

IMPROVING MATERNAL NUTRITION THROUGH COMMUNITY GARDENS AND LOCAL FOOD EMPOWERMENT IN REMOTE AREAS

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Abstract

This study aims to examine in-depth the role of community gardens and local food empowerment in improving maternal nutritional status in remote areas through a literature review approach. Maternal nutritional issues, particularly in areas with limited access to nutritious food, remain a significant challenge in efforts to improve public health. Through a review of relevant scientific sources, articles, and policy reports, this study highlights how community garden initiatives and the optimization of local food sources can increase the availability, diversity, and consumption of nutritious food for pregnant and breastfeeding women. The study results indicate that community gardens serve not only as an alternative food source but also as a means of nutrition education, strengthening social solidarity, and enhancing community-based food security. Empowering women in local garden management has been shown to strengthen their role as agents of change within families and communities, promoting healthy eating behaviors, and reducing the risk of maternal malnutrition. This study emphasizes the importance of a participatory and locally-based approach to nutrition interventions, particularly in areas facing geographic and economic barriers. Therefore, integrating local health and agricultural policies that support the sustainability of community gardens and access to nutritious food is a key recommendation for strengthening maternal nutritional security in remote areas.

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INTRODUCTION

Maternal health, particularly during pregnancy and breastfeeding, is a crucial indicator of the quality of future generations. Adequate and balanced nutrition for mothers not only impacts their own health but also directly impacts fetal development, child growth, and overall community health. However, in remote areas of Indonesia and other developing countries, maternal nutrition remains a serious challenge requiring in-depth attention. Limited access to nutritious food, low nutritional knowledge, and dependence on imported or processed foods are the main causes of poor maternal nutrition in these areas. This situation has long-term impacts, such as increased rates of stunting, anemia, and pregnancy complications, ultimately worsening the quality of life for families and communities (Saroinsong et al., 2021).

Programs to improve maternal nutrition have tended to be top-down, with a sometimes unsustainable approach to distributing food aid or nutritional supplements. This approach often fails to foster community self-reliance because it fails to build local capacity to utilize available resources (Ebile et al., 2022). Therefore, innovations in community-based nutrition interventions oriented toward empowerment and sustainability are needed. One approach that shows great potential is the development of community gardens combined with a local food empowerment program. Through this model, communities are encouraged to plant, manage, and utilize their own agricultural produce, while raising awareness of the importance of consuming nutritious food from easily accessible local sources.

Community gardens not only serve as an alternative food source but also serve as a platform for learning and social collaboration. In the context of improving maternal nutrition, the existence of community gardens can provide direct benefits in the form of the availability of fresh vegetables, fruit, and other food ingredients needed to meet the micronutrient needs of pregnant and breastfeeding women. Furthermore, this approach can strengthen social solidarity among residents, especially in remote areas

where strong community ties are common. Through shared activities, such as planting and maintaining gardens, communities can exchange knowledge about food, nutrition, and sustainable agricultural practices. This contributes to the formation of a social ecosystem that supports food security and family health (González-Fernández et al., 2020a).

Furthermore, local food empowerment is a crucial aspect in supporting the sustainability of community gardens. Many remote areas are rich in natural resources and high biodiversity, including nutritious but often overlooked traditional food crops. Through local food empowerment efforts, communities can relearn to identify, grow, and process traditional foods that are appropriate to local ecological conditions. This approach not only enriches the dietary diversity of mothers but also strengthens local cultural identity and reduces dependence on commercial food. Strengthening community capacity in managing local resources, whether through training in organic farming, food processing, or harvest management, is an integral part of community-based strategies to improve maternal nutrition (Kenton & Singha, 2019).

From a socio-economic perspective, community gardens can also positively impact household economic independence. Excess harvests can be sold or exchanged, creating new economic value for families, including housewives who have previously had limited access to other sources of income. Empowering women in community farming activities has a dual effect: on the one hand, it improves family well-being through additional income, and on the other hand, it strengthens women's role in decision-making regarding food and health (Nontu et al., 2024). Thus, this approach not only directly improves maternal nutritional status but also supports social transformation towards a more resilient and empowered society.

