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SEEDS OF SUSTAINABILITY
How Urban Farming engages and empowers Local Residents

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ABSTRACT
Urban farming is becoming popular as people look for ways to grow food in cities and live sustainably. With Urbanization increasing across the world the "State of World Cities" by UN-Habitat (2004) predicts that by 2030, 60% of the world's population will live in cities, and by 2050 this count is expected to reach 6 billion urban dwellers. Urban agriculture is catching up in most Indian cities such as Chennai, Hyderabad, Bangalore, New Delhi, Mumbai, Pune, etc. Urban farming is now considered a way to provide enough nutritious food for the growing city population and help people meet their daily food needs. This study explores how urban farming affects local communities, focusing on what motivates people to start, the challenges they face, and how it impacts their health and quality of life.
The survey showed that most people (92%) know about urban farming and its benefits. Many started urban farming as a hobby or were inspired by family members. Some also got involved because of what they learned at school or college. This shows that spreading knowledge about urban farming can encourage more people to try it. The survey also asked people how urban farming affected their health and quality of life. Most people said it helped them feel better both mentally and physically, giving it an average score of 4.63 out of 5. Many found that spending time with plants reduced their stress and made them happier. They also felt that growing their own food was healthier and more satisfying.

Key Words- Urban farming, terrace farming, impacts, effectiveness, and challenges.

INTRODUCTION
Urban farming not only helps people get fresh and healthy food but also teaches them useful skills. Many people living in cities don't have a lot of space, but urban farming shows that even small areas like balconies, rooftops, and windowsills can be used to grow plants. Roof or Terrace farming is a unique concept nowadays. It is a trend in urban societies because of their benefits. It has the potential to be a source of great social and environmental good within a city. Learning how to plant seeds, water them properly, and protect them from pests helps people understand more about where their food comes from and how to grow it themselves. When people grow their food, they also become more mindful about reducing waste, using natural fertilizers, and recycling things like kitchen scraps into compost. This makes urban farming an important step towards more sustainable living in cities.
Urban farming projects can also bring different groups of people together, helping them build friendships and work as a team. Spending time in green spaces has also been proven to boost mental health by reducing stress, anxiety, and loneliness. Overall, urban farming is more than just growing food—it's about building stronger, healthier, and more connected communities.

LITERATURE REVIEW
1. Prof. Kothiram et al. (2021) concluded that terrace farming significantly benefits smart cities by improving air quality and managing heat. Despite challenges like high costs, it can play a vital role in sustainable urban development. They suggested that integrating terrace farming into city planning could help build greener cities.
2. Chaitra Bhat and Amit Paschapur (2020) concluded that urban farming helps reduce diseases and promotes self-sufficiency in densely populated cities. They highlighted the need for government support to overcome challenges. Expanding urban farming could lead to healthier lifestyles and a lower carbon footprint.
3. N. Shashi Rekha et al. (2019) concluded that automated terrace gardening systems simplify urban farming and make it more accessible. By using technology, city residents can efficiently grow organic food. This approach supports sustainable urban living and healthier diets.
4. Hari Prasad Agarwal and Radha Sinha (2017) concluded that urban farming can thrive with innovative methods, community involvement, and government support. They emphasized addressing challenges like land competition and lack of knowledge. Including urban farming in city planning can enhance sustainability and community well-being.

5. Prem Jose Vazhacharickal (2014) concluded that balcony and terrace gardens are essential for urban greening and food security. Despite challenges like technical issues, these gardens offer significant environmental and economic benefits. Promoting urban farming could help cities become more sustainable and self-reliant.

METHODOLOGY

This study aims to find out how urban farming affects the lives of people in cities. It focuses on understanding why people start urban farming, the problems they face, and how it impacts their health and quality of life. The main question is: Can urban farming help improve the well-being of city residents while making cities more sustainable?

