

Original article

FACTORS OF LIVING ARRANGEMENTS AMONG ELDERLY PEOPLE IN CHAPAINAWABGANJ DISTRICT, BANGLADESH

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ABSTRACT

The elderly people are increasing quickly in Bangladesh. There are very few studies available to examine the welfare or living circumstances of elderly people in Bangladesh. The purpose of this study was to determine the factors of living arrangements among elderly people in Chapainawabganj district, Bangladesh. Multistage random sampling was used for selecting 146 elderly women and men. Data was collected using a standard questionnaire. Descriptive statistics, Chi-square test and logistic regression were applied to find the frequency distribution for categorical variable, association between two categorical variables and impact of independent variables on outcome variable respectively. The present study showed that 89.70% elderly people lived in rural area, 91.80% suffered from acidity and 55.50% from high blood pressure. 51.40% elderly people lived with spouse and son, and they bear their cost. Multiple binary logistic regression model demonstrated that the predictors of (i) rural elderly compared to urban elderly [AOR: 15.906; 95% CI: 2.391-105.816; $p < 0.01$], (ii) married elderly compared to widow elderly people [AOR: 34.313; 95% CI: 8.370-140.669; $p < 0.01$], (iii) literate elderly compared to illiterate elderly [AOR: 3.556; 95% CI: 1.076-11.753; $p < 0.05$], (iv) people who lived in nuclear family compared to people who lived in joint family [AOR: 7.412; 95% CI: 1.896-28.974; $p < 0.01$] were more likely to get living arrangements. Hosmer and Lemeshow test showed that our selected model was good fitted [χ^2 -value=7.137; $p > 0.05$], and Nagelkerke R^2 demonstrated that the model could able to explain the variation of outcome variable by 67.30%. The policies and programmers for the elderly people have to be appropriately designed to address the needs of the issues.

Keywords: Elderly, growth, living arrangements, multi stage sampling, logistic regression

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INTRODUCTION

Living arrangement is where people live, alone or with someone else, or in an institution, such as a nursing home. Living arrangement of elderly people depends on who pays for their food and shelter. Globally, elderly people are increasing at varying rates. No matter a country's degree of development, there is a significant rise in the percentage of the population that is 60 or older worldwide (Chalise, 2019). Longer life spans and decreased fertility rates together contribute to aging (Chalise and Brightman, 2006). People are living longer due to improvements in education, technology, medicine, food distribution, and public health (Chalise et al., 2007). On the other hand, as people age, their physical and cognitive abilities deteriorate and the prevalence of chronic illnesses and disabilities rises (Chalise et al., 2008). In developing nations, the living situation of the elderly people becomes a significant factor in their general well-being. It is well recognized that the type of living situation can affect how older persons engage socially and how they are given access to resources for everyday life (Chalise, 2019). In developing nations, older adults frequently need social, economic, and physical support, yet many of them lack the means to do so due to poor health and a lack of private funds. In order to survive and thrive, people frequently rely greatly on their family and home (Khanal and Chalise, 2020).

Bangladesh is one of the twenty developing countries with largest number of elderly people. By 2025 along with other four Asian countries, Bangladesh will account about half of the world's total elderly population (Chaklader et al., 2003). The growth of the aged population will continue and that has laid down several issues related to their status and roles, care and living, health, social support and overall wellbeing (Khan, 2006). The elderly people require a

combination of physical and material supports which they can receive properly from their family members. According to UN, the world is experiencing an age quake. The share of older persons in the global population is 9.30 percent in 2020. By the year 2050, one of every six persons and 16 percent in the global population will be over 60 (UN, 2020).

Elderly people are increasing in alarming rate day by day in Bangladesh. Around 12.50 million people living in Bangladesh are aged over 60 which are 7.50 percent of the country's total population (BBS, 2020). The proportion of older people is expected to 20 percent in 2050 with 40 million people aged over 60. This means that for every five Bangladeshis, one will be a senior citizen (BBS, 2020). The current life expectancy for Bangladesh in 2022 is 73.29 years, a 0.39% increase from 2021 (UN, 2022). Non communicable and communicable diseases are becoming a growing burden (NIH, 2022). The size of households is declining in Bangladesh as a result of industrialization and rising urbanization (BBS, 2022). This deterioration of familial bonds decreases social interaction and the older generation's ability to maintain it financially and physically (Panigrahi, 2009). As nations advance, they need separate living arrangements. The elderly's living situation difficulties therefore require attention in this context because it is necessary for ensuring their welfare. The continuing increase in the proportion of elderly people, particularly in developing countries like Bangladesh, where formal support systems for older people are under developed, has generated interest in their living arrangements and their quality of life.

