**Perception and attitude towards roof top gardening among urban residents of Coimbatore district**

**Abstract**

Coimbatore district in Tamil Nadu, renowned for its lush greenery, has seen rapid population growth and unchecked development in recent times, leading to a decline in urban green spaces and increase in environmental concerns. To address this, rooftop gardening has been proposed as a sustainable and cost-effective solution. This study aimed to evaluate the Perception and attitude towards rooftop gardens among urban residents of Coimbatore district. A descriptive quantitative study was conducted, in which sampling of 80 respondents was done through systematic sampling method with a pre tested well - structured interview schedule. Data analysis involved SPSS and MS Excel, focusing on descriptive statistics. Results showed that the majority of respondents (85%) had favourable attitudes towards rooftop gardening, while a very few had an unfavourable attitude (3.3%). In terms of perceptions, three-quarters (75%) had positive views, and in terms of overall negative perception (54%) showing negative views. However, half of the respondents (54%) on overall perceptions still held negative views towards rooftop gardening. Thus, effective policy interventions and collaborative efforts involving government and municipal authorities are necessary to promote the acceptance of rooftop gardens among urban residents.

**Keywords – Rooftop gardening, Urban residents, Coimbatore district, Attitude, Perception.**

**Introduction**

Urbanisation is a worldwide occurrence that is changing the human settlement landscape by causing a reduction in green spaces and rise in population concentrations. Rooftop gardening has evolved as an acceptable answer to the environmental problems brought about by increased urbanisation. It additionally improves urban aesthetics but also helps with food security, biodiversity protection, and climate resilience. Not withstanding its possible advantages, urban residents attitudes and perception towards rooftop gardening differ greatly depending on socio-cultural settings, economic status, and environmental awareness.

Coimbatore, a bustling urban centre situated in the southern state of Tamil Nadu in India, epitomizes the complexities of urbanization when combined with customs and environmental issues. Coimbatore has seen a rise in rooftop gardening initiatives in the past couple of years, fueled by community- driven campaigns, government incentives, and private initiative. The perceptions of Coimbatore's urban residents towards rooftop gardening, however, are still largely unexplored, leaving a large knowledge vacuum about the dynamics of sustainable living and urban agriculture in the area. This research aims to address this gap by investigating the perceptions of rooftop gardening among urban residents in Coimbatore district. By employing a mixed-methods approach, this study seeks to explore the factors influencing individuals' attitudes and perception towards rooftop gardening, identify barriers and facilitators to adoption, and assess the perceived benefits and constraints associated with rooftop gardening practices in urban settings.

One of the main challenges facing urban inhabitants worldwide is the rapid urbanisation and high population increase associated with the creation of carbon-neutral communities UN-HABITAT, **(2022).** Global urbanisation has also brought about a range of problems, such as rising environment pollutions, an increasing demand for food, a shortage of green spaces for leisure and physical activity, and ineffective household disposal of waste management; the unpredictability of urban disasters, which made city people suffer extra mental strain along with city life pressure Al-Zu bi & Mansour, **(2017).** Additionally, rooftop gardens are a sustainable urban development technique that improve urban landscape quality and maintain the equilibrium of the ecological cycle. On the other hand, rooftop gardens are among the most crucial elements of eco-city development, which can improve the environment and quality of life Hossain et al. **(2019)**

Understanding the perceptions of urban residents towards rooftop gardening in Coimbatore district is crucial for informing policy interventions, urban planning strategies, and community engagement initiatives aimed at promoting sustainable urban agriculture and fostering environmental stewardship. Moreover, the findings of this study can contribute to the broader discourse on urban sustainability, offering valuable insights into the role of rooftop gardening in mitigating the adverse effects of urbanization on ecosystems, public health, and socio-economic well-being. Keeping the above problems in view, the present study was taken up with the specific objective to identify the Perception and Attitude towards Roof top gardening among urban residents of Coimbatore district. Through an in-depth exploration of urban residents perceptions of rooftop gardening, this research endeavours to shed light on the intricate interplay between human behaviour, environmental attitudes, and urban development in the context of Coimbatore district, paving the way for informed decision-making and grassroots action towards a greener, more resilient urban future.

