

## Research Article

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# Balcony in Elderly Housing: Association between Existing Balcony Feature and Needs of Elderly People

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## ABSTRACT

The study aimed to assess the balcony design in elderly housing, contributing factors and the association between existing balcony features and the needs of elderly people. Kurnool district of Andhra Pradesh was selected for the study. The elderly women (n=60) aged sixty and above were the criteria for the selection of the sample. The guidelines for designing balconies in elderly housing served as a base for identifying the features of the existing balcony of the house. An interview cum observation schedule was designed for collecting information about the existing balcony conditions and needs of the respondents. Most of the respondents belongs to good financial status to afford good housing to live comfortably. The results revealed that there is an association between the existing balcony design and the needs of the respondents. No standard design guidelines were adopted when balconies were designed. Most of the balconies were designed based on the availability of space. The elderly felt essential to have balconies with a clear width of 5 feet and a total area of 50-60 square feet in their housing. The elderly felt essential to have balconies with sufficient area and with the provision of railings or balustrades at the proper height. The variables of the study i.e., family monthly income and type of the house had no influence on the adoption of standard design guidelines while planning balcony design.

**Keywords:** balcony, design guidelines, elderly people, family income, housing, space availability

## INTRODUCTION

Interior features that are predominantly considered for older people make them feel safe and harmless. The application of home modifications to the house is preferable so that occupants can live safely, despite their physical limitations to decrease the risk of falls [1]. An open place enclosed by a wall or balustrade on the interior or exterior part of a building is considered a balcony that has developed into a multipurpose living space. In addition to their social and spatial potentials, balconies have long been used as a "buffer zone" to bring outer spatial aspects into the home [2]. Before the pandemic, balconies were temporary and only utilized sometimes, but since people have stayed in their homes longer, they have evolved into one of the most essential living places. The balcony, in the early days of the modern era, was considered a threshold for access to fresh air and natural light, and has begun to be utilized for purposes that cannot be done inside the house, such as hanging clothing and growing

plants. In favor of concentrating on personal and practical matters, users have abandoned their old balcony usage practices, demoting balconies to a supporting role. Balconies, which can be characterized as open, semi-closed, recessed, French, or later closed with glass operate as a bridge with the outside world and have grown to be a person's only connection with the outside world for those who heed the call to stay at home. The concept of the balcony, which before COVID-19 was associated with capitalism and isolating civilizations, has changed daily lives and evolved into a spatial expression of the altered daily urban life following the pandemic [3,4]. The study aimed to know the (i) association between existing balcony features and the needs of elderly people and (ii) the relationship between the type of house and the family income towards balcony design.

## MATERIALS AND METHODS

Kurnool district of Andhra Pradesh was selected for the study. The elderly women (n=60) in the age of sixty and above who were able to carry out their daily chores independently and living in a separate dwelling were the criteria for the selection of the sample. A random sampling method was adopted to select the locations to draw the sample. A purposive sampling technique was adopted to draw the sample from the randomly selected study locations. The guidelines for designing balconies

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in elderly housing [5] served as a base for identifying the features of the existing balcony of the house. Depending on the provision of the design features. Score 3 was given in case the existing feature was "above the recommended guidelines", score 2 was given in case the existing feature was "as per the recommended guidelines" and score 1 was given in case the existing features were "below the recommended guidelines". The probable score each respondent can get was between 3 and 9. The results were interpreted such that the higher the score, the higher the probability of the presence of a balcony as per the recommended guidelines. An interview cum observation schedule was designed for collecting information about the existing balcony conditions and needs of the respondents. A chi-square analysis was done to find out the association between existing housing conditions and the design needs of the respondent. Anova was done to find out the relationship between the respondent's family income and the type of house towards the existing balcony design.

## RESULTS AND DISCUSSION

### Family income

The Family income was grouped as per Kuppuswamy socioeconomic status scale [6] and given in Table 1. The income earned by all family members together was considered as total family income. The total family income per month ranged between not less than Rs.18953 and not above Rs.126360. More than thirty-five per cent of the families earned income between Rs. 63,182 to Rs.1,26,356 and one-third of the elderly families income was between Rs.47266 and Rs. 63178 and slightly more than one-fifth of the elderly earned between Rs. 31591 to Rs. 47262 per month. Families who earned relatively high income above Rs.126360 were only 3.33 per cent and relatively low income of between Rs.18953- Rs.31598 were 6.67 per cent.

**Table 1. Distribution of respondents by family income**

Family income in Rupees	Frequency	Percentage(%)
Above 1,26,360	2	3.33
63,182 -1,26,356	21	35
47,266 - 63,178	20	33.33
31,591 - 47,262	13	21.67
18,953- 31,598	4	6.67
<b>Total</b>	<b>60</b>	<b>100</b>

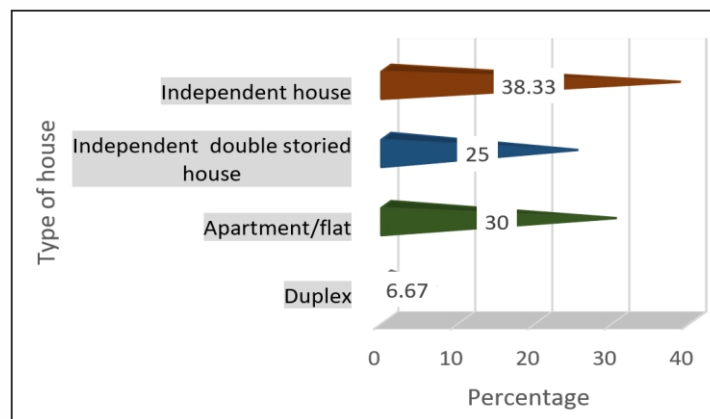
**Table 2. Distribution of elderly people by their existing features and needs in designing a balcony**

Recommended Design guidelines	Status of existing balcony feature against the guidelines			Adequacy of the need of a balcony feature		
	Above the recommended guidelines	Exactly as per the recommended guidelines	Below are the recommended guidelines	Essential	Preferred	Neutral

Families in their contracting stage of life were found earning neither too high nor too low. Most of them were with sufficient income to live comfortably.