Plenty of works have provided a fruitful contribution to literature while gap still prevails. To the best of our knowledge, the study on living arrangements of the elderly people in the north-western part of Bangladesh is not available. The aim of the present study is to determine the factors of living arrangements of elderly people in Chapainawabganj District, Bangladesh.

MATERIALS AND METHODS

Study area: Chapainawabganj district was our study area. The district is located in the north-western part of Bangladesh, it is belonging in Rajshahi division. The north and west part of Chapainawabganj is bounded by Malda and Murshidabad districts of India, the east by Naogaon district, and south-east by Rajshahi district. The district is situated between the latitude 24'22 to 24'57 and longitude 87'23 to 88'23. A total number of 1,647,521 people are living in Chapainawabganj district, of which 810,218 were males and 837,303 females. Rural population was 1,327,243 (80.56%) while the urban population was 320,278 (19.44%). Chapainawabganj district had a literacy rate of 42.94% for the population 7 years and above: 41.55% for males and 44.27% for females (BBS, 2011).

Study population: All elderly people aged 60 years and above were the population of our present study.

Sample size determination: The sample size was estimated by applying the Cochran's (1977) formula: $n = \frac{Z^2 pq}{d^2}$, where, p is the estimated proportion of an attribute, we have considered $p=0.60$ (Khan, 2006), $q = 1 - p = 1 - 0.60 = 0.40$, $z = 1.96$ at 95% confidence interval, and d is the marginal error = 0.08. We have got, $n = \frac{(1.96)^2 \times 0.60 \times 0.40}{(0.08)^2} = 145$.

Sampling technique: Multistage random sampling was used for selecting our sample from the population. In the first stage, two Upazilas (Chapainawabganj Sadar and ShibganjUpazilla) were randomly selected from five Upazilas of Chapainawabganj district. In the second stage, two unions and one ward (urban) were selected by random sampling from each selected Upazila. In the third stage, 35 elderly women and men were randomly selected from each

selected Union($4 \times 35 = 140$), and 10 elderly women and men were randomly selected from each selected ward($2 \times 10 = 20$). Initially, 160 elderly people were selected for getting their information. All necessary information of elderly people was gathered from respective Union Parishad office and ward council office.

Data collection: We contacted with our selected subjects and discussed about the objectives of our present study, unfortunately, 14 elderly people did not agree to provide their information. Finally, 146 elderly people were considered as sample for the present study, and took their written consent. Two community health workers collected data from 146 elderly people using a standard questionnaire from November 2 to 30, 2022.

Outcome variable: Living arrangements of the elderly people living in Chapainawabganj district was the outcome variable in this study. Living arrangement of elderly people depends on who pays for their food and shelter. In Bangladesh, usually, elderly people depend on their children and they bear all cost of their aging parents. In this study, living arrangements of the elderly people living was categorized into two categories on the basis living with their children or not (Yes, living with children or spouse =1 or No, living alone or with others=0).

Independent variable: The survey questionnaire included place of residence, sex, age, marital status, religion, literacy status, working status, monthly family income, type of family, family member, adult family member, self-rated health status and physical assistance as independent variables. All independent variables, its groups and codes are mentioned in Table1.

Data Analysis: Descriptive statistics was used to calculate frequency distribution of categorical variables. Chi-square test was selected to find the association between two categorical variables. Finally, multiple binary logistic regression analysis was performed to determine the impact of socio-economic, demographic and health-related variables on living

arrangements of the elderly. Statistical significance was accepted at $p < 0.05$. Statistical analyses were carried out using SPSS software (version IBM 25).

