

A Statistical Analysis on the Old Age Homes of Urban Verses Rural Verses Semi-Rural

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Abstract: Due to urbanization and standard of living it has been seen that there is increased demand of old age homes. In this paper we have studied 12 old age homes from urban, rural and semi-rural areas. All types of old ages homes including location, ownership, management, size, capacity, utilization and different facilities provided by are studied. As part of this research, 60 operational senior living community projects were enumerated across India. The study was conducted for 178 units among 12 old age homes. The data is collected and various statistical techniques are applied to the data and various results were found.

Keywords: City old age home; semi-rural old age home; rural old age home; problems of old age peoples

1. INTRODUCTION

India is getting older, and that means more people are becoming senior citizens, aged 60 and above. Right now, about 8.6% of India's population falls into this age group. But by the year 2050, this number is expected to triple, making up about 20% of the total population.

There are some important changes happening in families. More women are working and families are becoming smaller. This means that the traditional way of taking care of elderly family members within extended families is changing. However, taking care of elderly people in India is still not very good, and the system to help them is not very developed. There's not enough good information about how many places there are for senior citizens in India. Some estimates say there are between 600 to 1,700 places where seniors can live comfortably. But we don't have all the facts to know for sure. A study looked at many places where elderly people live, like old age homes and special communities for seniors, in 84 different places across India. They looked at things like how big these places are, how much they cost, and who owns and runs them. Based on this study and information from the 2011 census, they think there might be around 1,150 places for seniors in India. These places can house about 97,000 elderly residents.

2. LITERATURE SURVEY

Shanti Johnson et.al in their paper studied current status of old age home in India along with the facilities provided [1]. Priyanka V Janbandhu et.al in their paper studied about old age home in Pune city and noted that there are more women than men in old age homes[2]. Majority of widowed/widower elderly and elderly who came from nuclear family live in the oldhomes due to lack of care and support and death of their partners, especially women have prolonged widowhood due to longer life expectancy than men[3].The article by S Sudha et.al examined the impact of familial social support ties (indicated by marital status, kin availability, sources of economic support, and frequency and quality of emotional interaction) on subjective health perception among a sample of elderly men and women aged 60 and older in South India [4]. The study by author Gaitri Rajkumari revealed that most of the elderly in the old age homes were from rural background, illiterate, widowed and are economically dependent on others. The female residents were more in number. The findings revealed that the factors that compelled them to join old age homes are verbal abuse of daughter in law, financial constraints, verbal abuse of son, nobody to look after, physical abuse, tarnishing self-respect, health issues etc. [5].

3. RESEARCH METHODOLOGY

The objectives to carry out this research are:

- To determine the degree of association or relation between the two attributes
- Is there any association or relation between staying at old age homes and the reasons
- The finding of study is that there are more tablet seekers in old age homes in urban areas compared to rural areas
- There were eyesight problems among residents of old age homes in rural areas as compared to Semi-rural areas.
- The study has found the statistical significance difference in the gender distribution of residents of urban old age homes
- To determine the correlation between age and disease of old age home

These are the areas which are important to know while doing research, so we made it our priority to look at this too, if we look at more things which matter.

4. VARIOUS PROBLEMS IDENTIFIED

How to enable age with dignity is the biggest challenge that elderly people face today. So following problems were identified.

- Physiological problems
- Psychological problems
- Senile Dementia
- Emotional Problem
- Social Problem
- Financial problem
- Mobility barrier
- Depression

Physiological Problems

Living in old age homes can lead to health problems because there's often no regular medical care or check-ups. This lack of care can result in physical issues. Aging itself can cause physical changes. It depends on things like your genes, how you live, and the environment you're in. Other factors like a bad diet, not eating enough, infections, toxins, overeating, not getting enough rest, stress, working too much, hormonal issues, and extreme weather can also affect your health as you get older.

Your skin may become rough and lose its elasticity, forming wrinkles, and your veins might become more visible. Changes in your nervous system can also affect your brain. Some organs, like the spleen, liver, and soft organs, might shrink. The ratio of heart weight to body weight can decrease over time. These are all common physical changes that can happen as you age, especially if you don't get proper care and attention.

Psychological Problems

Living in old age homes can make people feel lonely and emotionally weak because they are not with their families. This can sometimes lead to mental problems. Mental issues are common in old age. Older people can experience things like severe sadness or confusion in their minds.

Senile Dementia

In old age homes, they often don't have a quiet place to sleep because they share rooms with many people. This lack of good sleep can cause health problems. Older people can suffer from something called "senile dementia".

