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Household food security by kitchen gardening and nutrition gardening at Amreli district

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Abstract

Child and maternal malnutrition are the most critical health risks in India, 15% of our country suffering from the overall sickness burden from malnutrition. Undernourishment and poor health was very popular in rural regions. It retards children growth, increases the risk and duration of illness, reduces work output, and slows social and mental development. As per the recent report of National Family Health Survey (NFHS) – 4 conducted by Ministry of Health and Family Welfare in 2019-21, 21.2 women (15-49 years of age) are underweight (BMI less than 18.5 kg/m²), all women age 15-19 years who are anemic 58.5 %. Lack of nutrition of throughout pregnancy can increase health problems for both the mother and her fetus. Maternal malnutrition will increase the possibility of gestational anemia, hypertension, miscarriages and fetal deaths at some stage in pregnancy, pre-term transport and maternal mortality. Ensuring adequate nutrition before and during pregnancy is crucial for the health and well-being of both the mother and the baby. This includes consuming a balanced diet rich in essential nutrients, taking prenatal vitamins as recommended by healthcare providers, and receiving regular prenatal care to monitor both maternal and fetal health. For newborn, it can cause low birth weight, fetal intrauterine growth retardation that may have long life consequences on newborn development, quality of life and health care costs. To overcome these problems of malnutrition among women and also her family members, Nutrition Garden (Kitchen Garden) at home is considered to be the best way to tackle all the mentioned problems. The present study was conducted in 5 village adopted of KVK, JAU, Amreli from Amreli district. Nutrition Garden (Kitchen Gardens) kits were distributed in all the 5 villages of district making the involvement of 100 farm women. Average production of all the vegetables from the Nutrition Garden (kitchen garden) Kit was 267 kg. for the Kharif 2022 season. Average income saving of rural women by the kit was Rs. 10670. The provision of fresh and organic vegetables year-round to rural families not only ensures their nutritional requirements are met but also contributes significantly to their overall well-being. Empowering women through kitchen gardens is particularly impactful as it addresses a crucial aspect of poverty alleviation by providing them with the means to generate income and improve household food security. Additionally, this empowerment leads to various socio-economic benefits, including reduced health and welfare costs due to better nutrition, lower fertility rates, and decreased maternal and infant mortality rates. It's a sustainable solution that fosters resilience and prosperity within rural communities.

Keywords: Household food security, kitchen gardening, nutrition gardening

Introduction

Kitchen gardens can play a crucial role in addressing food security and nutritional diversity, especially in developing countries where access to fresh produce may be limited. By utilizing small spaces like balconies, rooftops, or even windowsills, people can grow their own vegetables, herbs, and fruits, ensuring a steady supply of nutritious food. Kitchen gardens not only provide access to fresh and pesticide-free produce, but they also promote sustainability by reducing reliance on store-bought goods and cutting down on transportation emissions associated with food distribution. Additionally, they offer a great opportunity for families to engage in physical activity, education about plant life cycles, and instill a sense of responsibility and pride in growing their own food. Repurposing items like empty tins, old utensils, and clay flower pots for gardening not only reduces waste but also makes gardening accessible to those

with limited resources. It's a practical and cost-effective way to utilize materials that might otherwise end up in landfills. Overall, promoting and supporting kitchen gardening initiatives can contribute significantly to improving food security, enhancing nutritional diversity, and fostering sustainable practices in communities, especially in developing countries. Besides, the major use of organic farming practices makes these gardens environment friendly as well. Vegetables play a crucial role in human's diet and rural generation should get the awareness about the importance of vegetables. So, kitchen gardening would be a good mean to improve household food security. The daily requirement of vegetable is around 300 g vegetables and 100 g fresh fruits/day (green leafy vegetables 50 g, other vegetables 200 g, roots and tubers 50 g) (Singh *et al.*, 2018) [7]. Pregnant women should consume 100 g leaf vegetables/day as per ICMR but the availability is very low.

Many of the rural families used to grow vegetables in their backyards for their household consumption. But still they lack in adequate consumption of vitamins and minerals because of unorganized cultivation of vegetables. Keeping in view the importance of vegetables in daily diets and its low availability, the Krishi Vigyan Kendra has conducted various trainings and demonstrations for women in agriculture discipline. A family can take vegetables from these kitchen gardens round the year. Diversifying the crops grown in a home garden ensures access to a wide range of macro- and micronutrients essential for a balanced diet. By cultivating various fruits, vegetables, herbs, and other food crops, families can improve their nutritional intake and reduce the risk of micronutrient deficiencies. Overall, home gardens play a vital role in promoting food security, nutritional diversity, environmental sustainability, and family well-being. Encouraging the establishment and maintenance of home gardens can have far-reaching benefits for individuals and communities, particularly in areas where access to fresh and nutritious food is limited.