Objectives of the Study:

1. To examine the factors that motivate people to engage in urban farming.
2. To identify the key challenges and barriers faced by urban farmers.
3. To assess the impact of urban farming on the physical and mental health of city residents.
4. To identify the topics that city residents are most interested in learning about regarding urban farming.

Data collection source:

The data for this study was collected through an **online survey.** The survey included both multiple-choice and open-ended questions to gather detailed information about the participant's experiences with urban farming. The study employed a convenience sampling method. This approach was selected to facilitate efficient and rapid data collection from a readily available pool of respondents. In addition to the survey, several **research articles** were reviewed to gain a deeper understanding of urban farming practices and to compare the findings with existing literature. This combination of primary and secondary data helped provide a well-rounded perspective on the topic.

Sampling techniques/ method:

The study mainly used descriptive statistics to analyze the survey results. This included calculating percentages and average scores to understand the awareness, challenges, and benefits of urban farming as reported by the participants. The use of simple statistical techniques helped in presenting the data.

Sample size

Data were collected through a survey of 85 respondents, focusing on demographics, awareness of urban farming practices, motivations, challenges, and perceived benefits. Respondents primarily belonged to the 18–34 age group, with a balanced gender representation.

Limitations:

1. The survey was conducted online, potentially excluding individuals without reliable internet access or digital literacy.
2. The research focused mainly on younger participants, limiting insights into the experiences of older urban farmers.

RESULTS AND DISCUSSION

A significant majority **(92%)** of respondents were aware of urban farming and its benefits, indicating a high level of awareness about sustainable practices. **Hyderabad** is the most frequently mentioned location by the respondents. Other significant cities include **Pune, Nizamabad, and Mumbai**. This variety of locations suggests that urban farming is becoming increasingly popular across India.

The study shows **a mix of beginners and experienced respondents**. 28 respondents have been urban farmers for less than a year, which means many are just starting out. 24 people have 1-3 years of experience, showing they have some knowledge but are still learning. At the same time, 14 respondents have been farming for more than five years, proving that some people have been doing it for a long time. This shows that urban farming is growing, with new and experienced farmers learning and working together (Fig 1).

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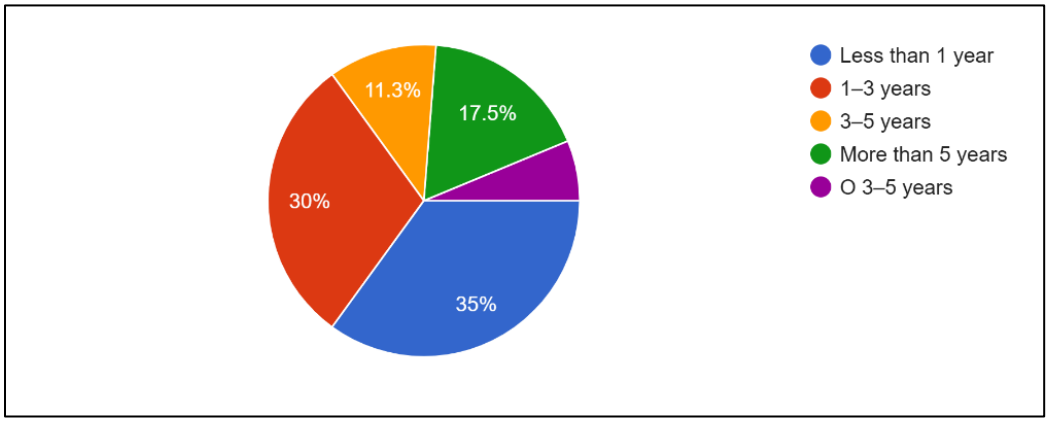

Fig 1: Urban farming experience of the respondents

The survey results indicate a growing interest in urban farming among **various age groups**, particularly among younger adults aged 18–34 **(**Table 1**)**, who constitute most respondents. This trend suggests that urban farming appeals to younger generations, potentially due to their increased environmental awareness and interest in sustainable living practices. The gender distribution was relatively balanced, demonstrating that urban farming is a practice embraced by diverse demographic groups.

