malda District**

Locality of residence	No. of elderly	Household	No. of generations of family members					No. of elderly generations		
			1	2	3	4	Total	1	2	Total
Urban	1	76	0.0	26.3	73.7	0.0	100	100	0.0	100
	2	24	0.0	66.7	33.3	0.0	100	66.7	33.3	100
	Total	100	0.0	36.0	64.0	0.0	100	92.0	8.0	100
Rural (less Muslim)	1	76	26.3	26.3	47.4	0.0	100	100	0.0	100
	2	22	27.3	54.5	18.2	0.0	100	100	0.0	100
	3	2	0.0	0.0	100.0	0.0	100	0.0	100	100
	Total	100	26.3	32.0	42.0	0.0	100	98.0	2.0	100
Rural (more Muslim)	1	84	14.3	21.4	61.9	2.4	100	100	0.0	100
	2	16	0.0	25.0	75.0	0.0	100	100	0.0	100
	Total	100	12.0	22.0	64.0	2.0	100	100	0.0	100

Source: Field Survey

Per cent of households having 1, 2 and 3 generations of family members in urban, rural (less Muslim) and rural (more Muslim) areas were 0.0, 36.0 and 64.0; 26.3, 32.0 and 42.0; 12.0, 22.0 and 64.0 respectively.

Averages along with standard deviations (SD) of household size, number of children born, number of children alive and number of children living with the elderly persons of the sampled elderly in Malda district according to locality of residence is provided in Table 4.15. These averages were higher in both rural areas than those in

urban areas. Again these averages were higher in rural (more Muslim) area than those in rural (less Muslim) area in Malda district.

**Table 4.15. Averages along with SDs of Household Size, Number of Children Born, Number of Children Alive and Number of Children Living with Elderly of Sampled Elderly in Malda District According to Locality of Residence (SDs are provided in brackets)**

Locality of residence	Household size	No. of children born	No. of children alive	No. of children living with elderly
Urban	3.2 (1.7)	2.3 (2.0)	2.3 (1.7)	1.5 (0.7)
Rural (less Muslim)	3.6 (1.5)	3.4 (1.7)	3.4 (1.6)	2.9 (0.6)
Rural (more Muslim)	4.9 (1.7)	4.7 (1.8)	4.2 (1.3)	4.0 (0.5)

Source: Field Survey

It is evident from the above table that birth rate in rural (more Muslim) area were very high compared to those in other areas. Again in respect of number of children living with elderly persons is remarkably high in rural (more Muslim) area compared to other areas.

There are significant differences of averages of household size, number of children born, number of children alive and number of children living with the elderly persons of the sampled elderly between locality of residence in Malda district with p-values <0.001 in all cases.

Living arrangement is an important factor for any human being, particularly for elderly persons. Per cent distribution of living arrangements for the elderly persons according to locality of residences and sex in the households of Malda district is shown in Table 4.16.

**Table 4.16. Per cent Distribution of Living Arrangements of Elderly in Malda District**

Locality of residence	Sex	Living Arrangement				Total
		Alone	With spouse only	With spouse, sons, daughters and/or others	Without spouse, but with sons, daughters and/or others	
Urban	Person	0.0	0.0	48.4	51.6	100
	Male	0.0	0.0	90.0	10.0	100
	Female	0.0	0.0	28.5	71.4	100
Rural (less Muslim)	Person	12.7	14.3	35.5	37.5	100
	Male	0.0	19.2	57.7	23.1	100
	Female	21.6	10.8	21.6	46.0	100
Rural (more Muslim)	Person	8.5	1.7	49.1	40.7	100
	Male	4.2	4.2	83.3	8.3	100
	Female	11.4	0.0	25.7	62.9	100

Source: Field Survey

Per cent of elderly persons living alone or with spouse only was very limited particularly for elderly males in all the locality of residences. 21.6 and 11.4 percent of elderly females lived alone in rural (less Muslim) and rural (more Muslim) areas respectively (those elderly females were beggars). Living arrangements of majority of elderly males were with spouses, sons, daughters and/or others which were very high compared to those for elderly females in all the locality of residences. In case of rural (less Muslim) area in Malda district, 10 to 20 per cent of elderly persons of both the sex were living with spouse only, even though some of them had children. Living arrangements of majority of elderly males were with spouses, sons, daughters and/or others which were very high compared to those for elderly females in all the locality of residences. Reasons behind those facts were elderly females were living more years than elderly males and were becoming widows.

Per cent distribution of households with number of elderly persons versus number of dependent elderly persons, number of working elderly persons; households having elderly persons as head of household in the households in Malda district are presented in Table 4.17. Per cent of dependent elderly persons in the households were more in rural (more Muslim) area than that in rural (less Muslim) area. Per cent of working elderly persons in urban area was less than in both the rural areas. Percentages of elderly heads were 28.0, 54.0 and 48.0 in urban, rural (less Muslim) and rural (more Muslim) areas respectively. Per cent of sampled households having at least one dependent elderly person were more 50 and that figures 68, 64 and 52 in rural (more Muslim), urban and rural (less Muslim) areas respectively.

**Table 4.17. Per cent Distribution of Households with Number of Elderly versus Number of Dependent elderly, Number of Working Elderly etc in Malda District**

Locality of residence	No. of elders	No. of dependent elderly				No. of working elderly			Elderly head
		0	1	2	Total	0	1	Total	
Urban	1	47.4	52.6	0.0	100	78.9	21.1	100	21.1
	2	0.0	100	0.0	100	50.0	50.0	100	50.0
	<b>Total</b>	36.0	64.0	0.0	100	72.0	28.0	100	28.0
Rural (less Muslim)	1	63.2	36.8	0.0	100	73.7	26.3	100	39.5
	2	0.0	90.9	9.1	100	27.3	72.7	100	100
	3	0.0	0.0	100	100	0.0	100	100	100
	<b>Total</b>	48.0	48.0	4.0	100	62.0	38.0	100	54.0
Rural (more Muslim)	1	38.1	59.5	2.4	100	66.7	33.3	100	38.1
	2	0.0	87.5	12.5	100	37.5	62.5	100	100
	<b>Total</b>	32.0	64.0	4.0	100	62.0	38.0	100	48.0

Source: Field Survey

Per cent of working elderly persons were 28, 38 and 38 in urban, rural (less Muslim) and rural (more Muslim) respectively. Again per cent of elderly head in the households were 28, 54 and 48 in urban, rural (less Muslim) and rural (More Muslim) areas respectively.

