Original Research Article

The prevalence of loneliness and its determinants among geriatric population in Bengaluru City, Karnataka, India

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ABSTRACT

Background: Loneliness affects all the individuals, but the extent of problem among geriatric population is not really known. This study is conducted to different socio-economic environment, co-morbid conditions and disabilities affecting daily activities related to old age loneliness with an objective to estimate the prevalence of loneliness among elderly aged population and to determine the factors influencing loneliness among them.

Methods: A community based, quantitative, descriptive, cross sectional and explorative study was conducted among 370 elderly populations residing in ward 32 in Bengaluru city between July and August 2015. Information was collected using revised UCLA loneliness questionnaire at the doorsteps and analysis was done using SPSS.

Results: The prevalence of loneliness with a score of 50 and above was 37.6%, among males and females it was observed 29.6% and 42.7% respectively. The increase in prevalence was proportional to their age group. Elderly people aged 80 years and above were more affected. The problem of loneliness increased as the family size decreases (85.7%), either of the spouse was separated or dead (46.7%), presence of disabilities affecting basic and instrumental daily activities (61% and 39%) and financial dependency (38.5%). Likewise Loneliness decreased as the number of family members aged 60 years and more increased in the family.

Conclusions: The prevalence of loneliness was 37.6% among the elderly population. Females were affected more. The factors influencing loneliness are older age group, illiterates, not living with spouse, only person in the family aged 60 years and above, family size of more than five and presence of daily activity disability.

Keywords: Bengaluru, Elderly, Geriatric, Loneliness

INTRODUCTION

The geriatric population in the world is estimated to double from 11% to 22%, and the number is expected to be 2 billion by 2050. The proportion of elderly in India in the year 2012 was 8% and will double by 2050.¹ Ageing is a natural process associated with many biological and psychological factors. Loneliness is defined as the perception of being alone and isolated, a subjective, negative feeling related to the deficient social relations. Loneliness may be considered as symptom of depression or other mental disease conditions including Alzheimer’s or senile dementia. Loneliness was a symptom of mental illness but now it has become a disease in itself for the elderly. It is influenced by factors like changing living situations, dependency, type of family, social network, place of residence, population migrations etc.

Family structure is undergoing a change with rapid economic development, and the elderly are losing their significance in their own households. They face difficulties in doing their daily activities, mobility and communications. Loneliness affects the well-being of an individual and also has its effect on physical health.²
In this view, this study was conducted to estimate the prevalence of loneliness and assess the influencing factors among elderly population.

METHODS

This is a quantitative, descriptive and cross sectional study conducted among the elderly population residing in ward 32 of Bengaluru city, carried out between July and August 2015. Individuals aged 60 or more were included as subjects for the study. House visits in the locality were done to identify the subjects and the importance of the study was explained to them before the data collection and consent was taken to utilize the information for research purpose.

Personal interview was conducted to collect the data using a structured questionnaire. The questionnaire was prepared referring to Revised UCLA loneliness scale. A standard 20 questions on loneliness score were included in the questionnaire along with the details regarding demographic variables, financial aids and current chronic disease conditions. Loneliness was assessed by asking the individual to indicate how often each of the statements was descriptive of them and scoring was done according to the response of the subjects.

Sample size was calculated as 370 based on pilot study with prevalence of 33.3% of loneliness among elderly subjects in this area with an allowable error of 15% and CI of 95%.

Statistical analysis

Loneliness was considered in individuals who scored 50 and above in the Revised UCLA loneliness scale, for analysis purpose. All data was analysed using SPSS.

Terms used

**Financially dependent**

One who does not have any source of income and is completely dependent on any of their family member.

**Financially independent**

One who has a source of income. (Including financial assistance from the government)

**Chronic diseases**

It includes all the chronic non communicable diseases based on self-reporting, prescriptions and medications available with the individuals.

**Basic daily activity**

A person’s ordinary daily living activity like going and using the toilet, walking, climbing, eating etc.

**Instrumental daily activity**

Daily functional activities that require the use of an instrument like using a mobile phone, cleaning, managing one’s own medication, preparing food, etc.

