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Study on Knowledge, Attitude and Practices (KAP) on Microgreens among Self Help Groups

Antony V.*[1] and Radha R.[2]

[1]Dept of Home science, Assumption College, Changanacherry, Kerala.
[2]Dept of FSMD, Avinashilingam Institute for Home science and Higher Education for Women, Coimbatore, Tamil Nadu.
*E-mail- vineethaantony93@gmail.com

ABSTRACT

Microgreens are recognised as "super foods" due to their numerous health and nutritional advantages. In addition, growing microgreens is very simple and practical, needing little space and financial commitment, and therefore, it should be encouraged in urban regions where there is a shortage of space and in peri-urban areas where there is a shortage of resources (money). The knowledge attitude and practice of microgreens were surveyed among the selected subjects, and pre- and post-knowledge assessments were done. An awareness session eliciting the importance of microgreens and a training session were organised for selected self-help groups. The knowledge regarding microgreens among the community was found to be negligible. As microgreens are rich in micronutrients, awareness regarding microgreens was found to be very relevant for the future eradication of micronutrient malnutrition.

Keywords : Microgreens, Super Foods, Resources, Population, Food Security

INTRODUCTION

Microgreens, also known as 'Vegetable Confetti,' are a type of distinguishing crop. It is described as soft juvenile greens grown from the seeds of herbs, vegetables, or cereals, as well as wild forms. As there has been a surge in the popularity of healthy eating, gourmet cuisine, and indoor gardening in developed nations, microgreens have gained notoriety. Even in the refrigerator, this new type of food has a short shelf life and is used in minor amounts as toppings, garnishes, or spices (Riggio *et al.*, 2019). Paradiso *et al.,*2018 argue that microgreens are harvested a few days or weeks after germination, during the formation of cotyledons and the emergence of the first true leaves. Microgreens are distinguished by their diversity of colours, textures, and tastes. These are always fresh and tenderly soft vegetables that come from the seeds of multitudinous varieties of vegetables, aromatic herbs, wild edible plants, and herbaceous plants. Since the availability and consumption of microgreens are significantly influenced by the emergence of culinary trends, the species' selection relies on manufacturer discussions with chefs and on consumer acculturation to their unique sensory qualities. Microgreens can be distributed as freshly cut foods as well as while growing on medium for end users to harvest. The

knowledge level regarding microgreens among homemakers is very low, as the microgreens are not used by them for cooking.

MATERIALS AND METHODS

The study was carried out in two phases:

Phase I: Selection of subjects and assessment of knowledge regarding microgreens using an interview schedule

a. Selection of Subjects

The subjects selected were from the self-help groups situated in Kottayam district, Kerala. Married women were selected for the study. Women in the age group between 35 and 65 were selected. The sample size was determined using the formula by Vishwakarma (2017). Based on the formula, the sample size was determined to be 81, hence the same number of subjects were selected for the study.

The sample size was determined using the formula by Vishwakarma., (2017). Based on the formula, the sample size was determined as 81 numbers, hence the same number of subjects were selected for the conduct of the study.

Sample Size = (Z-score)2 * Std Dev*(1-StdDev) / (margin of error)

The samples were selected using the purposive random sampling method. Judgmental or subjective sampling method, the other term for purposive sampling method, is a form of non-probability sampling. In the purposive sampling method, the participants among the population are selected based on the judgement of the researcher itself (Kothari *et al.*, 2019).

b. Assessment of Pre-Knowledge Attitude Practices (KAP) on Microgreens

The Knowledge Attitude and Practices (KAP) survey is a quantitative method (predefined questions formatted in a standardised interview schedule) that provides access to quantitative and qualitative information.

Knowledge of healthy behaviour is considered to be beneficial. Although it does not guarantee that this behaviour will be followed, The survey's assessment of knowledge assists in identifying areas where information and education activities are to be exerted. Knowledge was assessed using the interview schedule, which contains background information and the socioeconomic status of the subjects. Knowledge regarding the importance of microgreens and the presence of nutrients in them, consumption patterns of greens, and the importance of kitchen gardens were assessed by the selected subjects.