Advantages of kitchen garden

- Throughout the year kitchen gardening helps to supply fresh vegetables and fruits with high nutritive value.
- All the fruits and vegetables that are grow in kitchen gardening are free from toxic chemical compounds.
- Kitchen gardening also provide economic benefits as it help to save expenditure on purchase of veggies and fruits.
- Fruits and vegetables harvested from domestic garden flavor better than those purchased from marketplace.
- Effective usage of waste water from kitchen and also waste materials comes from kitchen
- Kitchen gardening is a way to relax and de-stress. Physical activity that we do in kitchen gardening can help to reduce tension.

Materials and Methods

The study was conducted by Krishi Vigyan Kendra Amreli in 5 adopted villages namely Devgam, Rikadiya, Hathigadh, Jaswantgadh and Randhiya of Amreli district. To develop knowledge and skill among rural women about kitchen gardening, training programmes were organized in all the selected villages with total number of participants 100. For individual household, an area of 200 m² was taken for the establishment of kitchen garden or nutrition gardening. The study was conducted in the kharif seasons. Krishi Vigyan Kendra has provided seed and planting material of improved varieties to the selected households. For kharif season, the vegetables selected for kitchen garden included Okra, Cluster bean, Cow Pea, Brinjal, Tomato, Bottle guard, Sponge Guard, Cucumber and Ridge Guard. To review the impact of establishing kitchen garden in the rural households, average yield per unit was obtained. The kitchen garden kit having varied vegetables scientifically selected for their rich nutrient contents and having slightest pest and disease problems so that use of pesticide was very less or no use. The vegetable gardening kit given by JAU, vegetable research station produces about 267 kg of

vegetables annually, enough to meet dietary allowance of an average sized family consisting of two adults and two children. Frequency and percentage were used for analysis of data.

Results and Discussion

For effective result nutrition education through intervention programmes were given to women, programmes consisted of lectures, group discussions, method demonstrations etc.

Table 1: Distribution of respondents on the basis of availability of area for kitchen garden

n=100			
Sr. No.	Area for kitchen garden	No. of respondents	Percentage (%)
1.	Court yard	45	45
2.	Useless land near the house	25	35
3.	Cultivated areas near the house	25	25
4.	Cultivated area near the water resources	05	05
Total		100	100

Perusal of Table 1 regarding availability of area for kitchen garden at their home reveals that more than one third (45 %) of the respondents were practicing kitchen gardening at court yard, whereas 25 percent of the respondents were using useless land near the house and cultivated area near the house for kitchen gardening. The result was supported by Rana *et al.* (2021) ^[3] that more than half of the respondents were practicing kitchen gardening at court yard.

Table 2: Distribution of respondents on the basis of awareness regarding selected scientific technology before intervention

n=100				
Sr. No.	Selected scientific technology	Awareness level		
		No Awareness (%)	Low (%)	Medium (%)
1.	Sowing time	65	25	10
2.	Improved varieties	85	15	00
3.	Seed rate	93	07	00
4.	Transplanting distance	100	00	00
5.	IPM	100	00	00
6.	Stages of irrigation	83	13	04
7.	Seed Treatment	99	01	00
8.	Manure and fertilizer	97	03	00
9.	Nutritious food and vegetables	81	17	02
10.	Requirements of vegetables in daily diet	88	10	02

The data in Table 2 regarding awareness about selected scientific technology before intervention revealed that very few of the respondents were aware about showing time (25%) and improved varieties of vegetables (15%) respectively. All the respondents (100%) were not aware about transplanting distance and IPM in vegetable crop. It was quite disheartening to know that majority of the respondents were not aware about Seed Treatment (99%), Manure and fertilizer (97%), Seed rate (93%), requirements of vegetables in daily diet (88%), Stages of irrigation (83%), and Nutritious food and vegetables (81%).

Table 3: Distribution of respondents on the basis of gain in knowledge before and after intervention of Kitchen gardening

n=100

Sr. No.	Items	Before intervention (%)	After intervention (%)
1.	Practice of Kitchen Gardening	10	95
2.	Type of vegetable grow	25 (Only some leafy vegetables)	95 (All types of vegetables)
3.	Grow vegetables in all season	10 (Only Kharif season and Rabi)	95 (All families throughout year)
4.	Time allocation for Kitchen Gardening/day	20	100
5.	Impact on livelihood	75 (Buy costly vegetables and poor health)	100 (Saving money, improvement in physical health fitness)
6.	Knowledge about daily intake vegetables in diet	00	100

Date in Table 3 depict that before intervention only 15 percent of the respondents were practicing kitchen gardening nearby area of home and it was very enthusiastic to know that after intervention majority of the respondents (95%) were practicing it at home. Before intervention, respondents were practicing traditional practices; they used to grow only one or two seasonal vegetable like brinjal, bottle-guard and okra but after intervention all type of

vegetables like Okra, Cluster bean, Cow Pea, Brinjal, Tomato, Bottle guard, Sponge Guard, Cucumber and Ridge Guard etc were grown by 95 percent of the respondents. Table 3 further reveal about impact on livelihood of respondents after practicing kitchen gardening that all the respondents (100%) Saved money, improved family and their physical health and fitness. Similar results were reported by (Nandal and Vashisth, 2009) [5].

