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Impact of nutri garden on food, nutrition, and livelihood security of farm families in rural Mysuru district

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Abstract

A nutrition garden is viewed as an area surrounding the home where various vegetables and fruits can be cultivated. This practice fosters family self-sufficiency and ensures a safe and nutritious food supply that is readily available for use. Objective of the present study was to assess the impact of Agri-nutri garden on food, nutrition and livelihood security of farm families. The current study was conducted for 2 years in Harthale and Geemaralli village, Nanjangud taluk, Mysuru. The farm families of 30 were randomly selected and made into three groups based on their family size; Large (6-8), Medium (4-6) and Small (2-4) where the total families were 5, 10 and 15 respectively. The total number of respondents was 180. The BMI classification resulted that most of the respondents (74.44%) were within the normal BMI range, few of them were suffering from malnutrition and morbidity conditions. The farm families were selected on the availability of the area, water and willingness of farm women to maintain the garden in all the seasons. Along with the vegetable seed kits perennials, fruit crops and medicinal plants were also provided. On campus training programme was conducted on establishment of agri-nutri garden and importance of balanced diet and micro-nutrients for all age groups. The nutritional composition of Recommended Dietary Allowance (RDA) was computed using Nutritive Value of Indian Foods and compared the same with the standard nutrient intake. The per cent adequacy for nutrients revealed that there was an increase in per cent of quantity of nutrients intake like proteins (8.17%), fibre (9.69%), vitamin C (24.98%), Iron (22.13%) and Calcium (2.36%) after introduction of agri-nutrition garden, the consumption of vegetables increased in the daily diet which contributed towards the upliftment of the food, nutrition and livelihood security of the farm families.

Keywords: Agri-nutrigarden, farm families, malnutrition, nutritional status, livelihood security

Introduction

Agriculture is the primary livelihood of a majority of the population in South Asia. The region also houses a large population of undernourished people. The nutrition garden envisages developing and demonstrating a sustainable framework to improve nutritional outcomes that can be used for up scaling and wider adoption in rural population. India ranks 102 out of 123 countries in the 2025 Global Hunger Index, and suffers from a serious level of hunger with a score of 30.3. Indeed, the country continues to with a high rate of malnutrition, and managing it continues to be a biggest challenge. The stunting levels are 38.4 per cent and underweight numbers are 35.8 per cent as reported in the National Family Health Survey 4 (NFHS-4). There has been only a marginal betterment over the years. Under nutrition leads to long-term effects, including cognitive and growth deficits and reduced immunity to infections. It is the underlying cause of nearly half of all deaths amongst children under five years of age in India. Food security proceeds to be a subject of grave concern for India. In spite of being the second largest producer of food, India is home

to the world's second largest undernourished population (195.9 million).

Studies examining the link between food security and malnutrition reveal a direct association with under nutrition in children in middle-income countries and conclude that under nutrition/stunting is a consequence of household food insecurity. To add to the burden of malnutrition, more than half (53.1 per cent) of women (15-49 years) in India are anaemic, which has lasting effects on future pregnancies, and is also one of the causes for the high rate of low-birth weight babies (Aparna, 2010) [9]. The situation worsens when infants are fed inadequate diets. According to the World Health Organization (WHO), an unbalanced diet and lack of food (other than mother's milk), is directly linked to high rates of stunting, excessive weight, and death in children under five years of age. It is therefore important to break this inter-generational cycle of malnutrition. Deterioration in minimum adequacy of diet is observed, which is a cause of interest.