Attitude questions on the need for microgreen farming, general attitude towards microgreen cultivation, and attitude that microgreen seeds are not available for purchase and expensive for cultivation were analysed.

Practices, or behaviours, are the observable actions of an individual in response to a stimulus. The questions regarding the practice of microgreen farming in the home garden, encouraging the consumption of microgreens in the family, and the practice of continuing microgreen farming in the future were recorded.

Before the assessment, the subjects were oriented about the study, and this helped in

the smooth conduct of the collection of data. The majority of the questions were structured as yes-or-no questions. The correct answers were awarded 1 point, and the wrong answers were not given any score (zero). The total score was fixed at 25. The samples who got more than 10 points were considered to have more knowledge, and those with a score of less than 10 were considered to have less awareness.

According to Krueger (2015), the evaluation can be done better if the investigator fixes a score for the pre- and post-knowledge assessments.

Phase II: Imparting awareness to the selected self-help groups and assessment of post-awareness knowledge among selected subjects

a. Imparting Awareness to Selected Subjects on the Cultivation and Importance of Microgreens

A live training session was conducted for the selected subjects on the cultivation techniques of microgreens and their importance for self-help groups. The sessions were conducted with the help of minor tools and the necessary accessories used for the cultivation process of microgreens, like mud pots, microgreen seeds, cocopeat, and water sprayers.

b. Assessment of Post Awareness Knowledge among Self-Help Groupson the Cultivation of Microgreens

Before the training session, an interview schedule was given to the selected samples to assess their knowledge of the microgreens. The live training session has helped the homemakers motivate themselves and do the cultivation process of microgreens in their kitchen garden. This was indeed used for generating information on the cultivation and importance of microgreens among the selected samples. After the live training session, the schedule was given to the same samples to assess their knowledge and feedback on the session. The scoring was done using the same method as it was for the pre-awareness session. The pre-awareness and post-awareness knowledge scores were recorded and analysed.

RESULTS AND DISCUSSIONS

The results of the study are discussed below:

Knowledge, attitude, and practice of microgreens were surveyed among the selected subjects. Knowledge surveys depict what is known about microgreens; attitude portrays beliefs about microgreens and their consumption; and practice denotes all the activities associated with microgreens. A well-structured interview schedule was developed, and the knowledge attitude practices (KAP) of the selected subjects, which were the Kudumbashree self-help groups, were assessed. Based on the assessment, awareness was created through live training sessions.

a. Assessment of Pre-Knowledge Attitude Practices (KAP) on Microgreens among selected subjects.

i. Background Information of Selected Subjects

The background details of the selected subjects, such as age, religion, educational qualification, socioeconomic status, occupation, family type, and marital status, were investigated.

