



Urban Farming in Food Security Efforts at Household Level in Indonesia: Systematic Review

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ABSTRACT: Acute nutritional problems occur due to nutritional problems caused by events in a short time. For example, disease outbreaks and lack of food (hunger) that causes emaciation. This is also what underlies the occurrence of acute nutritional problems during the Covid 19 pandemic. Food access is directly affected by urban communities, especially the urban poor. One form of the system of family food security is to increase the availability of food at the household level, especially in urban areas, namely the urban farming system. The author uses two methods to search for articles about urban farming, namely PubMEd, Science Direct and Google Scholar. Search using keywords Urban farming, food security and Indonesia. Based on the initial search, 43 research articles were found and then identification was carried out so that they became 12 articles. The results of the search found that urban farming can increase family food security, the types of plants grown are vegetables and fruits, and the problems encountered are communication problems, level of knowledge and skills related to urban farming.

KEYWORDS: Food Security, Urban Farming, Urban, Household

1. INTRODUCTION

The world food organization (FAO) warned about the threat of a food crisis in the coming years, which received considerable attention in particular for Indonesia. As a country with a fairly high population growth, Indonesia cannot be separated from the threat of a global food crisis. This is because the higher the population, the higher the level of food consumption. Seeing this condition, Indonesia needs to make efforts in realizing food security so that it does not have an impact on the risk of food insecurity. In accordance with the Republic of Indonesia Law No. 18 of 2012, food security is a condition of fulfilling food for the state to individuals as reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and does not conflict with religion, belief, and culture of the people, (Indonesia, 2012)

The Indonesian Nutrition Status Survey (SSGI) in 2021, explained that several provinces experienced acute nutritional problems in addition to chronic nutritional problems (stunting). Acute nutritional problems occur due to nutritional problems caused by events in a short time. For example, disease outbreaks and lack of food (hunger) that causes emaciation. This is also what underlies the occurrence of acute nutritional problems during the Covid 19 pandemic. Regions or provinces experiencing acute nutritional problems according to the SSGI survey are Lampung, Bangka Belitung Islands, Riau Islands, DI Yogyakarta and Jakarta which are urban areas, while 27 other provinces are included. in the category of chronic-acute nutritional problems. The study becomes a study or discussion material to carry out interventions according to nutritional problems that occur in each province. (RI, 2021)

Food access is directly affected by urban communities, especially the urban poor. According to Hasanah in her research, the decline in food consumption as seen from the Energy Adequacy Level (TKE) decreased from 64.3% to 57.66% during the pandemic. This is because changes in income have decreased due to the pandemic lowering the food consumption budget. In the end, urban communities, especially the lower middle class, choose cheap food alternatives. (Hasanah et al., 2021) Cheap food alternatives can be done in several ways, namely by choosing cheap food ingredients (substitutions) and also providing their own food ingredients with urban farming.

The achievement of food security and community nutrition during the Covid-19 pandemic still needs to be pursued in earnest because it is related to efforts to build healthy, active and productive human resources. In the concept of food security and nutrition, the three food subsystems that must continue to perform well during this pandemic are the availability, affordability, and use or consumption of food. (Hestina et al., 2020) This concept can be seen more deeply from the amount of food available, affordability



which can be seen from the percentage of poverty, fulfilled basic needs such as electricity and clean water and utilization seen from cases of nutritional problems such as stunting, malnutrition or malnutrition in an area.

As an appropriate strategy, an effective and sustainable food system is needed to avoid the risk of food insecurity in an urban area. A sustainable food system includes several things, among others, a) productive and prosperous (ensuring sufficient food availability); b) fair and inclusive (to ensure access for all to food and livelihoods); empowerment (to ensure all groups, including the most vulnerable and marginalized, make choices and have a voice in shaping food systems); resilient (ensure stability in the face of shocks and crises); regenerative (to ensure sustainability in all its dimensions); and healthy and nutritious (to ensure the absorption and utilization of nutrients). (HLPE, 2020)

One form of the system of family food security is to increase the availability of food at the household level, especially in urban areas, namely the urban farming system. Urban farming has become an interest for most people. This can be seen from the trend that continues to increase throughout the year, especially in unprecedented times. There are many types of urban farming that can be applied in landed homes, such as hydroponics, aquaponics, pots/polybags, on the ground, and verticulture. The problem of limited land has always been a problem for people who live in densely populated urban areas. Therefore, it is very important to maximize every inch of home space and use the right type of farm. (Andini et al., 2021) Limited land use in urban areas during the pandemic has become a trend because of the implementation of the Work From Home (WFH) work system for office employees or other workers.