AGE GROUP	NUMBER OF RESPONDENTS	PERCENTAGE
Below 18	1	1.18%
18 - 24	40	47.06%
25 - 34	30	35.29%
35 - 44	7	8.24%
45 – 54	5	5.88%
Above 54	2	2.35%

Table 1: The Age distribution of the respondents

The survey results show that urban farmers use **different methods for urban farming**, with 52 respondents practicing container gardening and 19 combining soil-based farming with container gardening. However, fewer people use advanced techniques like hydroponics (9) or aeroponics (6), indicating a need for greater awareness and education on these modern farming methods. (Fig 2)

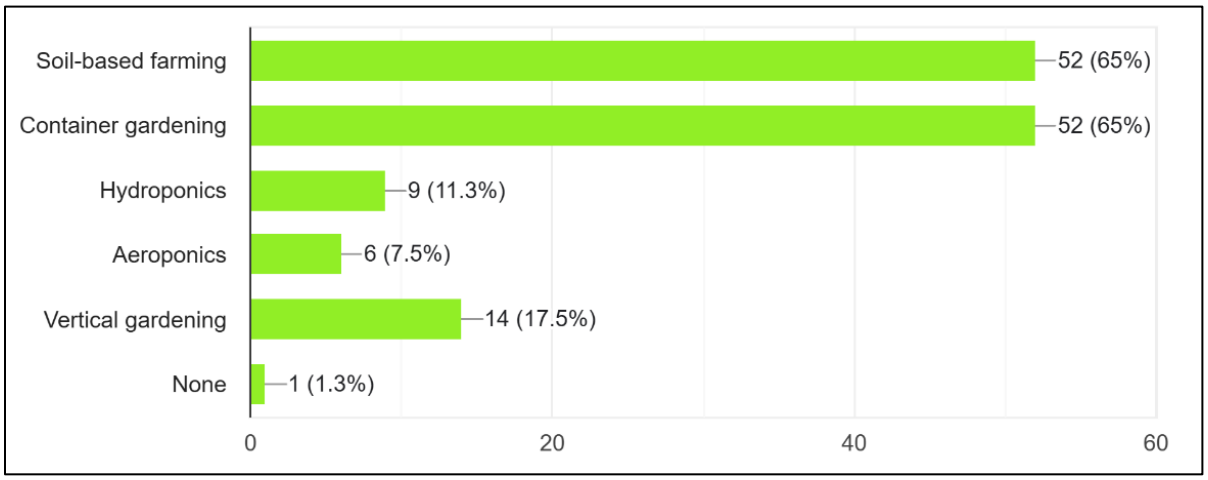

Fig 2: Methods of growing plants

The **primary motivations for engaging in urban farming** included the desire to grow fresh and organic produce (65%), contribute to environmental sustainability (58%), and pursue it as a hobby (52%). Family influence (47%) and educational exposure (42%) also played crucial roles in motivating individuals to start urban farming. Many participants mentioned

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learning about urban farming during school projects or through family members already practicing it. As observed in the study by Kumari, V., & Shirisha, J. (2022), the major reason expressed by the majority (81.0%) of people to choose urban farming was their own interest and belonging to agricultural families. It also states that people use Mud pots, Plastic drums, Tyres, Grow bags, Pipes, Water bottles, Paint buckets, Plastic buckets, Coconut shells, and Thermocol boxes to grow plants.

MOTIVATION	PERCENTAGE
Desire to grow fresh and organic produce	65%
Contribute to environmental sustainability	58%
Pursue as a hobby	52%
Family influence	47%
Educational exposure	42%

Table 2: Motivation for engaging in urban farming

Lack of space is one of the biggest **challenges** faced by most people, with over 55% of respondents mentioning it. People living in apartments, especially in cities, said they didn't have enough balcony or terrace space to grow plants. Almost half (48%) of the participants also said they didn't know enough about advanced farming techniques, which shows that there's a need for more training and resources on the topic. Time was another challenge, with 45% of respondents saying it was hard to find the time for regular plant care. Finally, 38% of people mentioned that they struggled with funding to buy seeds, soil, and tools, suggesting that government support or community programs could be helpful (Fig 3).