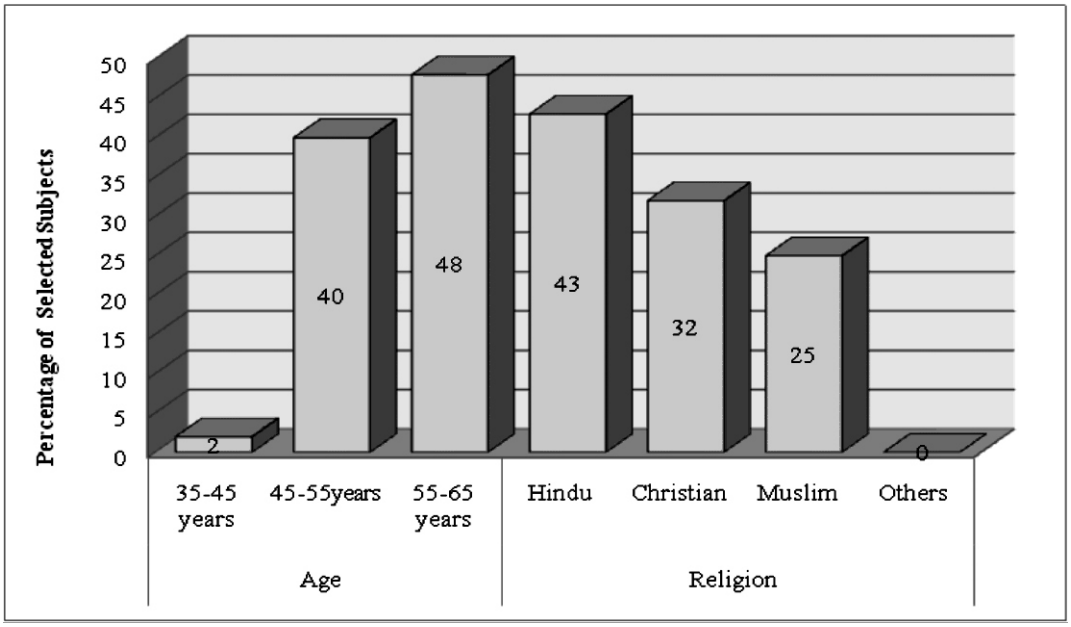

Figure 1: Age and Religion of the Selected Subjects

ii. Age and Religion of the Selected Subjects

Figure 1 projects the age group and religion of the selected subjects. The majority (48%) of the subjects belonged to the age group of 55–65 years; 40 percent of the subjects were in the age group of 45–55 years; and the least (2%) of subjects were between 35 and 45 years. In regard to religion, the majority (43%) of the subjects were Hindus, followed by Christians (32%), and Muslims (25%).

b. Educational Qualification of the Selected Subjects

Table 1 : Educational Qualification of the Selected Subjects

Degree	n = 81	Percentage (%)
SSLC	9	11
HSC	8	10
Degree	20	25
PG	12	14
Diploma	17	21
Professional courses	15	19

Table 1 presents the educational qualification of the selected subjects. Majority of the subjects had an undergraduate qualification (25%). About 11 percent of the subjects had minimal qualification of SSLC. Another 10% had completed the Higher secondary examination/schooling.

c. Occupation of the Selected Subjects

Table II indicates the occupation of the selected subjects.

About 41 percent of the selected subjects were teachers, followed by 22 percent of homemakers. And a least percentage of 3 percent were accountants and 4 percent were farmers, which were the least among

Table 2 : Occupation of the Selected Subjects

Occupation	n = 81	Percentage (%)
Homemaker	18	22
Teacher	33	41
Accountant	2	3
Chemist	6	7
Farmer	3	4
Private Job	8	10
Cent Govt./Govt./Semi Govt.	10	13

others.

d. Socio-Economic Status of the Selected Subjects

Table III highlights the socio-economic status of the selected subjects.

Table 3 : Socio-Economic Status of the Selected Subjects

Socio-Economic Status	n = 81	Percentage (%)
Upper	17	22
Upper Middle	16	20
Lower Middle	15	18
Upper Lower	14	17
Lower	2	3

The socioeconomic states highlight the different economic categories of the selected subjects. Among the selected subjects, 22 percent belonged to the upper class, which was the major category among the others. Further, 20 percent and 18 percent belonged to the upper middle and lower middle classes, respectively. Minor percentage populations of 3 percent belong to the lower class.

e. Type of Family of the Selected Subjects

Table 4 depicts the type of family of the selected subjects.

Table 4 : Type of Family of the Selected Subjects

Family Type	n = 81	Percentage (%)
Joint	6	7
Nuclear	75	93
Extended	0	0

The majority of the subjects belonged to the nuclear family (93%), and none of the subjects belonged to the extended family. A minimum of 7 percent of subjects lived as a joint family.

f. Food Frequency Pattern of the Selected Subjects

Table V shows the food frequency pattern of the selected subjects.