Table 1: Independent variables its groups and codes

Variable	Group	Code	Variable	Group	Code
Place of residence	Rural	1	Monthly family income (BD Taka)	3000 or less	1
	Urban	2		3001 and above	2
Sex	Male	1	Type of family	Nuclear family	1
	Female	2		Joint family	2
Age	Less than 70 years	1	Family member	1-4	1
	70 years and above	2		5 and above	2
Marital status	Married	1	Adult family member	One	1
	Widowed /widower	2		Two and above	2
Religion	Islam	1	Self-rated health status	Poor	1
	Other	2		Average	2
Literacy status	Illiterate	1		Good	3
	Literate	2	Physical assistance	Not received	1
Working status	Working	1		Received	2
	Not working	2			

RESULTS

It was observed that majority (89.70%) of the elderly lived in rural area, 55.50% were female, and 58.20% belonged to less than 70 years age group. 64.40% people were married and 35.60% were widow or widower, most of them (97.90%) of the elderly people were Muslim, and 65.80% were literate. Most (71.20%) of the elderly people did not have any problem to do work while 28.80% had problem to do work. Maximum (80.10%) of the elderly's monthly family income was Tk. 3001 and above, a larger part (51.40%) of the elderly lived in joint family, and 54.80% of the elderly's family member was 5 and above. 44.50% reported they had average health condition while 22.60% had poor and most of the (90.40%) of the elderly people informed that they did not receive any physical assistance to perform the daily work (Table 2).

Table 2: Different socio-demographic characteristics of the living arrangements of elderly people

Variables	Categories	Frequency (%)
Place of residence	Rural	131 (89.70)
	Urban	15 (10.30)
Gender	Male	65 (44.50)
	Female	81 (55.50)
Age (In years)	Less than 70 years	85 (58.20)
	70 years and above	61 (41.80)
Marital status	Married	94 (64.40)
	Widow/Widower	52 (35.60)
Religion	Muslim	143 (97.90)
	Other	3 (2.10)
Literacy status	Illiterate	50 (34.20)
	Literate	96 (65.80)
Working status	Working	104 (71.20)
	Not working	42 (28.80)
Monthly family income (In Tk.)	3000 or less	29 (19.90)
	3001 and above	117 (80.10)

Type of family	Nuclear family	71 (48.60)
	Joint family	75 (51.40)
Family member	1-4	66 (45.20)
	5 and above	80 (54.80)
Adult family members	One	12 (8.20)
	Two and above	134 (91.80)
Self-rated health status	Poor	33 (22.60)
	Average	65 (44.50)
	Good	48 (32.90)
Physical assistance	Not received	132 (90.40)
	Received	14 (9.60)

It was found that majority (52.10%) of the elderly informed that their son beared their all cost, while 37.70% managed their cost by himself/herself. 2.70%, and 7.50% elderly people reported that their daughter and others beared their cost respectively (Table 3).

Table 3: Pattern of bearing cost of the elderly people

Categories	Frequency (%)
Self	55 (37.70)
Son	76 (52.10)
Daughter	4 (2.70)
Other	11 (7.50)

It was noted that 51.40% elderly people were living with their spouse, 34.20% and 4.10% with their married sons and married daughters respectively, total 89.70% elderly people were living with their spouse or son/s or daughter/s, while 10.30% of the elderly were living alone (Figure 1).