Per cent of elderly persons aged 60-69, 70-79 and 80+; currently married; dependent; having dependants; head of the households; involved in day-to-day purchase, big purchase, and decision-making activities of the household; having immovable property; having liquid asset; presently working and/or pension holders among elderly persons according to locality of residence and sex in Malda district are presented in Table 4.18.

Elderly persons of rural (more Muslim) area were more dependent; having less dependants; less being head of household; less involved in day-to-day purchases and other activities, big purchases; decision-making of family; having more immovable property, liquid asset; and less presently working and/or pension holders than those of elderly person of rural (less Muslim) area.

Localities of residence were not homogeneous regarding involvement of elderly members in day-to-day purchases of the households (p-value < 0.001). Elderly males and females of the localities of residence were not homogeneous regarding involvement of elderly members in day-to-day purchases of the households, p-value < 0.001 in each case.

**Table 4.18. Per cent Distribution of Elderly Aged 60-69, 70-79 and 80+ with Various Attributes in Malda District**

Locality of residence	Sex	% among elderly			Currently married	Dependent	Having dependants	Head of household	Involved in household for			Having immovable property	Having liquid asset	Earning and/or pension holder
		60-69	70-79	80+					Day-to-day purchase	Big purchase	Decision-making activities			
Urban	Person	67.7	25.8	6.5	48.4	54.8	29.0	22.6	25.8	29.0	35.5	74.2	96.8	41.9
	Male	70.0	20.0	10.0	90.0	0.0	80.0	60.0	70.0	65.9	68.9	100	100	90.0
	Female	66.7	28.6	4.8	28.6	81.0	4.8	4.8	14.8	19.4	29.6	61.9	95.2	19.0
Rural (less Muslim)	Person	61.9	30.2	7.9	52.4	49.2	33.3	42.9	54.0	50.8	60.3	87.3	93.7	52.4
	Male	66.7	25.0	8.3	87.5	8.3	12.5	87.5	92.3	88.5	92.2	95.8	100	91.7
	Female	59.0	33.3	7.7	30.8	74.4	100	15.4	27.0	24.3	36.2	82.1	89.7	28.2
Rural (more Muslim)	Person	71.2	25.4	3.4	50.8	63.8	31.0	40.7	45.8	47.5	52.9	100	98.3	39.0
	Male	79.2	16.7	4.2	87.5	25.0	29.2	91.7	87.5	87.5	85.2	100	100	79.2
	Female	65.7	31.4	2.9	25.7	91.2	2.9	5.7	21.1	21.4	32.6	100	97.1	11.4

Source: Field Survey

Localities of residence were not homogeneous regarding involvement of elderly members in big purchases of the households (p-value < 0.001). Elderly males and females of the localities of residence were not homogeneous regarding involvement of elderly members in big purchases of the households, p-value < 0.001 in each case.

Localities of residence were not homogeneous regarding involvement of elderly members in decision-making of the households (p-value = 0.006). Elderly males and females of the localities of residence were not homogeneous regarding involvement of elderly members in decision-making of the households, p-value = 0.009 in case of urban area, p-value < 0.001 in rural (less Muslim) and rural (more Muslim) areas.

To study the share of financial contribution of the elderly members to the their respective households of the households in Malda district, Table 4.19 presents the percent distribution of the households according to locality of residence, total households monthly income and monthly income (including pension, if any) of the elderly persons of the respective households. It was evident from the following table that the financial contributions of the elderly persons to their respective households were negligible. Percent of elderly persons with no contribution to their respective households were 32, 30 and 52 in urban, rural (less Muslim) and rural (more Muslim) areas respectively. Total household monthly income and monthly income (including pension, if any) of the elderly persons were not associated within and between localities of residences.

**Table 4.19. Per cent Distribution of Households According to Household Monthly Income and Monthly Income (including pension, if any) of Elderly in Malda District**

Locality of residence	Household monthly income (in Rs)	Monthly income (in Rs) (including pension, if any) of elderly			Total
		Nil	1 – 10,000	10,001 and above	
Urban	1 – 15,000	16	20	4	40
	15,001 – 30,000	16	20	8	44
	30,001 and above	0	12	4	16
	<b>Total</b>	32	52	16	100
Rural (less Muslim)	1 – 15,000	24	34	6	64
	15,001 – 30,000	6	8	6	20
	30,001 and above	0	6	10	16
	<b>Total</b>	30	48	22	100
Rural (more Muslim)	1 – 15,000	46	32	2	80
	15,001 – 30,000	6	2	8	16
	30,001 and above	0	0	4	4
	<b>Total</b>	52	34	14	100

Source: Field survey

Regarding the financial supports for the elderly persons from kin (not family members) of the households of Malda District, Table 4.20 provides the percent



distribution of elderly persons enjoyed that supports according to locality of residence and sex.

**Table 4.20. Per cent Distribution of Elderly Financially Supported by Kin (Not Household Member) in Malda District**

Locality of residence	Sex	Financial support from kin (not household member)		Total
		Yes	No/Does not arise	
Urban	Person	25.8	74.2	100
	Male	10.0	90.0	100
	Female	38.1	61.9	100
Rural (less Muslim)	Person	40.3	59.7	100
	Male	34.6	65.4	100
	Female	44.4	55.6	100
Rural (more Muslim)	Person	15.3	84.7	100
	Male	8.3	91.7	100
	Female	20.0	80.0	100

Source: Field survey

Elderly males and females of all localities of residence were homogeneous regarding financial supports from sons, daughters, brothers and relatives (not household members), but localities of residence were not homogeneous regarding outside financial support (p-value = 0.008). Female elderly were mostly to get outside financial supports than male elderly in all localities of residence.

Regarding beneficiary covered under National Old Age Pension Scheme (NOAPS), only a negligible portion of elderly females of the households of Malda district were covered under the said scheme and the amount of money provided to them were very small (Rs 400 monthly). Percent distribution of elderly females in the households of Malda district covered under National Old Age Pension Scheme is presented in Table 4.21.

**Table 4.21. Per cent Distribution of Elderly Females Covered under NOAPS in Malda District**

Locality of residence	Percent covered under NOAPS out of elderly females	Percent covered under NOAPS out of elderly persons
Urban	14.3	9.7
Rural (less Muslim)	18.9	11.1
Rural (more Muslim)	14.3	8.5

Source: Field survey

Regarding economic security of the elderly persons of Malda district, Table 4.22 provides the percent distribution of the elderly persons (a) capable of spending money for buying clothes, foods, medicines etc for them or toys for their grandchildren, (b) getting

sufficient food and clothes, they needed and (c) getting sufficient medicines and health care whenever they needed according to locality of residence and sex.

