



Own Grown Food Concept - Perception of Urbanites of Twin Cities of Telangana State

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Authors' contributions

This work was carried out in collaboration among all authors. Author BS designed the study, managed the literature searches and wrote the first draft of the manuscript. Author TMK collected the data, managed the literature searches and analyses of the study. Author GR managed the analyses of the study. All authors read and approved the final manuscript.

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ABSTRACT

The present study entitled 'Own Grown Food Concept - Perception of Urbanites of Twin Cities about Urban Farming' has been conducted to assess the perception of the urbanites about the urban farming and its relationship with profile characteristics. An *Ex-post facto* research design was followed for the study. The investigation was carried out in twin cities of Telangana namely, Hyderabad and Secunderabad comprising Greater Hyderabad Municipal Corporation, because twin cities have large number of active urban farming practitioners compared to all other towns and cities in Telangana, in addition to this, Urban Farming Division, Department of Horticulture, Telangana organized trainings in urban farm management and distributed urban farming kits to urbanites in twin cities. All the six zones comprising twin cities (L.B Nagar, Charminar, Khairatabad, Secunderabad, Serilingampally and Kukatpally) having large number of urban farming practitioners was selected purposively. 120 urban farming practitioners having more than three years experience was selected from above six zones randomly at the rate of 20 respondents from each zone. The data were collected by a personal interview method with the help of structured interview schedule and data was analyzed by employing suitable statistical methods.

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The findings of the study revealed that, majority of the respondents (58.33%) had medium perception level, followed by high (21.67%), and low (20.00%) level of perception about urban farming. Correlation analysis between perception and profile of the urbanites revealed that there was a positive and significant relationship between perception and independent variables viz., education and family support. Whereas, the variables namely, preference of crops, cropping intensity and innovativeness had a significant correlation with perception about urban farming. A negative and non-significant relationship was observed between perception and age, experience in urban farming and annual income.

Keywords: Own grown crop; urbanites; urban farming; perception and profile of urbanites.

1. INTRODUCTION

In developed countries, urban farming was viewed as a catalyst towards achieving the well-being of urban dwellers and natural environment. Urban farming is a strategy for food and economic security, and as one of the foci in the agriculture transformation whereby urban dwellers are encouraged to participate in this activity. The urban population in India is 377 million that accounts to 30 % of the total population (Census of India, 2011) and it is expected to escalate to 404 million by 2050 (World Urbanisation Prospects, 2014). Global food demand will enhance by 70 % by 2050, to cater the needs of 9.3 billion population [1]. The rural areas have traditionally provided food for the country's population. Increasing urbanization along with the demographic pressure has led to contraction of cultivable areas and migration of rural population to urban areas in search of jobs that also raised problems of food and nutrition security.

The complexity of vegetable supply chains is associated with the perishable nature of the product, the high level of uncertainty on demand and costs, and the large number of intermediary traders involved [2]. Weaving food growing into the fabric of urban life could bring greenery and wildlife closer to home. In most of the developing countries, urbanisation is considered as one of the biggest threats to biodiversity, growing food in towns and cities will boost the abundance and diversity of wildlife, as well as protect the habitats [3].

In view of the above discussion and to adjust the new normal situation and to meet the demand for fresh fruits and vegetables raised due to rapid urbanization, more resilient food systems that strengthen local agricultural capabilities such as home gardening and urban farming are urgently needed. Urban farming includes all agricultural production forms within or around cities [4]. The urban farming activities considered to have the

potency to contribute to fresh and nutritious food and reduce the cost of food consumption. As mentioned above, urban agriculture has found new popularity, and could even be seen as a "catch-all" given that it provides access to local and fresh food and enables those who grow their own food to be less dependent on traditional food outlets. Urban farming can be defined as growing of plants and raising animals within and around cities. Globally, it is estimated that the food demand will grow by 70 per cent by 2050, to cater to the needs of 9.3 billion global populations [1]. Many of the urban cities have a family farm that includes production of food for self consumption and sale of the surplus to the markets for some income [5].

As the availability of natural resources to feed the growing population is limited, urban agriculture is seen as a big solution to the problem [6]. Urban farming is capable of sustaining the environment, facilitating economic progress, aiding water and land use management of the urban landscape. Urban farming paves way to nutritional security of the population and ensures access to daily sustenance of food and nutritional security.

