Living arrangement pattern of elderly in Chandigarh Tricity, India: A glimpse through geriatric clinic at tertiary hospital

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ABSTRACT

Background: The changes in the demographic and economic fabric of society have significantly impacted the living arrangement patterns of the elderly. **Objectives:** The objectives are as follows: (i) To examine the living arrangement patterns of elderly coming to the geriatric clinic at a tertiary care institution in Chandigarh and (ii) To analyze the factors related with their living arrangements. **Materials and Methods:** A cross-sectional study was done from April 2015 to March 2017 at a geriatric clinic in a tertiary care institution in North India. The data were collected from elderly patients (60 years and above) on a pre-designed, pre-tested, and structured questionnaire by interview technique. Chi-square test was applied followed by logistic regression analysis. **Results:** A total of 305 elderly patients were interviewed. Mean (standard deviation) age of participants was 68.5 (6.7) years. Females (59.3%) outnumbered males. One-fifth of the elderly were either living alone (04.6%) or with spouse only (16.4%). Significant associations were found between living arrangement patterns and gender, marital status, type of family, education, socioeconomic status, and house ownership. On logistic regression analysis, being widowed (odd's ratio [OR]=23.1, confidence interval [CI]=4.1–127.6, and $P = 0.00$) was found to be a significant risk factor for "living alone". Logistic regression analysis of "living with spouse only" showed significant association with socioeconomic class (OR=0.2, CI=0.1–0.4, and $P = 0.00$) and house ownership (OR=6.9, CI=1.6–30.6, and $P = 0.01$). **Conclusion:** Most elderly tend to coreside with children in Chandigarh Tricity. Age, gender, and marital status significantly influence the living arrangement patterns of the elderly.

KEY WORDS: Chandigarh Tricity; Elderly; India; Living Arrangement

INTRODUCTION

Demographic transition has led to population aging. The world's elderly population (aged 60 years and above) has been projected to be double by 2050.[1] Started in developed nations during the past century, developing nations are also experiencing this phenomenon.[2] India, by no means, is an exception to population aging. The family is the most admired arrangement to care for and protect the elderly in India.[3] Indian society is experiencing a gradual but definite change in the traditional family system. The term "living arrangements" or "coresidential arrangements" means the household structure meant for people to coexist.[4] The elderly living arrangements vary not only in different countries but also within countries according to sociodemographic characteristics.[5,6] It is important to understand elderly living arrangements to plan their welfare. It could be "living alone," "living with the spouse only," "living with spouse and children," and "living with children minus spouse." More than 60% of the elderly either live alone or live with spouse in western countries.[4]

In India, the elderly population (aged 60 years and above) has increased from 56.7 million to 103.8 million during the

past two decades (proportionately, from 7.4% to 8.6%).[7] During the same time, the old dependency ratio has increased from 122 to 142. The elderly preferred to coreside with their children in a joint family where former received support and latter benefitted from experiences of elderly.[8] This pattern has declined as a result of a change in the family system (decline in joint family and preference toward nuclear family), a decrease in fertility and the increase in expectancy of life. Elderly who were "living alone" or "living with the spouse only" increased from 13.0% (year 1995–1996) to 17.2% (year 2004), with wide inter-regional variations within India.[9] These changes have notable implications for the status and support of the elderly in the family. Although the information about elderly living arrangements in India is available, no separate data are available for Chandigarh Tricity. It will be useful to understand the elderly living arrangements and the factors related to a specific location. Therefore, we conducted a study on the living arrangements of the elderly in Chandigarh Tricity.

The study was conducted with objectives: (i) To examine the living arrangement patterns of the elderly coming to the geriatric clinic at a tertiary care institution in Chandigarh and (ii) To analyze the factors related with their living arrangements.

MATERIALS AND METHODS

Study Area

The Union Territory of Chandigarh has a total population of 1 055 450 people. Only 06.1% of Chandigarh's total population is elderly (60 years and above), an increase of 1% during a decade (05.1% in 2001).[10] Chandigarh along with two adjoining cities, namely Panchkula in Haryana and Mohali in Punjab collectively constitute the Chandigarh Tricity. Geriatric clinic at a tertiary care institution Government Medical College and Hospital (GMCH), Chandigarh, has been managed daily by the Department of Community Medicine since the year 2012.

Study Design, Sampling Technique, and Sample Size

The cross-sectional study was conducted in the geriatric clinic, GMCH Chandigarh from April 2015 to March 2017. All geriatric patients (aged 60 years and above) who came to the clinic from the Chandigarh Tricity only were included as participants. The elderly patients who were residing outside Tricity, living in old age homes, and those who did not give their consent were excluded from the study. The care was taken to avoid duplication of participants, for example, those who were coming for follow-ups.