**Table 4.22. Per cent Distribution of Elderly Getting Necessities of Life in Malda district**

Locality of residence	Sex	Capable of spending money for buying	Getting sufficient food and clothes	Getting sufficient medicines and health care
Urban	Person	38.7	90.3	64.5
	Male	40.0	90.0	80.0
	Female	38.1	90.5	57.1
Rural (less Muslim)	Person	30.2	69.8	61.9
	Male	57.7	84.6	80.8
	Female	10.8	59.5	48.6
Rural (more Muslim)	Person	18.6	64.4	42.4
	Male	37.5	79.2	58.3
	Female	5.7	54.3	31.4

Source: Field survey

Per cent of elderly persons capable of spending money for buying in urban, rural (less Muslim) and rural (more Muslim) areas were 38.7, 30.2 and 18.6 respectively. Per cent of elderly persons getting sufficient food and clothes in urban, rural (less Muslim) and rural (more Muslim) areas were 90.3, 69.8 and 64.4 respectively.

Per cent of elderly persons getting sufficient medicines and health care in urban, rural (less Muslim) and rural (more Muslim) areas were 64.5, 61.9 and 42.4 respectively. Therefore elderly persons in rural (more Muslim) area are in the worst conditions among others in respects of capable of spending money for buying, getting sufficient food and clothes and getting sufficient medicines and health care. Reason behind the same is that the economic condition of Muslims are worst compared to others.

The determinants of social, economic and health conditions of people are age, gender, marital status, locality of residence, working status and possessing movable and immovable assets. Generally females (particularly elderly females) are less favourably treated than elderly males in the society.

Elderly males and females of urban areas were homogeneous in respect of (a) having capabilities of spending money for buying, (b) getting sufficient food and clothes and (c) getting sufficient medicines and health care. Elderly males and females of rural (less Muslim) and rural (more Muslim) areas were not homogeneous regarding capability of spending money for buying by elderly with respective p-values < 0.001 and 0.002. Both elderly males and females of rural (more Muslim) areas had less capabilities in respect of capable of spending money for buying compared to those of urban and rural

(less Muslim) areas. Elderly males and females of rural (less Muslim) and rural (more Muslim) areas were not homogeneous regarding getting sufficient food and clothes by elderly persons with respective p-values 0.032 and 0.050. Elderly males and females of rural (less Muslim) and rural (more Muslim) areas were not homogeneous regarding getting sufficient medicines and health care by elderly persons with respective p-values 0.010 and 0.040. Localities of residence in Malda district were not homogeneous in respect of (a) having capabilities of spending money for buying, (b) getting sufficient food and clothes and (c) getting sufficient medicines and health care with respective p-values 0.042, 0.031 and 0.046.

Regarding the physical mobility, hospitalization during last one year and feeling depressed of the elderly persons in the households in Malda district, findings are presented in Table 4.23. Per cent of elderly persons felt depressed in urban, rural (less Muslim) and rural (more Muslim) areas were 41.9, 57.1 and 49.2 respectively. Per cent of elderly persons mobile in urban, rural (less Muslim) and rural (more Muslim) areas were 90.3, 84.1 and 83.1 respectively. Per cent of elderly persons hospitalized in urban, rural (less Muslim) and rural (more Muslim) areas were 16.1, 17.5 and 6.8 respectively. Elderly females were more depressed than others. Very least percent of elderly persons were confined to bed. Regarding hospitalization during last year of elderly, elderly males and females of all localities of residence and localities of residence are homogeneous in this respect. Elderly males of urban area and elderly of all sex of rural (more Muslim) area were least hospitalized during last one year.

**Table 4.23. Per cent Distribution of Elderly Regarding Their (a) Physical Mobility, (b) Hospitalization during Last One Year, (c) Depression in Malda District**

Locality of residence	Sex	Degree of physical mobility				Hospitalization during last one year	Felt depressed
		Mobile	Confined to bed	Confined to house & others	Total		
Urban	Person	90.3	3.2	6.5	100	16.1	41.9
	Male	80.0	0.0	20.0	100	0.0	30.0
	Female	95.2	4.8	0.0	100	23.8	47.6
Rural (less Muslim)	Person	84.1	0.0	15.9	100	17.5	57.1
	Male	88.5	0.0	11.5	100	15.4	38.5
	Female	81.1	0.0	18.9	100	18.9	70.3
Rural (more Muslim)	Person	83.1	5.1	11.8	100	6.8	49.2
	Male	91.7	4.2	4.1	100	8.3	33.3
	Female	77.2	5.7	17.1	100	5.7	60.0

Source: Field survey

Regarding feeling depressed among the elderly members of the household of Malda district, elderly males and females in urban area are homogeneous, but those in rural (Less Muslim) and rural (more Muslim) areas were not homogeneous and respective

p-values are 0.012 and 0.044. Localities of residence of Malda district were homogeneous in this respect. A significant per cent of elderly persons felt depressed. Regarding degree of physical mobility of elderly persons, elderly males and females of urban areas were not homogeneous (p-value = 0.088), but those of rural (less Muslim) and rural (more Muslim) were homogeneous in this respect, localities of residence were also homogeneous in this respect. Per cent of elderly females of rural (more Muslim) area were less mobile and more confined to bed than others.

Per cent distribution of elderly members of the households in Malda district associated with (a) cultural activities of their localities, (b) any religious organizations/associations and (c) any political activities according to locality of residence and sex wise are presented in Table 4.24. Elderly females of urban areas were more associated with (a) different activities including cultural of their localities, (b) any religious organizations/associations than elderly males, but the reverse was in case of association with any political activities.