Emotional Problem

When families don't pay much attention to their older relatives and don't seem to care, it can make the older people very sad. They miss their family a lot and sometimes cry because they feel so alone in the old age home. They really want to be with their family and wait for them to visit.

But when they think about how their family is treating them badly or ignoring them, it can make them feel even sadder, and this sadness can affect their mental health. So, it's important for families to be kind and loving to their older family members to prevent these emotional problems.

Social Problem

In the old age home, older people have to stay there all the time, and they're not allowed to go outside. This means they can't be with others or go places they like. They feel lonely and stuck, and this is the main social problem they face in old age homes.

Financial Problem

Just like everyone else, elderly people have things they want and need. When they live in an old age home, they rely on the organization to meet those needs because they don't have any money to spend on themselves.

Mobility Barrier

The elderly people living in the old age home can't go outside the area surrounded by walls. They have to stay within the home's limits. Even inside, they have specific times for things like lunch, dinner, and watching TV, and they have to follow this schedule.

Depression

Feeling lonely in old age homes can make depression more likely, and this connection between loneliness and depression can affect how long someone lives. So, in very old people, depression only seems to lead to a higher chance of passing away if they also feel lonely.

Depression often goes hand in hand with feeling lonely. Sometimes, when someone is lonely, they might show signs like withdrawing from others, feeling anxious, lacking motivation, or being sad. These signs of depression can look a lot like the signs of loneliness.

5. RESEARCH DESIGN

Nature of the study

The study is descriptive and analytical in nature.

Nature of the data

Primary data collection was done from old age homes. Questionnaire is used to collect this data.

Sample Design:

| | |
|--------------------------|--|
| Nature of the population | finite |
| Sample Size | 178 |
| Sample Unit | Each unit is selected from the old age homes |
| Sampling method | Purposive sampling |

6. SOURCE OF DATA

I. Source of Data

Google form is prepared and questions related to name, age, gender, education, service, children, reasons for living in rural or urban area, any chronic diseases the person will have, medicines taken, economic condition, emotional problems, related to exercise,

II. Tools for Analysis

- Percentage and comparative analysis have been done.
- Pie-chart, Bar graph, Multiple bar graph, Histogram and diagrams are used for presentation.

7. DATA ANALYSIS & INTERPRETATION

Data analysis was done and it shows following results.

Table 7.1:- Respondent's Gender.

| Gender | No of respondent | Percentage |
|--------|------------------|------------|
| Male | 85 | 47.75% |
| Female | 93 | 52.25% |
| Total | 178 | 100% |

Source: - Primary data

The table and graph show the gender classification of respondent 47.75% are male and 52.25% of respondents are female.

Chart 7.1:- It shows the ratio of Male and Female in old age home

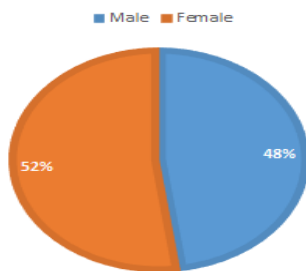


Table 7.2:- shows the difference between the citizens among the Urban vs Semi Rural vs Rural

| Places | No. of citizens | Percentage |
|------------|-----------------|------------|
| Urban | 73 | 41.01% |
| Semi-Rural | 48 | 26.96% |
| Rural | 57 | 32.02% |

Table and graph show the citizens in old age homes are 41.01% of Urban, 26.96% of Semi- Rural, and 32.02% are from Rural.

Chart 7.2:- Chart shows the no of citizens from which area

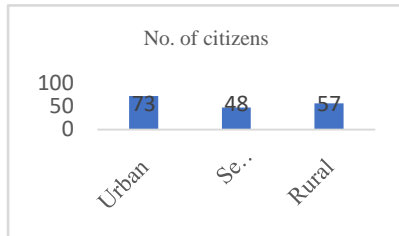


Table 7.3:- shows that how many citizens are Literate and Illiterate

| | |
|------------|-----|
| Literate | 69 |
| Illiterate | 109 |

Here 38.8% are Literate and 61.2% are Illiterate in old age homes

Chart 7.3:- Chart shows the pie chart of the literacy rate among citizens of old age homes