Fruits and vegetables are essential components of the daily diet for humans, and it is crucial for rural populations to be educated about the significance of vegetables in their dietary

practices (Jain, 2017) ^[10]. Nutrigarden offers year-round access to a sufficient quantity and variety of fruits and vegetables, which not only fulfil energy requirements but also provide essential micronutrients through its produce. The implementation of Nutrigarden at the household level represents an effective approach to enhancing food security within families (Rani *et al*, 2015) ^[11]. It is imperative to explore various strategies to address the challenges of food and nutrition security in light of the increasing demand. Community gardens can significantly contribute to national food security by supplementing food rations and delivering vital nutrients. Nutrigardens promote dietary diversity by ensuring a consistent supply of fruits and vegetables that meet the nutritional needs of families. Therefore, nutrition gardens can serve as a sustainable model for achieving food security and enhancing vegetable diversity to tackle malnutrition at both household and community levels. Consequently, a demonstration of a nutrition garden was conducted in the fields of farmers by ICAR JSS Krishi Vigyan Kendra, Suttur, Mysuru, Karnataka. This paper examines the impact of establishing a Nutrigarden on the food, nutrition, and livelihood security of farming families.

Material and Methods

The present study was carried out to understand and analyze the nutrition status of farm women and to know the impact of nutri garden on nutrition security of farm families. The study population was from lower middle class family with agriculture being the major occupation. The study was conducted for one years from 2024 to 2025 in Harthale and Geemarahalli village of Nanjangud taluk, Mysur District, Karnataka constituting of 30 farm families. The farm families of 30 were randomly selected and made into three groups based on their family size 5, 15 and 10; Large (6-8), Medium (4-6) and Small (2-4) respectively. The total

numbers of participants were 180, where males were 97 and 83 were females. Initially, a health and nutrition awareness program was implemented. A structured questionnaire was utilized to gather information regarding the participants nutritional status, which encompassed their socio-economic status and dietary habits through a 24-hour dietary recall method over a span of 7 consecutive days prior to the introduction of Nutrigarden. Subsequently, a cross-sectional design was adopted, taking into account the area's resources, water availability, the nutritional needs of the families, and the willingness of farm women to sustain the garden throughout all seasons. Vegetable seed kits, consisting of 10 types of seeds (including 4 varieties of green leafy vegetables, 3 roots and tubers, and 3 additional vegetables), as well as perennials (such as drumstick, curry leaves, and chakramuni) and fruit plants (including papaya, sapota, guava, and lemon), which are abundant in vitamins A, B, C, and essential minerals like iron, calcium, phosphorus, and zinc, were distributed alongside the seed kits and perennial plants by KVK, Suttur.

A thorough monitoring process was implemented throughout the cultivation of the nutrigarden. During each season's harvest, the yield obtained, food consumption patterns, and nutrient intake were systematically recorded. The statistical analysis encompassed percentage calculations, per cent adequacy, and per cent increase, which were evaluated for the gathered data. Subsequently, a field day program was organized in the respective villages to raise awareness about the nutritional significance of the nutrigarden, aimed at enhancing family health. Additionally, nutrition education was provided as part of the nutrition intervention.

Results and Discussion

Table 1: Socio demographic characteristics of the respondents

Parameters	Respondents=30 (Families)	
	N=180	%
Age(years)		
0-19	78	43.33
20-39	35	19.44
40-59	41	22.78
60 and above	26	14.44
Caste		
SC/ST	41	22.78
Others	139	77.22
Education		
Illiterate	68	37.78
Primary	58	32.22
Middle and secondary	41	22.78
PUC and graduation	13	7.22
Family income (per annum)		
11,000-50,000	21	70.00
51,000-90,000	4	13.33
91,000 and above	5	16.67
Experience in Nutri garden		
More than 3 years	13	43.33
Less than 3 years	17	56.67
Purpose of Nutri garden		
Financial benefits	4	13.33
Family health	21	70.00
Social/ recreational	5	16.67

Household nutritional insecurity and micronutrient deficiencies continue to be pressing concerns in rural and low-income populations, particularly in developing countries. Nutrition-sensitive interventions such as nutri gardens (kitchen gardens) have been widely promoted as sustainable strategies to enhance dietary diversity, ensure year-round availability of vegetables and fruits, and improve overall household well-being (Food and Agriculture Organization, 2013; World Health Organization, 2020). Table no.1 represents the socio-economic profile of nutrigarden beneficiaries ^[3, 8].