Table 5 : Food Frequency Pattern of the Selected Subjects (n=81)

Food Groups	Frequency of Consumption									
	Daily (N)	Daily (%)	Weekly (N)	Weekly (%)	Fort-nightly (N)	Fort-Nightly (%)	Monthly (N)	Monthly (%)	Never (N)	Never (%)
- Cereals and grains	81	100	0	0	0	0	0	0	0	0
- Pulses and legumes	81	100	0	0	0	0	0	0	0	0
- Milk and milk products	74	91.35	7	8.64	0	0	0	0	0	0
- Roots and Tubers	67	82.71	4	4.93	3	3.70	5	6.17	2	2.46
- Green Leafy Vegetables	81	100	0	0	0	0	0	0	0	0
- Fruits	78	96.29	12	14.81	1	1.23	0	0	0	0
- Meat ,Egg and Poultry	71	87.65	3	3.70	4	4.93	1	1.23	2	2.46
- Spices and Condiments	81	100	0	0	0	0	0	0	0	0
- Nuts and Oil Seeds	81	100	0	0	0	0	0	0	0	0

Cereals, grains, pulses, legumes, vegetables, green leafy vegetables, spices, condiments, nuts, and oil seeds were consumed by all the subjects on a daily basis. The other food groups, such as milk and milk products, roots and tubers, fruits, meat, eggs, and poultry, were also consumed daily by the majority of the selected subjects in comparison with other food groups. Fruits were consumed more than other foods on a weekly basis. About 2.46 percent of the subjects claim they never consume roots, tubers, meat, eggs, or poultry.

g. Assessment of Knowledge on Microgreens

Table 6 depicts knowledge on microgreens among the selected subjects.

Table 6 : Knowledge on Microgreens among Selected Subjects (n=81)

Knowledge on Microgreens	Aware / Yes (%)	Not Aware /No (%)
Knowledge about microgreen seeds	5	95
Knowledge on microgreen seeds availability for sales	5	95
Knowledge on micronutrients present in microgreens	3	97
The subject is a Microgreen consumer	5	95
The subject likes the taste of microgreens	2	98
Awareness on health benefits of microgreens	4	96
Knowledge on growth media of microgreens	5	95
Awareness on shelf life of the microgreens	0	100

Most of the selected subjects had no knowledge of microgreens. 95 percent of the subjects were not aware of microgreen seed, their availability for sales, or the growth media of microgreens, and it is not surprising that they were also not consumers of microgreens. Only 3 per cent were aware that microgreens are rich in micronutrients, and only 2 percent of the subjects claimed that they liked the taste of microgreens. The majority (96%) of the subjects were not aware of the health benefits of microgreens. None of the selected participants had awareness of the

Table 7 : Knowledge Level on Microgreens among the Selected Subjects (n=81)

Criteria	Knowledge on Microgreens	Frequency (f)	Percentage (%)
Knowledge on microgreens	I am very aware of microgreens	4	5
	I am somewhat aware	0	0
	I have no awareness of microgreens	77	95
Knowledge regarding microgreens	It is a leaf	6	7
	It is a sprout	25	32
	It is a small plant	26	33
	Something like vegetables	8	10
	Don't know	15	18
Benefits of microgreens	It can be used as food	34	43
	It is good for health	2	3
	It is easy to grow	4	5
	I don't find any benefits	40	49

shelf life of the microgreens. Hence, creating awareness about microgreens is very essential.

Knowledge Level on Microgreens among the Selected Subjects

Majority (74%) of the subjects had no awareness on microgreens and only 5 percent of the subjects were very much aware about microgreens. The exact Knowledge regarding what a microgreen is was also collected. Maximum of the subjects claim it's a plant (33%) followed by subjects who claim it as a sprout (32%). About 18 percent of the subjects do not know what microgreens are. Knowledge on the benefits of microgreens was also investigated. Most of the participants (40%) claim that they don't find any benefits in microgreens. About 43 percent of the subjects reported that, It can be used as food.

ii. Microgreen Cultivation, Purchase and Nutritional Prospects Awareness among Selected Subjects

Table 8 shows the Awareness on Microgreens among Selected Subjects.

