

Empowering homemakers through proper use of indoor plants

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ARTICLE INFO :

Received : 06.05.2017
Revised : 25.09.2017
Accepted : 11.10.2017

KEY WORDS :

Indoor pollution, Household environment, Objective assessment

HOW TO CITE THIS ARTICLE :

Bal, Sharanbir Kaur, Gill, Jatinderjit Kaur and Sharma, Akriti (2017). Empowering homemakers through proper use of indoor plants. *Adv. Res. J. Soc. Sci.*, 8 (2) : 171-177, DOI: 10.15740/HAS/ARJSS/8.2/171-177.

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ABSTRACT

Our environment has changed dramatically in recent years, whereas we genetically have not. People spend a lot of time indoors at home or work or in traffic away from green spaces. This contributes to increased stress and illness. Today, an average person in an urban city spends 90 per cent of his time indoor, may it be his office, home, school, college, or recreational area. In such a scenario, where more and more people work and live indoors, the kind of air we are breathing in and out becomes very important factor for comfortable living. Research shows that the simple introduction of a few plants indoors can boost health and well-being and vacuum clean the air in homes. So looking into the importance of plants in our lives and their role in combating indoor pollution, this study was planned out to know the existing practices regarding the indoor plants adopted by homemakers as well as their knowledge about indoor plants. Results indicated that respondents were maintaining indoor as well as outdoor plants in their houses to beautify the interiors as well as the exteriors but they do not have enough knowledge regarding selection, care, maintenance and the positive effects of indoor plants on household environment. Further, a booklet for the knowledge empowerment of home makers regarding indoor plants and its effects on household environment was prepared and tested for its efficacy.

INTRODUCTION

A home is a place where each member of the family finds ease and opportunity for self-expression. Every family tries to create such an environment in the home, which improve the overall development of the members of the family and make the house a comfortable place to live in (Mullick, 1984). The importance of the home environment is something that has been approved as vital to the human beings (Caldwell, 2012). Air value in homes, offices and other indoor places is now a chief public wellbeing concern, as individuals often devote upto 90%

of their time inside. Earlier researches recommended that trees and other green plants can improve urban air quality by removing the contaminants from the air. However, the development seemed to be small, a shrinking of less than 5%. But, some recent researches sought a better understanding of the effects of green plants and reported that green plants can reduce toxic waste on city streets upto eight times more than the beforehand thought criteria (Anonymous, 2012). This indoor air contamination in homes, schools and offices is the outcome of volatile gases released from building tools like paints, wood paneling, plastics plus those bright plastic storage boxes

as well as clothing and soft furnishings, solvents, tobacco smoke and even tap water. It is well established that 'indoor' plants can bring about reductions in many components of indoor air pollution (Wood *et al.*, 2002 and 2006; Orwell *et al.*, 2004 and 2006; Yoo *et al.*, 2006; Yang *et al.*, 2009; Wang and Zhang, 2011; Coleman and Mattson, 1995 and Yang *et al.* (2009).

Exposure to Indoor Air Pollution are known to cause depression, asthma, allergies, other respiratory disorders, eye and skin irritations, often watering of eyes, sore throat, cold and flu, memory loss, dizziness, nausea, headaches, fatigue are also suspected of causing cancer, birth defects, reproduction problems, and in long time or extreme exposures death too. As per Diagnostic Assessment of Select Environmental Challenges in India and Global Burden of Diseases Report, 1.3 million people died because of IAP while 620,000 people died due to Outdoor Air Pollution in 2010 (Chauhan, 2013 and Chang and Chen, 2005).

The houseplants are the latest word in household cleaning. Research now shows that houseplants plays an important role in cleaning the air, both indoor and outdoors. Besides cleansing the air we breathe the presence of interior plants has also been shown to have many other advantageous effects, these advantages includes increased positive feelings and reduced feelings of anxiety, anger and sadness, reduction of stress levels, control of humidity within the best levels for human wellbeing, gives cooling effect, absorption of carbon – dioxide and emission of oxygen, refresh the air, interiors feel spacious, besides people prefer to occupy rooms that includes plants.

Indoor pollution can be minimized at nominal cost by creating awareness among the homemakers. In this connection as the woman being the key person of the family, can take initiative in showing concern about the control of pollution with indoor plants and can play a vital role in this aspect.

The present research was thus planned to study the knowledge, awareness and practices adopted by the homemakers regarding use of indoor plants and to empower them with the knowledge regarding the importance of indoor plants. So the study was undertaken with the following specific objectives:

- To study the existing practices regarding the indoor plants adopted by homemakers in the houses of Ludhiana city.

- To develop and test the efficacy of instructional booklet for the knowledge empowerment regarding control of pollution with indoor plants.