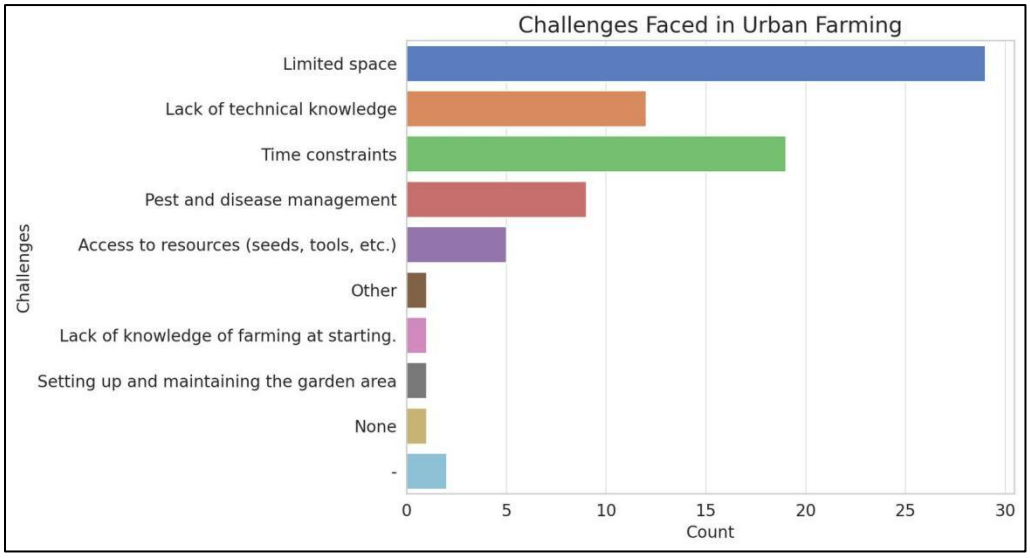

Fig 3: Challenges faced by respondents

Okra, Snake gourd, Eggplant, Spinach, Red amaranth, Fenugreek, Bitter gourd, green amaranth, Taro, Cluster bean, Chilli, Cauliflower, Tomato, Cucumber are the **most grown vegetables** in many terrace gardens according to a study by

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Vazhacharickal, P. J. (2014). The images below are provided by one of our respondents which shows their terrace garden where they have grown tomatoes, okra, palak, bottle gourd, anjeer, and different species of flowers.

Images provided by our respondent showing a terrace garden with Anjeer, tomatoes, okra and palak

In terms of **effectiveness**, urban farming is widely considered beneficial. 37 respondents rated its effectiveness as 5, while 21 rated it a 4 on a scale of 1-5. Only 6 respondents gave a rating of 2, showing that the majority find urban farming highly effective. Additionally, there is strong support for promoting urban farming techniques, as 25 respondents strongly agreed and 29 agreed that these methods should be recommended, with only one respondent disagreeing (Fig 4).

RATING	NUMBER OF RESPONDENTS	PERCENTAGE
1	0	0%
2	6	7.5%
3	16	20%
4	21	26.3%
5	37	46.3%

Fig 4: Effectiveness ratings for urban farming techniques

The survey results indicate that urban farming has a significantly positive **impact on both the mental and physical well-being** of participants, as well as their overall quality of life. 51 respondents rated its impact on mental and physical health as 5, while 28 rated it a 4 (Fig 5). Most people were happy with urban farming, finding it helpful and meaningful. Many said it boosted their mood, and health, and gave them a sense of purpose.