The benefits of implementing urban farming for residents in urban areas are as an alternative employment opportunity and providing food for residents. Urban farming can be one of the components in achieving sustainable community food fulfillment and if it can be planned properly it can support the problem of food security. (Forestry, 2020)

The purpose of the author in compiling this article is to find out the Urban Farming program on food security at the family level. With the Urban Farming system, it is hoped that people in urban areas can avoid the risk of food insecurity which can have an impact on nutritional status in the community, both acutely and chronically later.

2. METHOD

The author uses two methods to search for articles about urban farming, namely Pubmed, Science Direct and Google Scholar. The search uses the keywords Urban farming, food security and Indonesia with the addition of AND to make the search more specific. In addition, to make the search more specific, the search was carried out by including research articles published five years ago (2017 to 2022). The author selects articles from the three search engines to see if there are the same articles or duplicates. Articles searched for have inclusion criteria 1) domains on Global Food Security, Sustainable Cities and Society, Agriculture System, and Food Policy, 2) Originating from various countries, 3) Articles contained in Indonesian and English.

Based on the initial search, 43 research articles were found, then duplication was identified, and the same 2 articles were determined from the three search engines. After that, the article was screened by looking at the title and it was found that there were 20 titles that were excluded because the research was not conducted in Indonesia. The last activity was to conduct a feasibility study of the articles with the result that there were 20 articles that were excluded because the research form was in the form of a systematic review or critical analysis. So that the final result used from this research is that there are 13 articles with full text completeness. The following is a flow chart of the selection of articles that will be used in this study.