Urban population growth in Telangana, especially in Hyderabad is increasing at a faster pace. From its humble origins as a small town founded in 1591, it has developed to become one of India's fastest growing metropolises with a population of approximately 7.7 million (GOI – Census, 2011) which is further expected to increase to about 19 million by the year 2041. As per the United Nations document on world urbanization prospects [7], Hyderabad metropolitan region ranked 38th in the world and by 2030, it will be 28th most populous urban region in the world.

Urban agriculture has not been very popular in India. The rural areas have traditionally provided food for the country's population. In the recent years there has been some interest in urban

agriculture in some cities in India. The concern about the positive impact of urban agriculture has led to the development of policies by the Government to encourage Hyderabad people to participate in urban agriculture. Increased access to information and extension advisory services of the Urban Farming Division (UFD) of Department of Horticulture, Hyderabad have induced most of the urbanites to practice agriculture. The initiatives and a broad range of extension services of the UFD, Department of Horticulture have played a major role in creating awareness about agriculture among urbanites, this coupled with rural farming background of most of the urbanites had increased interest in pursuing noble profession of agriculture, these twin characters have led to large scale adoption by most of the urbanites. The Department of Horticulture, Government of Telangana, has implemented a scheme under Rastirya Krishi Vikas Yojana (RKVY) to promote urban rooftop gardening in which neem cake, neem oil, implements were provided on 50 per cent subsidy (i.e. ₹3000/-). In addition, social media groups like *Intipanta* on Face book and Google+ are also actively promoting rooftop gardening by exchanging ideas, seeds, and solutions to the problems of the practitioners.

Hyderabad is now facing an increasing food importation and the deficit in food balance of trade is increasing every year. In many cases, the self-sufficiency levels of most foods including vegetables are less than 100 per cent. Therefore, urban farming is bound to become increasingly important in addressing urban poverty and food scarcity and nutritional security problems. As the open space in urban residential areas is shrinking, rooftop gardening is seen as an alternative place to grow food for meeting the household needs.

Urban farming is now seen as a way to nutritional security of the burgeoning city masses and a means to daily sustenance. While it can be inferred that urban farming improves better access to food and greater dietary diversity which in turn will improve the nutritional status of urbanites, very few studies have attempted rigorously to test the link between urban agriculture and nutrition. In view of the growing importance to the urban farming in the twin cities of Telangna, an attempt was made to know the perception of the urbanites towards urban farming and to assess the relationship between the perception and profile characteristics of the urbanites.

2. METHODOLOGY

An *ex-post facto* research design was followed to achieve the objectives of the study as the variables have already occurred. The study was conducted in twin cities of Telangana i.e. Hyderabad and Secunderabad (Greater Hyderabad Municipal Corporation (GHMC)). GHMC area was chosen purposively as GHMC has large number of actively practicing urban farmers compared to all towns/cities in Telangana. A total of 120 urban farmers with more than 3 years of urban farming experience were selected randomly at the rate of 20 from each (six) zone of GHMC (Hyderabad and Secunderabad twin cities).

To address the research questions, i.e., what is the perception of the urbanites about urban farming and is there any relationship exists between the perception and profile of the respondents, researcher interviewed respondents using a questionnaire and analyzed the data by utilizing qualitative descriptive analysis. Data were collected from a total of on twenty respondents using the structured questionnaire. Perception of urbanites about urban farming was measured by generating a list of perception statements which the urbanites responded to on a 3-point Likert-type scale of Agree, Uncertain and Disagree. Scores of 3, 2 and 1 were awarded to positive statements and the reverse for negative statements respectively. The maximum and minimum possible scores were 93 and 31, respectively. Whereas, the maximum and minimum scores obtained were 89 and 58, respectively. The total score of each respondent was worked out by summing up scores of all statements. Based on the perception scores obtained, respondents were then grouped into three categories as shown below using inclusive class interval method.

S.No	Category	Score range
1	Low level of perception	58-68
2	Medium level of perception	68-78
3	High level of perception	78-89

3. RESULTS AND DISCUSSION

3.1 Perception of the Urbanites about Urban Farming

The results in the table 1, indicated that majority of the respondents (58.33%) had medium level of

perception, followed by high (21.67%), and low (20.00%) level of perception about urban farming.