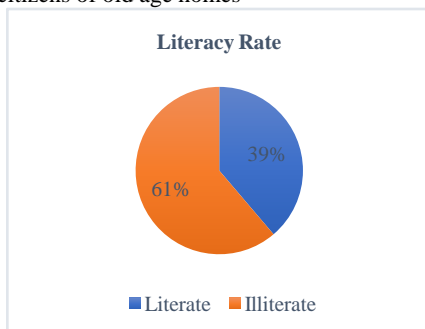


Table 7.4:- Shows how many people are in service and not

| | |
|----------------|-----|
| In service | 43 |
| Not in service | 135 |

Here the ratio of citizens in service is 26.7% and not in service are 76.3%

Chart 7.4:- Chart shows the service ratio of the citizens of old age homes

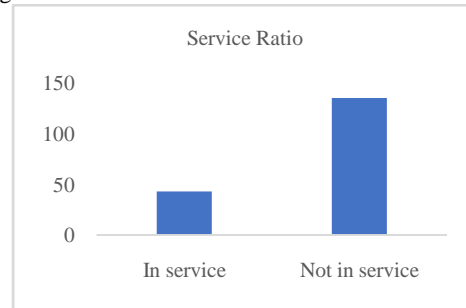


Table 7.5:- This graph shows how many children do they have

| Children | Total | Percentage |
|----------|-------|------------|
| 0 | 35 | 19.66% |
| 1 | 35 | 19.66% |
| 2 | 57 | 32.02% |
| 3 | 31 | 17.41% |
| 4 | 13 | 0.073% |
| 5 | 2 | 0.011% |
| 6 | 5 | 0.028% |

Table and chart show that the graph of the children, Of the old age home people

Chart 7.5:- Chart show that the ratio of the children of old people

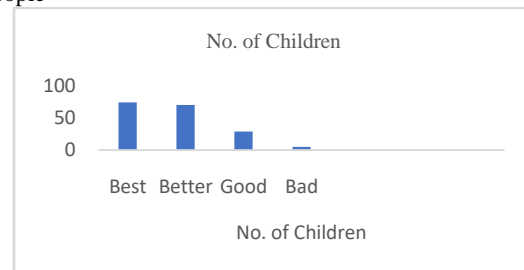


Table 7.6:- Shows how many of them get the pension through their service for the government or by the schemes of government.

| Do you get pension | No. of citizen | Percentage |
|--------------------|----------------|------------|
| Yes | 40 | 22.47% |
| No | 138 | 77.53% |
| Total | 178 | 100% |

From the table and figure we have more no of citizens who do not get pension where the numbers are 22.47% of Yes and 77.53% of are No.

Chart 7.6:- Chart shows the ratio of the citizens who get pension

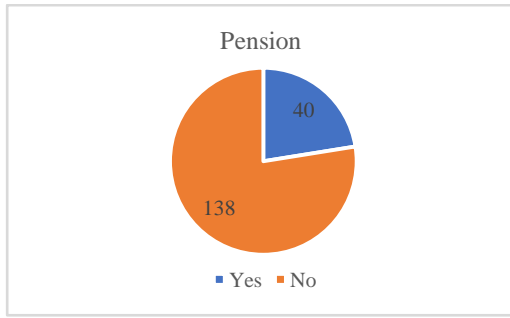


Table 7.7:- shows the health condition of the citizen living there.

| Health condition | No. of citizen | Percentage |
|------------------|----------------|------------|
| Best | 74 | 41.6% |
| Better | 70 | 39.3% |
| Good | 29 | 16.3% |
| Bad | 5 | 2.8% |
| Total | 178 | 100% |

Table and graph shows that the health condition among the citizens of the old age homes here whose condition is not good has very less number we can neglect them.

Chart 7.7:- Chart show the ratio of health condition of the citizens of old age home

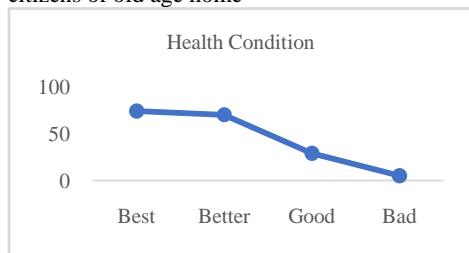


Table 7.8:- Shows that what is the main reason they live here

| Reasons | Numbers | Percentage |
|--|---------|------------|
| Daughter-in-law does not behave properly | 44 | 24.71% |
| Son does not behave properly | 48 | 26.96% |
| Children in abroad | 21 | 11.79% |
| No Children | 34 | 19.10% |
| Other | 31 | 17.41% |
| Total | 178 | 100% |

Table and chart give us the information about the main reason why they people live here where

Chart 7.8:- Chart shows the graph of the reasons and numbers

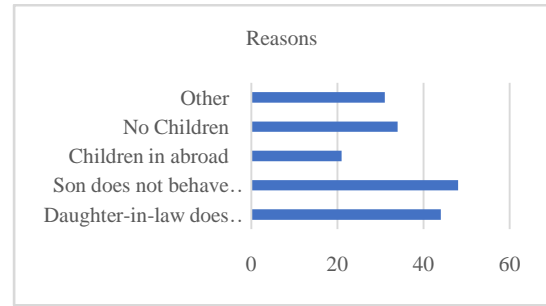


Table 7.9:- Shows that the old people are taking any kind of tablet for their health

| Tablet takers | No of citizens | Percentage |
|---------------|----------------|------------|
| Yes | 109 | 61.23% |
| No | 69 | 38.76% |
| Total | 178 | 100% |

Table and chart shows that the tablets consumed by the old people are 61.23% and 38.76% do not take any type of medicine.