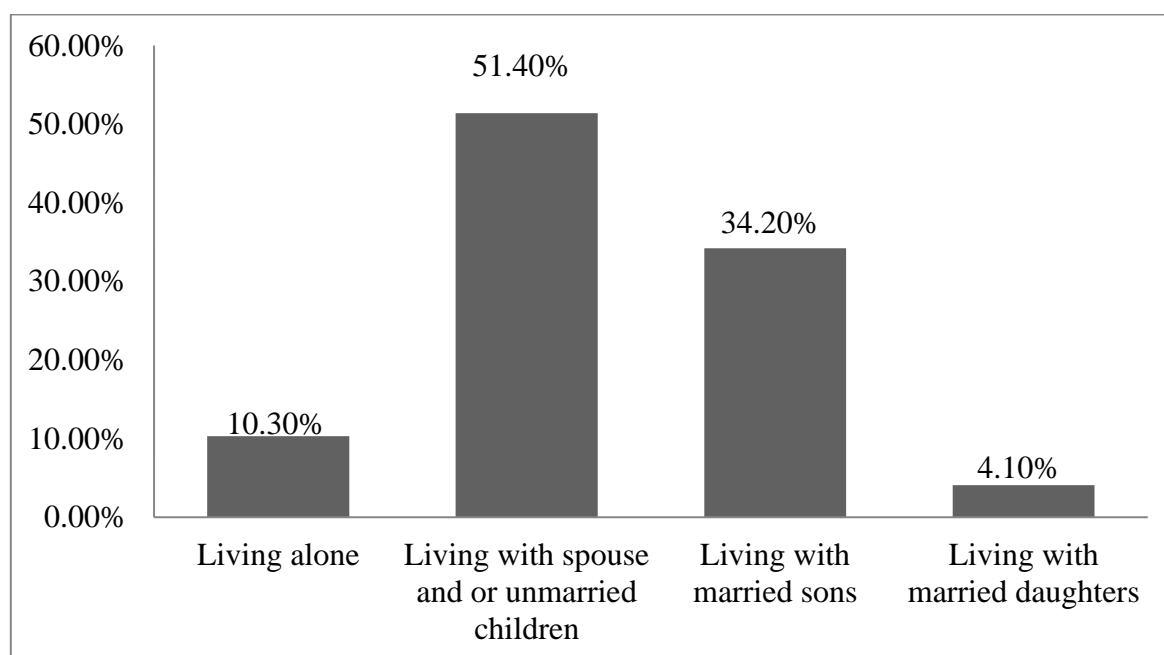


Figure-1: Living arrangements of the elderly people

Elderly people reported that 91.80% and 55.50% suffered from acidity and high blood pressure respectively. 42.50%, 30.80%, 34.90%, 6.80% and 12.30% reported they suffered from arthritis, cataract, diabetes, asthma and heart disease respectively. Only 1.40% and 16.40% people were suffering from cardiovascular disease and hypertension respectively (Table 4).

Table 4: Pattern of morbidity of the elderly people

Categories	Frequency (%)
Arthritis	62 (42.50)
High blood pressure	81 (55.50)
Cataract	45 (30.80)
Diabetes	51 (34.90)
Asthma	10 (6.80)
Heart disease	18 (12.30)
Cardiovascular disease	2 (1.40)
Hypertension	24 (16.40)
Acidity	134 (91.80)

From the table 5, it was observed that place of residence, gender, age, marital status, literacy status, working status, type of family and self-rated health status were significantly ($p < 0.01$) associated with the living arrangements of the elderly people.

Table 5: Association between socio-demographic characteristics and living arrangements of the elderly

Variables	Chi-square value	P value
Place of residence	8.65	0.003
Sex	16.696	0.000
Age	8.814	0.003
Marital status	56.00	0.000
Religion	1.91	0.167
Literacy status	10.01	0.002
Working status	14.45	0.000
Monthly family income	0.003	0.958
Type of family	9.89	0.002
Family member	2.18	0.140
Adult family members	0.99	0.321
Self-rated health status	16.80	0.000
Physical assistance	1.88	0.171

Multiple logistic regression model demonstrated that rural elderly people were more likely to get living arrangements [AOR=15.91, 95%CI: 2.39-105.82; $p < 0.01$] compared to urban. Elderly people currently living with spouse were more likely to get living arrangements [AOR=34.313, 95%CI: 8.37-140.67; $p < 0.01$] compared to widow. Literate elderly people had 3.56-fold higher chance to get living arrangements [AOR=3.56, 95%CI: 1.08-11.75; $p < 0.05$] compared to illiterate people. Elderly people living in nuclear family had 7.412-fold more likely to get living arrangements [AOR=7.41, 95%CI: 1.90-28.97; $p < 0.01$] compared people living in joint family. Hosmer and Lemeshow test showed that our selected model was good fitted, and Nagelkerke R^2 showed that the model could explain the variable of outcome variable by 67.30% (Table 6).

