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Research Article

The Perceptions of Home Gardening Zone Program and the Potential Impacts on Household Food Security

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Abstract

Introduction: One of the breakthrough efforts to increase dietary diversity that would lead to food security is the launching of the home gardening zone (HGZ) program by the Indonesia Ministry of Agriculture. Understanding the effect of the program on the community could identify benefits and shortfalls that may be crucial to the success of it. The purpose of this study was to assess the reasons community gardeners participate in the home gardening zone program, as well as to explore the potential impacts such participation has on the community and household food security.

Methods: The study was conducted at Mojokrapak village, Tembelang district, Jombang regency, East Java, Indonesia between May-September 2015. Data were collected through ten individual in-depth interviews with gardeners, one focus group discussion to stakeholders, and observation on the home gardening zone (type and large of plants and animals). Data were analyzed using the Thematic Content Analysis approach.

Results: Gardeners reported seed distribution and assistance by the government as the main reason for participating. There were some contributions to household food security in aspects of food availability, food access, and food consumption. Additionally, there was an improvement of communalism among gardeners as another benefit. Results obtained from the focus group discussion and observation concurred with the findings from the in-depth interviews. However, some gardeners expressed the need to acquire support such as motivation and the availability of fertilizer to keep the program going.

Conclusion: Home gardening zone increased access to household food security and community nutrition. Findings from this study will hopefully serve to guide future quantitative research evaluating the home gardening zone as a potential food and nutrition security improvement intervention.

Keywords: Home Gardening Zone; Food Security; Perceptions

Introduction

Results from the Basic Health Survey (Riskesdas) [1] showed that the number of under-five children suffering from underweight was still at large and it reached up to 17.7%. Likewise, under-five children with stunting had high percentage by 30.8% in 2018. The percentages of undernutrition in Indonesia were almost as high as in a region in Ethiopia, and based on the study, it related to food insecurity [2]. The high and increasing rate of nutrition problems on under-five children calls for an immediate solution to the roots of the problems. In other words, solutions concerning the nutrition problem need to involve sectors other than health affairs. In this case, it requires the involvement of the ministries of agriculture, public works, commerce, industries, education, etc.

Food security is built on four pillars: food availability, food access, food use, and stability in food availability, access, and utilization [3]. One of the breakthrough efforts to increase food security is the establishment of a home gardening zone program. The fundamental principles of the program include the utilization of vacant house yards into greenhouse gardens that are designed for food security and food independence, food diversification based on local resources, food genetic resource conservation (plants, cattle fish), and village seed gardens. This in turn will lead to the improvement of income and community prosperity [4].

The idea of the home gardening zone program is not new and has been implemented in several developed countries. The benefits of such similar programs have been proven through some researches. Kortright and Wakefield [5] found that planting food plants on the house yard contributed to food security at all income levels through nutritious food provision. Health and welfare were also found to have increased through the production of food. Another benefit from food planting on the house yard was indicated by Zick., *et al.* [6], where garden farmers were benefitted not only from the increase in fruit and vegetable consumption but also by the decrease of overweight and obesity rates in their community in comparison to other communities that did not implement food planting in their house environment.

In the past years, garden farmer communities have become an interesting research topic due to their potentials as a part of health intervention. Although published research on the efficacy of garden farmer communities has not surfaced, several recent studies showed the effectiveness of such activities [7]. A survey conducted by Armstrong [8] in Upstate New York, showed that the participants' reasons to join their community gardening were due to several premises. In this regard, the access available to get fresh and new food resources, the need to consume natural food, and other health-related reasons were the navigating motivations in participating in this community gardening. The study's findings also showed that community gardening was able to become an effective strategy to empower, develop and promote health.

People's perception that they are the implementors and benefit recipients of the home gardening zone (HGZ) program is an important aspect to explore, particularly as a potential input for nutrition intervention, program evaluation, and policy recommendations. Questions such as the reasons why people implement the program, whether the farmers have been benefited with positive impacts from their efforts, as well as whether such program can improve family food security through family food provision and affordability are interesting and crucial to investigate. These study findings may constitute preliminary research for the next nutrition intervention.

Purpose of the Study

Therefore, the research purpose in this study was to assess the reasons community gardeners participate in the home gardening zone program, as well as to explore the potential impacts such participation has on the community and household food security.

Methods

A Case study design was employed in this current study. A qualitative approach was used to explore the perceptions of participants regarding the reasons to participate and the impact of the program on community and household food security. The study was conducted in Mojokrapak Village, Tembelang District, Jombang Regency, East Java province, Indonesia, between May and September 2015. The home gardening zone program in this village is one of the best three in running the program in East Java province.