Sample size was calculated as at least 271 participants using formula $n = 4pq/l^2$ where p was the prevalence of elderly "living alone" or "living with spouse only" (17.0%),[9] 5%

allowable error (l), 95% confidence level, and 20% non-response rate. 305 participants were found to be eligible during the study period.

Data Collection

The data were collected by trained medical social worker (MSW) and interns on pre-designed, pre-tested, and structured questionnaire in the clinic twice a week, under supervision of doctors (M.D. Community Medicine). The questionnaire was filled by MSW using interview technique. The questionnaire included sociodemographic profile, living arrangement, dietary history, habits, and morbidity history. Examination of participants was done by doctors and interns.

The permission for study was granted by the competent authority. Informed consent was taken from patients before data collection. The privacy and confidentiality of their information obtained were assured. They were informed beforehand that they could withdraw at any time if they wished to do so without any implications.

Statistical Analysis

The data were entered and analyzed with statistical software SPSS version 19. The descriptive statistical analysis was represented through frequency, percentages, and mean and standard deviation (SD). Chi-square test was used to find out the association between sociodemographic variables and living arrangement as significant or otherwise, considering $P < 0.05$ as the level of significance. Logistic regression analysis was done to find the predictors for living alone among the elderly, using "living alone" or "living with spouse only" the dependent variable.

RESULTS

A total of 305 elderly participants were interviewed. Table 1 show the sociodemographic profile of participants. Mean (SD) age of participants was 68.5 (6.7) years. Female (59.3%) outnumbered male. Eight out of 10 participants were resident of Chandigarh. One-third of the women participants (36.5% and 66/181) were widow, and 10.8% men (12/111) were widower. The percentage of widowhood was 23.0% and 50.0% in age groups 60–69 years and 80 years and above, respectively. Household characteristics of participants are shown in Table 2. Mean (SD) number of household members was 4.5 (2.1). 14 participants (04.6%) were found to be living alone, and most of them were resident of Chandigarh (13), not working (13), women (12), age group 60–69 years (11), widow(er) (10), literate (07), and from upper SES (06). The proportion of elderly living with children was 24.6% (47/191) in 60–69 years and 36.7% in 80 years and above (08/22). Nearly two-thirds of elderly men live with spouse and children (63.7% versus 45.8% women). One-third of

Table 1: Distribution of participants according to socio-demographic variables (*n*=305)

Variable	n (%)
Age group	
60–69	191 (62.6)
70–79	92 (30.2)
80 and above	22 (07.2)
Gender	
Female	181 (59.3)
Male	124 (40.7)
City of residence	
Chandigarh	248 (81.3)
Mohali	43 (14.1)
Panchkula	14 (04.6)
Marital status	
Married	224 (73.4)
Widow (er)/unmarried/divorced	81 (26.6)
Educational status	
Literate	257 (84.3)
Illiterate	48 (15.7)
Occupation	
Not working	294 (96.4)
Working	11 (03.6)
Socio-economic status	
Upper class	165 (54.1)
Middle class	120 (39.4)
Lower class	20 (06.5)
Type of family	
Joint	240 (78.7)
Nuclear/broken	65 (21.3)

Table 2: Distribution of participants according to household characteristics (*n*=305)

Variable	n (%)
House ownership	
House owner	242 (79.3)
Rented	27 (08.9)
Children's house	11 (03.6)
Other	25 (08.2)
Number of family members	
One	14 (04.6)
Two	54 (17.7)
Three	35 (11.5)
Four or more	202 (66.2)
Living arrangement	
With spouse and children	162 (53.1)
With children	79 (25.9)
With spouse only	50 (16.4)
Alone	14 (04.6)

elderly women live with their children only minus spouse (33.7% versus 14.5% men).

The living arrangements were found to be significantly associated with gender ($P = 0.00$), city of residence ($P = 0.04$), marital status ($P = 0.00$), socioeconomic status ($P = 0.00$), education ($P = 0.00$), house ownership ($P = 0.00$), and type of family ($P = 0.00$) as shown in Table 3. Logistic regression analysis of living alone [Table 4] showed that the young elderly (60–69 years), being female, a resident of Chandigarh, illiterate, working, belonging to middle and lower class and owner of house were more likely to live alone. However, being widowed was found to be a significant risk factor for living alone among elderly. Logistic regression analysis of living with spouse only showed significant negative association with socioeconomic class wherein the odds of the elderly from middle and lower class living with spouse only was substantially lower than that of the upper class (odd's ratio [OR] = 0.2, confidence interval [CI]=0.1–0.4, and $P = 0.00$). House ownership showed strong positive association with elderly who were "living with spouse only" wherein the odds of elderly who were owner of house living with a spouse was 7 times higher than elderly who lived in a house owned by their children or rented accommodation (OR=6.9, CI=1.6–30.6, and $P = 0.01$). Similar results were seen when "living alone or living with spouse only" combined taken as dependent variable wherein socioeconomic status (OR=0.2, CI=0.1–0.5, and $P = 0.00$) and house ownership (OR=5.4, CI=1.8–16.2, and $P = 0.00$) were found significant predictor of living arrangement among elderly participants.