From an environmental perspective, the development of community gardens contributes to local ecosystem preservation efforts (“Building Sustainable, Resilient, and Nutritionally Enhanced Local Food Systems through Home Gardens in Developing Countries,” 2023). Community-based farming practices typically encourage the use of environmentally friendly farming techniques such as natural compost, biological pest control, and efficient water management. All of these are essential for

maintaining soil fertility and water availability in remote areas vulnerable to environmental degradation (Kuma et al., 2023). In other words, efforts to improve maternal nutrition through community gardens and local food not only impact human health but also support ecological sustainability, which is the foundation for long-term well-being.

Academically and practically, research on improving maternal nutrition through community gardens and local food empowerment is relevant because it combines nutritional, social, economic, and ecological dimensions within a single intervention framework. This model emphasizes the importance of cross-sector collaboration between government, educational institutions, community organizations, and health workers. In the context of community research, these activities can be designed to directly involve residents in the planning, implementation, and evaluation of programs. Through a participatory approach, research results are expected to not only generate scientific data but also have a tangible impact on the community in the form of increased capacity, behavioral change, and food self-sufficiency.

Furthermore, this research highlights the importance of contextualized nutrition education and knowledge transfer. Many mothers in remote areas do not fully understand the relationship between diet and pregnancy health. Therefore, activities such as nutrition workshops, training on healthy cooking based on local foods, and counseling on food diversification are crucial in supporting the goal of improving nutrition. An educational approach that is sensitive to the local cultural context is key to ensuring the intervention is widely accepted and adopted by the community.

Against this backdrop, this research is expected to make a significant contribution to the development of a sustainable community empowerment model for improving maternal nutrition in remote areas. Through the integration of community gardens and local food empowerment, this research aims not only to improve maternal nutritional status but also to strengthen family food security, economic independence, and community social solidarity. The results are expected to serve as a reference for community-based development programs that emphasize independence,

sustainability, and community well-being from the grassroots level. Thus, efforts to improve maternal nutrition will no longer rely solely on external assistance but will instead build on the strengths and resources of the community itself.

RESEARCH METHOD

The community-based research method for the "Improving Maternal Nutrition through Community Gardens and Local Food Empowerment in Remote Areas" program employed a literature review and community-based participatory approach. The literature review was conducted by examining various scientific sources, research reports, and policies related to maternal nutrition, local food security, and community empowerment practices in remote areas. This process aimed to identify strategies proven effective in improving the nutritional intake of pregnant and breastfeeding mothers through the utilization of local food resources. Meanwhile, a participatory approach was applied to directly involve the community in every stage of the activity, from planning, implementation, and evaluation, to ensure the program's sustainability in accordance with the local social and cultural context.

The research was conducted through field observations, in-depth interviews, and focus group discussions (FGDs) with mothers, health workers, and local community leaders. The qualitative data obtained were analyzed thematically to explore perceptions, needs, and obstacles faced in efforts to improve maternal nutrition through community gardens and local food empowerment. The results of the analysis were used to formulate an adaptive and sustainable local food-based empowerment model. With this approach, research not only produces theoretical recommendations, but also has practical impacts on improving maternal nutrition and household food security in remote areas.

RESULT AND DISCUSSION

The Role of Community Gardens in Meeting Maternal Nutritional Needs

Community gardens are an innovative and sustainable approach to improving food security and community nutrition, particularly for mothers

in rural and remote areas. In the context of maternal nutrition, community gardens serve as socio-ecological spaces that not only serve as a source of nutritious food production but also serve as a means of educating and empowering women to independently manage local resources. This phenomenon is becoming increasingly relevant amidst global challenges such as climate change, urbanization, and limited access to healthy and nutritious food in remote areas. Through community gardens, women, especially housewives, become not only beneficiaries but also key actors in the social transformation towards food self-sufficiency and improving family nutritional quality (González-Fernández et al., 2020b).