Table 8 : Microgreen Cultivation, Purchase and Nutritional Prospects Awareness among Selected Subjects (n=81)

Information regarding greens		Frequency (f)	Percentage (%)
Types of microgreen seeds commonly used for cultivation	Fenugreek	0	0
	Mustard	3	4
Place where microgreen seeds were purchased	Online shopping site	4	5
	Nursery	0	0
	Seed Sellers	0	0
Nutrients present in microgreens	Carbohydrate and protein	2	3
	Vitamins	0	0
	Vitamins and minerals	0	0
	Don't know	0	0

From the table 8 it is clear that majority of the subjects had no awareness about microgreens. The subjects had nil or very less knowledge on microgreen cultivation, place of purchase and nutrients present in microgreens.

iii. Knowledge on Microgreen Cultivation Methods among Selected Subjects

Table 9 depicts the Knowledge on Microgreen Cultivation Methods among Selected Subjects who cultivate microgreens. The table portrays that the subjects had none or very less knowledge on microgreen cultivation methods. About four percent of the selected subjects opined that coco peat is the suitable medium for the growth of microgreens. Only four percent of the subjects recommended plastic containers for the growth of microgreens. Five of the subjects used just watering for the growth of microgreens and five of the microgreen cultivators had grown the microgreens in their kitchen itself.

iv. Attitude towards Adoption of Microgreens

Among the selected subjects, the majority (91%) strongly agree that microgreen farming is complex; 4 percent agree; 1 percent neither agree nor disagree; 2 percent disagree; and 2 percent strongly disagree. About 87 percent of the subjects strongly agree that without using chemicals, high pest infections may occur. 21 percent of the subjects strongly agree that information on microgreens is very difficult.

Table 9 : Knowledge on Microgreen Cultivation Methods among Selected Subjects.

(n=81)

Knowledge on Microgreen Cultivation Methods		Frequency (f)	Percentage (%)
Medium found to be suitable for the growth of microgreens	Coco-peat	5	4
	Normal Soil	0	0
	Soil+ kitchen waste	0	0
	Soil+ kitchen waste + Cocopeat	0	0
	Hydroponics	0	0
	Vermicompost	0	0
Type of containers used for cultivation of microgreens	Plastic containers	5	4
	Mudpots	0	0
	UV treated trays	0	0
	Glass pots	0	0
	Steel containers	0	0
	Used vegetable /fruit boxes	0	0
The watering methods adopted for cultivation of micro greens	Bottom watering	0	0
	Top watering	0	0
	Just watering	5	4
Environment best suited for growing microgreens	Typical environment (In Kitchen)	5	4
	Green house	0	0
	In shades	0	0

All the selected subjects strongly agree with the statements, such as governmental support for microgreen cultivation, that local consumers would not be willing to pay a high price for cultivation, and on consultations and advice regarding microgreen farming.

