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Impact of Kitchen Gardens as an Empowering Initiative for Mothers of Children with Disabilities

A.Nirmala Fousta¹, Rymala Mathen² and V. Meena¹**ABSTRACT**

This study explores the impact of kitchen gardens as an empowering initiative for mothers of children with disabilities in Chennai City. Kitchen gardens, can be established on small patches of land with minimal technical input, offer a sustainable solution for supplemental food production and improving the livelihoods of urban and rural poor communities. The study involved training 50 mothers of children with disabilities at Sri Kanyaka Parameswari Arts and Science College, Chennai in developing kitchen gardens within their small dwelling spaces. Participants were initially provided with seed kits, containing vegetables such as ladyfinger, brinjal, bottle gourd, cucumber and bitter gourd. This initiative led to increased income and enhanced nutritional security for the mothers. It also empowered them to balance work and family life by enabling them to sell produce in local markets. The study concludes that kitchen gardening is a sustainable and profitable initiative that economically empowers mothers of disabled children, allowing them to stay engaged in the home environment while providing care for their children.

Keywords: Kitchen garden; Empowerment; Children with disabilities; Mothers; Income generation; Tamil Nadu

INTRODUCTION

Despite the well-documented benefits of kitchen gardening for women's health, income, and nutrition, limited research has focused specifically on its application as an empowerment strategy for mothers of children with disabilities in urban Indian contexts. While prior studies have examined kitchen gardening in rural settings or among general women populations, they often

overlook the unique dual burden faced by mothers who are full-time caregivers to differently-abled children, especially in cities like Chennai where space and mobility are constrained. Furthermore, existing disability support interventions tend to emphasize rehabilitation or external assistance, without integrating sustainable, home-based livelihood models that align with caregiving responsibilities.

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Chennai City has a unique culture of inclusiveness and sensitivity toward differently-abled individuals and their families, offering humanitarian support that integrates them into mainstream life (Gautam, 2023). The city's community provides a supportive environment for families, regardless of linguistic or cultural background, creating a fertile ground for initiatives that empower marginalized groups. One such initiative is kitchen gardening, a practical and cost-effective solution that contributes to family income and provides therapeutic benefits. According to Biernbaum and Martin (2019), "Container gardening is ideal for limited spaces like balconies, patios, and small backyards. Choosing the right container size and soil mix is crucial for healthy plant growth and maximizing production." This aligns well with the urban setting of Chennai, where space is often a constraint. Pandey et al. (2021) studied the role of organic farming and kitchen gardens in enhancing the nutritional security and economic status of rural women. The study highlighted that minimal investments in seed kits and training could lead to substantial benefits in terms of nutrition, health, and income. This is highly relevant to the intervention programme described in the current research, where mothers were provided with seed kits and training to cultivate vegetables in limited spaces, leading to enhanced nutrition and income generation. Goyal and Prakash (2020) analyzed the effects of community-based gardening programmes on women's health and income in urban settings. They found that women involved in kitchen gardening projects reported better nutritional outcomes, reduced stress levels, and improved family relationships.

The conceptual framework of this study is grounded in Kabeer's (1999) theory of women's empowerment, which identifies access to resources, agency in decision-making, and achievements as essential dimensions of

empowerment. Kitchen gardening enables caregivers to control productive resources (such as seeds, produce, and home space), make independent decisions regarding cultivation and marketing, and achieve both personal satisfaction and economic gain. Urban agriculture literature also emphasizes that practices like terrace gardening not only supplement household food supply but enhance emotional resilience and social inclusion. By integrating these theoretical perspectives, the present study positions kitchen gardening as a context-appropriate, empowering solution for urban mothers of children with disabilities.

Accordingly, this study was taken to highlight the strategy of kitchen gardening for empowering women, particularly those with caregiving responsibilities for children with disabilities.

The objectives of this study are:

- To study the socio-economic profile of the respondents.
- To know the benefits of kitchen garden among the mothers of disable children.
- To analyze the impact of training and awareness workshops on kitchen gardening among mothers of the identified children.

METHODOLOGY

This study employed a mixed-method approach to assess the benefits of kitchen gardening, and analyze the impact of training and awareness workshops on their gardening practices.

Sampling Techniques

A purposive sampling method was used to select 50 mothers of children with disabilities, based on their willingness and physical space availability to engage in kitchen gardening.