DISCUSSION

The cross-sectional study was conducted with objectives to examine the living arrangement patterns of elderly in Chandigarh Tricity. A total of 305 elderly patients, who came to the geriatric clinic, were interviewed. Nearly two-thirds (191, 62.6%) of elderly were in age group 60–69 years. Females (59.3%) outnumbered males. We found that 20.0% of the elderly were either living alone (04.6%) or living with the spouse only (16.4%). Similar findings were observed in other studies. Building a knowledge base on population ageing in India (BKPAI)[11] survey on the elderly in seven states of India found that one-fifth of elderly was either living alone or living with spouse only, ranged from 14.7% in Kerala to 43.7% in Tamil Nadu. Orissa (Odisha) had lowest proportion of elderly living alone (02.8%) and Tamil Nadu had the highest (16.2%). A study conducted by Panigrahi in Orissa (Odisha) found that 15.0% of the elderly were either living alone or living with the spouse only.[12] Ahmad and Das reviewed the living arrangement pattern in India and found that 11.9% elderly were either living alone or living with the spouse only.[13] The proportion of the elderly who were either living alone or living with the spouse only had doubled (from 09.0% to 19.0%) between national family health survey round one (NFHS-1) and round three (NFHS-3).[14]

Table 3: Association between socio-demographic variables and living arrangement of participants (*n*=305)

Variable	Total	Living arrangement*				P
		A	S	S & C	C	
Age group						
60–69	191	11 (05.7)	27 (14.1)	106 (55.5)	47 (24.6)	0.26
70 and above	114	03 (02.6)	23 (20.2)	56 (49.1)	32 (28.1)	
Gender						
Female	181	12 (06.6)	25 (13.8)	83 (45.9)	61 (33.7)	0.00**
Male	124	02 (01.6)	25 (20.2)	79 (63.7)	18 (14.5)	
City of residence						
Chandigarh	248	13 (05.2)	41 (16.5)	123 (49.6)	71 (28.6)	0.04**
Mohali and Panchkula	57	01 (01.7)	09 (15.8)	39 (68.4)	08 (14.1)	
Marital Status						
Married	224	02 (00.9)	50 (22.3)	155 (69.2)	17 (07.6)	0.00*
Widow (er)/Unmarried/Divorcee	81	12 (14.8)	00 (00.0)	07 (08.6)	62 (76.6)	
Socio-economic status						
Upper	165	06 (03.6)	43 (26.1)	84 (50.9)	32 (19.4)	0.00**
Middle and lower	140	08 (05.7)	07 (05.0)	78 (55.7)	47 (33.6)	
Education						
Literate	257	09 (03.5)	49 (19.1)	141 (54.9)	58 (22.5)	0.00**
Illiterate	48	05 (10.4)	01 (02.1)	21 (43.8)	21 (43.8)	
Occupation						
Not working	294	13 (04.4)	49 (16.7)	155 (52.7)	77 (26.2)	0.71
Working	11	01 (10.0)	01 (10.3)	07 (60.0)	02 (20.0)	
House ownership						
Owner	242	12 (04.9)	48 (19.8)	133 (55.0)	49 (20.2)	0.00**
Non-owner	63	02 (03.2)	02 (03.2)	29 (46.0)	30 (47.6)	

*A: Living alone, S: Living with spouse only, S&C: Living with spouse and children, C: Living with children, **Statistical significance

Table 4: Logistic regression analysis of variables and living arrangement of participants

Variable	Living alone	Living with spouse only
	OR (95% C.I.)*	OR (95% C.I.)*
Age group	1.5 (0.4–5.8)	0.8 (0.4–1.7)
Gender	3.4 (0.7–16.8)	0.9 (0.4–1.7)
City of residence	3.1 (0.4–25.0)	1.8 (0.7–4.3)
Marital status	23.1 (4.1–127.6)**	0.00 (0.00–0.00)
Education	2.4 (0.6–8.7)	0.2 (0.1-2.0)
Occupation	2.5 (0.2–25.0)	2.8 (0.6–12.7)
Socioeconomic status	1.1 (0.3–3.6)	0.2 (0.1–0.4)**
House ownership	2.2 (0.4–10.5)	6.9 (1.6–30.6)**