Chart 7.9:- Chart shows the percentage of tablet seekers in old age home

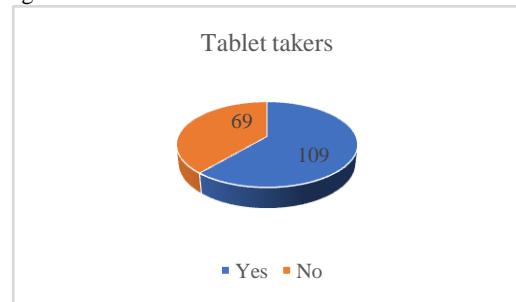


Table 7.10:- Shows that the they have any chronic health disease

| Chronic health disease | No of citizens | Percentage |
|------------------------|----------------|------------|
| Yes | 109 | 61.23% |
| No | 69 | 38.77% |
| Total | 178 | 100% |

Chart and Table shows the no of citizens having the chronic health disease where 61.23% are having and 38.77% are not having chronic health disease

Chart 7.10:- Chart shows the representation of the chronic health disease

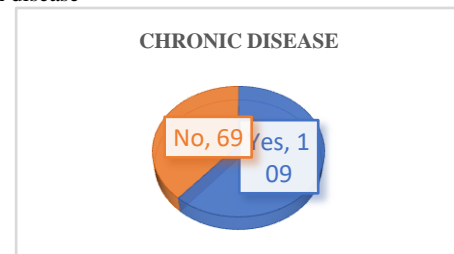


Table 7.11:- Show that the old people get call from their family, relatives, friends or etc.

| Calls from Home | No of calls | Percentage |
|-----------------|-------------|------------|
| Once a week | 95 | 53.37% |
| Twice a week | 19 | 10.67% |
| No calls | 64 | 35.95% |
| Total | 178 | 100% |

Table and Graph shows that how many calls they get from their children, relative, friends.

Chart 7.11:- Charts shows the graphical representation of the people getting calls from home

| Age Groups | No of people |
|------------|--------------|
| 60 – 65 | 40 |
| 65 – 70 | 36 |
| 70 – 75 | 30 |
| 75 – 80 | 29 |
| 80 – 85 | 25 |
| 85 – 90 | 10 |
| 90 – 95 | 6 |
| 95 - 100 | 2 |

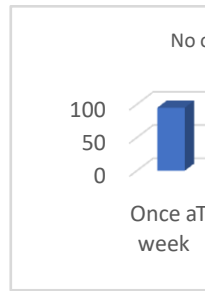


Table 7.12:- Shows that they have eyesight problem or not

| Eye sight problem | No of patients | Percentage |
|-------------------|----------------|------------|
| Yes | 58 | 33.15% |
| No | 119 | 66.85% |
| Total | 178 | 100% |

Chart 7.12:- Chart shows the representation of the eye sight problems of old people in old age home.

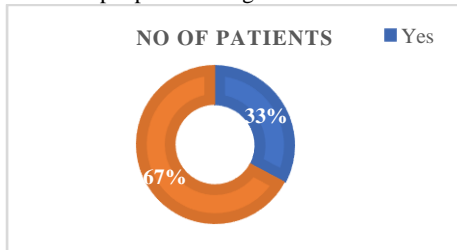


Table 7.13:- Shows that people staying here are happy or not

| Happy or Not | No. of citizens | Percentage |
|--------------|-----------------|------------|
| Yes | 111 | 62.35% |
| No | 52 | 29.21% |
| Don't know | 15 | 8.42% |
| Total | 178 | 100% |

Table and Graph shows that the old people staying there are happy but only 62.35%, 29.21% people are not happy and remaining 8.42% people don't know.

Chart 7.13:- Shows the graphical representation between happy and not happy people.



Fitting of Log-Normal Distribution

Here we took the data of age of old age home which is above 60 years and goes upto 100 years.

1. We fit the log-normal distribution to check whether our data is positively skewed i.e. has long tail on positive side
2. If our data fits the Log-normal distribution, then we can use various test.