Similarly, when asked about the **effect on their overall quality of life**, 37 respondents rated it a 5, 31 gave it a 4, and only 12 rated it a 3 (Fig 6). They also felt that urban farming improved their quality of life by making them happier and more connected to nature and others. Only a few people were unsure about its benefits, but overall, the view on urban farming was very positive.

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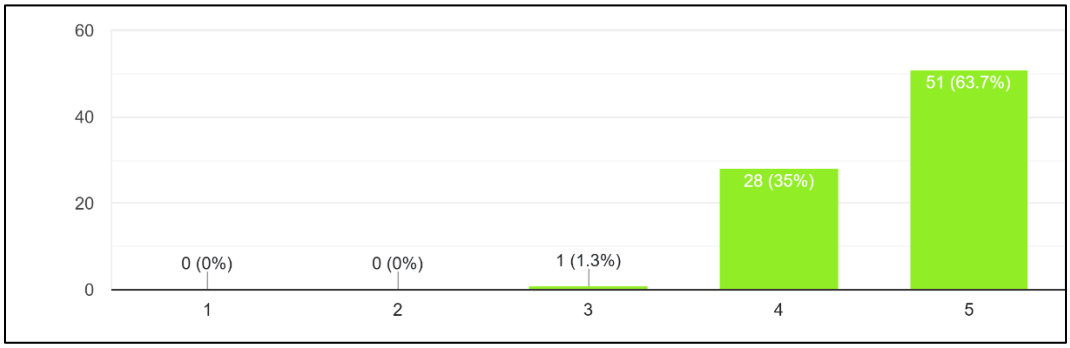