The age distribution reveals that (43.33%) of household members belongs to 0-19 years category, indicating a substantial presence of nutritionally vulnerable groups such as children and adolescents. This finding is significant as previous research highlights that increased access to micronutrient-rich foods through home gardens can substantially reduce malnutrition and improve growth outcomes in younger populations (Berti *et al.*, 2004) ^[2]. The participation of middle-aged individuals (20-59 years) further reflects their central role in managing household food systems, while the involvement of elderly members (14.44%) suggests the integration of indigenous knowledge with improved practices, enhancing sustainability.

The caste composition indicates that 22.78% of respondents belong to SC/ST communities, while the majority (77.22%) belong to other social groups. Studies have consistently shown that marginalized communities often face disproportionate levels of food and nutritional insecurity due to socio-economic constraints (Ruel & Alderman, 2013) ^[6]. The inclusion of SC/ST households in nutrigarden initiatives demonstrates outreach effectiveness; however, targeted interventions are necessary to ensure equitable access, capacity building, and long-term benefits among these vulnerable groups.

Education plays a crucial role in the adoption of agricultural innovations and nutritional practices. In the present study, a large proportion of respondents are illiterate (37.78%) or have only primary education (32.22%), with only 7.22 per cent having attained higher education. Despite this, the adoption of nutrigarden practices among low-literacy

populations indicates that extension approaches based on practical demonstrations, participatory training, and visual communication are effective. Similar findings have been reported by Galhena *et al.* (2013) ^[4], who emphasized that home garden interventions can succeed even in low-literacy settings when supported by appropriate extension strategies. The income profile shows that 70.00% of households fall within the low-income category (Rs. 11,000-50,000 annually), reinforcing that nutrigardens are primarily adopted by economically weaker sections. This aligns with earlier studies suggesting that kitchen gardens are cost-effective and accessible interventions for improving food security among resource-poor households (Marsh, 1998) ^[5]. The relatively lower representation of higher-income groups suggests that nutrigardens are still perceived mainly as subsistence-oriented rather than income-generating activities. However, integrating value addition and market linkages could enhance their economic potential.

The experience of respondents indicates that 56.67% have less than three years of experience, suggesting that nutrigarden interventions are relatively recent in the study area. The presence of 43.33% experienced practitioners indicates continuity and the potential for peer-to-peer learning. According to community-based extension models, such farmer-to-farmer knowledge sharing plays a critical role in scaling up agricultural innovations and ensuring sustainability (FAO, 2013) ^[3].

The primary motivation for maintaining nutrigardens was family health (70.00%), followed by social/recreational purposes (16.67%) and financial benefits (13.33%). This finding strongly supports the concept of nutrition-sensitive agriculture, which prioritizes improved dietary intake and health outcomes over income generation alone (Ruel & Alderman, 2013) ^[6]. Increased awareness regarding the consumption of fresh, chemical-free produce reflects the success of nutrition education and extension efforts. Additionally, the social and recreational benefits reported by respondents highlight the psychosocial advantages of nutrigardens, including stress reduction and community engagement.

Table 2: Anthropometric Assessment of the farm families

*BMI	Category	Before nutri garden		After nutri garden	
		(N =180)	%	(N =180)	%
<18.5	Underweight	19	10.56	14	7.78
18.5-22.9	Normal	134	74.44	147	81.67
23.0-24.9	Over weight	15	8.33	12	6.67
25.0-29.9	Obese grade I	7	3.89	5	2.78
>29.9	Obese grade II	5	2.78	2	1.11

Body Mass Index (BMI) is a widely used indicator for assessing the nutritional status of individuals and is particularly useful in evaluating the impact of nutrition-sensitive interventions at the household level (World Health Organization, 2000) ^[7]. The present study assessed changes in BMI categories of respondents before and after the adoption of nutrigarden practices, revealing notable improvements in nutritional outcomes.