All participants were residents of Chennai and represented diverse socio-economic backgrounds.

Data Collection Tools and Process

Quantitative data were collected through structured interviews and pre-tested questionnaires that captured demographic variables, knowledge, skills, and attitudes related to kitchen gardening. A scale was developed to assess the benefits of kitchen gardening, comprising 10 items rated on a 5-point Likert scale, with domains including stress reduction, motivation, financial independence, confidence, interpersonal skills, and empowerment. Qualitative insights were gathered via follow-up discussions and reflections from the participants after the intervention period.

Intervention Design

An intervention programme was conducted at Sri Kanyaka Parameswari Arts and Science College, Chennai, aimed at equipping mothers of children with disabilities with practical skills in kitchen gardening. Each participant was provided with one seed kit containing five seed packets—ladyfinger (100g), brinjal (50g), bottle gourd (100g), cucumber (100g) and bitter melon (50g)—sufficient for initiating a small-scale home garden. Participants underwent structured training workshops on terrace and container gardening, composting, vertical garden techniques, and low-cost space optimization. The training focused on both cultivation and basic entrepreneurial skills. The gardening period spanned five months, during which participants were encouraged to grow and maintain their kitchen gardens. The produce was used for both household consumption and small-scale sale in local markets, including Koyambedu and neighborhood vendors. Regular follow-ups, monitoring and guidance were provided to track progress and address challenges.

Reliability Analysis of Usefulness through Kitchen Gardening for Mothers of Children with Disabilities

To analyze the data statistically, SPSS tools such as t-test and regression analysis were employed. The assessment focused on understanding the usefulness of kitchen gardening in empowerment and well-being of mothers of children with disabilities who engage in this activity. To ensure internal consistency of the developed benefit scale, Cronbach's Alpha was computed for each item, ranging from 0.747 to 0.877, meeting Nunnally's (1978) threshold of 0.70, indicating high reliability.

Statistical Analysis

Data were analyzed using SPSS software. *Descriptive Statistics* to understand socio-demographic profiles, *Paired t-tests* to compare changes in knowledge, skills, and awareness before and after training, *Chi-square tests* to explore the association between educational level and benefits gained, *T-test* to compare stress reduction levels between income-improvement groups, *Regression Analysis* to examine the influence of age, education, and perceived benefits on income generation and *Cross-tabulation* to analyze the relationship between income levels and perceived usefulness of kitchen gardening were employed.

FINDINGS AND DISCUSSION

Socio- demographic Profile of the Selected Mothers of Children with Disabilities

Among the selected mothers, the largest proportion (40 per cent) belonged to the age group of 26 to 35 years, indicating that most participants were in their active caregiving and working years—an age range typically associated with higher adaptability and energy, which could positively influence participation in kitchen gardening. Educational background has an impact on an individual's economic status

and lifestyle. Lifestyle changes have effects on health. The analysis of the educational status of the mothers' shows that 30 percent were graduates followed by 20 per cent with higher secondary education, 18 per cent postgraduates, and 16 per cent with secondary-level education. This variation suggests that while most mothers had at least basic education, a considerable number were well-educated, which may enhance their ability to understand and adopt gardening practices efficiently.

In terms of family income, a majority (66 per cent) fell into the low-income categories (earning below Rs. Rs.20,000 per month), with 36 per cent earning between Rs.10,001– Rs. 20,000 and 30 per cent earning less than Rs. 10,000. This income distribution underscores the economic vulnerability of the participants and highlights the relevance of kitchen gardening as a cost-effective and supplementary income-generating activity. Regarding housing, 76 per cent lived

in rented houses, and 60 per cent resided in homes smaller than 500 sq. ft., indicating space constraints. However, their active participation in the intervention demonstrates that kitchen gardening can be adapted to limited spaces, making it a practical and inclusive strategy even for low-income, space-constrained households.

Impact of Training and Awareness Workshops on Kitchen Gardening

The effectiveness of the training provided to the mothers, capturing changes in knowledge, skills and application of kitchen gardening techniques for empowerment and income generation was assessed and the findings are presented in Table 1.

Hypothesis framed (Ho1): There is no significant difference in the knowledge, skills, confidence, and awareness of income-generating opportunities related to kitchen gardening among mothers before and after the training.