**Table 4.24. Per cent Distribution of Elderly Associated with Cultural Activities, Religious Organizations/Associations and Political Activities in Malda District**

Locality of residence		Associated with cultural activities	Associated with religious organizations/ associations	Associated with political activities
Urban	Person	22.6	48.4	29.0
	Male	10.0	20.0	50.0
	Female	28.6	61.9	19.0
Rural (less Muslim)	Person	12.7	33.3	11.1
	Male	15.4	38.5	19.2
	Female	10.8	29.7	5.4
Rural (more Muslim)	Person	10.2	45.8	13.6
	Male	25.0	70.8	29.2
	Female	0.0	28.6	2.9

Source: Field survey

Per cent of elderly persons associated with cultural activities in urban, rural (less Muslim) and rural (more Muslim) areas were 22.6, 12.7 and 10.2 respectively. Per cent of elderly persons associated with religious organizations/associations in urban, rural (less Muslim) and rural (more Muslim) areas were 48.4, 33.3 and 45.8 respectively. Per cent of elderly persons associated with political activities in urban, rural (less Muslim) and rural (more Muslim) areas were 29.0, 11.1 and 13.6 respectively. Elderly females (particularly elderly females in rural (more Muslim)) area were less associated in political activities than elderly males. Elderly females (particularly elderly females in rural (more Muslim)) were less associated in cultural activities, religious organizations/associations than elderly males except elderly females in urban areas.

In case of association with different activities including cultural of localities of the elderly persons, elderly males and females of urban, rural (less Muslim) areas are homogeneous,

but those of rural (more Muslim) area are not homogeneous in this respect (p-value = 0.002). Localities of residence are also homogeneous in this respect.

In case of association with any religious organizations/associations of the elderly persons, elderly males and females of rural (less Muslim) area are homogeneous, but those of urban and rural (more Muslim) areas are not homogeneous in this respect with respective p-values 0.029 and < 0.001. Localities of residence are also homogeneous in this respect.

In case of association with any political activities of the elderly persons, elderly males and females of rural (less Muslim) area are homogeneous, but those of urban and rural (more Muslim) areas are not homogeneous with respective p-values 0.076 and 0.004. Localities of residence are not homogeneous in this respect (p-value = 0.068).

Percent distribution of elderly persons in the households of Malda district with their general feelings about their feeling lonely, health etc on the basis of locality of residence and sex are presented in Table 4.25.

**Table 4.25. Per cent Distribution of Elderly with Their General Feelings in Malda district**

Locality of residence	Sex	General feelings								
		Loneliness	Health not good	Children not stay with them	Children not visit often	Nobody to help	Nobody to prepare food	Afraid of thieves	Not able to move around	Nobody to help when felt sick
Urban	Person	25.8	64.5	6.5	6.7	12.9	16.1	0.0	0.0	9.7
	Male	20.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
	Female	28.6	81.0	9.5	9.5	19.0	23.8	0.0	0.0	9.5
Rural (less Muslim)	Person	46.8	41.3	31.7	31.7	31.7	30.2	19.0	11.1	33.3
	Male	34.8	33.3	16.7	20.8	12.5	16.7	8.3	4.2	20.8
	Female	53.8	46.2	41.0	38.5	43.6	38.5	25.6	15.4	41.0
Rural (more Muslim)	Person	23.7	30.5	6.8	6.8	15.3	10.2	0.0	6.8	13.6
	Male	20.8	16.7	0.0	0.0	8.3	8.3	0.0	0.0	8.3
	Female	25.7	40.0	11.4	11.4	20.0	11.4	0.0	11.4	17.1

Source: Field survey

Regarding different general feelings of the elderly persons of Malda district like (a) loneliness, (b) unhealthy, (c) children not stay with them, (d) children not visit often, (e) nobody to help, (f) nobody to prepare food, (g) afraid of thieves and (h) nobody to help when felt sick; localities of residence were not homogeneous with respective p-values 0.016, < 0.001, < 0.001, < 0.001, 0.036, 0.018, < 0.001 and 0.006. Localities of residence were homogeneous regarding the feeling that not able to move around of the elderly of the Malda district.

Elderly persons of the households of Madla district expressed their views whether children were the main support for the parents at old ages and the findings of the same are presented in Table 4.26.

**Table 4.26. Per cent Distribution of Elderly in Opining Children Being Main Support for Parents at Elderly Age in Malda District**

Locality of residence	Children being main support at elderly age		
	Person	Male	Female
Urban	74.2	60.0	81.0
Rural (less Muslim)	39.7	30.8	45.9
Rural (more Muslim)	39.0	45.8	34.3

Source: Field survey

Regarding the opinion that children being the main support at elderly age by elderly persons of Malda district; localities of residence are not homogeneous (p-value = 0.002), but elderly males and females of all the localities of residence are homogenous in this respect.

Regarding fulfillment of expectations in life by the elderly persons, the Table 4.27 presents the degree of fulfillment of expectations in life by the elderly persons according to locality of residence and sex in Malda district.

**Table 4.27. Per cent Distribution of Elderly with Degree of Fulfillment of their Expectation in Life in Malda District**

Locality of residence	Sex	Less or something	Much or everything	Total
Urban	Person	71.0	29.0	100
	Male	80.0	20.0	100
	Female	66.7	33.3	100
Rural (less Muslim)	Person	73.0	27.0	100
	Male	50.0	50.0	100
	Female	89.2	10.0	100
Rural (more Muslim)	Person	86.4	13.6	100
	Male	79.2	20.8	100
	Female	91.4	8.6	100

Source: Field survey

Regarding fulfillment of expectation in life by the elderly persons, elderly males and females of urban and rural (more Muslim) areas of Malda district are homogeneous, but those of rural (less Muslim) are not homogeneous in this respect (p-value < 0.001). In rural areas, the degree of fulfillment of expectation in life by the elderly females was very less than the elderly males, but the reverse was in case of urban area because females of rural areas were less secured than those of rural areas. Localities of residence are not homogeneous in this respect (p-value = 0.020).

Binary (Binomial) logistic regression analysis is often used to deal with dichotomous dependent variable and is a reformulated multiple regression model in which the predicted variable can only take the value of one (possessing/belonging/happening) and zero (not possessing/belonging/happening). Further, the independent variables can be categorical or interval or a combination of the two. This method has been used in demographic and other types of research.

The determinants of the vital attributes for securities of elderly persons (a) health status; (b) being head of household; (c) involvement in day-to-day purchase of the household, big purchase like land, house, car etc of the household, decision-making of the family and (d) feeling depressed of the elderly persons were studied with the help of binary logistic regression analysis. Attempts have been made to formulate some binary logistic regression equation on the basis of the survey data on the elderly persons of the sampled households of Malda district.

Odds ratio = chance of happening/chance of not happening

Chance of happening=odds ratio / (1 + odds ratio), Odds ratio lies between 0 to  $\infty$ .