RESULTS

Among 370 subjects in this study, 145 (39.2%) and 225 (60.8%) were males and females as shown in the Table 1. Majority were in the age group of 60-69 years (65.4%). Half of the subjects were living with their spouse (51.5%). The families having more than one person as aged 60 and above were 34%. Individuals staying in a family of more than five were 50% and 56.2% of the aged were financially dependent. Literates were 36.5% and chronic diseases were observed in 68.1% of the subjects.

| Table 1: General characteristics of the elderly population. |
|-----------------------------------------------------------|
| **Characteristics** | **Males =145** | **Females =225** | **Total** |
| Age group in years | n (%) | n (%) | n (%) |
| 60-69 | 92 (63.4) | 150 (66.6) | 242 (65.4) |
| 70-79 | 44 (30.3) | 56 (24.8) | 100 (27) |
| ≥80 | 9 (6.2) | 19 (8.4) | 28 (7.6) |
| Marital status | | | |
| Married | 118 (81.3) | 72 (32) | 190 (51.5) |
| Spouse not alive | 24 (16.5) | 150 (66.6) | 174 (47) |
| Not married | 3 (2) | 1 (0.5) | 4 (1) |
| Separated/divorced | - | 2 (0.9) | 2 (0.5) |
| Education | | | |
| Illiterate | 57 (39.3) | 178 (79.1) | 235 (63.5) |
| Literate | 88 (60.7) | 47 (20.9) | 135 (36.5) |
| Currently on job | | | |
| Yes | 61 (42.1) | 27 (12) | 88 (23.8) |
| No | 84 (57.9) | 198 (88) | 282 (76.2) |
| Financial dependency | | | |
| Dependent | 84 (57.9) | 124 (55.1) | 208 (56.2) |
| Independent | 61 (42.1) | 101 (44.9) | 162 (43.8) |
| Number of chronic diseases | | | |
| 0 (Healthy) | 52 (35.9) | 66 (29.3) | 118 (31.9) |
| 1 | 56 (38.6) | 87 (38.7) | 143 (38.6) |
| >1 | 37 (25.5) | 72 (32) | 109 (29.5) |
| Total | 145 (39.2) | 225 (60.8) | 370 (100) |

Table 2 depicts the prevalence of loneliness among the elderly with different factors associated with loneliness. The prevalence of loneliness increased proportionately with their increase in age. Individuals aged more than 70 years having 48-50%. The subjects living with their spouse have lesser prevalence of loneliness (28.9%). If there is more than one person aged 60 or more in a
household, the prevalence of loneliness decreased (24.6%), likewise it is inversely proportionate to the number of family members (85.7% vs. 28.6%). Presence of basic activity (60.6%) and instrumental activity (39.5%) disabilities increased the problems of loneliness among the elderly. Non communicable diseases did not make any difference in the loneliness pattern as it was observed to be same in both the groups (37%). Subjects who are financially dependent are more prone to loneliness (38.5%).

Table 2: Distribution of elderly population according to prevalence of loneliness.