**Materials and methods**

The study was undertaken with an objective of analysing the perception and attitude towards Rooftop Gardening among Urban residents of Coimbatore district. An “Ex Post Facto” research design was used in this study. District was selected purposively since Coimbatore has faced drastic urbanization and the city residents were aware and also adopted roof top gardening due to the prominence and outreach programs and initiatives of Tamil Nadu Agricultural University. There are ten assembly constituencies in Coimbatore district, among which “Coimbatore North” had been chosen as the area of research. From which “RS Puram, PN Pudhur” were selected. These areas were selected using Purposive sampling since it is located in the middle of the city with adequate urban resident population, with diversity in age, educational status, possession of roof top gardens etc., and familiarity about the place by the researcher and close proximity to Tamil Nadu Agricultural University. In order to know the ground reality Systematic sampling was used to select the respondents. With a sample size of 80, urban residents were drawn using systematic sampling technique in the above-mentioned places of the district. The required data was collected using a pretested well-structured interview schedule. The collected data were coded, tabulated and analysed using appropriate statistical tools. The descriptive statistical tools such as mean, standard deviation, frequency and percentage analysis were used to draw the inference from the study.

**Findings and Discussions**

**Table1- Profile characteristics of urban residents (N=80)**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Variables** | **Results**  **%** |
| **1.** | **Gender** |  |
|  | Male | **40.00** |
|  | Female | **60.00** |
| **2.** | **Age** |  |
|  | 18-35 | **50.00** |
|  | 36-60 | **43.33** |
|  | Above 60 | **6.66** |
| **3.** | **Type of family** |  |
|  | Nuclear | **80.00** |
|  | Joint | **20.00** |
| **4.** | **Type of residence** |  |
|  | Owned | **90.00** |
|  | Rented | **10.00** |
| **5.** | **Level of education** |  |
|  | Secondary | **3.33** |
|  | Higher secondary | **18.33** |
|  | Undergraduate | **38.34** |
|  | Postgraduate | **40.00** |
| **6.** | **Primary occupation** |  |
|  | Private services | **13.33** |
|  | Government services | **16.67** |
|  | Business | **21.67** |
|  | Homemaker | **23.33** |
|  | Retired | **3.33** |
|  | Unemployed | **8.33** |
|  | Student | **13.34** |
| **7.** | **Number of floors in your building** |  |
|  | Only ground floor | **18.33** |
|  | Single storeyed building | **60.00** |
|  | Multi storeyed building | **21.67** |
| **8.** | **Type of building** |  |
|  | Individual house | **93.33** |
|  | Apartment | **6.77** |
| **9.** | **Possession of rooftop garden** |  |
|  | Have a rooftop garden at present | **28.33** |
|  | Never had a rooftop garden | **50.00** |
|  | Had a rooftop garden before | **21.67** |
| **10.** | **Attitude towards roof top gardening** |  |
|  | Favourable | **85.00** |
|  | Neutral | **11.67** |
|  | Unfavourable | **3.33** |
| **11** | **Experience in rooftop gardening** |  |
|  | 0-5 years | **40.00** |
|  | 5-10 years | **8.33** |
|  | above 10 years | **1.67** |
|  | Nil | **50.00** |

**Figure 1- Attitude of respondents towards Roof top gardening**

From Table.1 it could be inferred that more than half of the respondents were Female (60%) and exactly half of them belonged to 18-35 years of age group (50%) since the respondents were working population and students. More than three-fourth (80%) of the respondents had a nuclear family type which is prominent in most of the cities. Majority of the respondents possessed a own house (90%), since they were native residents of the city. Nearly half of the respondents (40%) had Post graduate as their highest level of education due to more prominent colleges nearby to their residence.

It could be predicted that nearly one-fourth of the respondents were Homemaker’s since they took care of their children and welfare of their household. More than half of the respondents (60%) resided in ground floor, because a single floor was sufficient for a nuclear family. Majority of the respondents lived in individual houses (93.33%). Regarding the possession of rooftop gardens half of the respondents (50%) never had rooftop gardens, because most of the respondents had shortage of time and space to maintain. More than three -fourth (85%) of the respondents showed a favourable attitude towards roof top gardens since they were aware about the positive benefits of keeping a rooftop garden. Regarding the experience on rooftop gardening, half of the respondents had no experience in rooftop gardening (50%) since majority never had a roof top garden followed by, (40%) mentioning 0-5 years those who had a roof top garden before or now.