A reduction in the proportion of underweight individuals from 10.56% to 7.78% was observed following the establishment of nutrigardens. This decline suggests an

improvement in energy and nutrient intake among previously undernourished individuals. Similar findings have been reported in studies where increased access to diverse, micronutrient-rich foods through home gardens contributed to improved nutritional status, particularly among vulnerable populations (Berti *et al.*, 2004) ^[2]. The availability of fresh vegetables and fruits likely enhanced dietary diversity and caloric adequacy, thereby reducing the prevalence of under nutrition.

The proportion of individuals in the normal BMI category increased from 74.44% to 81.67%, indicating a positive shift

toward optimal nutritional status. This improvement reflects the effectiveness of nutrigardens in promoting balanced diets and consistent food availability. Home garden interventions have been shown to significantly improve household dietary diversity scores, which are closely associated with better nutritional outcomes (Galhena *et al.*, 2013) [4]. The observed increase in normal BMI also suggests improved awareness regarding healthy food consumption patterns among respondents.

A decline in the percentage of overweight individuals (from 8.33% to 6.67%) and obese categories obese grade I (3.89% to 2.78%) and obese grade II (2.78% to 1.11%) was also recorded. This trend indicates that nutrigardens may contribute not only to reducing under nutrition but also to addressing over nutrition and associated health risks. Increased consumption of fiber-rich vegetables and reduced dependence on processed foods may have contributed to better weight management. These findings are consistent with evidence suggesting that improved access to fresh produce supports healthier dietary habits and reduce the risk of non-communicable diseases such as obesity and

cardiovascular disorders (FAO, 2013; Ruel & Alderman, 2013) [6, 3].

The dual improvement observed in both under nutrition and over nutrition categories highlights the role of nutrigardens as a comprehensive nutrition-sensitive intervention. By ensuring access to a variety of nutrient-dense foods, nutrigardens help address the “double burden of malnutrition,” which includes both under nutrition and rising levels of overweight and obesity, particularly in developing countries (WHO, 2020) [7].

Overall, the findings demonstrate that nutrigarden interventions have a significant positive impact on the nutritional status of households, as evidenced by the shift toward normal BMI categories and reduction in both underweight and obese populations. These results reinforce the importance of integrating nutri garden into public health and rural development programs. However, sustained nutritional improvements will depend on continued nutrition education, behavioural change communication, and support for year-round garden productivity.

Table 3: Morbidity Status among the farm women (n=30)

Parameters Giddiness	Before Nutri gadren (n=30)	After Nutri gadren %	Before Nutri garden (n=30)	After Nutri gadren %
Back ache	18	60.00	14	46.67
Head ache	16	53.33	12	40.00
Body ache	14	46.67	13	43.33
Fatigue	17	56.67	15	50.00
Fever	13	43.33	9	30.00
Breathlessness	4	13.33	4	13.33
Eye strain	8	26.67	7	23.33
Cold	18	60.00	15	50.00
Cough	11	36.67	9	30.00
Acidity	14	46.67	12	40.00
Tooth ache	22	73.33	19	63.33
Shoulder pain	20	66.67	17	56.67
Respiratory problem	25	83.33	24	80.00

Table 3. represents the common health morbidity among respondents (n = 30) before and after the adoption of nutrigarden practices provides important insights into the health and nutritional impact of the intervention. Overall, the findings indicate a general decline in the prevalence of several health issues, suggesting a positive influence of nutri garden on household well-being.