MATERIAL AND METHODS

The study was conducted in two randomly selected zones of Ludhiana city. For the selection of the zones, out of four zones of Ludhiana city, two zones (zone-D and zone-B) were randomly selected and from the selected zones three localities were further selected randomly.

For the selection of the respondents, from each selected locality 20 respondents living in 300 to 500 square yards houses who were keeping indoor plants were purposively selected thus making total sample 120.

Development of research instrument :

For collecting the relevant data two interview schedule were prepared. First interview schedule comprised of two parts:

Background information :

First part dealt with the background information and socio-economic profile of the homemakers and their families. It included age, education, occupation, family type, family size, family income, and marital status of the respondent etc.

Specific information :

Second part of the interview schedule included awareness knowledge regarding, use, care and maintenance of indoor plants, types of pots used, placement of indoor plants, manuring system. It also covered general practices adopted by the selected homemakers to use indoor plants etc.

For gathering the appropriate data under the second objective of the research problem another interview schedule was prepared. The interview schedule included knowledge empowerment regarding importance of indoor plants, awareness and effects about overcrowding of potted plants, general guidelines for managing indoor plants, placement of indoor plants, qualities of pot used for indoor plants, manure used, importance of organic compost, effect of weeds found with indoor plants, precautions taken during watering etc.

A booklet entitled "Enhance beauty and health with indoor plants" was prepared and the contents of the

booklet included under the given subheads. This booklet was developed by referring to relevant literature and after consulting the experts from the department of Floriculture and Landscape. It includes the following topics:

- Introduction
- Importance of indoor plants
- Placement for indoor plants
- Practices for indoor plants

Post survey was conducted from the same 120 homemakers to test the efficacy of instructional booklet for the knowledge empowerment of home makers regarding indoor plants. Again after a gap of two weeks, the same homemakers were interviewed with the same Performa. Responses of pre and post household survey were compared by using z-test for double proportion and t-test for two mean. The data were analyzed using simple averages, percentages, standard deviation, mean scores, ranking, t-test, z- test were used.

OBSERVATIONS AND ANALYSIS

The results obtained from the present investigation and relevant discussion have been summarized under following heads

- Socio-demographic features of respondents
- Practices regarding the indoor plants adopted by homemakers
- Awareness and experiences regarding indoor plants

Socio-demographic features of respondents :

Demographic features studied in the present investigation included; age, education, marital status, family type, family size, total family income.

Age :

The data indicates that majority of the respondents (62.50%) were in the age group of 21-30 years, followed by 30.83 per cent respondents who were in the age group of 31-40 years and 4.17 per cent respondents lie in the age group of 41-50 years while only 2.5 per cent of respondents were either 51 years or above.

Education :

Majority of the respondents (52.50%) had studied upto post graduation, followed by (37.50%) respondents who were graduates and 3.33 per cent of respondents who were doctorate, while 1.67 per cent of respondents

were matric passed.

Occupation:

It was significant to note that majority of the respondents (47.50%) were doing service and about 32.50 per cent of the respondents were not gainfully employed outside home and were categorized as 'homemakers'. Only a small segment of the selected respondents (20.00%) were engaged as self-

Sr. No.	Category	Frequency	Percentage
1.	Age (years)		
	21-30	75	62.50
	31-40	37	30.83
	41-50	05	4.17
	Above 51	03	2.5
	Mean±S.D.	29.95±7.84	
2.	Education		
	Matric	02	1.67
	Senior Secondary	06	5.00
	Graduate	45	37.50
	Post graduate	63	52.50
	Doctorate	04	3.33
3.	Occupation		
	House wife	39	32.50
	Service	57	47.50
	Business	24	20.00
4.	Marital status		
	Married	71	59.17
	Unmarried	47	39.17
	Divorcee	02	1.66
5.	Family type		
	Nuclear	77	64.17
	Joint	43	35.83
6.	Family size		
	Less than 3	05	4.17
	3-6	88	73.33
	7-10	20	16.67
	more than 10	07	5.83
	Mean±S.D.	5.51±2.46	
7.	Total family income(monthly)(Rs.)		
	Less than 50,000/-	63	52.50
	50,001-1,00,000/-	44	36.67
	1,00,001-1,50,000/-	04	3.33
	More than 1,50,000/-	09	7.50
	Mean±S.D.	73775/-±57813/-	

entrepreneurs.

Marital status:

It depicts that majority of the respondents (59.17%) were married followed by (39.17%) respondents who were unmarried, while only 1.67 per cent respondents were divorcee.

Family type:

In the present study, it was observed that 52.5 per cent respondents were living as joint families and only 47.5 per cent respondents were living in nuclear families.