Table 4: Nutritional information of kitchen gardening vegetable

S. No.	Vegetables	Energy (kcal)	Moisture (%) (wb)	Protein (%)	Fat (%)	Total CHO's (%)	Dietary Fiber (%)	Minerals (%)
1.	Okra	24.78	89.06	2.08	0.22	3.62	4.02	0.94
2.	Cluster bean	37.17	84.65	3.55	0.37	4.91	4.83	1.68
3.	Cow Pea	31.64	85.57	3.71	0.6	2.85	6.19	1.08
4.	Brinjal	22.88	90	1.48	0.32	3.52	3.98	0.7
5.	Tomato	18.67	93.62	0.9	0.47	2.71	1.77	0.52
6.	Bottle guard	10.01	95.17	0.53	0.13	1.68	2.12	0.36
7.	Sponge Guard	18.0	94.0	4.0	4.0	3.0	12.0	1.0
8.	Cucumber	13.0	96.0	0.0	0.0	2.0	0.0	0.0
9.	Ridge Guard	11.78	94.99	0.91	0.14	1.72	1.81	0.44

Nutritional value of different vegetables was calculated Gopalan (2020) [4] and Rana (2021) [3]. Table 4 indicates that there was significant increase in consumption of protein, fat, carbohydrates, dietary fiber and minerals (viz. Iron 32.70 mg and calcium 110.4 mg) percentage these

findings are supported by Yusuf *et al.* (2008) [8]. It was also found that intake of energy, protein and iron increased after intervention of kitchen gardening intervention. Similar results were also reported by Biswas and Masanta (2009) [11].

Table 5: Production of vegetables in nutritional kitchen garden and income saving of respondents

Sr. No.	Vegetable	Season	Variety	No. of FLD	Area (ha)	Quantity in gm & kg	Quantity per FLD in gm	Average Production rate in kg	Rate (Rs./kg)	Total income/saving
1	Okra	Kharif 2022	Go-6	100	200 sq	2.5 kg	25.0	22.0	60	1860
2	Cluster bean		Pusa nav bahar			1.5 kg	15.0	10.0	80	800
3	Cow Pea		AVC-1			3.0 kg	30.0	30.0	55	1650
4	Brinjal		GJB-3			700 gm	7.00	70.0	20	1400
5	Tomato		GT-6			700 gm	7.00	40.0	35	1400
6	Bottle guard		PUSA NAVIN			1.0 kg	10.0	12.0	20	240
7	Sponge Guard		GJSG-2			1.0 kg	10.0	21.0	40	840
8	Cucumber		Gujarat Kakdi-1			700 gm	7.0	42.0	40	1680
9	Ridge Guard		GRG-2			1.0 kg	10.0	20.0	40	800
Total								267		10670

Table 5 revealed that individual respondent had average production of all the listed vegetables was 267 kg and they all saved Rs- 10670 by their purchasing of vegetables. All the vegetables were the varieties of JAU and ICAR.

Conclusion

It can be concluded from the above paper that kitchen gardens had massive role in tackle the problem of malnutrition and micronutrients deficiencies in rural areas especially among farm women. Empowering women

through kitchen gardens is particularly impactful as it addresses a crucial aspect of poverty alleviation by providing them with the means to generate income and improve household food security. Additionally, this empowerment leads to various socio-economic benefits, including reduced health and welfare costs due to better nutrition, lower fertility rates, and decreased maternal and infant mortality rates. It's a sustainable solution that fosters resilience and prosperity within rural communities. Food items produced in kitchen gardens add to the family

nutrition substantially, which directly leads to reduction of food insecurity. Kitchen gardening, improved self-esteemed and motivation, increase community connection after starting kitchen gardening activity and improved social environment.

References

1. Biswas S, Masanta S. Impact of homestead gardening programmed by Nadia Krishi Vigyan Kendra of household food security and empowerment of women in rural area of Nadia district, West Bengal. International conference on Horticulture; c2009. p. 1972-1975
2. Cheema KJ. Call to promote kitchen gardening. The News; c2011.
3. GK Rana, NK Singh, KK Deshmukh, SP Mishra and KPS Sain. Kitchen garden. The Pharma Innovation Journal 2021; SP-10(5):254-225
4. Gopalan C. Nutritive value of Indian foods. Revised by BSN, Rao Deosthale YG, Pant KC, (National Institute of Nutrition, Indian Council of Medical Research, Hyderabad); c2020.
5. Nandal JK, Vashisth S. Sustainable household food security through nutrition gardens. In: Proceeding International conference horticulture; c2009. p. 1966-1967
6. Anonymous.
[https://www.google.com/search?client=firefox-b&q=National+Family+Health+Survey+](https://www.google.com/search?client=firefox-b&q=National+Family+Health+Survey)
7. Singh V, Yadav KS, Tripathi AK. Kitchen Gardening: A Promising Approach Towards Improving Nutritional Security In Rural Households, International Journal of Microbiology Research 2018;10(5):1216-1219.
8. Yusuf S, Saich A, editors. China urbanizes: consequences, strategies, and policies. World Bank Publications; 2008 Jan 22.