Table 1: Impact of Training and Awareness Workshops on Kitchen Gardening

Sl. No.	Areas of Aspect Evaluated	Mean Scores		Mean Difference	Significance (p-value)
		Before Training	After Training		
1	Knowledge of low-cost home garden management	2.3	4.8	2.5	0.001*
2	Skills in using minimal space for gardening (e.g., containers)	2.0	4.6	2.6	0.001*
3	Confidence in managing a kitchen garden	2.1	4.7	2.6	0.000*
4	Awareness of income-generating opportunities through gardening	1.8	4.5	2.7	0.000*
5	Ability to balance household duties with gardening activities	2.4	4.2	1.8	0.003*
6	Understanding the health benefits of home-grown vegetables	2.6	4.9	2.3	0.002*

* $P < 0.05$ Significant at 1% level

Table 1 shows a significant improvement in all aspects evaluated, particularly in knowledge, skills, and confidence related to kitchen gardening as a coping and income-generating strategy. The highest mean difference is observed in the awareness of income-generating opportunities and skills in using minimal space for gardening, suggesting these were areas of substantial learning and application. Participants were trained to manage cultivation during monsoons and dry seasons using organic compost and recycled water practices. This table effectively captures the impact of the training and workshops on the empowerment and well-being of the mothers. Since all the p-values are less than 0.05 ($p < 0.05$), Hence the null hypothesis (H_0) is rejected. Neela (2019) conducted a study on the impact of home-based income generation activities on women's empowerment in rural areas. It was found that activities like kitchen gardening significantly contributed to improving household food security and income levels. By producing vegetables and fruits for personal consumption and sale, women in rural households were able to reduce their dependence on external markets and male family members.

The study supports the idea that kitchen gardening can be an effective way for mothers of disabled children to achieve both economic empowerment and psychological well-being.

Mukherjee and Gupta (2017), focused on the economic impact of home gardens in marginalized communities. They found that home gardens serve as a sustainable means to combat food insecurity and provide a source of income for families with limited land access. This aligns with the findings that kitchen gardens can be a profitable venture for mothers of children with disabilities, as demonstrated by their ability to sell produce in local markets like Koyambedu.

Stress Reduction analysis based on Income Improvement

To evaluate the relationship between stress reduction and economic empowerment, mothers of children with disabilities were grouped based on self-reported income changes after participating in kitchen gardening. The analysis focused on how different levels of income improvement influenced their overall stress levels and wellbeing.

Mothers were categorized into three groups:

- Those who experienced a significant increase in income due to their gardening efforts.
- Those who reported a moderate improvement in income.
- Those who experienced no substantial income change.

Table 2: Categorization of Mothers Based on Reported Income Improvement

Income Improvement Category	Number of Mothers	Percentage (%)
Significant Income Improvement	25	50%
Moderate Income Improvement	15	30%
No Significant Income Improvement	10	20%
Total	50	100%

The selected respondents were categorized based on their reported income changes after engaging in kitchen gardening. It was found that 50 per cent of the selected mothers experienced a substantial income increase and were classified into the “Significant Income Improvement” group whereas 30 per cent of the mothers reported a moderate-income improvement group suggesting that kitchen gardening can play a vital role in both income generation and stress reduction for mothers managing caregiving responsibilities. The remaining 20 per cent of the

mothers reported little or no income change, and were categorized into the “No Significant Income Improvement” group.

Comparative Analysis of Stress Reduction Based on Income Improvement

Table 3 focuses on the comparison between mothers who reported Significant Income Improvement and those who reported No Significant Income Improvement due to kitchen gardening.

Table 3 : T-Test Analysis of Stress Reduction between two Income Improvement Groups

Income Improvement Group	Mean Stress Reduction	T-Value	p-Value
Significant Income Improvement	4.2	2.35	0.021*
No Significant Income Improvement	3.1		

* $P < 0.05$ Significant at 1% level

Hypothesis framed (Ho2): There is no significant difference in stress reduction between mothers who experience significant income improvement through kitchen gardening and those who do not.

The mean stress reduction for mothers who reported significant income improvement through kitchen gardening is 4.2, whereas it is 3.1 for those who did not report significant income improvement. The T-Value is 2.35, and the p-value is 0.021, which is less than the significance level of 0.05 ($p < 0.05$).