| Characteristics                          | Males =145 |          | Females=225 |          | Total          |
|------------------------------------------|------------|----------|-------------|----------|---------------|
|                                          | Yes (n (%)| No (n (%)| Yes (n (%)| No (n (%)| Yes (n (%)| No (n (%))|
| Age group in years                       |            |          |            |          |               |            |
| 60-69                                    | 21 (22.8)  | 71 (77)  | 56 (37.3)  | 94 (62.7)| 77 (31.8)    | 165 (68.2)|
| 70-79                                    | 19 (43.2)  | 25 (56.8)| 29 (51.8)  | 27 (48.2)| 48 (48)      | 52 (52)   |
| ≥80                                      | 3 (33.3)   | 6 (66.7) | 11 (57.9)  | 8 (42.1) | 14 (50)      | 14 (50)   |
| Living with spouse                       |            |          |            |          |               |            |
| Yes                                      | 32 (27.1)  | 86 (72.9)| 23 (32)    | 49 (68)  | 55 (28.9)    | 135 (71.1)|
| No                                       | 11 (40.7)  | 16 (59.3)| 73 (47.7)  | 80 (52.3)| 84 (46.7)    | 96 (53.3) |
| Number of family members aged 60 or more |            |          |            |          |               |            |
| 1 person                                 | 31 (33.3)  | 62 (66.7)| 77 (51)    | 74 (49)  | 108 (44.3)   | 136 (55.7)|
| More than one person                     | 12 (23)    | 40 (77)  | 19 (25.7)  | 55 (74.3)| 31 (24.6)    | 95 (75.4) |
| Number of family members                 |            |          |            |          |               |            |
| Single                                   | 1 (100)    | 0 (0)    | 17 (85)    | 3 (15)   | 18 (85.7)    | 3 (14.3)  |
| 2-4 members                              | 24 (32.4)  | 50 (67.6)| 44 (48.9)  | 46 (51.1)| 68 (41.5)    | 96 (58.5) |
| >5 members                               | 18 (25.7)  | 52 (74.3)| 35 (30.4)  | 80 (69.6)| 53 (28.6)    | 132 (71.4)|
| Presence of basic activity disability    |            |          |            |          |               |            |
| Yes                                      | 15 (60)    | 10 (40)  | 28 (60.9)  | 18 (39.1)| 43 (60.6)    | 28 (39.4) |
| No                                       | 28 (23.3)  | 92 (76.7)| 68 (38)    | 111 (62)| 96 (32.2)    | 203 (67.8)|
| Presence of instrumental activity disability |        |          |            |          |               |            |
| Yes                                      | 39 (30.5)  | 89 (69.5)| 77 (46.4)  | 89 (53.6)| 116 (39.5)   | 178 (60.5)|
| No                                       | 4 (23.5)   | 13 (76.5)| 19 (32.2)  | 40 (67.8)| 23 (30.3)    | 53 (69.7) |
| Presence of non-communicable diseases    |            |          |            |          |               |            |
| Yes                                      | 26 (27)    | 70 (73)  | 69 (44.2)  | 87 (55.8)| 95 (37.7)    | 157 (62.3)|
| No                                       | 17 (34.7)  | 32 (65.3)| 27 (39.1)  | 42 (60.9)| 44 (37.3)    | 74 (62.7) |
| Financial dependency                     |            |          |            |          |               |            |
| Dependent                                | 29 (34.5)  | 55 (65.5)| 51 (41.1)  | 73 (58.9)| 80 (38.5)    | 128 (61.5)|
| Independent                              | 14 (23)    | 47 (77)  | 45 (44.5)  | 56 (55.5)| 59 (36.4)    | 103 (63.5)|
| Total                                    | 43 (29.6)  | 102 (70.4)| 96 (42.7)  | 129 (57.3)| 139 (37.6)   | 231 (62.4)|

The study population suffering from loneliness are influenced by various factors and there association is shown in Table 3. The difference in proportion of loneliness among male and female was observed in these factors – living with spouse, education and employment status (z test p <0.05). The factors living with spouse, education, employment status, and number of family members were associated with loneliness and was found to be statistically significant (chi-square p <0.05)

Table 4 shows the odds ratio (OR) estimation for prevalence of loneliness. Subjects aged 80 years and above are prone to loneliness by two times. (OR=2). Subjects not living with spouse and only person in the family aged 60 years and above had double the risk of loneliness. Both these factors are found to be statistically significant (OR=2.1 and 2.4 p <0.05) Elderly member with a family size five or more are less likely to have loneliness (OR=0.6, p<0.05). Subjects suffering from basic daily activity disability (OR=3.2, p<0.05) and instrumental daily activity disability (OR=1.5) had the higher risk of loneliness. Illiteracy was another factor observed to be influencing on loneliness problem (OR = 2.3, p<0.05).

**DISCUSSION**

Loneliness can be defined as a subjective experience, a feeling of a gap between desired and actual relationships, a perceived deficit in social relationships according to
cognitive theory. Loneliness can be considered as an indicator for psycho-social wellbeing. Various mental health problems can occur because of being lonely such as depression, alcohol abuse, child abuse, sleep problems, personality disorders and Alzheimer’s disease. Loneliness is associated with all the mental problems especially depression (OR=10.8), phobia (OR=11.6) and OCD (OR=9.7). A study reveals that there is a positive correlation between depression and loneliness which means there is an increase in the level of depression with an increase in loneliness among elderly.