The primary function of community gardens in meeting maternal nutrition lies in their ability to provide fresh, nutritious food that is directly accessible to the local community (University of Zimbabwe, Faculty of Agriculture, Department of Agricultural Economics and Extension, Box MP 167, Mount Pleasant, Harare, Zimbabwe. et al., 2013). Green vegetables, fruits, and protein-rich crops like legumes can be easily grown in limited space using environmentally friendly organic farming systems. This allows mothers in remote areas to have sustainable access to micronutrient-rich food sources like iron, calcium, and vitamin A, which are crucial for the health of pregnant and breastfeeding mothers. Furthermore, community gardens can reduce dependence on processed or imported foods, which are generally less nutritious and expensive. Thus, community gardens provide a concrete solution to chronic nutritional problems such as anemia, chronic energy deficiency, and stunting, which are still common in rural areas.

Beyond providing a food source, community gardens also play a crucial role as a means of education on nutrition and sustainable agriculture. Through gardening activities, mothers can learn about efficient cultivation techniques, the use of organic fertilizers, and the importance of consuming a balanced, nutritious diet for family health. Training programs integrated with community gardens typically include materials on healthy menu planning, processing harvested produce into nutritious meals, and managing food waste to prevent waste. This collective learning process not only enriches mothers' knowledge but also fosters critical awareness of the relationship between diet, health, and the environment. In the long term,

community garden-based education can create changes in healthier and more sustainable consumption behavior at the household level, significantly improving family nutritional quality (Hartwig & Mason, 2016).

Another equally important aspect is the socio-economic empowerment of women through community gardens. In many cases, women's participation in community garden management provides a space for them to actively participate in productive economic activities, while strengthening their position in family decision-making. Harvests from community gardens are not only used for personal consumption but can also be sold to supplement family income. This model has a dual impact: on the one hand, it increases access to nutritious food and on the other, strengthens the economic independence of women in rural areas. Through joint activities, social networks and solidarity are also formed among women, strengthening community social cohesion. This empowerment transforms community gardens into more than just agricultural land, but also spaces for learning, collaboration, and strengthening women's roles in nutrition- and environment-based local development.

Furthermore, community gardens also contribute to local food security and adaptation to climate change. The small-scale farming systems implemented in community gardens typically utilize principles of crop diversification, efficient water management, and the use of organic matter to maintain soil fertility. These practices make community gardens a model of highly resilient agriculture, capable of coping with environmental pressures without damaging the ecosystem. In the context of maternal nutrition, this approach is highly relevant because it ensures a continuous supply of nutritious food throughout the year, even during lean seasons. Furthermore, community gardens can serve as living laboratories for local food innovation, utilizing traditional foods and family medicinal plants with high nutritional value. By combining local knowledge with modern science, community gardens play a role in creating a more inclusive, resilient, and sustainable food system.

Overall, community gardens play a strategic role in improving maternal nutrition through a holistic approach that combines production, education, and empowerment. Their existence demonstrates that efforts to

improve nutrition do not solely depend on medical interventions or food aid, but also on the strength of communities in independently managing natural and social resources. By empowering women to be key drivers, community gardens contribute to the achievement of sustainable development goals, particularly those related to hunger eradication, gender equality, and improving public health. In the long term, community gardens have the potential to become a crucial foundation for building a healthy and sustainable food culture rooted in active community participation. Through synergy between the government, educational institutions, and local communities, the role of community gardens can be expanded as a strategic instrument to ensure every mother and family in remote areas has access to nutritious, balanced, and sustainable food.

Local Food Empowerment Strategies to Improve Mothers' Nutritional Intake

Local food has significant potential to support improvements in the nutritional status of the community, especially for mothers, who are a vulnerable group in the life cycle. Mothers, whether during pregnancy, breastfeeding, or in their role as family food managers, require balanced nutrition to maintain their own health and that of their family members ("Measuring Women's Empowerment in Agriculture, Food Production, and Child and Maternal Dietary Diversity in Timor-Leste," 2021). In this context, local food empowerment is not only about utilizing local natural resources but also encompasses social, economic, and educational aspects that can strengthen household food security while raising awareness of the importance of a balanced, nutritious diet. Local food empowerment strategies can be implemented through training in food processing, product diversification based on local wisdom, and increasing the nutritional value of local foods.