Before the intervention, a high prevalence of health problems was observed, particularly respiratory problems (83.33%), toothache (73.33%), shoulder pain (66.67%), backache (60.00%), and cold (60.00%), indicating poor baseline health status among respondents. Following the adoption of nutri garden, a noticeable reduction was recorded in many of these conditions. Backache declined from 60.00% to 46.67%, headache from 53.33% to 40.00%, fatigue from 56.67% to 50.00%, and fever from 43.33% to 30.00%. Similarly, cold reduced from 60.00% to 50.00%, cough from 36.67% to 30.00%, acidity from 46.67% to 40.00%, and toothache from 73.33% to 63.33%. Shoulder pain also decreased from 66.67% to 56.67%, indicating an overall improvement in general health conditions. These improvements can be attributed to enhanced dietary diversity and increased intake of micronutrient-rich foods

such as vegetables and fruits produced in nutri garden. Diets rich in essential vitamins and minerals particularly vitamin A, vitamin C, and iron are known to improve immunity, reduce fatigue, and lower susceptibility to infections (Berti *et al.*, 2004) [2]. The reduction in symptoms such as fever, headache, and fatigue supports the role of improved nutrition in strengthening immune function and overall vitality. Similar observations have been reported in studies conducted by Bhavana *et al.*, (2021) [1]. Impact of demonstration of nutri garden in farm families where nutri garden contributed to better health outcomes and reduced morbidity among the respondents.

The decline in respiratory-related conditions such as cold and cough further indicates improved immunity, possibly due to increased consumption of antioxidant-rich foods. However, respiratory problems showed only a marginal decrease (83.33% to 80.00%), suggesting that such conditions are also influenced by environmental factors like air quality, housing conditions, and exposure to pollutants. This aligns with findings from the WHO (2020) [8], which emphasize that respiratory health is determined by both nutritional and environmental factors.

Certain conditions such as breathlessness (13.33%)

remained unchanged, and body ache showed only a slight reduction (46.67% to 43.33%). These findings indicate that not all health problems are directly influenced by dietary improvements alone. Chronic conditions and occupational health issues, particularly in rural settings involving physical labor, may persist despite better nutrition. Similarly, the moderate decline in musculoskeletal problems like backache and shoulder pain suggests that while improved nutrition may support physical health, factors such as workload and posture continue to play a significant role. Although the observed reductions across most health parameters indicate a positive trend, the magnitude of change is relatively modest. This may be due to the small sample size and the relatively short duration of exposure to nutrigarden practices among respondents. Previous studies have also highlighted that while nutrition-sensitive interventions improve dietary diversity, measurable health outcomes often require longer periods to show statistically significant changes (Ruel & Alderman, 2013) [6].

The changes in food consumption patterns before and after the adoption of nutrigarden practices as shown in Fig 1. Reveal significant improvements in dietary diversity and nutritional quality among the respondents. The results clearly indicate a shift from a cereal- and fat-dominated diet toward a more balanced intake of protective foods such as pulses, vegetables, and fruits.

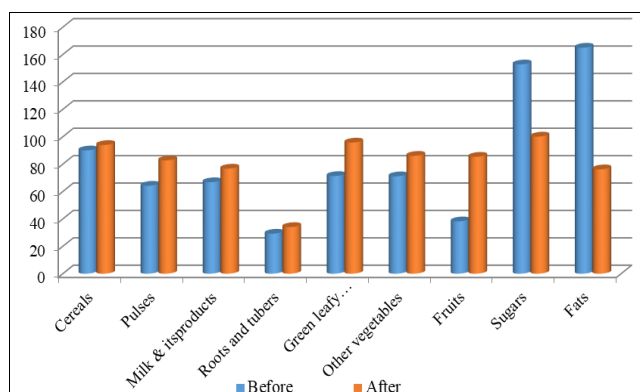


Fig 1: Adequacy of food intake before and after the nutri garden

Cereal consumption showed a marginal increase from 90.00% to 93.96%, indicating that cereals continue to remain the staple component of the diet. However, the relatively small increase suggests that the intervention did not aim to alter staple consumption but rather to diversify the diet. A substantial improvement was observed in pulse consumption, which increased from 64.2% to 82.73%. Pulses are a major source of plant-based protein, and their

increased intake reflects improved protein adequacy in the diet. This aligns with findings that home gardens enhance access to protein-rich foods and improve overall nutritional intake (Berti *et al.*, 2004) [2].