The study found that the respondents were well aware of the practices and usefulness of the urban farming in meeting the household level nutritional security, although perceptions varied among the respondents. For most of the respondents, urban farming meant promotes cultivation of pesticide free vegetables and fruits (99.4%), offers physical exercise and improves healthy environment in the family (98.8%), practicing urban farm reduces mental stress and improves health status of family (98.8%), improves household aesthetics through greenery (94.44%), expenditure on health can be reduced (93.33%), facilitates good relations among family & networking with society (90.83%), safeguards environment, mitigates global warming by assimilation of CO₂ (89.72%), provides opportunity to utilize household/domestic waste as manure in urban farming (88.61%), gives social identity among peers (86.67%) and provides feel good situation by producing own vegetables (83.60%). Similar findings were reported by Noriah et al. [8] studied motivational factors for urban farming participation in the state of Selangor, Malaysia. They found that physical and mental health and environment were the motivations with the highest scores among urban farming practitioners. Rani et al. [9], studied nutrition intervention and homestead kitchen gardening for improving nutritional security in rural livelihoods. The study revealed that 80.00 per cent of the households reported increase in the consumption of fresh vegetables in their diet and improved social relationships with their neighbours by sharing the surplus produce from their homestead gardens. The study inferred that homestead gardening can play a significant role in improving food security for rural households as well as middle class urban households in developing country like India. Awasthi [10] in his study on urban agriculture in India inferred that at household level, urban

agriculture was a source of income, provide direct access to a large number of nutritionally rich foods and a more varied diet, increased the stability of household food consumption against seasonality or other temporary shortages, and increased the time mothers spent caring for their children, as opposed to non-agricultural activities that are more likely to be located further away from home.

Some respondents referred to urban farming as a laborious and causes lot of physical strain (91.94%), can be practiced in only leisure time (83.60%), small or limited spaces availability for practicing urban farming (65.75%), and non availability of the single point of contact for inputs of urban farming (64.00%). The findings were in line with Nandeshwar et al. [11], studied the economics of production and marketing of vegetables in Akola district. The study revealed that technical guidance should be provided to the farmers by agricultural department and allied sources of production and marketing. Further the study also revealed that availability of vegetable seed at reasonable rate should be made to the cultivators through proper, registered agencies by the government.

The overall perception of the respondents about the urban farming revealed that, majority had a positive perception about the usefulness of the urban farming and it provides an opportunity to meet the fresh vegetables and fruits requirements of small family in urban areas like twin cities of GHMC.

3.2 Relationship between Selected Profile Characteristics of the Respondents with their Level of Perception about Urban Farming

In order to study the relationship between the profile characteristics and level of perception of respondents about urban farming the Coefficient of correlation (r) values were computed and findings were furnished in Table 2.

Table 1. Distribution of respondents according to their level of perception about urban farming (n=120)

S.No.	Category	Frequency	Percentage
1	Low perception level	24	20.00
2	Medium perception level	70	58.33
3	High perception level	26	21.67
Total		120	100.00

Table 2. Relationship between selected profile characteristics of the respondents with their level of perception about urban farming (n=120)

S. No.	Profile characteristics	Calculated (r) Value
1.	Age	-0.149
2.	Education	0.205*
3.	Urban farming experience	-0.101
4.	Annual income	-0.079
5	Institutional support	0.005
6	Information seeking behaviour	0.042
7	Preference of crops	-0.285**
10	Family size	0.087
11	Family support	0.223*
	Cropping intensity	0.281**
	Innovativeness	0.318**

** Significant at 0.01 level, * Significant at 0.05 level, NS Non significant

It was evident from the Table 2, that the calculated 'r' values for preference of crops, cropping intensity and innovativeness were greater than table 'r' values at 0.01 level of probability. The calculated 'r' values for the factors education and family support were greater than table 'r' values at 0.05 level of probability. Hence the null hypothesis was rejected and empirical hypothesis was accepted.