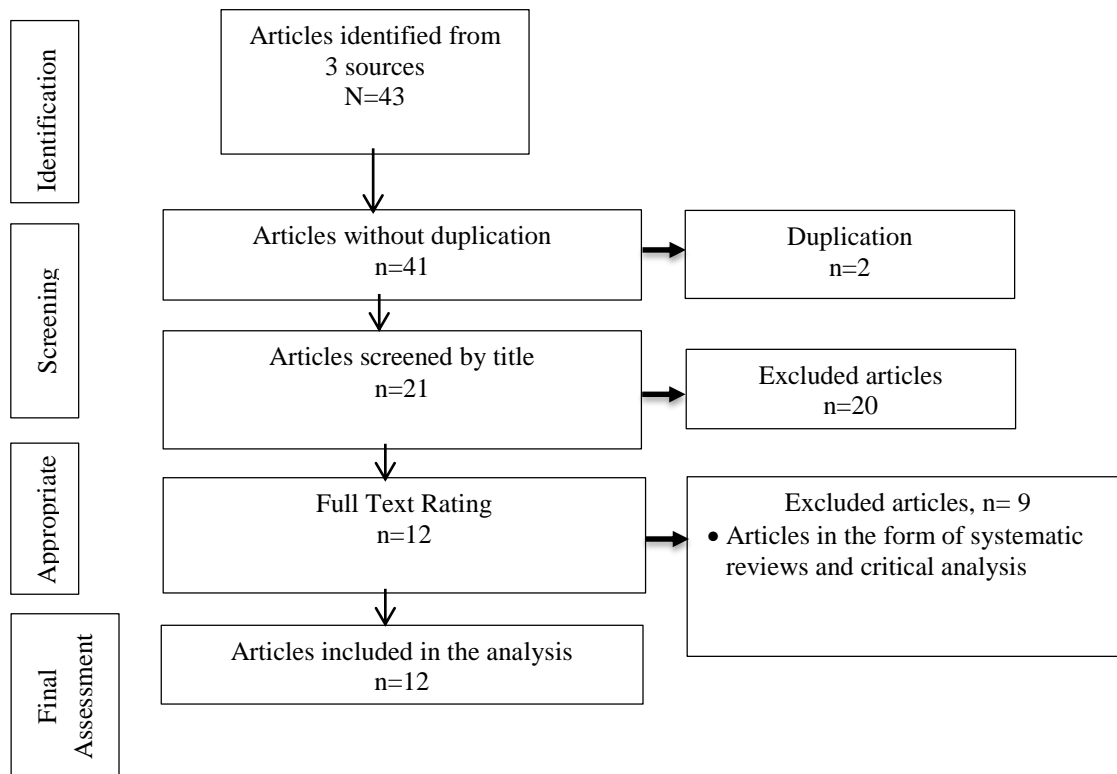


Image 1. Study article selection procedure flowchart

3. RESULTS

Based on the systematic selection of articles that have been described in the method section, the journals collected were 12 articles. The selected articles are entirely the development of urban farming in Indonesia. All articles mention the condition of urban farming in Java, which incidentally is an urban area. The results found in the articles that have been collected include the types of urban farming plants, the impact of urban farming, obstacles in implementation, and the sustainability of urban farming.

Table 1. List of Systematic Review Articles on Urban Farming in Indonesia

No	Author	Title	Study Type	Target respondents	Location	Study Results
1.	(Kusumawati et al., 2022)	Community Voices On The Urban Farming Movement During The Covid-19 Pandemic: A Reflective Studies	Reflection Study	30 Respondents	Poor	- Improving food security during COVID 19 by means of urban farming - Types of crops grown are fruit and vegetables. - Farmer group communities and the role of the government contribute to the success of urban farming
2.	(Fauzi et al., 2019)	Community Partnership Program: Dissemination	Dissemination	13 Respondents	Jatinegara	- Food security can be created with the availability of food through urban farming



		Of Urban Farming Technology For Community Of Jatinegara West Flats				<ul style="list-style-type: none"> - Urban farming using a hydroponic system - Open area used for family medicinal plants (TOGA) - Citizen participation is very less in environmental-based activities
3.	(Yektiningsih & Dwi Nugroho, 2012)	Implementation Of Urban Farming Program In Surabaya Indonesia For Decrease Poverty And Effort To Create Green Area	Descriptive, Correlation, regression model	99 Poor Family Respondents	Surabaya	<ul style="list-style-type: none"> - Urban farming has an impact on a clean and green environment - It took a long time to convince the community to do urban farming - Vegetables produced in the urban farming program can be sold or distributed in the surrounding area
4.	(Beautiful et al., 2020)	Empowerment of Urban Farming Community to Improve Food Security in Gresik	Structural Equation Modeling Parial Least Square (SEM-PLS)	Urban Farming Farmers Group	Gresik	<ul style="list-style-type: none"> - Empowerment programs play an important role in increasing capacity in urban farming communities - Increasing the capacity of the urban farming community can increase 97% of family food security in Gresik
5.	(Nasuiton, 2020)	Food Security Improvement Policy in Urban Area Through Urban Farming Program in Malang (Studies in the Department of Agriculture and Food Security Poor)	Descriptive (Qualitative)	36 Respondents	Poor	<ul style="list-style-type: none"> - Urban Farming has increased household food self-sufficiency - Urban farming plays a role in reducing spending - Lack of monitoring and evaluation by relevant agencies - Weather and pests are obstacles to the success of urban farming - Thoughts from the consumptive community so that this program does not run well
6.	(Anggita et al., 2021)	The impact of the COVID-19 pandemic on urban farming household income in Yogyakarta City	Multiple Linear Regression	65 respondents	Yogyakarta	<ul style="list-style-type: none"> - The COVID-19 pandemic has caused a decrease in the income of households who carry out urban farming - Need to adapt to pandemic conditions with the implementation of urban farming
7.	(Yusida, 2021)	Community Movement In Independent	Focus Group Discussion (FGD)	53 respondents (Housewife)	Poor	<ul style="list-style-type: none"> - Food urban can help households in fulfilling food - Urban farming program reduces household expenses