Family size:

As table revealed that majority of the respondents (73.33%) had family size between 3-6 members, followed by 16.67 per cent respondents who had their family size between 7-10 members, whereas 5.83 per cent respondents had large families *i.e.* more than 10 members in their family. While only 4.17 per cent respondents had small families *i.e.* less than 3 members.

Total family income:

As regards monthly income of the sampled population, it was observed from the data that most of the families earned less than Rs. 50,000/- per month followed by 36.67 per cent respondents who belonged to the income range of Rs. 50,001-1,00,000/- per month and about 7.50 per cent of the respondents lie in the income range between Rs. 1,00,001-1,50,000/- per month and only 3.33 per cent of the families were having monthly income of more than Rs. 1,50,000/-

Practices regarding the indoor plants adopted by homemakers :

Pre-tested interview schedule was used to study the existing practices, regarding the indoor plants, adopted by selected homemakers of Ludhiana city.

Table 2 presented the use of indoor plants by the respondents.

Beautification :

It was found that a large majority (99.17%) of respondents believed that with the use of plants it brings freshness and cheerfulness followed by addition of natural color (75.83%) as a major use. About two third (67.50%) of the respondents stressed upon compliment

interior setting and around half (47.50%) of the population believed as a result that it hide defective features in the room. Very less number of respondents believed that plants leads to soften over lit areas (18.33%) and divide large open areas (10.00%).

Cognitive function :

Table 2 further reveals that majority (74.17%) of the respondents revealed that plants increases positivity followed by 61.67 per cent of the respondents revealed that plants increases concentration. More than half (56.67%) respondents indicated that plants improves memory and reduces stress and lowest respondents (43.33%) showed for increase in attention.

Functionality :

The perusal of Table 2 shows that for 95.83 per cent of respondents functionality, purify air was the main function followed by cool effect (91.67%). Whereas, balancing moisture content (43.33%) and absorption of noise/sound (17.50%) was least concerned about the function of indoor plants.

Vastu :

As far as Vastu Shastra was concerned increase in positive energy was discovered by 88.33 per cent of respondents followed by good luck (65.83%) and useful in treating many diseases (38.33%). A very less number of respondents (14.17%) indicated for prosperity of inmates.

Medicinal value :

The results shown in Table 2 indicate that for medicinal value, majority (88.33%) of the respondents unfolded the use helpful in curing diseases. Followed by used as antiseptic (80.83%) and healing wounds (76.67%), respectively

Awareness and experiences regarding indoor plants:

An educational booklet was prepared for knowledge empowerment of homemakers regarding indoor plants, their care and maintenance and the efficacy of the booklet was measured using pre and post test methods.

Knowledge empowerment regarding importance of indoor plants :

The results shown in Table 3 indicate the knowledge

empowerment regarding importance of indoor plants.

It was found that all the respondents had a knowledge that plants brings freshness and cheerfulness. In post-household survey in comparison with pre-household survey (99.17%) followed by addition of natural colour (95.83%) and compliment interior setting (86.67%) was in majority in post-household survey in comparison to pre-household survey *i.e.* addition of natural colour (75.83%) and complimenting interior setting (67.50%). More than half (64.17%) of the respondents showed importance in hiding features in post-household survey as compared to pre-household survey (47.50%). Half (50.00%) of the respondents discovered in post household survey divide large open areas higher in comparison to pre-household survey. Further, table explained that least 26.67 per cent of the respondents disclosed about soften over lit areas in post

household survey as compared to pre-household survey.

Table 3 further reveals that majority (94.17%) of the respondents in post-survey showed that plants increases positivity where as in pre-test it was 74.17 per cent followed by increase in attention (82.50%), improves concentration (75.83%) in post-household survey, which is higher in percentage than pre-household survey *i.e.* increase in attention (43.33%), improves concentration (61.67%). Other important variables were reduction in stress (75.00%) and memory improvement (70.83%) in post household survey whereas in pre-household survey less number of respondents considered reduction in stress (56.67%) and memory improvement as compared to post household survey. The findings of the study are in line with the observations carried out by Dijkstra *et al.* (2008).

The perusal of Table 3 shows that for functionality, purify air was the main importance of plants showed by

Table 2 : Distribution of respondents according to the use of indoor plants			(n=120)
Sr. No.	Use	Frequency*	Percentage
Beautification			
1.	Brings freshness and cheerfulness	119	99.17
2.	Divide large open areas	12	10.00
3.	Soften over lit areas	22	18.33
4.	Hide defective features in the room	57	47.50
5.	Compliment interior setting	81	67.50
6.	Add natural colour	91	75.83
Cognitive function			
1.	Improves concentration	74	61.67
2.	Improves memory	68	56.67
3.	Reduces stress	68	56.67
4.	Increases positivity	89	74.17
5.	Increase attention	52	43.33
Functionality			
1.	Purify air	115	95.83
2.	Absorb noise/sound	21	17.50
3.	Balance moisture content	52	43.33
4.	Provide cool effect	110	91.67
Vaastu			
1.	Prosperity of inmates	17	14.17
2.	Useful in treating many diseases	46	38.33
3.	Bring good luck	79	65.83
4.	Increase positive energy	106	88.33
Medicinal value			
1.	Helpful in curing disease	106	88.33
2.	Helps to heal wounds	92	76.67
3.	Can be used as antiseptic	97	80.83