### Table 3: Distribution of study population suffering from loneliness problem.

| Characteristics                  | Male = 43 n (%) | Female = 96 n (%) | Total = 139 n (%)* | p-value # |
|----------------------------------|-----------------|-------------------|---------------------|-----------|
| **Age group in years**           |                 |                   |                     |           |
| 60-69                            | 21 (48.8)       | 56 (58.3)         | 77 (55.4)           | 0.2553    |
| ≥80                              | 19 (44.1)       | 29 (30.2)         | 48 (34.5)           |           |
| Living with spouse               |                 |                   |                     |           |
| Yes                              | 32 (74.4)       | 23 (24)           | 55 (39.6)**         | 0.0000##  |
| No                               | 11 (25.6)       | 73 (76)           | 84 (60.4)**         |           |
| **Education**                    |                 |                   |                     |           |
| Literates                        | 23 (53.5)       | 12 (12.5)         | 35 (25.2)**         | 0.0000##  |
| Illiterates                      | 20 (46.5)       | 84 (87.5)         | 104 (74.8)**        |           |
| **Currently on job**             |                 |                   |                     |           |
| Yes                              | 19 (44.2)       | 13 (13.5)         | 32 (23)**           | 0.001##   |
| No                               | 24 (55.8)       | 83 (86.5)         | 107 (77)**          |           |
| **Financial dependency**         |                 |                   |                     |           |
| Dependent                        | 29 (67.4)       | 51 (53.1)         | 80 (57.5)           | 0.1213    |
| Independent                      | 14 (32.6)       | 45 (46.9)         | 59 (42.5)           |           |
| **Number of family members**    |                 |                   |                     |           |
| Single                           | 1 (2.3)         | 17 (17.7)         | 18 (12.9)           | 0.0450##  |
| 2-4 members                      | 24 (55.8)       | 44 (45.8)         | 68 (48.9)           |           |
| >5 members                       | 18 (41.9)       | 35 (36.5)         | 53 (38.2)           |           |
| **Number of family members aged more than 60 years** | | | | |
| 1 person                         | 31 (72)         | 77 (80.2)         | 108 (77.7)          | 0.2899    |
| >1 person                        | 12 (28)         | 19 (19.8)         | 31 (22.3)           |           |
| **Presence of basic activity disability** | | | | |
| Yes                              | 15 (34.9)       | 28 (29.2)         | 43 (31)             | 0.5003    |
| No                               | 28 (65.1)       | 68 (70.8)         | 96 (69)             |           |
| **Presence of instrumental activity disability** | | | | |
| Yes                              | 39 (90.7)       | 77 (80.2)         | 116 (83.5)          | 0.1244    |
| No                               | 4 (9.3)         | 19 (19.8)         | 23 (16.5)           |           |
| **Presence of Non communicable diseases** | | | | |
| Yes                              | 26 (60.5)       | 69 (71.8)         | 95 (68.3)           | 0.1922    |
| No                               | 17 (39.5)       | 27 (28.1)         | 44 (31.7)           |           |
| **Total**                        | 43 (100)        | 96 (100)          | 139 (100)           |           |

*Difference between proportions of males and females in each sub variables; **p value <0.05 (z test); # indicates chi square test

A few studies have reported that prevalence of loneliness is higher among the elderly suffering from illnesses such as diabetes, auto immune disorders (Rheumatoid Arthritis, lupus) cardiovascular diseases (coronary heart disease, hypertension) obesity, cancer and poor hearing.

As we are aware about the proportion of elderly in India is rapidly rising, it becomes a challenging factor to deal with psycho social conditions. Loneliness is different from depression. A study in 1980 concluded that loneliness and depression are two separate entities. Because of multiple losses, like loss of income, spouse, friends etc, burden of loneliness can cause depressive symptoms, poor mental health and cognition, alcoholism, suicidal tendencies and mortality among the elderly aged group.
In this study population, majority were female subjects (60.8%) since, many men were unavailable at their homes at the time of data collection. The mean age of the study population was 67.3±6.7 years and ranged from 60 to 96 years. The cumulative age of male and female subjects was 9833 and 15100 years respectively.

Females are affected more than males (42.7% vs. 29.6%) which were similar to one of the study conducted in Chandigarh which showed 72.8% of females and 65.6% of males suffered from loneliness.\textsuperscript{10} One of the study in Malaysia showed that, 20.9% felt lonely always and 32.5% felt lonely sometimes.\textsuperscript{11} Another study showed that, factors like presence of chronic diseases or physical disabilities, use of medications regularly, lack of hobbies and living with a spouse were associated with increased feelings of loneliness among the elderly.\textsuperscript{12} Among males, loneliness is more in the age group of 70–79 years (OR = 3.1 & 2.4), not living with spouse (OR = 1.8), only person in the family aged 60 years and above (OR=1.7), presence of daily activity disabilities (OR = 4.9, p<0.05) and financially dependent (OR=1.8) as shown in Table 4. Basic daily activity disabilities affected loneliness more, than compared to instrumental daily activity disabilities in men more than compared to instrumental daily activity.