Fig 5: Rating of the impact of urban farming on physical and mental health

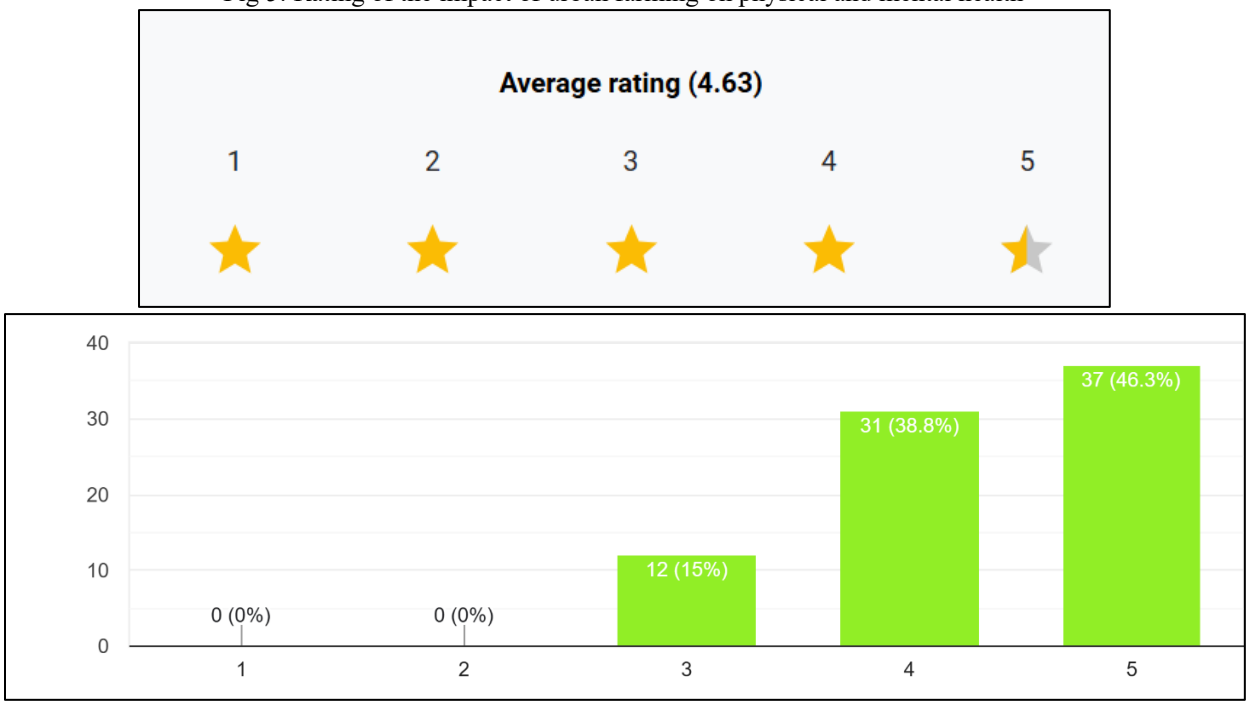

Fig 6: Rating of the impact of urban farming on quality of life

The survey also explored **topics of interest for further learning**. The most requested topics were Hydroponics/Aeroponics (22 respondents) and Organic Gardening (20 respondents). Additionally, many showed interest in Soil Health (19), Crop Rotation (9), and Pest Management (6). In the open-ended responses, many participants emphasized the importance of vertical gardening, composting, and organic farming methods. Some respondents viewed urban farming to increase greenery in cities and improve sustainability, while others simply expressed their love for gardening and its calming effect. (Fig 7)

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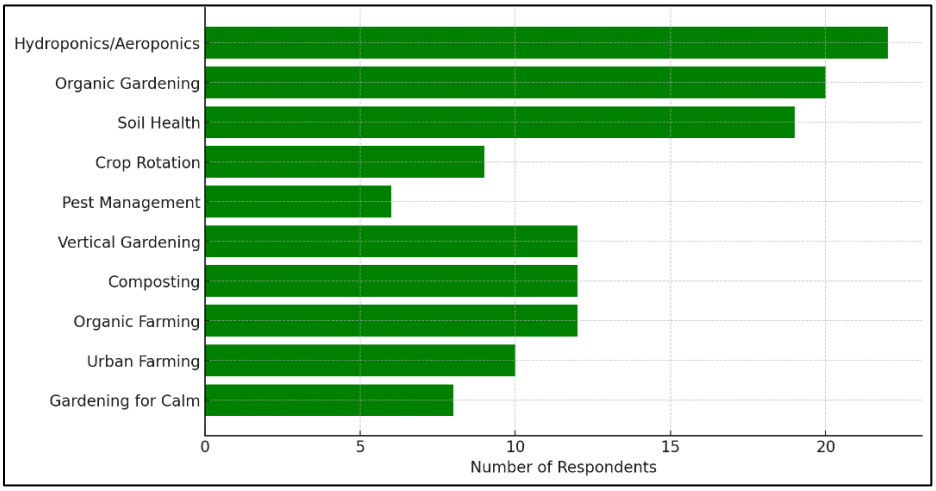

Fig 7: Topics of interest for further learning

CONCLUSION

Urban farming has emerged as a powerful tool to promote sustainability and bridge the gap between urban residents and nature. The enthusiasm observed among participants highlights a growing desire for self-reliance and healthier living. Beyond providing fresh and organic produce, urban farming fosters a sense of community, reduces stress, and allows city dwellers to reconnect with natural processes. The positive feedback from participants shows that urban farming can make a real difference in people's lives.

However, there are still some challenges to overcome. Finding enough space, having enough time, and knowing how to grow plants properly are big issues for many people. To solve these problems, it would help if local governments and communities worked together. They could offer more spaces for gardening, provide workshops to teach farming skills and make it easier to get seeds and tools.

In the future, making urban farming a part of city planning could bring even more benefits. It could help with food security, reduce waste, and make cities cooler and more pleasant to live in. More research could also help find better ways to grow plants in cities. By supporting urban farming, we can build healthier and more sustainable cities for everyone. To boost urban farming, cities should turn unused spaces into community gardens and offer affordable seeds, tools, and training on basic skills like pest control and composting. Workshops in schools and communities can raise awareness, while financial support like grants or subsidies can encourage participation. Including urban farming in city planning and promoting its health benefits can also help more people get involved.

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