Solution:- ESTIMATION OF PARAMETER

| X | fi | xi | fi*xi | fi*xi*xi |
|------------|---------------|----------|--------|-----------|
| Age Groups | No. of people | Midpoint | | |
| 60 – 65 | 40 | 62.5 | 2500 | 156250 |
| 65 – 70 | 36 | 67.5 | 2430 | 164025 |
| 70 – 75 | 30 | 72.5 | 2175 | 157687.5 |
| 75 – 80 | 29 | 77.5 | 2247.5 | 174181.25 |
| 80 – 85 | 25 | 82.5 | 2062.5 | 170156.25 |
| 85 – 90 | 10 | 87.5 | 875 | 76562.5 |
| 90 – 95 | 6 | 92.5 | 555 | 51337.5 |
| 95 - 100 | 2 | 97.5 | 195 | 19012.5 |
| Total | 178 | - | 13040 | 969212.5 |

$$m1^1 = 73.2584$$

$$m2^2 = 5445.01404$$

$$S = \sqrt{m2} = 73.79033$$

$$\text{Estimation of } \sigma \text{ LOG}_e = \text{LN}(m2^1 / (m1^1 * m1^1))$$

$$\text{Estimation of } \sigma = 0.12029$$

$$\text{Estimation of } \mu = 4.28676$$

Table to find expected frequency

| Age group | No. of people | Upper limit | P (X < li) | Pi | Ei |
|-----------|---------------|-------------|------------|---------|--------|
| 0 – 60 | 0 | 60 | 0.05484 | 0.05484 | 7.7617 |
| 60 – 65 | 40 | 65 | 0.17510 | 0.12026 | 21.406 |
| 65 – 70 | 36 | 70 | 0.37520 | 0.2001 | 35.618 |
| 70 – 75 | 30 | 75 | 0.60081 | 0.22561 | 40.159 |
| 75 – 80 | 29 | 80 | 0.78582 | 0.185 | 32.930 |
| 80 – 85 | 25 | 85 | 0.90251 | 0.11669 | 20.771 |
| 85 – 90 | 10 | 90 | 0.96173 | 0.05922 | 10.541 |
| 90 – 95 | 6 | 95 | 0.986813 | 0.02508 | 4.4639 |
| 95 - 100 | 2 | 100 | 0.99594 | 0.00913 | 1.6246 |
| 100 - ∞ | 0 | ∞ | 1 | 0.00406 | 0.7225 |
| Total | 178 | - | - | 1 | 178 |

We wish to test

H_0 = Fitting is good i.e. log normal distribution fits the data.

H_1 = Fitting is not good i.e. log normal distribution does not fit the data.

Under H_0 the test statistic is

$$\text{Chi - square (cal)} = \sum (O_i - E_i)^2 / E_i$$

Has Chi - square distribution with

$$(n - k - 1) = 7 - 2 - 1$$

Table for calculation of value of test statistics

| Sr. No | O _i | E _i | (O _i - E _i) ² /E _i |
|--------|----------------|----------------|---|
| 1 | 40 | 31.1682 | 2.50255 |
| 2 | 36 | 65.6181 | 0.00409 |
| 3 | 30 | 40.1593 | 2.57006 |

| | | | |
|-------|----|---------|----------|
| 4 | 29 | 32.9303 | 0.46909 |
| 5 | 25 | 20.7712 | 0.86098 |
| 6 | 10 | 10.5416 | 0.027826 |
| 7 | 8 | 6.81119 | 0.20749 |
| Total | | | 6.642085 |

Chi-Square cal = 6.642085

Chi-Square table at d.f = 9.487729

n = 7 no. of class after pooled

k = 2 no. of parameter estimated Comparison

Chi-square cal < Chi-square table value

We accept the null hypothesis is 5% loss and conclude that log normal distribution fits the data.

Testing of hypothesis

RUN TEST:

Here the sequence of Male and Female is,

| Area | Daughte r-in-law does not behave properly | Son does not behave properly | Childr en in abroad | No child | Other | To tal |
|--------------|---|------------------------------|---------------------|----------|---------|--------|
| City (Urban) | 18.0449 | 19.6853 | 8.6123 | 13.9438 | 12.7134 | 73 |
| Semi Rural | 12.1123 | 13.2134 | 5.7808 | 9.35955 | 8.5337 | 49 |
| Rural | 13.8426 | 15.1011 | 6.6067 | 10.6966 | 9.7528 | 56 |
| Total | 44 | 48 | 21 | 34 | 31 | 178 |

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 F MM

Sample size 178 > 20

So, we will apply Normal Approximation.