		Vegetable Growing To Increase Household Food Security During The Pandemic				- 90 percent of participants will do it again after carrying out the harvest
8.	(Yulianti, STP, MM et al., 2020)	Study of Factors Affecting Choice of Agricultural Innovation Urban Areas In The Surrounding Jakarta Area	Cross Sectional	84 respondents	Jakarta	- Factors that influence urban farming are dissemination channels, perceptions of urban farming, and knowledge and skills
9.	(Dewanggi & Perwitasari, 2020)	The sustainability of vegetable urban farming in Yogyakarta city	Descriptive	60 respondents	Yogyakarta	- Factors that affect urban farming are the age of the farmer and the land - Vegetables produced in the form of red chili,
10	(Subangkit et al., 2020)	Social Capital in the Development of Urban Farming in the Village Pengadegan Village Hydroponics, South Jakarta	Descriptive	2 farmer groups	Jakarta	- Urban Farming is done using a hydroponic system - Education and giving examples influence the success of urban farming
11	(Amelia & Nawangsari, 2021)	Implementation Of Urban Farming Program As Effort For Fulfilling Food Need In Covid 19 Pandemic Time	Descriptive	20 people	Surabaya	- Resources have been implemented in the implementation of urban farming - Communication in the implementation of urban farming has not been accurate and precise so that it is not conveyed thoroughly to the community
12	(Maulaa et al., 2021)	Potential and Obstacles to Urban Farming Development on the Railroad Border of Bangetayu Wetan Village, Genuk District, Semarang City	Descriptive		Semarang	- The results of urban farming have met food needs - The results of urban farming include bananas, papaya, basil, lamtoro, oyong, and water pumpkins - The obstacle to implementing urban farming is the lack of community knowledge

4. DISCUSSION

Urban Farming

Food security is the fulfillment of food intake to individuals. The achievement of food security can be seen from access or affordability, food availability and food utilization. By definition, urban farming is an agricultural activity, both simple and industrial in which there is a pattern of production, processing, and product marketing activities that involve skills, expertise, and innovation in food cultivation and processing by applying intensive production methods, utilizing and recycling resources and urban waste to produce a variety of crops and livestock.(Forestry, 2020)Based on the selected articles, it is known that urban farming can help in food security at the household level. Food security can be seen from the aspect of food availability, because households can independently fulfill their own food or food independence.(Fauzi et al., 2019; Kusumawati et al., 2022; Maulaa et al., 2021; Nasuiton, 2020; Yusida, 2021)Urban Farming is one aspect of the city's food system. Each component of urban agriculture includes production, processing, and distribution - and related activities, which have multiple benefits to society. The benefits of urban farming vary according to the type of urban farming: personal consumption, institutional, education, profit/profit, and so on. A successful community-based urban farming project requires considerable planning and commitment that grows out of a particular environmental or community interest. Similar to other effective efforts, when citizens identify goals, ideals and, with urban agriculture, aesthetics, the potential benefits increase.(Foundation, 2020)

Food security in activitiesurban farmingcan be easily realized due to the close distance between producers and consumers, so that it can help food availability for households. The dimensions of Urban farming / urban agriculture are as follows:



Figure 2. Dimensions of Urban Agriculture or Urban Farming

Looking at the dimensions of urban farming in Figure 2, it can be seen that there are several aspects involved, including food production, the scale of urban farming, the area used, location, purpose, and economic activity. In the aspect of the purpose of doing urban farming, most of these activities are carried out to meet their own food needs, because they do not produce on a large scale. So that its use is mostly to meet the resilience of household level dreams. In the dimension of the area used, most of these activities are in houses that have little land which is then used to grow vegetables. Research conducted by Maula et al stated that the area used for urban farming is the railroad area in the Genuk District, Semarang,(Maulaa et al., 2021)Open space is needed to start urban farming activities. Urban agriculture makes use of existing open spaces and is very close to urban activities. The equipment used in urban agriculture is also relatively simple compared to traditional agriculture in rural areas.(Forestry, 2020)(Luc J.A. Mougeot, 2009)

Urban farming locations are more commonly found in urban areas compared to rural areas. Based on the articles in table 1, it is known that all urban farming activities are carried out in urban areas or areas (Malang, Surabaya, Semarang, Jakarta) which require less land than agriculture in rural areas. Urban farming is more often found on Java Island than other areas, because the population on Java Island is far more than other areas even though the area is smaller than Kalimantan Island, Sumatra Island, Sulawesi Island and even Papua Island.