Since the p-value is less than 0.05, the null hypothesis (H_0) is rejected. This indicates that there is a statistically significant difference in stress reduction between mothers who experienced significant income improvement

through kitchen gardening and those who did not.

The finding suggests that kitchen gardening not only helps in income generation but also plays a crucial role in reducing stress among mothers, particularly when it leads to noticeable economic benefits. This could be due to the dual effect of gardening providing a therapeutic activity and contributing to financial empowerment.

Chi-Square Test Analysis of the Association between Education Level and benefits of Kitchen Gardening

Table 4 presents the results of the Chi-Square test examining the association between education level and the benefits of kitchen gardening among mothers of disable children.

Table 4- Association between Education Level and benefits of Kitchen Gardening

Variables	Chi-Square Value	Degrees of Freedom (df)	p-Value
Education Level & benefits of Kitchen Gardening	8.56	3	0.035*

* $P < 0.05$ Significant at 1% level

Hypothesis framed (Ho3): There is no significant association between education level and the perceived usefulness of kitchen gardening.

The Chi-Square Value of 8.56, with 3 degrees of freedom, is associated with a p-Value

of 0.035. Since the p-value (0.035) is less than the significance level of 0.05, the null hypothesis (H_0) is rejected. There is a statistically significant association between education level and the benefits of kitchen gardening. This indicates that the level of education may influence how useful mothers perceive kitchen gardening to be, suggesting that educational background could affect the perception and possibly the engagement in kitchen gardening activities.

Regression Analysis of Factors influencing Income Generation from Kitchen Gardening.

A regression analysis was conducted to evaluate how age, education level and perceived usefulness of kitchen gardening influence income generation among mothers of children with disabilities. The results are summarized in Table 5.

Table 5- Regression Analysis of Factors Influencing Income Generation from Kitchen Gardening

Independent Variable	Beta (β)	Standard Error	t-Value	p-Value	Interpretation
Age	0.15	0.07	2.02	0.045	Significant; older mothers tend to generate more income
Education Level	0.22	0.08	2.75	0.015	Significant; higher education correlates with better income outcomes
Perceived Usefulness	0.30	0.09	3.33	0.002	Strongest predictor; those who value kitchen gardening more tend to earn more

R^2 Value: 0.58 - The model explains 58% of the variance in income generation from kitchen gardening.

Hypothesis framed (Ho4) Age, education level and perceived usefulness of kitchen gardening do not significantly influence income generation from kitchen gardening.

Age ($\beta = 0.15, p = 0.045$): Age shows a positive and statistically significant effect on income generation, suggesting that older mothers tend to earn more through kitchen gardening. The p-value indicates significance at the 0.05 level.

Education Level ($\beta = 0.22, p = 0.015$): Education level is a significant predictor of

income generation. Higher education levels are associated with increased income from kitchen gardening. The p-value of 0.015 supports the significance of this effect.

Perceived Usefulness ($\beta = 0.30$, $p = 0.002$): This variable has the strongest effect on income generation, indicating that mothers who view kitchen gardening as highly beneficial are more likely to earn increased income from it.

The R^2 value of 0.58 indicates that these three variables collectively explain 58% of the variation in income levels derived from kitchen gardening. This indicates that age, education level, and perceived usefulness together account for a substantial portion of the variability in income outcomes.

The regression analysis reveals that age, education level and perceived usefulness are

significant predictors of income generation from kitchen gardening. Specifically, older age, higher education levels, and greater perceived usefulness of kitchen gardening are associated with higher income generation.

The findings reveal that age, education level, and perceived usefulness significantly influence income generation, and therefore, the null hypothesis (H_0) is rejected.

Income level with benefits of kitchen gardening

Table 6 shows the comparison of various Income Level with benefits of Kitchen Gardening, based on the responses of 20 mothers of disable children selected from a group of 50 mothers who were trained. The table presents the frequency and percentage of responses for each category of benefits across different income levels.