*Multiple responses

99.17 per cent of respondents in post-household survey whereas in pre household survey it was 95.83 per cent followed by cool effect provided by plants (98.33%), balancing moisture content (58.33%) and noise absorption (34.17%) was more in post-household survey as compared to pre-household survey *i.e.* cool effect (91.67%), balancing moisture content (43.33%) and noise absorption (17.50%).

As far as *vastu* was concerned, increase in positive energy was discovered by majority (94.17%) of the respondents in post-household survey as compared to pre-survey *i.e.* 88.33 per cent followed by 76.67 per cent and 63.33 per cent of respondents was more for good luck which is bought by plants and useful in treating in post-household survey than pre-household survey which was 65.83 per cent for good luck and 38.33 per cent for

useful in treating and other was prosperity of inmates (45.00%) for post-household whereas for pre-household survey it was only 14.17 per cent.

The results shown in Table 3 indicates that for medicinal value, majority (93.33%) of the respondents unfolded the importance of indoor plants in the form of curing diseases in post-survey as compared to pre-survey *i.e.* 88.33 per cent and others were used as antiseptic (90.83%) and helpful in healing wounds (86.67%) in post-survey was more in comparison to pre-survey *i.e.* used as antiseptic (80.83%) and helpful in healing wounds (76.67%)

The difference in the knowledge empowerment regarding importance of indoor plants was found to be statistically significant for the importance : divide large open areas, hide defective features in the room,

Sr. No.	Importance	Pre-test		Post-test		z-value
		Frequency	Percentage	Frequency	Percentage	
Beautification						
1.	Brings freshness and cheerfulness	119	99.17	120	100.00	1.00
2.	Divide large open areas	12	10.00	36	30.00	3.87**
3.	Soften over lit areas	22	18.33	32	26.67	1.55
4.	Hide defective features in the room	57	47.50	77	64.17	2.60**
5.	Compliment interior setting	81	67.50	104	86.67	3.53**
6.	Add natural colour	91	75.83	115	95.83	4.44**
Cognitive function						
1.	Improves concentration	74	61.67	91	75.83	2.37**
2.	Improves memory	68	56.67	85	70.83	2.28**
3.	Reduces stress	68	56.67	90	75.00	2.99**
4.	Increases positivity	89	74.17	113	94.17	4.24**
5.	Increase attention	52	43.33	99	82.50	6.28**
Functionality						
1.	Purify air	115	95.83	119	99.17	1.65
2.	Absorb noise/sound	21	17.50	41	34.17	2.95**
3.	Balance moisture content	52	43.33	70	58.33	2.32**
4.	Provide cool effect	110	91.67	118	98.33	2.37**
Vaastu						
1.	Prosperity of inmates	17	14.17	54	45.00	5.23**
2.	Useful in treating many diseases	46	38.33	76	63.33	3.87**
3.	Bring good luck	79	65.83	92	76.67	1.73
4.	Increase positive energy	106	88.33	113	94.17	1.50
Medicinal value						
1.	Helpful in curing disease	106	88.33	112	93.33	1.26
2.	Helps to heal wounds	92	76.67	104	86.67	1.87
3.	Can be used as antiseptic	97	80.83	109	90.83	2.08**

Multiple responses

* and ** indicate significance of values at P=0.05 and 0.01, respectively

compliment interior setting, add natural colour, improves concentration, improves memory, reduces stress, increases positivity, increase attention, absorb noise/sound, balance moisture content, provide cool effect, prosperity of inmates and useful in treating was found to be statistically significant at 1% level of significance which shows that there was a significant rise in knowledge level of respondents after providing booklet at 1% level of significance.

Similarly knowledge of the homemakers regarding right placement of the indoor plants, their care and disease management, growth characteristics of plants like knowledge about appropriate temperature, light, humidity, water and nutrient requirements as well as right pot selection was also enhanced significantly after the distribution of booklet.

Conclusively, it can be expressively denoted that houseplants performed their best, whenever they are utilized, either indoor or outdoor by releasing oxygen and making indoor environment fresh and pure. Further the results of the survey indicated that homemakers knowledge regarding indoor plants and their care and management was considerably increased after distribution of educational booklet. The booklet also created awareness about importance of plants in maintaining the purity of indoor environment by enhancing the oxygen levels.

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