Here we set hypothesis as,

H₀: Sample is random

H₁: sample is not random

To test hypothesis, we find the value of r,

i.e. Number of r.v's

r = Number of Runs = 64

n₁ = number of Male = 85

n₂ = number of Female = 93

Test Statistics: -

$$Z_{cal} = r - E(r) / \sqrt{V(r)}$$

Consider,

$$E(r) = \frac{\{(2 \cdot n_1 \cdot n_2) / (n_1 + n_2)\} + 1}{\{(2 \cdot 85 \cdot 93) / (85 + 93)\} + 1}$$

$$E(r) = 89.83$$

$$Var(r) = \frac{[2 \cdot n_1 \cdot n_2 \cdot (2 \cdot n_1 \cdot n_2 - n_1 - n_2)] / [(n_1 + n_2)^2 \cdot (n_1 + n_2 - 1)]}{[2 \cdot 85 \cdot 93 \cdot (2 \cdot 85 \cdot 93 - 85 - 93)] / [(85 + 93)^2 \cdot (85 + 93 - 1)]}$$

$$Var(r) = 44.069$$

Now,

$$Z_{cal} = -3.891$$

$$|Z_{cal}| = |-3.891|$$

$$Z_{cal} = 3.891$$

At $\alpha = 0.05$

$$Z_{tab} = Z_{\alpha/2} = 1.96$$

$$Z_{tab} > Z_{cal}$$

Therefore, Accept H₀

Conclusion: - Sample we took from the old age home is random.

Chi-Square test 1

Health condition is dependent on

Gender

To test the given fact, set up hypothesis as:

H₀ : Two attributes under study are independent.

Observed frequencies

| Gender | Best | Better | Good | Total |
|--------|------|--------|------|-------|
| Male | 32 | 23 | 42 | 97 |
| Female | 42 | 16 | 23 | 81 |
| Total | 74 | 39 | 65 | 178 |

Expected Frequency

| Gender | Best | Better | Good | Total |
|--------|------|--------|------|-------|
| Male | 40 | 21 | 35 | 97 |
| Female | 34 | 18 | 30 | 81 |
| Total | 74 | 39 | 65 | 178 |

To test this hypothesis, use p-value and conclude.

$$P\text{-value} = 0.03374 > 0.01$$

Hence, Accept H₀

Conclusion: Health condition independent on Gender

Chi-Square test 2

Chi square test Independence of attributes

Relation between staying in an old age home and Reasons.

H₀ : There is no significant relation between staying at old age home and reasons.

H₁ : There is significant relation between staying at old age home and reasons.

| Area | Daughter-in-law does not behave properly | Son does not behave properly | Children in abroad | No child | Other | Total |
|--------------|--|------------------------------|--------------------|----------|-------|-------|
| City (Urban) | 9 | 16 | 8 | 21 | 19 | 73 |
| Semi Rural | 14 | 16 | 9 | 6 | 4 | 49 |
| Rural | 21 | 16 | 4 | 7 | 8 | 56 |
| Total | 44 | 48 | 21 | 34 | 31 | 178 |

Expected Frequency

| Area | Daughter-in-law does not behave properly | Son does not behave properly | Children in abroad | No child | Other | Total |
|--------------|--|------------------------------|--------------------|----------|---------|-------|
| City (Urban) | 18.0449 | 19.6853 | 8.6123 | 13.9438 | 12.7134 | 73 |
| Semi Rural | 12.1123 | 13.2134 | 5.7808 | 9.35955 | 8.5337 | 49 |
| Rural | 13.8426 | 15.1011 | 6.6067 | 10.6966 | 9.7528 | 56 |
| Total | 44 | 48 | 21 | 34 | 31 | 178 |

Calculation for Chi-Square test

| Observed values | Expected values | (O - E) | (O - E) ² | [(O - E) ² /E] |
|-----------------|-----------------|---------|----------------------|---------------------------|
| 9 | 18.04 | -9.04 | 81.7216 | 4.5300 |
| 16 | 19.68 | -3.68 | 13.5424 | 0.6881 |
| 8 | 8.61 | -0.61 | 0.3721 | 0.0432 |
| 21 | 13.94 | 7.06 | 49.8436 | 3.5755 |
| 19 | 12.71 | 6.29 | 39.5641 | 3.1128 |
| 14 | 12.11 | 1.89 | 3.5721 | 0.2949 |
| 16 | 13.21 | 2.79 | 7.7841 | 0.5892 |
| 9 | 5.78 | 3.22 | 10.3684 | 1.7938 |
| 6 | 9.35 | -3.35 | 11.2225 | 1.2002 |
| 4 | 8.53 | -4.53 | 20.5209 | 2.4057 |
| 21 | 13.84 | 7.16 | 51.2656 | 3.7041 |
| 16 | 15.1 | 0.9 | 0.81 | 0.0536 |
| 4 | 6.6 | -2.6 | 6.76 | 1.0242 |

| | | | | |
|-------|-------|-------|---------|---------|
| 6 | 10.69 | -4.69 | 21.9961 | 2.0576 |
| 8 | 9.75 | -1.75 | 3.0625 | 0.3141 |
| Total | | | | 25.3876 |