Training in local food processing is a crucial first step in community empowerment, especially for women and housewives. Many local food ingredients, such as tubers, nuts, green leaves, and fruits, are abundant but underutilized due to limited knowledge of how to process them (Raymond et al., 2018). Through systematic training, communities can learn how to

process these ingredients into products that are not only tasty but also highly nutritious. For example, training can be provided on making flour from cassava or purple sweet potatoes, which can partially replace wheat flour, or processing moringa leaves into an iron-rich powder that can be used as a food additive for pregnant and breastfeeding mothers. This educational process provides added value by broadening the community's understanding of the nutritional benefits of local foods while creating new, sustainable economic opportunities (Pradhan et al., 2023).

In addition to processing training, strategies for diversifying local food products play a crucial role in enriching community consumption choices. Reliance on imported foods or single carbohydrate sources like rice has led to a monotonous diet, even though mothers' nutritional needs require a variety of macro- and micronutrient sources (Super & Wagemakers, 2021). Food product diversification can be achieved by developing new menus and processed foods from regional ingredients such as corn, sago, taro, and mung beans. For example, processed corn products can be created into nutritious instant porridge for breastfeeding mothers, or taro can be processed into healthy snacks that are high in fiber and low in fat. Through local culinary innovation, communities can increase the selling value of products while expanding the consumption of nutritious foods without losing their regional cultural identity.

In the context of community empowerment, diversification must also be accompanied by strengthening local entrepreneurial capacity. Rural women can be encouraged to form joint business groups that collectively manage locally processed food products, thereby improving family nutrition and generating additional income. This approach aligns with the principles of a sustainable economy, where empowerment is not solely focused on short-term results but also on creating a system that is self-sufficient and adaptable to socio-economic changes. Activities such as training in digital marketing, product packaging, and simple business management can increase the competitiveness of local products in broader markets, both regionally and nationally. Thus, a product diversification strategy not only plays a role in improving nutrition but also serves as a means of women's economic empowerment.

Another crucial aspect of a local food empowerment strategy is enhancing the nutritional value of local foods. Many local foods possess high nutritional potential, but are often underutilized due to limited community knowledge in processing and preparing them (Bhanbhro et al., 2020). For example, plant-based protein sources such as tempeh gembus or local legumes can be combined with other ingredients to increase their essential amino acid content. Similarly, local foods such as moringa leaves, pumpkin, and freshwater fish can be sources of essential micronutrients like iron, vitamin A, and calcium, which are essential for pregnant and breastfeeding mothers. Efforts to improve nutritional value can also be achieved through simple fortification, such as adding nutrient-rich local ingredients to daily staple foods, thereby increasing maternal nutritional intake without drastically changing consumption habits.

A scientific approach to improving the nutritional value of local foods also requires collaboration between communities, academics, and government agencies. Applied research programs that examine the nutritional content of local foods, processing methods that preserve nutrients, and simple technologies to extend product shelf life can provide the scientific basis for developing highly effective local foods. Furthermore, integration with local government policies related to food security and maternal nutrition will strengthen the long-term impact of this empowerment program. Activities such as nutrition counseling, local food consumption campaigns, and the provision of simple reading materials on the nutritional benefits of local foods will help raise public awareness of the importance of a balanced, nutritious diet based on local resources.

Furthermore, local food empowerment strategies should be directed at strengthening social and cultural systems that support changes in consumption behavior. In many rural communities, the perception of nutritious food is still often associated with modern or imported products, while local food is considered less prestigious. Therefore, a cultural approach is needed that emphasizes pride in local products and the revival of regional culinary traditions rich in nutritional value. Local food festivals, regional culinary innovation competitions, and community-based educational activities can be effective tools for building public awareness

and appreciation of the potential of their own regional food. Thus, the transformation towards a strong local food system depends not only on economic and technological aspects, but also on the revitalization of cultural and social values that value food diversity.