### Table 4: Odds ratio for loneliness with associated risk factors.

| Characteristics                          | Males# | Females# | Total# |
|-----------------------------------------|--------|----------|--------|
|                                        | n      | OR      | n      | OR      | n      | OR      |
| **Age group in years**                  |        |         |        |         |        |         |
| 60-64                                   | 52     | 1       | 85     | 1       | 137    | 1       |
| 65-69                                   | 40     | 1.1     | 65     | 0.7     | 105    | 0.9     |
| 70-74                                   | 24     | 3.1     | 38     | 1.5     | 62     | 1.9     |
| 75-79                                   | 20     | 2.4     | 18     | 1.8     | 38     | 1.8     |
| ≥80                                     | 9      | 1.8     | 19     | 2       | 28     | 2       |
| **Living with spouse**                  |        |         |        |         |        |         |
| Yes                                     | 118    | 1       | 72     | 1       | 190    | 1       |
| No                                      | 27     | 1.8     | 153    | 1.9*    | 180    | 2.1*    |
| **Number of family members aged more than 60 years** |        |         |        |         |        |         |
| >1 person                               | 52     | 1       | 74     | 1       | 126    | 1       |
| 1 person                                | 93     | 1.7     | 151    | 3*      | 244    | 2.4*    |
| **Number of family members**            |        |         |        |         |        |         |
| 2-4 members                             | 74     | 1       | 90     | 1       | 164    | 1       |
| 1 person                                | 1      | Nil     | 20     | 5.9*    | 21     | 8.4*    |
| >5 person                               | 70     | 0.7     | 115    | 0.4*    | 185    | 0.6*    |
| **Presence of basic activity disability** |        |         |        |         |        |         |
| No                                      | 120    | 1       | 176    | 1       | 299    | 1       |
| Yes                                     | 25     | 4.9*    | 46     | 2.5*    | 71     | 3.2*    |
| **Presence of instrumental activity disability** |        |         |        |         |        |         |
| No                                      | 17     | 1       | 59     | 1       | 76     | 1       |
| Yes                                     | 128    | 1.4     | 166    | 1.8     | 294    | 1.5     |
| **Financial dependency**                |        |         |        |         |        |         |
| Independent                             | 61     | 1       | 101    | 1       | 162    | 1       |
| Dependent                               | 84     | 1.8     | 124    | 0.9     | 208    | 1       |
| **Currently on job**                    |        |         |        |         |        |         |
| Yes                                     | 61     | 1       | 27     | 1       | 88     | 1       |
| No                                      | 84     | 0.8     | 198    | 0.7     | 282    | 1       |
| **Presence of Non communicable diseases** |        |         |        |         |        |         |
| No                                      | 49     | 1       | 69     | 1       | 118    | 1       |
| Yes                                     | 96     | 0.7     | 156    | 1.2     | 252    | 1       |
| **Education**                           |        |         |        |         |        |         |
| Literates                               | 88     | 1       | 47     | 1       | 235    | 1       |
| Illiterates                             | 57     | 1.5     | 178    | 2.6*    | 135    | 2.3*    |

*chi square test applied separately for males, females and total; *p value < 0.05
disabilities. (OR=4.9 vs. 1.4). Loneliness was lower among who lived in families with more than 5 people (OR=0.7). It was observed that absence of non-communicable diseases increased loneliness in case of men. This is because of multiple factors influencing among men like being away from the work environment, unable to express their feelings and inability to do basic activity.

The distribution of prevalence of loneliness among females had a similar pattern compared to men as shown in Table 4. But there are factors to be noted, loneliness is directly proportional to age group. Loneliness is not dependent on financial status (OR = 0.9), and presence of non-communicable diseases increases loneliness among females (OR=1.2).

Illiterate females were two and half times more prone to loneliness than compared to their educated counterparts (OR=2.6), basic and instrumental daily activity disabilities increased loneliness by 2.5 and 1.8 times respectively than compared to healthy individuals. Family members more than 5 was more protective (OR = 0.4) and only person aged 60 years and above in the family increased loneliness by 3 times.

The limitations in this study are 1. Loneliness is a temporary phenomenon or only is an early symptom of mental diseases or depression and this may be reported at the timing of the study. 2. There is possibility of subjective bias. 3. Assessment of chronic diseases was based on self-reporting, prescriptions and medications available with the individuals.

CONCLUSION

The problem of loneliness was observed in 37.6% of the elderly population. Females were more vulnerable. The influencing factors for loneliness are older age, living without spouse, lonely aged person in the family, family size of more than five and presence of daily activity disabilities.

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