In the aspect of affordability, urban farming can help in saving household expenses or on a further scale it can provide additional income because it is carried out from the smallest scope, namely the household scale, by utilizing narrow land in the house or around the place of residence to produce vegetables and fruit that can be consumed. household or resale. In addition, this urban farm can meet the food needs of the family directly without having to go to the market or supermarket. (Forestry, 2020) In addition to its potential to increase food security among urban residents, urban farming has been associated with a variety of health benefits. Providing affordable access to fresh produce, especially in neighborhoods with few grocery stores or supermarkets, can not only foster interest in trying new foods, but can also help reduce consumption of processed foods. (Foundation, 2020) Types of food that can be obtained from this activity include bananas, papaya, basil, lamtoro, oyong, and water pumpkin, red chili. (Maulaa et al., 2021) (Dewanggi & Perwitasari, 2020) Based on the selected articles, it can be seen that the majority of the types of plants grown in urban farming are vegetables and fruit. This is because it is easy for the planting system, for example using hydroponics to grow lettuce and other leafy vegetables. In addition, no one does urban farming that leads to animal husbandry because it requires a large area of land.

The advantages of urban farming in addition to fulfilling family food security, also provide economic benefits and benefits for a better environment. As a community business, urban farming is often supported based on its potential to stimulate the local economy through job creation, income generation, and small business growth. In economically depressed communities, the entrepreneurial potential of urban agriculture can lead to the creation of profitable businesses by residents. Apart from agriculture itself, farmers' markets, distribution, consumer-supported agricultural enterprises, and the creation of value-added products are examples of business opportunities related to urban farming. In addition, businesses that support urban farming activities during cultivation, processing and distribution stages are also very useful. Urban farming supports local food company incubators, food centers, producer marketing cooperatives, and other initiatives and contributes to a dynamic and open environment for economic innovation. As with the COVID-19 pandemic, it encourages people to make efforts to fulfill their food. It has been studied by Amelia that resources have been mobilized during the pandemic to establish urban farming although there are still problems, namely communication that is not fully accepted by the community. In terms of environmental benefits, urban farming supports biodiversity by providing important habitats for pollinating animals such as bees, bats, butterflies and birds and offering opportunities to reintroduce heritage plants. (Foundation, 2020) Urban farming has an impact on a clean and green environment (Yektiningsih & Dwi Nugroho, 2012)

The problems encountered in the implementation of urban farming are communication, socialization about urban farming which is less effective. This results in less knowledge from the community about urban farming and reduces the interest of the community in carrying out this activity. (Maulaa et al., 2021) Education and setting a good example contribute to the success of urban farming (Subangkit et al., 2020) Other studies also explain that the lack of dissemination channels causes this activity to not work due to lack of knowledge and skills. (Yulianti, STP, MM et al., 2020) Urban farming also offers opportunities to gain knowledge and expertise in aspects of the food system, including farming methods, sustainability and environmental management, horticulture and animal husbandry, food sources, and nutrition. (Guthman, 2008) So that communication should be formed properly if this program is implemented properly, because this program can increase people's knowledge about the food system.

5. CONCLUSION

Urban farming is an agricultural activity, both simple and industrial in which there is a pattern of production, processing, and product marketing activities that involve skills, expertise, and innovation in food cultivation and processing by applying intensive production methods, utilizing and recycling resources and waste. urban areas to produce a variety of crops and livestock. Food security in urban farming activities can be easily realized due to the close distance between producers and consumers, so that it can help food availability for households. Food security can be seen from the aspect of food availability, because households can independently fulfill their own food or food independence

In the dimension of the area used, most of these activities are in houses that have little land which is then used to grow vegetables. Based on the selected articles, it can be seen that the majority of the types of plants grown in urban farming are vegetables and fruit. This is because it is easy for the planting system, for example using hydroponics to grow lettuce and other leafy vegetables. The advantages of urban farming in addition to meeting family food security, it also provides economic benefits and benefits for a better environment. Urban farming has an impact on the environment being clean and green.



The problems encountered in the implementation of urban farming are communication, socialization about urban farming which is less effective. This results in less knowledge from the community about urban farming and reduces the interest of the community in carrying out this activity. So it is hoped that there is a need for more intensive socialization regarding the urban farming program for urban communities.

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