Ultimately, empowering local food to improve maternal nutritional intake is a multidimensional strategy that requires cross-sector collaboration and long-term commitment. This approach focuses not only on increasing the availability of nutritious food but also on building community independence and awareness of the importance of sustainable use of local resources. Through training in creative processing, adaptive product diversification, and increasing the nutritional value of local foods, mothers can become agents of change in achieving food security and improving family nutritional status. Thus, local food empowerment is not merely a technical strategy, but also a social movement that positions women and local communities as key pillars in building a healthy, independent, and sustainable society.

Multisector Collaboration in Maternal Nutrition Improvement Programs

Multisector collaboration in maternal nutrition improvement programs is a strategic approach that emphasizes the importance of collaboration across institutions and actors in addressing complex issues related to maternal and child health. Maternal nutrition issues, particularly in remote and rural areas, cannot be resolved through medical intervention alone. Social, economic, cultural, and environmental factors influence consumption patterns, access to nutritious food, and health behaviors. Therefore, synergy between local governments, health workers, non-governmental organizations (NGOs), and local leaders is key to creating nutrition improvement programs that are sustainable, inclusive, and tailored to the local context. This collaboration allows each sector to contribute according to its capacity and role, forming a mutually supportive network to achieve comprehensive maternal nutritional well-being (Klemm et al., 2022).

Local governments play a key role in formulating policies, allocating resources, and ensuring that nutrition programs are incorporated into

regional development plans. Political commitment at the regional level is crucial for program success, particularly in terms of budget allocation, inter-agency coordination, and the development of supporting regulations. Local governments can integrate maternal nutrition improvement programs into health development strategies, food security, and community empowerment. For example, this can be done through the development of policies that support local food access, increasing the capacity of integrated health posts (Posyandu), and providing incentives for village health workers. Furthermore, local governments play a role in developing a nutrition monitoring system that involves the community, so that each intervention can be tailored to actual needs on the ground. The government's role extends beyond policymaking to facilitating collaboration with various stakeholders to ensure program sustainability at the grassroots level (Sugihantono et al., 2020).

Meanwhile, health workers serve as the spearhead of program implementation in the field. They serve as a direct link between policies and target communities, particularly pregnant and breastfeeding women and expectant mothers. Health workers, such as midwives, nurses, and nutrition officers, play a strategic role in providing education, monitoring, and support related to balanced nutrition, prenatal care, and healthy eating habits. Through a community-based approach, health workers can build more personal relationships with communities, understand the challenges they face, and provide solutions tailored to the local cultural context. However, their success cannot be achieved without cross-sectoral support (Ouedraogo et al., 2021). Therefore, coordination between health workers and local governments in logistics, training, and facility support is crucial. Within the context of multi-sectoral collaboration, health workers can also be involved in cross-sectoral activities, such as local food-based nutrition training, family food security programs, and nutrition education through schools and mothers' communities.

Non-governmental organizations (NGOs) play a vital role in strengthening the implementation of maternal nutrition improvement programs through community empowerment and social advocacy approaches. NGOs often have extensive networks and the flexibility to

reach groups that are difficult for government agencies to access. They can play a role in providing training to integrated health post (Posyandu) cadres, assisting in the procurement of nutrition facilities, and raising public awareness about the importance of consuming nutritious local food. NGOs are also able to bridge communication between communities and the government, voicing residents' aspirations, and assisting in program monitoring and evaluation at the community level. With strong field experience, NGOs can provide evidence-based perspectives on program effectiveness and suggest innovations based on local needs. For example, in the context of local food empowerment, NGOs can facilitate training in processing local food ingredients into nutritious products, encourage the formation of productive mothers' groups, and develop sustainable community nutrition garden models.

The role of local leaders is equally crucial in building trust and encouraging community participation. Religious, traditional, and community leaders have significant influence on community behavior and decisions, including those related to health and food consumption patterns. In many cases, messages delivered by local leaders are more readily accepted because they are perceived as aligned with local social and cultural values. Involving these leaders in nutrition programs can increase the effectiveness of educational campaigns and accelerate behavioral change toward healthy and sustainable eating patterns. Furthermore, they can act as agents of change, mobilizing communities to participate in activities such as nutrition gardens, healthy kitchens, and nutrition-aware mothers' groups. The success of maternal nutrition improvement programs is measured not only by increased nutrient consumption but also by the formation of a healthy culture underpinned by positive local values (Bach et al., 2020).