**Perception towards roof top gardening**

**Table2. Positive perception on rooftop gardening (N=80)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No** | **Positive Perception on Roof Top Gardening** | **Agree**  **%** | **Neutral**  **%** | **Disagree**  **%** |
| **1.** | Reduce Urban Heat Island Effect | **70.00** | **21.10** | **9.90** |
| **2.** | Increase aesthetic value and reduces stress | **94.30** | **4.30** | **1.40** |
| **3.** | Effective utilization of household waste water | **87.10** | **11.40** | **1.50** |
| **4.** | Effective utilization of kitchen and degradable household wastes for compost and manure | **90.00** | **8.60** | **1.40** |
| **5.** | Improves air quality | **82.90** | **14.30** | **2.80** |
| **6.** | Generates additional income by selling the freshly harvested produce | **45.70** | **44.30** | **10.00** |
| **7.** | Access to safer, healthy food and meets the dietary and nutritional requirement of the family | **88.60** | **10.00** | **1.40** |
| **8.** | Reduction of food expenditure | **44.30** | **10.00** | **45.70** |

From Table 2. it could be inferred that, majority of the respondents (94.30%) agreed to have a positive perception that rooftop gardening increases the aesthetic value and reduced stress, since the respondents felt happy and spend their leisure time after peek working hours, followed by (90%) agreeing to have a positive perception that rooftop garden effectively utilizes kitchen and degradable household wastes for compost and manure and so on. Nearly half of the respondents (45.70%) disagreed to have a positive perception that roof top garden would reduce food expenditure because apart from growing food crops the respondents cultivated flowering, medicinal, aromatic, potted plants etc.,

**Figure.2 - Overall positive perception on rooftop gardens**

**Table.3 Negative perception on roof top gardening (N=80)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No** | **Negative perception on roof top gardening** | **Agree**  **%** | **Neutral**  **%** | **Disagree**  **%** |
| **1.** | Leakage in roof of building | **44.30** | **38.60** | **17.10** |
| **2.** | Slippery roof due to unchecked water leakage | **54.30** | **30.00** | **15.70** |
| **3.** | Habitation of rats, squirrels and other harmful insects | **50.00** | **32.90** | **17.10** |
| **4.** | Staining and improper drainage | **58.60** | **32.90** | **8.50** |
| **5.** | Frequent shattering and damage due to heavy winds and rains | **62.90** | **20.00** | **17.10** |

From Table-3 it could be inferred that more than half of the respondents (62.90%) agreed to have a negative perception that possessing a roof top garden would end in frequent shattering and damage due to heavy winds and rains, followed by more than half of the respondents (58.60%) having a negative perception resulting in Staining and improper drainage and so on. The least agreed negative perception on roof top gardens was leakage in roofs (44.30%).

**Table-4 Constraints encountered in rooftop gardening (N=80)**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No** | **Constraints** | **Percentage** | **Rank** |
| **1** | High initial installation costs | **68.33** | **3** |
| **2** | Needed high maintenance | **68.33** | **3** |
| **3** | Lack of leisure time to maintain the rooftop gardens | **60.00** | **4** |
| **4** | Lack of technical knowledge | **45.00** | **7** |
| **5** | Lack of labour availability on time | **50.00** | **6** |
| **6** | Insufficient space | **56.67** | **5** |
| **7** | Lack of adequate water availability | **33.33** | **9** |
| **8** | Difficulty in sourcing inputs like seeds, implements, FYM, etc | **43.33** | **8** |
| **9** | Damage of growbags due to high exposure of sunlight and radiation | **86.67** | **1** |
| **10** | Difficulty in carrying the inputs and planting materials from ground to top | **76.67** | **2** |

From Table-4 it could be inferred that major constraint enumerated by the respondents were damage of growbags due to high exposure of sunlight and radiation (86.67%) as the growbags are prone to frequent damages due to high temperature and radiation, followed by a slight above three-fourth of the respondents (76.67%) mentioning difficulty in carrying the inputs and planting materials from ground to top since it’s a tiring work to carry and lift it safely in the rooftops. The least possibly encountered constraint mentioned by the respondents was lack of water availability (33.33%) since the water requirement is minimum when compared to conventional farming in fields and usage of household waste water for roof top gardens.

**Conclusion**

Regarding the attitude majority of respondents (85%) had favourable attitudes towards rooftop gardening, while a very few had an unfavourable attitude (3.3%). In terms of perceptions, three-fourth (75%) had positive views, and in terms of overall negative perception (54%) showing negativity. However, a notable portion of respondents (54%) for overall perceptions still held negative views towards rooftop gardening. Thus, effective policy interventions and collaborative efforts involving government and municipal authorities are necessary to promote the acceptance of rooftop gardens among urban residents. Thus, by enabling better transfer of new innovative technologies and providing incentives the citizens will adopt more ecofriendly roof top gardens and improve the sustainability promoting green , ecofriendly cities and green spaces .

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