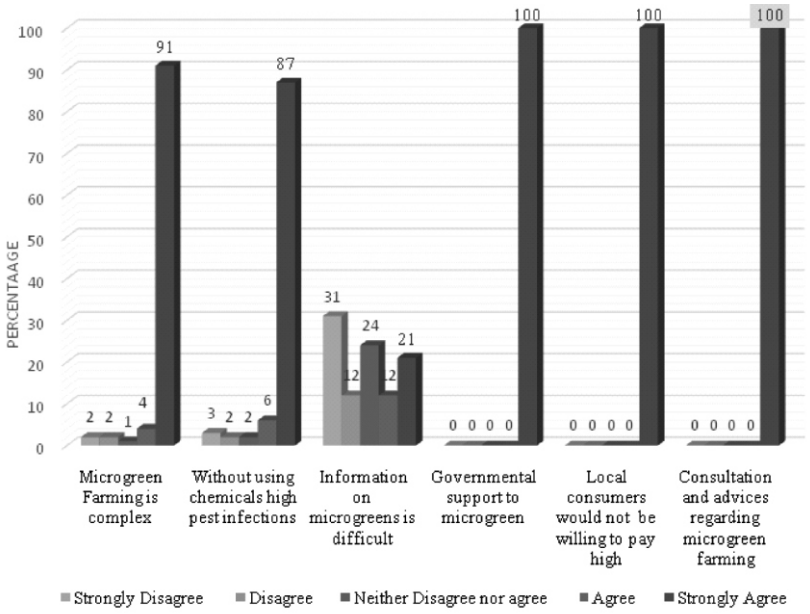

Figure 2: Attitude towards Adoption of Microgreens Farming

h. Imparting Awareness (Live Training) to Selected Subjects on Cultivation and Importance of Microgreensamong Selected Subjects

Awareness of microgreens and their relevance in the present scenario for rural and urban homemakers was raised through live training sessions. The subjects were first given an interview schedule to assess their knowledge regarding microgreens. After the awareness session, an interview schedule was also given to the same subjects to assess their knowledge and feedback on the session. Before creating awareness, the knowledge assessments were done, and the scores were categorised as less than or more than 50 percent with the help of the assessment tool. The knowledge of the subjects was assessed after the session.

Figure 3 presents the scores obtained by selected subsamples before the awareness creation. Majority of the subjects scored 5, which is depicted as 25 percent awareness level. Among the selected subjects only one obtained the maximum score.

ii. Post Awareness Knowledge Assessment

Figure 4 depicts the post knowledge assessment of the selected subjects.