There were 10 gardeners and 7 stakeholders who had participated in this study. Gardeners had to be currently active in the Home Gardening Zone Program at Mojokrapak Village for at least a year and have a family. Meanwhile, the stakeholders consisted of village officials, community figures, and program counselors. The selection of gardeners was based on the principles of appropriateness and sufficiency. The appropriateness was determined through the previously set criteria and it was considered adequate in providing information relevant to this research topic. Sufficiency was determined through data saturation. The data collection would be terminated when there was no new and further information needed.

In-depth interviews and a focus group discussion (FGD) were selected as the data collection methods to ensure that there was a triangulation of methods of data collection. Triangulation of methods was applied to verify and confirm the credibility of the findings from the in-depth individual interviews. The observation was made to match the information from the in-depth interview and focus group discussion. Additionally, an audio tape recorder was used to capture the participants' views accurately.

Face-to-face individual interviews were conducted with 10 gardeners. Both the individual and a focus group discussion were con-

ducted in the Indonesian language. The interview guide for gardeners contained the following questions:

- Characteristics of participants and reasons to become a participant in the Home Gardening Zone program
- How to gain knowledge and understanding of the program
- Perception of contribution the program to food availability
- Perception of contribution the program to food access
- Perception of contribution the program to food consumption
- Perceptions about the most important contribution of the program
- Perceptions about other contributions of the program
- Desires and expectations regarding the existence of the program.

The purpose of the in-depth interviews was to gather individual perspectives, while the focus group discussion was meant to provide a forum as a collective to confirm the finding from the in-depth interview. After the in-depth interviews were complete, a focus group discussion was held. The observation was made after in-depth interview and before the FGD session. The FGD was attended by 7 participants and lasted for 45 minutes which was held at the village chief's house. They included: (a) the village chief who was also the program counselor, (b) the head of the village affair who also acted as the program counselor, (c) chief of hamlet (a territory unit within the village) who was also program counselor, (d) neighborhood chief who was also prominent community leader, (e) the core team members of the program, (f) the secretary of program, and (f) the treasurer of the program.

After the completion of the individual Interviews, focus group discussion and observation data were analyzed with the thematic content analysis approach. The process involves analyzing transcripts, identifying themes from the transcripts, and gathering together examples of those themes from the text. The thematic content analysis was ideal for this current study because the study involved the transcribing of data and coming up with themes that matched the data collected.

The study has received ethical approval from the ethic commission of the Faculty of Public Health, Universitas Airlangga. Informed consents were explained and collected from the participants before they participated in this study.

Results

Characteristics and reasons to become participants

Ten gardeners participated in the study. All of them have participated for 2 years. The gender was 100% female, and 60% of them ranged from 41 - 60 years old. Only 30% of gardeners graduated from senior high school and college. Half of them had family income between Rp 1.000.000 - 1.500.000 ($ 74 - $111) monthly.

The majority of participants revealed the reasons why they were willing to become participants. The first premise was because it was a program from the Ministry of Agriculture. Initially, there were officials from relevant agencies or department units who came to provide counseling, seeds, and livestock to them.

"There used to be counseling from the district officials. I think it's from the department of agriculture or its unit. There were some gatherings and counseling at the time. They taught us how to do some seed germination. Everything has its knowledge, right? Even if we are just housewives when there are activities like that we would join. It would add our knowledge too".

Stakeholders expressed views similar to those of the gardeners when asked about the reason gardeners to participate in the program. However, some of them said there were additional reasons to join the program such as establishment to utilize a vacant land in front of their houses, improve family income, as well as revive a good custom from the past in the society.

"The reason for forming is that we once had a grant from the Food Security Board from the East Java Province. The grant was in the form of seeds, and livestock such as catfish, chickens, and ducks too. So, at the beginning of 2012 we received the grant, from this onward we shared the grant with the community, we spread and developed the benefits of".

The observation result showed that most participants planted kinds of vegetables such as eggplants, spinach, and chilies, and passion fruit as the most grown plants. Most plants grew well and new ones were beginning to grow. Some participants kept livestock with the majority being chickens, ducks, catfish, and goats as the most kept and bred livestock. All animals were in healthy condition. All program participants possessed a garden area of less than 100 m^2.

Contribution to food availability

Based on the data, the implementation of the program has demonstrated several benefits to families. In this regard, it contributed

to household food availability. It was revealed from the results of the sessions of the In-depth Interview and FGD. When the market price for the vegetables and fruit increased, the participants did not feel worried because they had edible vegetables and fruits in their house yards. Several kinds of vegetables, fruit, and cattle were ready to harvest and were well managed in the program. The only hindrance is that the food supply may not be obtained daily. Rather, people must wait for the harvest season to come.

"Well, not every day. If it is not the harvest time yet then nothing. The crops from a program can reduce our grocery expenses a bit. If we want to make "lodehan" (creamy vegetable soup) then we already have eggplants or others so we don't need to buy more stuff."