Milk and milk product consumption also increased from 66.8% to 76.72%, indicating better inclusion of animal-based or supplementary protein sources. Similarly, roots and tubers showed a modest increase (29.2% to 34.06%), contributing to dietary energy and micronutrient intake. However, the most remarkable changes were observed in the consumption of vegetables and fruits.

Green leafy vegetable intake increased significantly from 71.3% to 95.75%, while other vegetables increased from 71.1% to 86.07%. Fruits showed a dramatic rise from 38.2% to 85.35%. These changes are particularly important as vegetables and fruits are rich sources of essential vitamins, minerals, antioxidants, and dietary fiber. Increased consumption of these food groups plays a critical role in preventing micronutrient deficiencies and improving immune function. Similar outcomes have been reported by the WHO (2013) [3], which emphasized that home gardens significantly enhance access to micronutrient-rich foods and dietary diversity.

A noteworthy observation is the substantial reduction in the consumption of sugars and fats. Sugar intake decreased from 152.8% to 100.1%, while fat consumption reduced from 165% to 76.2%. This shift indicates a movement toward healthier dietary practices, likely due to increased awareness and availability of fresh produce through nutri garden. High intake of sugars and fats is associated with an increased risk of non-communicable diseases such as obesity, diabetes, and cardiovascular disorders. Therefore, their reduction represents a positive behavioural change in dietary habits. According to the WHO (2020) [8], limiting the intake of free sugars and unhealthy fats is essential for maintaining a healthy diet and preventing lifestyle-related diseases.

Overall, the findings demonstrate that nutri garden play a crucial role in improving dietary patterns by increasing the consumption of nutrient-dense foods while reducing reliance on energy-dense, nutrient-poor foods. The significant rise in fruit and vegetable intake, coupled with reduced sugar and fat consumption, indicates a transition toward a more balanced and health-promoting diet. These results support earlier studies which highlight those nutrition-sensitive agricultural interventions can effectively improve household food consumption and nutritional outcomes (Ruel & Alderman, 2013) [6].

Table 4: Impact of nutri garden on nutrient intake of farm women (n=30)

Particulars	RDA	Before		After		% increase
		Mean $\pm$ SD	% Adequacy	Mean $\pm$ SD	% Adequacy	
Energy (Kcal)	2130	1715.5	80.54	1892.32	88.84	8.30
Protein (g)	46.0	36.42	79.18	40.18	87.35	8.17
Fat (g)	25	22.10	88.42	23.11	90.44	2.02
Fibre (g)	30	21.74	72.47	24.64	82.16	9.69
Calcium (mg)	1000	967.5	96.60	989.65	98.96	2.36
Iron (mg)	29	20.09	69.30	26.51	91.43	22.13
Vitamin C (mg)	65	43.35	61.75	56.37	86.73	24.98

The comparison of nutrient intake before and after the adoption of nutrigarden practices demonstrates a clear improvement in both macronutrient and micronutrient adequacy among the respondents. When assessed against the Recommended Dietary Allowances (RDA), the findings indicate that implementation of nutri garden have contributed to enhancing dietary quality and reducing nutrient deficiencies.