*OR: Odd's ratio, C.I.: Confidence interval, **Statistical significance

The analysis of coresidence with other family members in our study found that more than half (53.1%) of elderly were living with their spouse and children, and 25.9% were living with children. Similar findings were observed in NFHS-3 where 48.3% of elderly were living with their spouse, children, and grandchildren, and 27.3% were living with children and grandchildren.[14] NFHS_4 report has not mentioned about the living arrangements of the elderly.[15] BKPAI survey also found that 40.6% of elderly were living with their spouse, children, and grandchildren, and 29.7% were living with children and grandchildren.[11] There were inter-state variations as only 24.9% elderly were living with their spouse, children, and grandchildren in Tamil Nadu (South India) in contrast to 46.5% elderly in Punjab (North India).[16] Similarly, 27.1% of elderly were living with their children and grandchildren in Tamil Nadu and 34.5% elderly in Kerala.[16] Further, differential gender pattern was found concerning coresidence with other family members. Nearly two-thirds of elderly men live with spouse and children while one-third of elderly women live with their children only in our study. BKPAI survey and NFHS-3 data also revealed that most of elderly men living with spouse and children (58.1% vs. 24.9% and 65.5% vs. 30.5%, respectively), whereas elderly women living with children only (45.5% vs. 12.1% and 42.6% vs. 12.4%, respectively).[11,14] The elderly who are not much old prefer either living alone or living with the spouse only, and as the age increases, living with children or grandchildren is more preferred.[17] In our study, elderly living with children were mostly from higher age group (80 years and above). Similarly, BKPAI survey found that 51.2% of the elderly aged 80 years and above lives with children and

grandchildren.[11] This may be because the elderly needs more care from family members with an increase in their age.

In present study, proportion of elderly women living alone was higher as compared to elderly men (06.6% versus 01.6%) similar to findings of BKPAI survey (09.6% versus 02.0%), with Punjab had the lowest percentage (03.2%) whereas Tamil Nadu had the highest percentage (26.4%) of elderly women living alone.[11] Studies conducted earlier also show that elderly women more likely living alone.[18-20] Bongaarts and Zimmer studied the elderly living arrangements in 43 developing nations. They found that elderly women twice more likely to live alone as compared to elderly men because of more chances of widowhood among women.[21] Leagare and Martel also found that elderly women were living alone more as compared to elderly men because of their higher expectancy of life.[22] In our study, most of elderly men (89.5%) were married whereas widowhood was more likely among the elderly women (36.5%). Of 14 elderly living alone, 10 (71.4%) were widow(er). Ahmad and Das also found that more than 80.0% elderly men were married and 56.0% elderly women were widow.[13] They also found that most elderly living alone (66.7%) were widowed. It was also observed by Chanana and Talwar that the incidence of widowhood was much higher among older women than men.[23] In India, widowhood is more common for a woman because first, man mostly marries to woman less than his age and second, longer expectancy of life of woman.[24,25] Mba found that marital status significantly affects elderly living arrangements.[26] Widow, due to low education or otherwise, deprives of income and depends on children.[27] In the present study, 87.1% widowed live in joint family as also found by Ahmad and Das.[13] Similarly, 76.8% widowed live with children and grandchildren as per BKPAI survey. Kmao and Zhou[6] also found that elderly preferred to live in joint families. However, earlier accepted pattern of living arrangement relating to multiple generations is declining, even in countries where it was a custom, such as Japan and India.[28,29] The decrease in family size may lead to fewer chances to enjoy mutual care or to share the goods between generations.[30]

In our study, elderly who were women, widow, illiterate, and belonging to middle and lower classes were more likely to live alone, although being widowed was only found to be significant. Similar findings were found in BKPAI survey.[11] Sathyanarayana *et al*. observed similar findings except for education.[14] Logistic regression analysis of living with spouse only in our study indicates that the elderly from middle and lower socioeconomic classes were significantly less likely living with spouse only, similar to findings of BKPAI survey.[11] This contradicts the finding that elderly who are financially not dependent are more likely to live alone.[19] Income of elderly is considered as an indicator of their economic status. Studies show that a change in income or social security benefits will alter the pattern of elderly

living arrangements because there are more chances for high-income groups to live alone.[6,31] However, Hussain and Ghosh found that living together enables the accumulation of resources and an increase in wealth.[32] Majority of the elderly in the present study own the house (79.3%), and among them, 55.0% were living with spouse and children, and 20.2% were living with children. Similarly, Kimuna in a study at Zimbabwe found that nearly 64.0% of the elderly own the house, but nearly 40.0% lives with children and grandchildren.[33] House ownership by elderly may help in residing together.[34]

Strength and Limitations

This was a hospital-based study. The community-based study would be helpful to provide a better perspective of the elderly living arrangements. Nevertheless, findings of the present study may be helpful for policy-makers with regard to elderly living arrangements.

CONCLUSION

The population of India is aging, and population aging is getting older and feminized, with more elderly living alone or living with spouse only. Analysis of the pattern of living arrangement shows that age, gender, and marital status significantly influence the elderly living arrangement. Women, especially widows, are the most vulnerable. Even under the changing circumstances, most elderly tend to coreside with children.

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