Chi -square calculated = 25.3876

Chi square tabular:-

Degrees of freedom

= (Column – 1) (Rows -1)

= 4*2

= 8

Level of Significance = $\alpha = 0.05$

Formulae:- =CHISQ.INV.RT(0.05,8)

Chi square tabular = 15.507

Chi square calculated > Chi square tabular

Hence, we reject Null Hypothesis and Accept Alternative Hypothesis

Conclusion: - There is a significant relation between staying at old age homes and the Reason.

Proportion Z test

To obtain the proportion of tablet consumer in urban and rural

Let,

X_1 =The tablet consumers selected from the Urban = 37

X_2 =The tablet consumers selected from the Rural = 12

Given,

| | |
|----|----|
| n1 | 73 |
| n2 | 57 |

Now, we compute the sample proportion.

| | | |
|-----------------|-------|--------|
| $p_1 = X_1/n_1$ | 37/73 | 0.5068 |
| $p_2 = X_2/n_2$ | 12/57 | 0.2105 |

We wish to test,

$H_0 : p_1 = p_2$

i.e. There is no significant difference between two proportion

$H_1 : p_1 > p_2$

i.e. There is significant difference between two proportion

Under H_0

The test statistic is

$P = (p_1 n_1 + p_2 n_2) / (n_1 + n_2)$

$P = (36.9964 + 7.7885) / 130$

$P = 0.3448$

$Q = 1 - P$

$Q = 1 - 0.3448$

$Q = 0.6552$

Test statistic: -

$|Z_{cal}| = (p_1 - p_2) / \{PQ[(1/n_1) + (1/n_2)]\}$

$\sim N(0,1)$

Now, the value of P is given by

$= (0.5068 - 0.2105) / [0.2259(0.0136 + 0.0175)]$

$= 0.2963 / 0.00702$

$|Z_{cal}| = 42.2079$ Here, $\alpha = 0.05$

$Z_{tab} = 1.64$ $Z_{cal} > Z_{tab}$

$42.2079 > 1.64$

Hence we reject H_0

Conclusion: - There is significant difference between two Proportion.

Proportion Z test

To obtain the proportion of tablet consumer in urban and rural

Let,

X_1 =The tablet consumers selected from the Urban = 37

X_2 =The tablet consumers selected from the Rural = 12

Given,

Proportion Z test

Eye sight problem in Semi – Rural and Rural

Let

X_1 =Eye sight problem in Semi - rural = 18

X_2 =Eye sight problem in Rural = 21

Given

| | |
|----|-----|
| n1 | 119 |
| n2 | 59 |

Now, we compute the sample proportion

| | | |
|-----------------|--------|--------|
| $p_1 = X_1/n_1$ | 18/119 | 0.1512 |
| $p_2 = X_2/n_2$ | 21/59 | 0.3559 |

We wish to test

$H_0 : p_1 = p_2$

i.e. Eye sight problem in Semi- rural and Rural are equal

$H_1 : p_1 < p_2$

i.e. Eye sight problem in Semi - rural is less than Rural

Under H_0 The test statistic is

$P = (p_1 n_1 + p_2 n_2) / (n_1 + n_2)$

$= (17.9928 + 20.9981) / 178$

$= 0.21905$

$Q = 1 - P$

$= 1 - 0.21905$

$= 0.78095$

Test statistic: -

$|Z_{cal}| = (p_1 - p_2) / \{PQ[(1/n_1) + (1/n_2)]\} \sim N(0,1)$

Now, the value of P is given by

$= (0.1512 - 0.3559) / [0.1710(0.0084 + 0.0169)]$

$= -0.2047 / 0.004326$

$|Z_{cal}| = 47.3185$

Here, $\alpha = 0.05$

$Z_{tab} = 1.64$

$Z_{cal} > Z_{tab}$

$47.3185 > 1.64$

Hence we reject H_0

Conclusion: - Proportion of Eye sight problem among the residents of old age home is less in Semi – rural than Rural.