Contribution to food access

Contribution to food access can be seen from the easy access experienced by the participants to obtain certain foodstuffs. In another instance, the contribution to food access can also be seen from the cost savings incurred when getting a certain food. The families could directly take them by picking the vegetables and fruits in their gardens. The freshness of the produce was also maintained.

"[Although we] still need to buy for other ingredients that we don't have, as for vegetables, we rarely buy now"

From FGD, stakeholders said that crops were also sold for profit and the money can also be used to buy other ingredients such as sugar, rice, or salt.

"The result (crop) is quite plentiful so we can sell some, there is a coordinator for that, and then we will have some income. We can use the profit money from the sales to buy other ingredients or materials".

Contribution to food consumption

The contributions towards the consumption pattern of the participants can be seen from the habits of the participants who preferred cooking their family food for health and cost-saving reasons. It also contributed to the habit of drinking fruit juice from crops.

"Healthy food, well the ones I cook with my own hands, I know where the ingredients come from. Every day, rice, vegetables, fish, whatever we have that day, pretty thrifty huh".

"Well, yes, the whole family. Praise to God everybody likes it, if my children do not want to eat tomatoes, we can make juice, because everybody likes juices. The older folks would like to have the veggies for sambal (a kind of spicy salsa). It's different, right? I mean it's a different kind of consumption though the ingredients are the same kind".

Additional benefit

There was community development among participants during the program. Many valued the social environment created by the community and the interpersonal relationships that inevitably formed among participants and between participants and stakeholders.

"On harvest days, we cook and eat together, the whole family, of course, I have put some aside for those who help me water the plants, and the rest would go to the market for sales".

Some stakeholders said that they could take some vegetables or fruits from neighbors if they needed them for the cook or make food and drink together for some events.

"When the participants did not have one kind of food, they were able to get it from a neighbor".

"We have syrup, from the passion fruit that is. Sometimes if we have community public work we make passion fruit drink, tomato juice, and we drink them together".

Challenges in developing the program

Obstacles in implementing the program come from internal and external factors. Internal factors such as busy schedules and unsteady personal drives of each participant may hinder the consistency of the program's long-term implementation. On the other hand, some external factors include, among others, the weather, children, and animal disruptions, pests, and lack of available fertilizer affecting the soil to be planted.

"As I said before, the challenges come from ourselves, our awareness, and we are talking about that there are plenty [reasons], let's see and talk about daily needs or our busy activities, they are endless. For instance, like right now. I need to close my stall, right? But we need to do this wholeheartedly because this is also important".

"Caterpillars, grasshoppers, they eat the crop".

"Weather, and pests, chickens, and kids too. You know when they go to school passing the plants, they often pluck out some of the small plants. I mean we don't know [when it happened] but suddenly the plant would go dry. Sometimes they pick up raw

fruits, the ones that are not yet ready to harvest, small fruits, they make toys out of them (the small fruits), and I guess those are some of the challenges".

"If we don't have fertilizers then we are in trouble, really hard if we don't have fertilizers".

Discussion

The potential impacts of establishing the program in Mojokrapak village, Tembelang, Jombang are by the core tenets of the initiative by the Ministry of Agriculture, which are to fulfill household needs for nutritious food and healthy living, to reduce costs on household expenses, to increase family income and well-being [4]. These are also reasons to participate in the programs when officials from the local agricultural department came to the village to disseminate the program and provide seeds to be developed into sustainable home gardening.

In line with the results of this research, garden farmers in Birmingham, Alabama, US, follow a community gardening program because they have had previous experience and to reduce expenses. Additionally, community gardening provides fresh and organic food and by participating in the program, they increase their knowledge on food production [7]. Slightly different from the results of the research in Toronto, Canada, garden farmers who joined in a setting similar to the program follow such activity to gain better access to certain organic foods which were less available in the market. These gardeners also wanted to learn. Other external factors include some environmental factors such as hobbies and aesthetic purposes [5].

Food security consists of three key pillars: food availability, food access, and food utilization. Based on the results of the FGD and in-depth interviews, the HGZ program contributes to household food availability. This finding, however, is limited to some specific food products such as eggplants, tomatoes, chilies, passion fruits, bananas, papayas, and certain types of livestock. The availability of food is significantly meaningful and helpful, especially when food or fresh produce prices soar. In terms of access to food, people have easier access to getting groceries, especially when they have an agreement to barter food products in their gardens with each other. Some people exchange the vegetable or fruits with others on the product that is not available in their gardens with other people who have such food products.