### Type of house

Four types of elderly houses were found in the study. Out of 60 elderly people 38.33 % were residing in independent houses and thirty per cent were living in apartment. One-fourth (25%) of the elderly were staying in an independent double-storied house and very few (6.67%) were staying in the duplex house (Figure 1).



**Figure 1. Distribution of respondents by type of house**

The most popular types of houses found were independent houses, Independent double-storied houses, Apartments or flats and Duplex type of houses. In the Kurnool district independent houses were and the apartment culture was gaining popularity in recent times.

### Balcony design in elderly housing

Three standard design guidelines were identified to assess the design of balconies in elderly housing. In two-fifth of the houses, the balconies had no clear width and total area as per the recommended guidelines. More than half (56 %) of the balconies had railings and balustrades at the proper height (Table 2). No standard design guidelines were adopted when balconies were designed. Most of the balconies were designed based on the availability of space [7].

### The design needs for the balcony

The elderly people were asked to state their recommendations and need in designing a balcony to enable the elderly to live comfortably. Thirty-one per cent of the elderly felt essential to have balconies with a clear width of 5 feet and a total area of 50-60 square feet (33%). More than half (56 %) of the elderly people preferred to have balconies with railings and balustrades at the proper height. The elderly felt essential to have balconies with sufficient area and with the provision of railings or balustrades at the proper height (Table 2).

	N	%	N	%	N	%	N	%	N	%	N	%
Balconies with a clear minimum width of 5 feet	20	33.33	15	25	25	41.67	19	31.67	15	25	26	43.33
Balconies with a total clear area of 50-60 square feet	20	33.33	14	23.33	26	43.33	20	33.33	14	23.33	26	43.33
Provision of Railings and balustrades at a height of 2 to 3 feet above the balcony surface	3	5	34	56.67	23	38.33	3	5	34	56.67	23	38.33

#### *Association between existing balcony design and needs of elderly regarding balcony design*

H0 1. There is no significant association between existing balcony design and the needs of the elderly with reference to balcony design

Thirty per cent of the elderly preferred to have balconies as per the recommended guidelines. The design guidelines for the balcony include area, width and provision of balustrades and railings above the balcony surface (Table 3).

**Table 3. Association between existing design features of balcony and needs of the elderly**

Existing balcony design features	The design needs reference to the balcony							
	Neutral		Preferred		Essential		Total	
	N	%	N	%	N	%	N	%
Below are the recommended guidelines	23	38.33	0	0	0	0	23	38.33
As per the recommended guidelines	0	0	22	36.67	0	0	22	36.67
Above the recommended guidelines	0	0	1	1.67	14	23.33	15	25
Total	23	38.33	23	38.33	14	23.33	60	100
$\chi^2$ values	113.56							
Probability value	< .0001*							

**Note- \*- significant at 1 per cent level**

The highly significant Chi-square value revealed strong evidence against the null hypothesis. Hence, the null hypothesis was rejected. There is an association between the existing balcony design and the needs of the respondents to age in place regarding balcony design. No standard design guidelines were adopted when balconies were designed. Most of the balconies were designed based on the availability of space. The elderly felt essential to have balconies with sufficient area and with the provision of railings or balustrades at the proper height.

**Relationship between type of house and family income towards the existing balcony design**

H0 2. There exists no significant relationship between the existing balcony design and the type of the house.

**Table 3. Analysis of variation in existing balcony design with regard to type of the house**

S.No	Type of house	N	Mean	Std	F-Value
1	Independent house	23	4.91	2.02	0.2369
2	Independent double storied house	15	5.33	2.32	
3	Apartment/flat	18	6.17	1.82	
4	Duplex	4	6.25	2.36	

No significant variation (F-value >0.0001) was found in the adoption of standard design guidelines while designing balconies. Hence, the null hypothesis is accepted. There exists no significant relationship between respondents with different types of houses and the existing design balcony.

H0 3. There exists no significant relationship between existing balcony design and family income

**Table 4. Analysis of variation between existing balcony design with regard to family income**

S.No	Family Income in Rupees	N	Mean	Std	F-Value
1	Low-income group	4	3.25	0.50	0.0702
2	Lower middle-income group	13	5.08	2.18	
3	Middle income group	20	5.70	2.18	
4	Upper middle-income group	21	5.71	1.90	
5	Upper income group	2	8.00	0.00	

The Null hypothesis was accepted. No Significant variation (F Value >0.0001) across the income groups was found with reference to balcony design. There exists no relationship between standard design guidelines and existing balconies in elderly houses. Most of the balconies had railings and balustrades at proper height. Most of the balconies were designed based on the availability of space.

**CONCLUSION**

No standard design guidelines were adopted when balconies were designed. Most of the balconies were designed based on the availability of space. The elderly felt essential to have balconies with sufficient area and with the provision of railings or balustrades at the proper height. There is an association between the existing balcony design and the needs of the respondents with reference to balcony design. The Income of the family and type of house had no influence on the adoption of standard design guidelines while planning balcony design.

**Future scope of the study**

The results of the study will help interior designers, architects and other organizations while designing elderly homes. Similar type of research can be done for designing balcony for specially-abled people such as wheelchair users, people with low vision and so on.

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**Conflict of interests**

Authors have declared that no conflict of interests exists.

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