Table 6: The impact of different characteristics on living arrangements of the elderly people

Variable	B	SE	Wald	p value	AOR	95.0% C.I. for AOR	
						Lower	Upper
Place of residence							
Rural vs Urban ^R	2.767*	0.967	8.188	0.004	15.906	2.391	105.816
Gender							
Male vs Female ^R	0.002	0.712	0.000	0.998	1.002	0.248	4.046
Age							
< 70 years vs ≥ 70 ^R	0.563	0.571	0.975	0.324	1.757	0.574	5.376
Marital status							
Married vs Widow ^R	3.536*	0.720	24.123	0.000	34.313	8.370	140.669
Literacy status							
Literate vs Non-literate ^R	1.269*	0.610	4.325	0.038	3.556	1.076	11.753
Working status							
Not working vs Working ^R	-1.035	0.769	1.815	0.178	0.355	0.079	1.602
Family type							
Nuclear vs Joint ^R	2.003	0.696*	8.292	0.004	7.412	1.896	28.974
Health status							
Poor vs Good ^R	-1.481	0.815	3.306	0.069	0.227	0.046	1.122
Average vs Good ^R	-0.428	0.711	0.362	0.547	0.652	0.162	2.625
Hosmer and Lemeshow test: Chi-square value=7.137; p-value=0.522							
Nagelkerke R square value = 0.673							

N.B.: R: Reference case; B: Regression coefficient; SE: Standard error; AOR: Adjusted odds ratio; CI: Confidence interval.

DISCUSSION

In the present study, we investigated living arrangements of elderly people living in one of the northern parts of Bangladesh. We found that 89.70% elderly people were living with their spouse or son/s or daughter/s, and 54.90% elderly people's children bear their cost. One of the Indian studies found that 51.5% elderly people lived with their spouses and children (Panigrahi, 2009). Our selected model provided that elderly people living in rural environment were more

likely to get living arrangements compared to people living in urban area. According to the report of World Bank, in 2021, 61.05% people were living in rural area of Bangladesh (World Bank, 2023). Close to 50 percent of Bangladesh's population was primarily employed in agriculture, with more than 70 percent of its land dedicated to growing crops (FAO, 2019). Most of the farmers are living in the rural area, when rural people become elderly, they cannot able to do actively, and they dependent on their children, on the other hand most of the urban people have job (government or non-government), they get pension after retirement, they can maintain their cost by the money; we think one of the major causes elderly people living in rural area is getting more living arrangements than urban. In the present study, we also found that marital status, education and type of family were the important predictors of living arrangements. Age, sex, marital status, number of surviving children, education, income and economic dependency, play an important role in determining the living arrangements of the elderly in Orissa, India (Panigrahi, 2009). Age, sex, occupation, education, place of residence, number of children etc., are the important variables that shape the living arrangement (United Nations, 2005; Prakash, 1999). Velkoff (2001) found that living arrangements are influenced mainly by financial well-being, marital status, family size and structure as well as cultural traditions. It was found that with an increase in the level of education, the pattern of co-residence systematically diminishes (Andrade and DeVos, 2016; Bongaarts and Zimmer 2002; Pal, 2004).

Strength and limitation of the study: Perhaps this was the first time we tried to living arrangements of elderly people living in one of the northern parts of Bangladesh. However, we had some limitation, this was a cross-sectional study, could not possible to make link between the outcome and the exposure with change time because both were examined at the

same time. Most of the variables including our outcome variable were subjective; it could be chance to get bias information. We did quantitative study, this type of study could possible to detect vulnerable group, but could not possible to do in-depth study including subjects' opinion, and mixed study (quantitative and qualitative) is needed to do a complete study. Clearly more researches are required regarding living arrangements of elderly people.

CONCLUSION

Traditional family structures in Bangladesh are disintegrating, changing social mores and values including regard for the elderly in the home and community. As a result, elderly individuals are becoming more vulnerable. Age-related financial support programs in Bangladesh are yet being fully implemented. As a result, the bulk of older people rely on their own resources as well as those of their family. Some modifiable factors were identified which were directly related to living arrangements of the elderly in Chapainawabganj District. Elderly people suffered from different chronic morbidities so the government of Bangladesh ought to develop comprehensive legal frameworks to boost the social security of the elderly, such as education campaigns and initiatives to defend their rights for better care and reduced vulnerability.

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