Community food availability is evident from the reduced costs incurred to get one or more of certain food products because they can be obtained by picking in their gardens. Some crops are sold and can also be used to buy other food ingredients such as sugar, rice, or salt. The presence of garden plants makes the community more passionate to consume vegetables they pick from their garden while still fresh. They also recognize the benefits of organic vegetables as they grow these themselves. They also prefer to eat their food at home rather than buying processed or instant products or buying food outside their homes. The research results are in line with the Community Gardening Project conducted by Carney., *et al*. [9] in the Hispanic farmer community which showed an increase in the frequency of daily vegetable consumption for children and adults, as well as reduced anxiety coming from not having money to buy food.

One of the results of this research also shows that in addition to contributing to food security, it appears that communality between HGZ participants increases as well. In addition to having vegetables and fruit crops in each garden, the participants also grow the plants for common and shared interests and goals. They aligned their plant and harvest times together and scheduled communal plant watering. The result can mutually be used while some can be shared for food supplies in the malnutrition recovery program managed by PKK (program at village level to educate women on various aspects of family welfare). Communally ventured and managed, people can enjoy the crop together. This communalism also occurs in community gardening research conducted by Litt., *et al*. [10], where a neighborhood can affect individual consumer behavior and can be used as a form of a unique intervention to narrow the gap between society members and increase their opportunities in locations where plants are grown together to obtain better nutritious food.

However, the sustainability of HGZ program is not free from obstacles. The challenges of the HGZ program implementation in Mojokrapak Village, Tembelang District, Jombang include the busy schedules of the participants, lack of motivation and perseverance in maintaining the livelihood of the plants, and the unavailability of fertilizers. These are relatively easier challenges in comparison to ones faced by farmers in three villages in Nkokonbe, South Africa where some of them were lacking awareness to improve farming practices and techniques, strained capital, and strangling in debt interests [11]. According to the Indonesia Ministry of Agriculture [4], the sustainability of HGZ program is highly dependent on several aspects. They include the personal drive and motivation from the HGZ participants, the benefits gained, commodity volume and

type rationalization, adequate seed availability, periodic counseling, financial support, and access to markets.

Conclusion

The main reason for all of the participants in implementing the home gardening zone was initially because it is a government grant program. The government offers seeds, guidance, and counseling on agricultural techniques programs. The program contributes to the availability, affordability, and household consumption of food, especially vegetables, fruit, and certain types of livestock. The implementation of HGZ also gives an impact on the improvement of communalism among HGZ participants in the village. HGZ participants face challenges such as having too little time or being too preoccupied with daily routines, lacking motivation, lack of persistence in sustaining the plants' livelihood, as well as the unavailability of fertilizers. Based on the findings, suggestions include the importance to increase the types of vegetables and fruits grown, as well as enhancing the diversity of cattle breeding, especially for animal-sourced food. Also, supports from local authorities are required for the development of organic fertilizer management and to maintain enthusiasm to continue planting in their gardens.

Bibliography

1. Indonesia Ministry of Health. "The Basic Health Survey (Riskesdas) Results 2018". Jakarta (2018).

2. Motbainor A., *et al*. "Stunting Is Associated with Food Diversity while Wasting with Food Insecurity among Underfive Children in East and West Gojjam Zones of Amhara Region, Ethiopia". *PLoS One* 10.8 (2015): 1-14.

3. FAO. "Food security". Policy Br. 2 (2006): 1-4.

4. Indonesia Ministry of Agriculture. "Various Things about Home Gardening Zone in East Java" (2012).

5. Kortright R and Wakefield S. "Edible backyards: A qualitative study of household food growing and its contributions to food security". *Agriculture and Human Values* 28.1 (2011): 39-53.

6. Zick CD., *et al*. "Harvesting More Than Vegetables : The Potential Weight Control Benefits of Community Gardening". *American Journal of Public Health* 103.6 (2013): 1110–1115.

7. Northrop MD., *et al*. "The perceptions of community gardeners at Jones Valley Urban Farm and the implications for dietary interventions". *Qualitative Report* 18 (2013): 1-11.

8. Armstrong D. "A survey of community gardens in upstate New York: Implications for health promotion and community development". *Health and Place* 6.4 (2000): 319-327.

9. Carney PA., *et al*. "Impact of a community gardening project on vegetable intake, food security and family relationships: A community-based participatory research study". *Journal of Community Health* 37.4 (2014): 874-881.

10. Litt JS., *et al*. "The influence of social involvement, neighborhood aesthetics, and community garden participation on fruit and vegetable consumption". *American Journal of Public Health* 101.8 (2011): 1466-1473.

11. Adekunle OO. "An Investigation of Challenges Facing Home Gardening Farmers in South Africa : A Case Study of Three Villages in Nkokonbe Municipality Eastern Cape Province". *Journal of Agricultural Science* 6.1 (2014): 102-109.

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