Synergy between the government, health workers, NGOs, and local leaders creates a collaborative ecosystem that allows each sector to contribute in a complementary manner. This multi-sectoral collaboration can be realized through cross-sectoral coordination forums, integrated planning, and resource and data sharing mechanisms. In its implementation, effective and transparent communication between actors

is required to optimally achieve program objectives. For example, the government provides policy and funding support, health workers ensure the technical and educational aspects are implemented effectively, NGOs strengthen empowerment and advocacy, and local leaders play a role in building the program's social legitimacy. With a collaborative approach, nutrition programs become not merely health interventions but also social movements that strengthen community independence in meeting their own nutritional needs.

Furthermore, the sustainability of multisectoral collaboration depends heavily on long-term commitment and an inclusive evaluation system. Each party needs a clear role and an open reporting mechanism to maintain synergy. Local governments can adopt a sustainable partnership model by involving communities at every stage of planning and evaluation. NGOs can act as independent monitors, ensuring accountability, while health workers maintain the quality of nutrition interventions. Furthermore, strengthening community capacity is crucial to ensure that collaboration is not top-down but truly based on active community participation. When communities feel ownership of the program, sustainability is more assured, and its impact on maternal nutritional status can be felt in the long term.

Thus, multisectoral collaboration in maternal nutrition improvement programs is not merely an administrative concept, but a fundamental strategy for building equitable and sustainable nutritional security. Challenges such as limited resources, differing interests between agencies, and complex cultural factors are unavoidable, but they can be overcome through open communication, strong coordination, and a shared commitment to a common goal: improving the quality of life for mothers and children. Through close synergy between actors, maternal nutrition improvement programs can not only improve short-term nutritional status but also create fundamental social change toward a healthier, more independent, and empowered society.

Community Participation Models for Program Sustainability

Community participation models for the sustainability of development programs, particularly in the context of improving maternal

nutrition and food security through community gardens and local food empowerment, are fundamental elements that determine the long-term success of any initiative. Community participation is not simply defined as involvement in activity implementation but also encompasses decision-making, planning, implementation, evaluation, and program sustainability after external interventions have ended. This concept stems from a participatory development paradigm that positions communities as subjects of development, not simply recipients of assistance (Is There Strength in Unity?, n.d.). Thus, communities play an active role in every stage of the activity, building a sense of ownership of the program, and fostering collective capacity and awareness to maintain the sustainability of achieved results.

Effective community participation is built through mechanisms that prioritize dialogue, transparency, and respect for local knowledge. In the context of maternal nutrition improvement programs in remote areas, communities possess invaluable local wisdom related to food processing, seasonal planting patterns, and survival strategies within limited resources. This knowledge is a crucial foundation for program success, as initiatives aligned with local culture and practices tend to be more accepted and sustainably adopted. For example, using local plants already known to the community as highly nutritious foods, such as moringa leaves, sweet potatoes, and nuts, will be easier to implement than introducing new foods that may not align with community tastes and habits. This participatory approach, which respects local knowledge, not only strengthens the program's effectiveness but also strengthens community confidence in their own ability to manage resources independently (Chea et al., 2025).

Furthermore, a sustainable community participation model also requires shared ownership of the program. This ownership is built through active community involvement from the planning stage. When communities are involved in identifying problems, setting priorities, and formulating solutions, they will feel that the program is the result of a shared initiative, not the result of external intervention. In the case of community garden development, for example, the community needs to be involved in determining the land location, selecting appropriate plant

species, setting work schedules, and forming management groups. These processes foster a sense of collective responsibility for the success and maintenance of the community garden after the project ends. Furthermore, this shared ownership also builds social solidarity, strengthens mutual cooperation networks, and fosters values of cooperation, which are essential foundations for program sustainability at the grassroots level (Okara et al., 2025).