For the binary logistic regression, we have converted the categories of the categorical variables (a) 'education' into a dichotomous categorical variable having the categories (i) Less educated consists of categories illiterate, primary and (ii) Educated consists of categories secondary and above and (b) 'past occupation' into a dichotomous categorical variable having the categories (i) Less earning past occupation consists of unemployed, cultivation, labourer, priest, beggar and housewife and (ii) more earning past occupation consists of other categories of past occupation. Family size is denoted as fs.

Substituting appropriate values of independent variables (variables on right hand side of equation for odds ratio), the value of odds ratio may be calculated. After calculation of odds ratio, the chance of happening/belongingness may be calculated. If the chance of happening/belongingness be greater than or equal to 0.5, it may be said that individual belongs to the concerned category, otherwise not.

Feeling that "Health is not good" is a great source of dissatisfaction and depression of elderly persons. Table 4.28 provides the results of binary logistic regression used to assess the general feeling of the elderly persons that "Health is not good" in Malda district.

**Table 4.28. Binary Logistic Regression used to Assess General Feeling of Elderly that “Health not good” in Malda District**

Determinant (with compared category)	B	P-value	Exp(B) (Odds ratio)	Reference category
<b>Locality of residence</b>				
Rural(less Muslim) (t1=1, t2=0)	-1.662	0.005	0.190	Urban
Rural(more Muslim) (t1=0, t2=1)	-2.403	<0.001	0.085	(t1=0, t2=0)
Sex (Female) (s=1)	0.643	0.352	1.902	Male (s=0)
Family size	-0.023	0.656	0.977	
Education (Less educated) (e=1)	0.858	0.175	2.359	Educated (e=0)
Past occupation (Less earning occupation) (p=1)	0.050	0.678	1.051	More earning occupation (p=0)
Age (in years)	0.142	<0.001	1.152	
Feeling nobody to help when sick(Yes) (f=1)	0.623	0.279	1.864	No (f=0)
Marital status(Not currently married) (m=1)	0.038	0.701	1.039	Currently Married (m=0)
Possessing immovable asset (No) (i=1)	0.032	0.457	1.033	Yes (i=0)
Possessing liquid asset (No) (l=1)	0.283	0.701	1.327	Yes (l=0)
Working and/or pension holder (No) (w=1)	0.046	0.531	1.047	Yes (w=0)
Constant	-5.001	0.002	0.007	
Overall percentage of correct prediction : 75.2 Nagelkerke R Square : 0.356 Hosmer and Lameshow test for goodness of fit : Good (P-value=0.323)				

Source: Field survey

In this context, significant determinants are locality of residence (Rural (less Muslim)/ Rural (more Muslim)) (negatively related) and age (positively related). Insignificant (not prominent/important) determinants for elderly persons in this context are family size (negatively related), education (Less educated), past occupation (Less earning occupation), sex (Female), feeling nobody to help when sick (Yes), marital status (Not currently married), possessing immovable asset (No), possessing liquid asset (No), working and/or pension holder (No) (positively related).

Odds ratio for “Health not good”

$$= 0.007 \times 0.190^{t1} \times 0.085^{t2} \times 1.902^s \times 0.977^{fs} \times 2.359^e \times 1.051^p \times 1.152^{age} \times 1.864^f \times 1.039^m \times 1.033^i \times 1.327^l \times 1.047^w$$

Being a head of household is an indication of satisfaction of the elderly persons living in the household. Table 4.29 provides the results of binary logistic regression to determine whether the elderly persons being “Head of household” in Malda district. In this context, significant determinants are locality of residence (Rural (less Muslim)/ Rural (more Muslim)), sex (Male), working and/or pension holder (Yes) (positively related) and age (negatively related). Insignificant (not prominent/important) determinants for elderly in this context are family size (negatively related), education (Educated), past occupation (More earning occupation), marital status (Currently married), possessing immovable asset (Yes), liquid asset (Yes) (positively related).



**Table 4.29. Binary Logistic Regression used to Determine Whether Elderly being “Head of household” in Malda District**

Determinant(with compared category)	B	P-value	Exp(B) (Odds ratio)	Reference category
<b>Locality of residence</b>				
(a)Rural(less Muslim)(t1=1,t2=0)	1.678	0.048	5.355	Urban Area (t1=0, t2=0)
(b)Rural(more Muslim)(t1=0,t2=1)	1.567	0.042	4.792	
<b>Sex (Male) (s=1)</b>	3.690	<0.001	40.042	Female (s=0)
<b>Family size</b>	-0.234	0.260	0.791	
<b>Education (Educated) (e=1)</b>	0.213	0.678	1.237	Less educated (e=0)
<b>Past occupation (More earning occupation) (p=1)</b>	0.923	0.434	2.517	Less earning occupation (p=0)
<b>Age (in years)</b>	-0.154	0.018	0.857	
<b>Marital Status(Currently married) (m=1)</b>	0.069	0.662	1.071	Not currently married (m=0)
<b>Possessing immovable asset(Yes)(i=1)</b>	2.756	0.174	15.740	No (i=0)
<b>Possessing liquid asset(Yes)(l=1)</b>	0.167	0.421	1.182	No (l=0)
<b>Working and/or pension holder(Yes) (w=1)</b>	2.732	<0.001	15.366	No (w=0)
<b>Constant</b>	5.758	0.215	316.677	
Overall percentage of correct prediction : 90.2 Nagelkerke R Square : 0.769 Hosmer and Lameshow test for goodness of fit : Good (P-value=0.868)				

Source: Field survey

Odds ratio for ‘Head of household’

$$= 316.677 \times 5.355^{t1} \times 4.792^{t2} \times 40.042^s \times 0.791^{fs} \times 1.237^e \times 2.517^p \times 0.857^{age} \times 1.071^m \times 15.740^i \times 1.182^l \times 15.366^w$$

Involvement of the elderly person in the household activities is a prominent indicator for their satisfactions. Table 4.30 provides the results of binary logistic regression to determine whether the elderly person being “Involved in day-to-day purchases of household and other activities of household” in Malda district. In this context, significant determinants are locality of residence (Rural (less Muslim)/ Rural (more Muslim)), sex (Male), working and/or pension holder (Yes) (positively related) and age (negatively related). Insignificant (not prominent/important) determinants for elderly in this context are family size (negatively related), education (Educated), past occupation (More earning occupation), marital status (Currently married), possessing immovable asset (Yes), possessing liquid asset (Yes), health not good (No) (positively related).