i. Pre-Awareness Knowledge Assessment

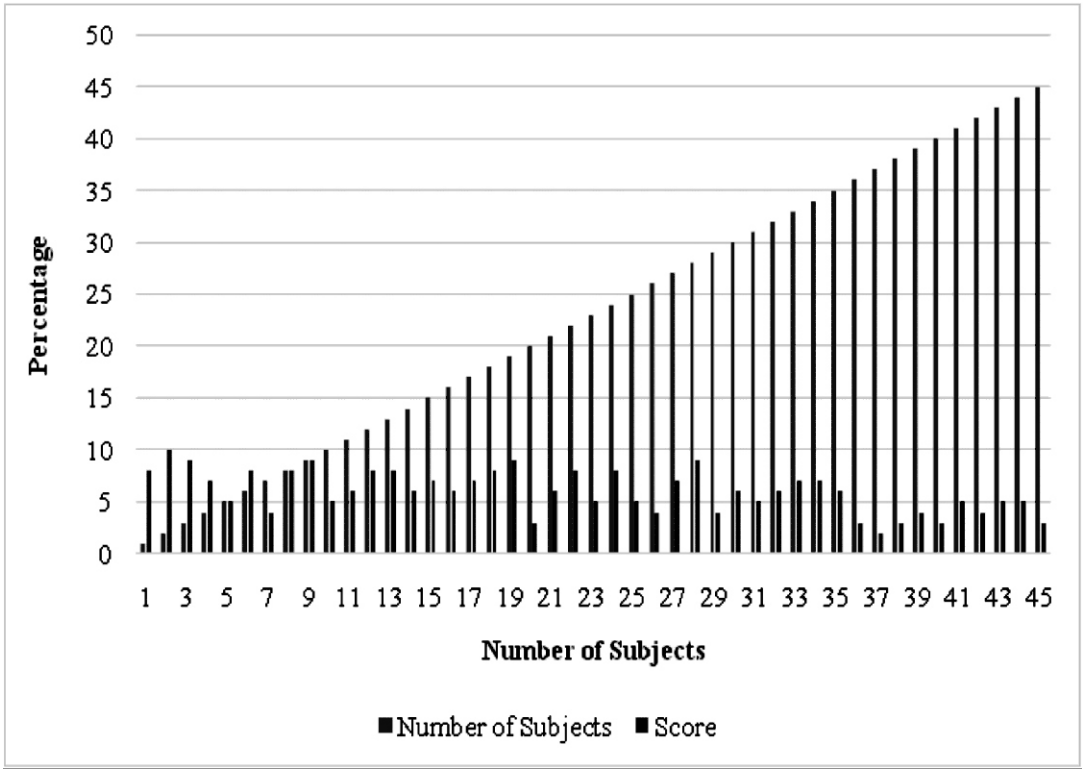

Figure 3: Pre-Awareness Knowledge Assessment

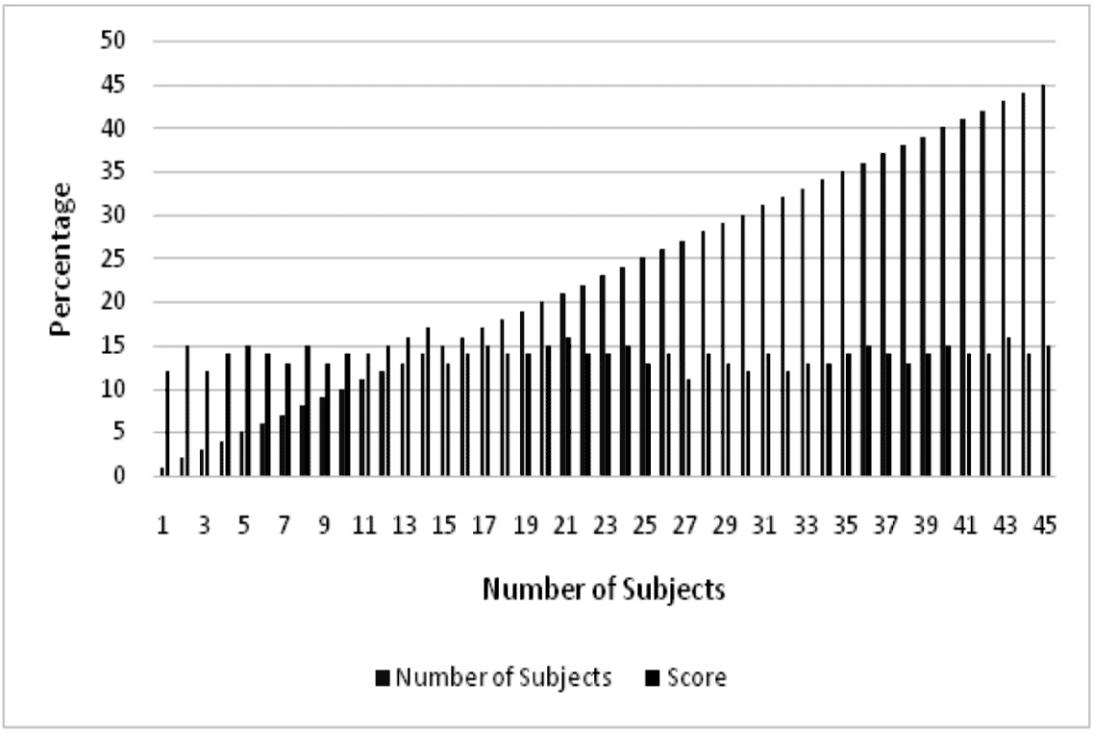

Figure 4: Post Awareness Knowledge Assessment

After the pre-assessment, awareness was given through a live training session to the selected subjects. After the creation of awareness, a post-assessment was done to determine the impact of the awareness given. The majority of subjects scored 60 percent awareness. And most of the subjects had more than fifty percent. The intervention programme conducted has positively influenced the homemakers regarding their knowledge of microgreens and growing methods for microgreens.

CONCLUSION

Microgreens, despite their advantages like minimum area required to grow, less time needed to cultivate, being highly nutritious, flavorful, etc., are still not popular among the public due to low awareness levels. On the other side, people tend to eat healthy and consume a lot of mature greens (normal green leafy vegetables). Hence, more awareness needs to be brought to the attention of the public on the advantages of microgreens to encourage them to convert from regular greens to microgreens.

It is possible for families living in a small area to cultivate adequate microgreens for their family needs. Further large-scale cultivation is also possible. This can be converted into a profession or entrepreneurial opportunity.

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