The success of community participation in maintaining program sustainability also depends heavily on the existence of learning mechanisms and strengthening local capacity. Empowerment involves not only providing physical or financial assistance but also fostering critical thinking skills, self-organization, and relevant technical skills. In the context of local food empowerment, training in nutritious food processing, organic garden management, and product diversification are crucial steps to strengthen communities' ability to manage resources sustainably. This approach allows communities to move away from dependence on external parties and instead create innovations based on their own needs and potential. When communities have sufficient capacity to maintain and develop programs, sustainability becomes inherent in their social systems (Amadi, 2018).

Furthermore, effective community participation also creates space for inclusive local governance. In many development programs, a key challenge is ensuring that the voices of vulnerable groups such as women, pregnant women, and poor families are represented in decision-making processes. Through participatory models, communities can establish local forums that provide space for all groups to express their opinions and contribute. For example, the formation of women's groups at the hamlet or village level that are not only involved in community gardens but also play a role in educating fellow mothers about the importance of balanced nutrition. This type of women's involvement in local leadership has been shown to increase program effectiveness and broaden its impact on family well-being. This is because women often play strategic roles in household food management and family health, so their participation strengthens the link between food production and nutritional improvement.

However, building a sustainable model of community participation is not easy. Challenges arise when participation is interpreted only formally, where communities are involved merely to fulfill administrative requirements without being given real space to contribute to decision-making. Another challenge is the power imbalance between external parties (such as the government or donor agencies) and local communities, which often prevents community aspirations from being fully addressed. Therefore, program sustainability strategies must include approaches that foster mutual trust, strengthen two-way communication, and ensure the existence of community-based monitoring mechanisms. In this way, communities become not only implementers but also monitors and assessors of the success of their programs.

From a socio-ecological perspective, a strong community participation model will create an adaptive system capable of adapting to environmental, social, and economic changes. In the context of food security, for example, communities that actively participate in managing community gardens will be better prepared to face the risks of crop failure, climate change, or fluctuating food prices. They can develop more resilient agricultural systems by relying on crop diversification and sustainable agricultural practices. Furthermore, community involvement in local resource management also contributes to environmental sustainability, as they have a direct incentive to protect the land, water, and ecosystems that are the source of their livelihoods.

Thus, the community participation model in program sustainability is not merely an implementation strategy but also a people-centered development philosophy. True participation empowers communities to become independent, creative, and responsible agents of change for their own future. Through shared ownership and the utilization of local knowledge, programs initially designed by external parties can transform into vibrant social movements within communities, passed down across generations, and continually evolving in line with local dynamics. Therefore, the success of nutrition and food empowerment programs in remote areas is largely determined by the extent to which communities

become not only beneficiaries but also key drivers in maintaining and sustaining initiated initiatives.

CONCLUSION

The conclusion of a community-based study entitled "Improving Maternal Nutrition through Community Gardens and Local Food Empowerment in Remote Areas" indicates that a community-based approach through the development of community gardens and the utilization of local food is an effective strategy for improving maternal nutritional status, particularly in remote areas. Through community gardens, women gain direct access to fresh, nutritious food sources that were previously difficult to access due to limited infrastructure and dependence on supplies from outside the region. This program not only improves the nutritional intake of pregnant and breastfeeding women but also raises awareness of the importance of food sustainability and self-sufficiency in meeting family nutritional needs.

In addition to impacting health, local food empowerment activities also contribute to increasing community social and economic capacity. Through training, mentoring, and collaboration between residents, social solidarity and the transfer of knowledge about the processing and utilization of nutrient-rich local foods emerge. This process strengthens women's roles as agents of change within households and communities and opens up opportunities for microeconomic development based on garden produce and local products. Thus, community empowerment through food gardens is not only technical in providing food, but also socio-cultural in building community awareness and independence.

Overall, the results of this study confirm that efforts to improve maternal nutrition in remote areas must be carried out through a holistic approach that combines aspects of health, food, environment, and social empowerment. The community garden program and local food empowerment program have proven to be sustainable and contextual intervention models, tailored to local potential and culture. The success of this program depends heavily on active community participation, cross-sectoral support, and government policies that support local food self-

sufficiency. Therefore, similar initiatives need to be continuously expanded and adapted to the specific conditions of each region to create a resilient and equitable nutrition ecosystem for mothers and families in remote areas.

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