Correlation analysis between perception and profile of the urbanites revealed that there was a positive and significant relationship between perception and independent variables viz., education and family support. The similar findings were also reported by Rezai et al. [12] in their study on relationship between urban agriculture and nutritional security revealed that majority (44.50%) of the respondents had completed graduation followed by secondary education (41.50%) and post-graduation (14.00%). Naziera et al. [13] studied factors affecting urban dwellers to practice urban agriculture. The results indicated that age, gender, educational level and household size with four latent factors i.e. positive attitude towards urban agriculture concept, confidence in practicing urban agriculture, societal environment and role model factors influenced urban dwellers to practice urban agriculture. Greeshma [14] also reported that, majority (65.83 %) of the house terrace cultivating respondents received education up to college level followed by professional degree (19.17%) and high school education (15.00%). Binsa [15] also revealed that majority (43.81%) of the respondents were degree holders followed by high school education (28.57%), professional degree (15.24%) and primary school education (12.38%). The above studies supported the

findings of the present study and the respondents were well educated and aware of the benefits of practicing the urban farming and also found to be quality –health consciousness made them to opt urban farming.

The education level affects the ability to receive knowledge and apply new technologies [16]. Based on the study results, most urban farmers (70%) in Yogyakarta attended secondary education at the minimum, indicating that the urban farmers are moderately educated to accept new knowledge and technology. Thus, any technical guidance or counselling delivered by the relevant authority or academies could be more easily absorbed by the urban farmers [17].

The probable reason for positive and significant relationship between perception and family support is that, majority of the respondents were depending on the family members for the activities of urban farming and they are of opinion that, without the family support it is not possible to take up such activity at the home. Further, majority perceived urban farming reduces mental stress and improves health status of family and improves household aesthetics through greenery. Whereas, the variables namely, preference of crops, cropping intensity and innovativeness had a significant correlation with perception about urban farming. Zezza and Tasciotti [18] studied urban agriculture, poverty and food security in 15 developing countries and inferred that urban agricultural activities are closely related to food security, dietary diversity and nutritionally adequate diet. Greeshma [14] studied techno-economic analysis of house terrace cultivation in Thiruvananthapuram Corporation found that majority (52.50%) of the respondents belonged to medium category of

innovation proneness followed by high (29.17%) and low category of innovation proneness (18.33%) and reported a significant relationship with the urban farming.

A negative and non-significant relationship was observed between perception and age, experience in urban farming and annual income. The reason for the above results could be attributed that, awareness among people about the health benefits of consuming diversified home grown chemical residue free vegetables and fruits. The similar findings were reported by Aurangozeb [19] in a study on adoption of integrated homestead farming technologies by rural women and reported that the age of rural women had significant negative correlation with their adoption of integrated homestead farming technologies, whereas education, family size, annual income, contact with extension media, cosmopolitaness, innovativeness and aspiration in farming has significant positive relationships with their adoption of integrated homestead farming technologies.

Urban farming can also maintain the availability of fresh and nutritious food [20]. Respondents felt that their urban farm increased their consumption of fresh produce and made it accessible for them to eat vegetables and fruits more often, especially during the COVID-19 pandemic, where they need to maintain good health. Also, respondents reported being food secure, saying that they always had sufficient food to feed the family, even though there were logistic disruptions due to the lockdown. Having produce in the home garden also reduces the frequency of going to markets for grocery shopping, which helps preventing virus transmission [17].

4. CONCLUSION

Urban Agriculture provides an increase of green areas within the urban environment hence the development of urban areas in harmony with nature. Reduces climate change as urban agriculture contributes to the prevention of the over-heating of urban environments. Urban agriculture provides proper land management and use for urbanized areas. Provides indirect economic benefits, such as multiplier effects, recreational benefits, economic diversity and stability, avoids disposal costs of solid waste. In dense urban centres and settlements where space is limited, cities can promote rooftop gardens to increase thermal comfort in apartments located under the rooftop.

Agricultural rooftops also provide food for the household and possible income for sales. Urban agriculture has not been very popular in India. The rural areas have traditionally provided food for the country's population. In the recent years there has been some interest in urban agriculture in some cities in India. Urban agricultural production generally geared towards consumption within the household. The system also may solve urban waste disposal problems since waste water and waste disposal are the potential inputs for urban agriculture as it can be turned into organic composting fertilizer. The various benefits of urban farming in the form of socio-economic, environmental and resource use benefits have been observed in this study and it also contributes to food and nutrition security at house hold by increasing direct access to a diversity of nutritious food items throughout the year. It also facilitated them to waste recycling, efficient water use and energy conservation. Overall urban farming has considerable positive impact on both the practitioners and the city as a whole. The support of institutional structures and local governments are needed to nurture the development of urban agriculture. Urban agriculture has to be included in urban planning for the mitigation of climate change and for poverty reduction.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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