**Table 4.30. Binary Logistic Regression used to Determine Whether Elderly being “Involved in day-to-day purchase & other activities of household” in Malda District**

Determinant(with compared category)	B	P-value	Exp(B) (Odds ratio)	Reference category
<b>Locality of residence</b>				
Rural (less Muslim)(t1=1, t2=0)	2.691	0.016	14.750	Urban Area (t1=0, t2=0)
Rural (more Muslim)(t1=0,t2=1)	2.296	0.046	9.934	
Sex (Male)(s=1)	3.309	<0.001	27.368	Female(s=1)
Family size	-0.183	0.422	0.833	
Education (Educated) (e=1)	0.201	0.677	1.223	Less educated (e=0)
Past occupation (More earning occupation) (p=1)	0.757	0.457	2.132	Less earning occupation (p=0)
Age (in years)	-0.170	0.014	0.844	
Marital status (Currently married)(m=1)	0.048	0.421	1.049	Not currently married(m=0)
Possessing immovable asset (Yes)(i=1)	2.643	0.179	14.058	No(i=0)
Possessing liquid asset (Yes)(l=1)	0.119	0.210	1.126	No(l=0)
Working and/or pension holder (Yes)(w=1)	2.470	<0.001	11.827	No(w=0)
Health not good (No)(h=1)	0.174	0.699	1.190	Yes(h=0)
Constant	4.591	0.087	98.593	
Overall percentage of correct prediction : 90.4 Nagelkerke R Square : 0.776 Hosmer and Lameshow test for goodness of fit : Good (P-value= 0.557)				

Source: Field survey

Odds ratio for ‘Involved in day-to-day purchase & other activities of household’  
 $= 98.593 \times 14.750^{t1} \times 9.934^{t2} \times 27.368^s \times 0.833^{fs} \times 1.223^e \times 2.132^p \times 0.844^{age} \times 1.049^m \times 14.058^i \times 1.126^l \times 11.827^w \times 1.190^h$

Another involvement of the elderly person in the household activities is their involvement in big purchases like land, house, car etc of the household Table 4.31 provides the results of binary logistic regression to determine whether the elderly person being “Involved in big purchase like land, house, car etc of household” in Malda district. In this context, significant determinants are locality of residence (Rural (less Muslim)/ Rural (more Muslim)), sex (Male), working and/or pension holder (Yes) (positively related) and age (negatively related). Insignificant (not prominent/important) determinants for elderly persons in this context are family size (negatively related), education (Educated), past occupation (More earning occupation), marital status (Currently married), possessing immovable asset (Yes), possessing liquid asset (Yes), health not good (No) (positively related).

**Table 4.31. Binary Logistic Regression used to Determine Whether Elderly being “Involved in big purchase like land, house, car etc of household” in Malda District**

Determinant(with compared category)	B	P-value	Exp(B) (Odds ratio)	Reference category
<b>Locality of residence</b>				
<b>Rural (less Muslim)(t1=1,t2=0)</b>	1.558	0.049	4.749	Urban Area (t1=0,t2=0)
<b>Rural (more Muslim)(t1=0,t2=1)</b>	1.509	0.046	4.522	
<b>Sex (Male)(s=1)</b>	2.634	0.003	13.934	Female(s=0)
<b>Family size</b>	-0.254	0.192	0.776	
<b>Education (Educated) (e=1)</b>	0.168	0.254	1.829	Less educated (e=0)
<b>Past occupation (More earning occupation) (p=1)</b>	0.690	0.467	1.994	Less earning occupation (p=0)
<b>Age (in years)</b>	-0.115	0.044	0.892	
<b>Marital status (Currently married)(m=1)</b>	0.052	0.355	1.053	Not currently married(m=0)
<b>Possessing immovable asset (Yes)(i=1)</b>	1.979	0.219	7.237	No(i=0)
<b>Possessing liquid asset (Yes)(l=1)</b>	0.321	0.456	1.379	No(l=0)
<b>Working and/or pension holder (Yes)(w=1)</b>	2.045	0.002	7.728	No(w=0)
<b>Health not good (No)(h=1)</b>	0.089	0.391	1.093	Yes(h=0)
<b>Constant</b>	4.144	0.317	63.023	
Overall percentage of correct prediction : 89.0 Nagelkerke R Square : 0.697 Hosmer and Lameshow test for goodness of fit : Good (P-Value=0.129)				

Source: Field survey

Odds ratio for ‘Involved in big purchase like land, house, car etc of household’

$$= 63.023 \times 4.749^{t1} \times 4.522^{t2} \times 13.934^s \times 0.776^{fs} \times 1.829^e \times 1.994^p \times 0.892^{age} \times 1.053^m \times 7.237^i \times 1.379^l \times 7.728^w \times 1.093^h$$

Involvement in decision-making in the household of the elderly persons is also a major source of satisfactions of the elderly. Table 4.32 provides the results of binary logistic regression to determine whether the elderly person being “Involved in decision-making activities of household” in Malda district. In this context, significant determinants are locality of residence (Rural (less Muslim)/ Rural (more Muslim)), sex (Male), working and/or pension holder (Yes) (positively related) and age (negatively related); Insignificant (not prominent/important) determinants for elderly persons in this context are family size (negatively related), education (Educated), past occupation (More earning occupation), marital status (Currently married), possessing immovable asset (Yes), possessing liquid asset (Yes), health not good (No) (positively related).

**Table 4.32. Binary Logistic Regression used to Determine Whether Elderly being “Involved in decision-making activities of household” in Malda District**

Determinant(with compared category)	B	P-value	Exp(B) (Odds ratio)	Reference category
<b>Locality of residence</b>				
<b>Rural (less Muslim)(t1=1,t2=0)</b>	1.526	0.029	4.598	Urban Area (t1=0,t2=0)
<b>(b) Rural (more Muslim)(t1=0,t2=1)</b>	1.352	0.048	3.867	
<b>Sex (Male)(s=1)</b>	2.365	0.004	10.648	Female(s=0)
<b>Family size</b>	-0.053	0.678	0.951	
<b>Education (Educated) (e=1)</b>	0.021	0.689	1.021	Less educated (e=0)
<b>Past occupation (More earning occupation) (p=1)</b>	0.546	0.548	1.726	Less earning occupation (p=0)
<b>Age (in years)</b>	-0.122	0.009	0.885	
<b>Marital status (Currently married)(m=1)</b>	0.045	0.378	1.046	Not currently married(m=0)
<b>Possessing immovable asset (Yes)(i=1)</b>	0.669	0.525	1.953	No(i=0)
<b>Possessing liquid asset (Yes)(l=1)</b>	0.082	0.322	1.085	No(l=0)
<b>Working and/or pension holder (Yes)(w=1)</b>	2.121	0.002	8.335	No(w=0)
<b>Health not good (No)(h=1)</b>	0.051	0.425	1.052	Yes(h=0)
<b>Constant</b>	5.235	0.181	187.729	
Overall percentage of correct prediction : 85.1 Nagelkerke R Square : 0.563 Hosmer and Lameshow test for goodness of fit : Good (P-Value=0.297)				