Energy intake increased from 1715.5 kcal to 1892.32 kcal, reflecting an 8.30 per cent improvement. Although energy intake remained slightly below the recommended level, the observed increase suggests better food availability and improved meal frequency. Similar trends have been reported in nutrition-sensitive agriculture interventions, where home gardens contribute to improved household food security and caloric intake (Berti *et al.*, 2004) [2]. Protein intake also showed a notable increase from 36.42 g (79.18% adequacy) to 40.18 g (87.35% adequacy), representing an 8.17% rise. This improvement can be attributed to increased consumption of pulses and other protein-rich foods cultivated in nutri garden. Adequate protein intake is essential for growth, tissue repair, and immune function, and its improvement reflects better dietary balance among respondents. Fat intake exhibited a marginal increase from 22.10 g to 23.11 g, with adequacy improving from 88.42% to 90.44%. While the increase is relatively small 2.02 per cent, it indicates a balanced intake of dietary fats without excessive consumption. This aligns with recommendations by the WHO (2020) [8], which emphasize moderate fat intake as part of a healthy diet.

Dietary fibre intake showed a significant improvement from 21.74 g to 24.64 g, reflecting a 9.69 per cent increase. This can be directly linked to higher consumption of green leafy vegetables, fruits, and other plant-based foods from nutri garden. Increased fibre intake is associated with improved digestive health and reduced risk of chronic diseases. Calcium intake was relatively adequate even before the intervention (96.60%) and improved slightly to 98.96% after nutrigarden adoption. The modest increase 2.36 per cent suggests that respondents already had access to calcium-rich foods, possibly through milk and milk products, and nutri garden helped in further stabilizing intake.

A substantial improvement was observed in iron intake representing a 22.13% increase. This is particularly significant given the high prevalence of iron deficiency anemia in rural populations. The increase can be attributed to higher consumption of green leafy vegetables and pulses, which are rich sources of dietary iron. Similar findings have been reported by the Food and Agriculture Organization (2013) [3], emphasizing the role of home gardens in addressing micronutrient deficiencies. Vitamin C intake also showed a remarkable increase from with 24.98% improvement. Vitamin C plays a crucial role in enhancing iron absorption and boosting immunity. The increased intake is likely due to greater availability and consumption of fruits and fresh vegetables, which are primary sources of this vitamin.

Overall, the results indicate that nutri garden intervention have a more pronounced impact on micronutrient intake (iron and vitamin C) compared to macronutrients. This highlights their effectiveness in addressing “hidden hunger,” a condition characterized by deficiencies of essential

vitamins and minerals despite adequate caloric intake (Ruel & Alderman, 2013) [6]. Despite the positive improvements, some nutrients such as energy and protein did not fully meet RDA levels, indicating the need for continued efforts to enhance dietary adequacy. The findings suggest that while nutri garden significantly improve access to nutrient-rich foods, complementary interventions such as nutrition education, diversification of crops, and inclusion of animal-based foods may further strengthen nutritional outcomes.

Conclusion

The present study demonstrates that the introduction of nutri gardens significantly improved the food, nutrition, and livelihood security of farm families in the study area. The intervention enhanced household access to diverse and nutrient-rich foods, leading to measurable improvements in dietary intake and nutrient adequacy. Notable increases were observed in the consumption of proteins, fibre, vitamin C, iron, and calcium, indicating a positive shift toward balanced nutrition and reduced risk of micronutrient deficiencies. The improvement in dietary diversity, particularly increased consumption of vegetables, fruits, and perennials, contributed to better nutritional outcomes across different family size groups. Although a majority of respondents were within the normal BMI range, the intervention helped in addressing mild malnutrition and morbidity conditions through improved food intake and awareness.

Capacity-building efforts, including training on nutrigarden establishment and nutrition education, played a crucial role in enhancing knowledge and adoption among farm women. The integration of seasonal vegetables, fruit crops, and medicinal plants ensured year-round availability of nutritious food, thereby strengthening household self-sufficiency. Overall, nutri garden proved to be a sustainable and cost-effective approach for improving dietary quality and promoting nutrition-sensitive agriculture. The study highlights the potential of scaling up such interventions through extension systems to address malnutrition and enhance rural livelihoods. Continued support through training, input supply, and awareness programs will be essential for sustaining and expanding the benefits of nutri gardens.

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