To obtain the proportion of Male and Female proportion in Urban old age homes

Let,

X_1 =Female in Urban = 34

X_2 =Males in Urban = 30

Given

| | |
|----|----|
| n1 | 93 |
| n2 | 85 |

Now, we compute the sample proportion.

| | | |
|-----------------|-------|--------|
| $p_1 = X_1/n_1$ | 34/93 | 0.3655 |
| $p_2 = X_2/n_2$ | 30/85 | 0.3529 |

We wish to test

$H_0 : p_1 = p_2$

i.e. Male and Female are equal in Urban

$H_1 : p_1 < p_2$

i.e. Male are less than Female in Urban

Under H_0 The statistic is

$P = (p_1 n_1 + p_2 n_2) / (n_1 + n_2)$

$= (33.915 + 29.9965) / 178$

$= 0.3594$

$Q = 1 - P = 1 - 0.3594$

$= 0.6406$

Test statistic: -

$|Z_{cal}| = (p_1 - p_2) / \{PQ[(1/n_1) + (1/n_2)]\} \sim N(0,1)$

Now, the value of P is given by

$= 0.3655 - 0.3529 / 0.2302(0.0224)$

$= 0.0126 / 0.00515$

$|Z_{cal}| = 2.4466$

Here, $\alpha = 0.05$

$Z_{tab} = 1.64$

$Z_{cal} > Z_{tab}$

$2.4466 > 1.64$

Hence we reject H_0

Conclusion: - Proportion of Male population is less than Female population in Urban old age homes

If a proportion test shows that there are significant fewer males than females in Urban old age home, conclusion could be Gender population in urban old age are skewed towards females.

FINDINGS

- The analysis does not indicate a significant relation between Health and Sex.
- It has the strong relation between the two factors of staying at Old Age home and the reasons they both are independent.
- The study satisfies the objective that there are more tablet seekers in Urban Old Age home as compared to rural Old Age home
- The study satisfies the objective that the Eye Sight problem among the residents of Semi – Rural Old Age home is less than the Rural Old Age homes.
- Analysis indicates that the Females are more than Males in Urban Old Age homes.
- Finding suggest that the relation between age and disease is correlated, it shows that as the Age increases the disease may tend to increase.
- Gender wise classification of respondents exposed that majority are female compared to the opposite gender.
- According to the analysis of data it shows the ratio of old people at old age home are more in Urban > Rural > Semi-Rural
- Analysis says that the literacy rate in Old Age home is more.
- Even the literacy rate is high but the service ratio is less as compared to the literacy rate of Old Age home.
- The Analysis says that the most frequent reason of people staying at old age home is that their Son don't take responsibility of them.
- According to the graph of Health condition we can conclude that the Check ups and the visit of the Doctors is regular. Because most of the people are in good condition.
- Eye sight problems in old people are faced by lot according to data.

SUGGESTION'S

- 1) **HEALTH:** The old age home should have a medical facility on- site or have easy access to medical services. The staff should be trained in basic first aid and emergency response procedures.
- 2) **INFRASTRUCTURE:** The infrastructure of the old age home should be designed to meet the needs of older adults. This includes accessible facilities, such as ramps, handrails, and grab bars, to promote mobility and prevent falls. The home should have adequate lighting, ventilation, and comfortable living spaces.
- 3) **SECURITY:** The old age home should have a robust security system in place to ensure the safety and well-being of residents. This includes physical security measures, such as surveillance cameras and secure entrances, as well as staff training to prevent.
- 4) **PHYSICAL NEEDS:** The old age home provide the physical needs of the residents, including nutritious meals, clean water, and adequate hygiene facilities. The home should also have facilities for physical exercise and activities.

5) **MANAGEMENT OF FACILITIES:** The management of old age home should be efficient and effective. This includes proper maintenance of the facilities, regular monitoring of the health and well-being of the residents, and clear communication between the staff, 3.

8. CONCLUSION

Proportion Z test

The study looked at old age homes in cities, semi-rural areas, and rural areas to see how they differ in facilities and healthcare. Here's what we found:

City Old Age Homes: These places have modern facilities and more staff, but they are expensive for residents.

Semi-Rural Old Age Homes: These homes feel more like a home, with personal care. However, they might not have easy access to specialized medical help.

Rural Old Age Homes: These places have a strong sense of community and family involvement, but they might have fewer resources and services.

In simple words, where elderly people live makes a big difference. City homes are modern but costly, semi-rural homes are more personal but lack medical help, and rural homes have a strong community but fewer resources. It's important to consider what an elderly person needs and prefers when choosing a home for them. Also, these homes need support and resources to provide good care for the elderly residents.

9. LIMITATIONS

- There is limitation of sample size and spectrum of respondents.
- Samples taken may be biased.
- The study is limited to old age homes only.

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