Source: Field survey

Odds ratio for ‘Involved in decision-making activities of household’

$$= 187.729 \times 4.598^{t1} \times 3.867^{t2} \times 10.648^s \times 0.951^{fs} \times 1.021^e \times 1.726^p \times 0.885^{age} \times 1.046^m \times 1.953^i \times 1.085^l \times 8.335^w \times 1.052^h$$

Feeling depressed by the elderly persons is a great dissatisfaction among them. Table 4.33 provides the results of binary logistic regression to determine whether the elderly person “Feeling depressed” in Malda district. In this context, significant determinants are locality of residence (Rural (Less Muslim)/ Rural (More Muslim)), past occupation (Less earning occupation), age, possessing immovable asset (No), health not good (Yes) (positively related), family size (negatively related); Insignificant (not prominent/important) determinants for elderly in this context are education (Less educated), past occupation (Less earning occupation), sex (Female), marital status (Not currently married), possessing liquid asset (Yes), working and/or pension holder (Yes) (positively related).

**Table 4.33. Binary Logistic Regression used to Determine Whether Elderly “Feeling depressed” in Malda District**

Determinant(with compared category)	B	P-value	Exp(B) (Odds ratio)	Reference category
<b>Locality of residence</b>				
(a) Rural (less Muslim)(t1=1,t2=0)	1.164	0.048	3.203	Urban Area (t1=0, t2=0)
(b) Rural (more Muslim)(t1=0,t2=0)	1.499	0.042	4.477	
Sex (Female)(s=1)	0.354	0.546	1.425	Male(s=0)
Family size	-0.271	0.041	0.762	
Education (Less educated) (e=1)	0.482	0.447	1.619	Educated (e=0)
Past occupation (Less earning occupation) (p=1)	1.285	0.049	3.614	More earning occupation (p=0)
Age (in years)	0.151	0.003	1.163	
Marital status (Not currently married)(m=1)	0.412	0.422	1.510	Currently married (m=0)
Possessing immovable asset (No)(i=1)	1.411	0.049	4.100	Yes(i=0)
Possessing liquid asset (Yes)(l=1)	1.001	0.311	2.721	Yes(l=0)
Working and/or pension holder (Yes)(w=1)	0.043	0.116	1.044	Yes(w=0)
Health not good (Yes)(h=1)	2.107	<0.001	8.222	No(h=0)
Constant	-3.004	0.369	0.050	
Overall percentage of correct prediction : 78.4 Nagelkerke R Square : 0.536 Hosmer and Lameshow test for goodness of fit : Good (P-Value=0.734)				

Source: Field survey

Odds ratio for ‘Feeling depressed’

$$= 0.050 \times 3.203^{t1} \times 4.477^{t2} \times 1.425^s \times 0.762^{fs} \times 1.619^e \times 3.614^p \times 1.163^{age} \times 1.510^m \times 4.100^i \times 2.751^l \times 1.019^w \times 8.381^h$$

To assess life satisfaction of the elderly persons, following 11 questions (mentioned in Table No. 4.34 below) with 3-point rating (agree-3/uncertain-2/disagree-1) were asked to the sampled elderly persons. Dimension reduction: Factor Analysis coupled with Reliability Analysis techniques were employed to the questions. Factor Analysis aims at grouping the original (independent) variables into a fewer factors (latent variables or constructs) which underlie the strongly related input variables. Reliability Analysis aims at whether the construction of factors (latent variables) with some input variables is ‘reliable’ meaning the factor will produce the same results each time it is administered to the same person in the same setting.

Researchers use factor analysis first to organize the items (variables) into constructs and then reliability analysis to determine how well each construct holds together. There are two kinds of factor analysis: Exploratory Factor Analysis and Confirmatory Factor Analysis. Exploratory Factor Analysis (EFA) allows researchers to see which items should be grouped together based on statistical similarity; Confirmatory Factor Analysis (CFA) allows researchers to test pre-existing factor models to see how

the model fits data. In our study, Exploratory Factor Analysis has been used. The correlation matrix is the starting point of any factor analysis. 'Principal Component Analysis' (PCA) is used for extracting different factors from the data and 'Varimax' method is used for rotating factors to create maximum similarity among the strongly correlated variables within each factor and maximum distance between each of the factors. Kaiser-Mayer-Olkin (KMO) is a measure of whether the distribution of values is adequate for conducting factor analysis. Kaiser himself designated this 'KMO Measure of Sampling Adequacy' levels as follows: A measure  $> 0.9$  is marvelous,  $> 0.8$  is meritorious,  $> 0.7$  is middling,  $> 0.6$  is mediocre,  $> 0.5$  is miserable and  $< 0.5$  is unacceptable. 'Bartlett Test of Sphericity' is used to test whether the correlation matrix is an identity matrix (factor analysis would be meaningless with an identity matrix). A significance value  $< 0.05$  indicates that data do not produce an identity matrix.

In reliability analysis, Cronbach's Alpha ( $\alpha$ ) is designed as a measure of internal consistency. A rule of thumb that applies to most situations is as  $> 0.9$  as excellent,  $> 0.8$  as good,  $> 0.7$  as questionable,  $> 0.5$  as poor and  $< 0.5$  as unacceptable.

Table 4.34 provides two components (factors or latent variables): 'Perceived goodness of elderly age' and 'Perceived hardship of elderly age' were generated along with associated questions and their loadings and per cent of variance explained by the factors in Malda district. Overall satisfaction of individual elderly may be assessed through only two generated factors using appropriate values of original variables. These two factors for measuring life satisfaction may be correlated and regressed to other variables of the elderly like sex, marital status, living arrangement, being head of the household, presently working and/or pension holder, possession of immovable and liquid assets, health condition, involvements in household activities etc.