Table 6- Cross-Tabulation: Income Level vs. benefits of Kitchen Gardening

Monthly Household Income (INR)		Very Much	Some what	Neutral	Not Very much	Not Useful at All	Total
Less than 10,000	N	8	6	4	2	0	20
	%	40	30	20	10	0	100
10,001 - 20,000	N	10	6	3	1	0	20
	%	50	30	15	5	0	100
20,001 - 30,000	N	7	8	3	2	0	20
	%	35	40	15	10	0	100
30,001 - 40,000	N	3	5	2	0	0	10
	%	30	50	20	0	0	100
More than 40,000	N	2	3	2	1	0	8
	%	25	37.5	25	12.5	0	100

It was found that fifty percent of the mothers were benefitted very much by the kitchen garden with the increase of income level of Rs.10,001-20,000 (50 per cent) monthly followed by earning of Less than Rs. 10,000/- (40 per cent), Rs. 20,001 to 30,000/- (35 per cent), Rs. 30,001 to 40,000 (30 per cent) and more than Rs. 40,000/- (25 per cent). The findings indicate that mothers with a monthly income between 10,001 - 20,000 INR perceive the highest benefits from kitchen gardening. This may reflect a balance between financial constraints and the ability to invest in and manage a productive kitchen garden. In contrast, as household income increases, the proportion of mothers who find kitchen gardening “Very Much” beneficial decreases, possibly due to reduced reliance on such activities for economic benefit or different priorities. Chatterjee (2018) examined the benefits of integrating gardening and entrepreneurship training for women in low-income urban areas.

The study revealed that such integration helps women develop both practical skills and entrepreneurial mindsets, making them more resilient to economic shocks. This study is particularly relevant to the current research, which involves training mothers of visually impaired children to develop kitchen gardens as a way to enhance both their economic and emotional well-being.

Key findings include:

- **Increased Income:** Participants reported moving to higher income brackets through kitchen gardening. Although positive trends were noted, the study did not quantify exact income changes before and after the intervention.
- **Reduced Financial Stress:** This shift correlates with reduced financial pressure, suggesting improved economic stability among mothers.

- **Empowerment and Satisfaction:** The programme significantly enhanced mothers' confidence, motivation, and interpersonal skills, helping them balance caregiving and income generation more effectively.
- **Consumption vs. Sale of Produce:** While participants benefited nutritionally from consuming vegetables, the exact proportion of produce consumed versus sold was not captured, limiting the ability to measure full impact.

Limitations of the Study

- The study does not include quantitative pre- and post-intervention income data, which limits the ability to precisely measure the economic impact of kitchen gardening.
- The proportion of produce consumed at home versus sold was not recorded, making it difficult to evaluate the nutritional versus financial benefits of the intervention.
- Only three variables—age, education level, and perceived usefulness—were considered in the regression model. Other potentially influential factors such as land access, initial capital, market access, or time availability were not included.
- The sample is limited to mothers of children with disabilities from a specific region, which may affect the generalizability of the findings to other populations.
- The long-term sustainability of income generation through kitchen gardening was not evaluated, as the study covered only a five-month period.

CONCLUSION

Women are no longer dependent to anyone in this world, they are ready to take chances and make those chances into newer path full of opportunities, irrespective of their educational qualification they take up opportunities that

knock their doors and excel in it. The study stays evident that entrepreneurial ideas among women helps to de-stress themselves from their other social commitments and find their own space. The findings support the potential of kitchen gardening as a sustainable, low-cost intervention that promotes both mental well-being and economic empowerment for mothers of children with disabilities. Given the high reliability scores across various dimensions, kitchen gardening emerges as a promising initiative for these mothers, allowing them to achieve both personal and financial growth while remaining within their caregiving environments. The kitchen gardening programme demonstrated a significant impact on the financial well-being and empowerment of mothers of children with disabilities. The analysis of income levels before and after the programme reveals notable improvements in participants' financial situations. Specifically, the programme contributed to a shift from lower income brackets to higher ones, highlighting its effectiveness in boosting income and providing economic stability. The statistical findings, providing evidence of the impact of kitchen gardening on the empowerment of mothers of children with disabilities. They highlight significant differences, associations, and predictive relationships relevant to the study's objectives. Overall, the kitchen gardening initiative proves to be a sustainable and effective intervention for economically empowering mothers of children with disabilities. It not only addresses immediate financial needs but also contributes to long-term improvements in quality of life. By offering a practical solution for income generation and personal growth, the training represents a valuable tool for enhancing the well-being of this vulnerable population. The success of this initiative suggests that kitchen gardening can be scaled and adapted to similar low-income urban contexts, particularly where caregiving responsibilities limit women's access to traditional employment opportunities.

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