**Table 4.34. Two Components (Factors) Generated along with Associated Questions and Their Loadings and Percent of Variance Explained by Factors in Malda District**

Factor No.	Name of factor	Variable (Question)	Average	Loading	% of Variance explained	Reliability (Cronbach's $\alpha$ )
1	Perceived goodness of elderly age(F <sub>1</sub> )	As you grow older, things seem to better than before(X <sub>1</sub> )	1.49	0.841	47.07	0.821 (Good)
		Old age is the most pleasant time of your life(X <sub>2</sub> )	1.50	0.858		
		You are just as happy as when you were younger(X <sub>3</sub> )	1.48	0.877		
		You expect some pleasant and interesting things to happen to you in coming years(X <sub>4</sub> )	1.47	0.743		
		You feel old and somewhat tired(X <sub>5</sub> )	2.56	-0.581		
		As you look back on your life, you feel satisfied and happy(X <sub>6</sub> )	1.51	0.780		
		You have made plans for things you will be doing in a month or year(X <sub>7</sub> )	1.35	0.809		
		You may get scope to do your unfinished works(X <sub>8</sub> )	1.35	0.666		
2	Perceived hardship of elderly age(F <sub>2</sub> )	Most of the things you do are boring and monotonous(X <sub>9</sub> )	2.33	0.686	23.00	0.751 (Acceptable)
		Compared to other people, you get disappointments too often(X <sub>10</sub> )	2.39	0.726		
		In spite of what some people say, lot of average men are getting worse, not better(X <sub>11</sub> )	2.54	0.827		
% of Total variance explained by Factor Analysis			70.07			
KMO Measure of Sampling Adequacy			0.906 (Marvelous)			
Bartlet's Test of Sphericity Approx. $\chi^2$			1459.705			
df			55			
p-value			< 0.001			

Source: Field survey

Equations of factors in terms of original variables are given below:

$$F_1 = 0.841 X_1 + 0.858 X_2 + 0.877 X_3 + 0.743X_4 - 0.581X_5 + 0.780X_6 + 0.809X_7 + 0.666X_8$$

$$F_2 = 0.686 X_9 + 0.726 X_{10} + 0.827 X_{11}$$

## 4.6 Summary

Attempts have been made in this chapter to study and compare the magnitude of population ageing and its trends and different factors relating to population ageing like sex ratio, marital status, living arrangement etc among two distinct religious communities Muslim and non-Muslim of Malda district based on secondary (census) and primary data.

On the basis of secondary data from Census of India and other sources in India, West Bengal and Malda district and primary data from Malda district, following conclusions may be made:

- (i) Per cent of elderly persons to total population was the lowest in Muslim population among all the per cents of elderly persons to total population over different categories of religion, place, locality of residence, sex, caste etc. Per cent of persons in the age group 0-14 years was higher among Muslims than Hindus indicating higher birth rates among Muslims than Hindus, per cent of persons in the age group 15-59 years (normal working age group) was lower among Muslims than Hindus indicating lesser work participation among Muslims than Hindus, per cent of persons of oldest-old (aged 80+) was lower among Muslims than that among Hindus indicating Muslims are living lesser years than Hindus and sex ratio of elderly persons among Muslims was lower than that among Hindus indicating that the per cent of lesser elderly females among Muslims was lesser than that among Hindus,
- (ii) Literacy rate, work participation among Muslim community were lowest among those of other religious communities and work participation among Muslim elderly females was very low compared that among Hindu elderly females in India, West Bengal and Malda district. Per cent decadal growth rate of literacy among Muslim community was lesser than that among Hindu community; again it was least among Muslim community in West Bengal.
- (iii) In both rural and urban areas, per cent of households without any elderly family member in Malda district was higher than those of India and West Bengal, that is because Malda district is Muslim dominated one and its per cent of elderly persons is lesser than those of India and West Bengal.
- (iv) Per cent of households having elderly head in Malda district was less than those in India and West Bengal.
- (v) Disabilities due to vision and movement were more serious problems for the elderly persons in both rural and urban areas of Malda district. These disabilities were more acute in Malda district than West Bengal as a whole.
- (vi) In Malda district, elderly persons of rural (more Muslim) area were more dependent; having less dependants; less being head of household; less involved in day-to-day purchases and other activities, big purchases; decision-making of family; having more immovable property, liquid asset; and less presently working and/or pension holders than those of elderly person of rural (less Muslim) area.
- (vii) In Malda district, elderly in rural (more Muslim) area were in the worst conditions among others in respects of capable of spending money for buying, getting sufficient food and clothes and getting sufficient medicines and health care. Reason behind the same is that the economic condition of Muslims are worst compared to others.



(viii) In Malda district, per cent of elderly persons physically mobile was least in rural (more Muslim) area than those in other areas.

(ix) In Malda district, per cent of elderly persons associated with cultural activities and political activities was least in rural (more Muslim) area than those in other areas.

The above backgrounds forms the reasons the gaps of socio-economic and cultural development between Muslims and non-Muslims in India and in Malda district. There is inertia on growth and development of Muslim community in India because of lowest literacy rate, work participation, socio- economic and cultural conditions and attitude toward family planning etc among Muslim community in India. One cannot simply plan for reducing the gaps between elderly persons belonging to Muslim and non-Muslim communities, that is, for improving socio-economic status of elderly persons belonging to Muslim community. As change agents for individuals and organizations need to come out with programmes, planning and new initiatives that will cater to the growth and development of Muslim community to (a) mobilize and build awareness on their rights, welfare programmes and schemes not only for elderly persons belonging to Muslim community, but also for the total population belonging to Muslim community, (b) provide proper education to the children belonging to Muslim community and motivate young group belonging to Muslim community towards family planning so that there would be control on birth rate and socio-economic and cultural upliftment takes place among Muslim community because children and young group of today would become elderly persons in future. We have to keep in mind that the proper growth and development of a secular country like India is not possible, if a big share of population namely Muslims of India is lagging behind compared to that of non-Muslims of India.

Attempts have been made to develop binary logistic regression equations of attributes of the elderly persons determining the well-being of the elderly persons in Malda district (a) health status; (b) being head of household; (c) involvement in day-to-day purchase of the household, big purchase like land, house, car etc of the household, decision-making of the family and (d) feeling depressed were performed.

In assessing life satisfaction of the elderly persons, 11 questions (mentioned earlier) with 3-point rating (agree-3/uncertain-2/disagree-1) using factor analysis coupled with reliability analysis, two factors (latent variables): (a) perceived goodness of elderly age, (b) perceived hardship of elderly age were derived.