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Effectiveness of media package for creating awareness among rural women regarding use of lemon grass medicinal plant (*Cymbopogon citratus*)

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Abstract

To check the effectiveness of developed media package on Lemon grass plant, a sample of 130 rural women from 13 villages of Ludhiana district was purposively selected. The data were collected in April and May 2024 from Ludhiana district and were analyzed with the help of percentage, mean score and paired t-test. The media package containing printed material, WhatsApp messages and video clips on Lemon Grass plant was developed and validated by 30 Subject Matter Specialists. Effectiveness of media package was measured in terms of mean change in health benefit, its nutritive value and usage into different forms of Lemon grass for curing various ailments and awareness level of the respondents after the exposure of the media package. Interview schedule was constructed to collect data on status of growing Lemon Grass plant and to measure awareness related to health benefits of Lemon Grass, its nutritive value and usage of Lemon Grass plant into different forms for curing various ailments. Data were collected into two phases. Before exposure to media package data regarding status of growing and awareness level of Lemon Grass plant was collected. Printed materials related to Lemon Grass plant were distributed to the respondents. WhatsApp message and video clips were sent to the rural women through online platform. After 25 days post awareness data were collected. Results of the study showed significant change between pre and post awareness mean score regarding all the parameters of Lemon Grass plant. So, the prepared media package is proved to be effective to motivate people for growing and creating awareness about Lemon Grass plant. This media package can be used by Extension personnel for their wider outreach.

Keywords: Media package, lemon grass, awareness level, nutritive value, health benefits

Introduction

Lemongrass (*Cymbopogon citratus*) is a medicinal plant native to Southeast Asia and is widely known for its aromatic citrus fragrance. It has been used for centuries in traditional medicine for its numerous health benefits, due to its rich content of bioactive compounds including antioxidants, vitamins and essential oils. The plant is valued for its anti-inflammatory, antimicrobial and digestive-enhancing properties making it a popular remedy for a range of health issues. One of the key medicinal uses of Lemon grass is its ability to support digestive health. It is commonly used to relieve symptoms such as indigestion, bloating and constipation with its mild diuretic effects helping to promote detoxification and improve overall digestive function. Lemon grass is also known to have anti-inflammatory effects, which may help reduce inflammation in conditions like arthritis or muscle pain, providing relief when applied topically or consumed as tea. Lemon grass is also prized for its antimicrobial properties, making it effective against various bacteria, fungi, and other pathogens. This quality helps promote better skin health by

preventing infections and acne. The plant's antioxidant content contributes to its ability to fight oxidative stress and reduce the risk of chronic diseases. Additionally, Lemon grass has a calming effect on the mind and is commonly used in aromatherapy to relieve stress, anxiety, improve sleep and boost mood. Moreover, Lemon grass is a natural detoxifier supporting the liver and kidneys in eliminating toxins from the body. Its essential oils and extracts are widely used for both internal and external applications. Despite its many benefits it is important to use Lemon grass in moderation as excessive consumption may lead to mild side effects for some individuals. Thus, the objective of present study was to assess the status of rural women for growing and use of Lemon grass plant and to measure the effectiveness of developed media package in terms of creating awareness among rural women related to use of Lemon grass plant for health care.

Methodology

The study was conducted in 13 villages of Ludhiana district of Punjab State on the basis of experimental research

design. To check the effectiveness of media package, a sample of 130 rural women from 13 villages of Ludhiana district was purposively selected for the convenience of the investigator. Ten women respondents were selected from each village. The selection of the respondents was based on their access to android, smart phones or any other more advanced handset with internet availability. They should be regular users of WhatsApp, you tube or Facebook. Prepared media package on Lemon Grass plant was validated by 30 Subject Matter Specialists of various Departments for its relevance, completeness and correctness. Interview schedule was constructed to collect data on status of growing Lemon Grass plant and to measure awareness related to health benefits of Lemon Grass plant, its nutritive value and usage of Lemon Grass plant into different forms. Data were collected into two phases by using interview schedule before and after the exposure to the media package. After the first phase of data collection the media package was exposed to the respondents. The printed booklet was distributed. WhatsApp messages were sent next day to the rural women which included messages related to introduction, health benefits and usage of Lemon grass plant into different forms. Messages were transformed into text messages, messages with pictures. Video clip with pictures,

sound and text was delivered through online platform. After the dissemination of information through developed media package, a gap of minimum of 25 days was observed to assess the change in awareness level of the respondents. During the second phase, data were collected by using the same interview schedule. To check the effectiveness of media package pre and post awareness score were compared. The awareness scores were judged on a three-point rating scale like aware, somewhat aware and not aware. These responses were assigned weightage of three, two and one scores respectively. So mean score range was between 1.00 to 3.00. Data were analyzed with the help of percentage, mean score and paired t-test

Results and Discussion

Status of growing and use of Lemon grass plant

Recorded data showed that not a single respondent was growing medicinal plant at commercial level. The status of growing and using Lemon grass plant included place of growing the plant, source of getting the Lemon grass plants or seeds and uses of this plant for curing different ailments before the exposure of the media package.

Table 1: Distribution of respondents according to their status of growing and use of Lemon grass (n=130)

Status and Use	Frequency	Percentage
Status		
Place of growing Lemon grass		
In pots	4	3.08
Open land in a house	7	5.38
Source of getting plants/seeds		
Relatives	3	2.31
Private nurseries	7	5.38
Private sellers	1	0.77
Use of Lemon grass		
Obesity	11	8.46
Aches and pain	5	3.85
Gastrointestinal problems	4	3.08
Headache	3	2.31
Arthritis	2	1.54

Data pertaining to distribution of respondents according to their status of growing and use of Lemon grass have been presented in Table 1. Almost (5.38%) of the respondents had grown Lemon grass on open land in their houses followed by 3.08 percent had planted in pots. Only (5.38%) of the respondents had procured the seed/plant form private nurseries. Comparatively to a lesser extent its seed/plant was obtained from relatives (2.31%), private sellers (0.77%). Almost (8.46%) of the respondents used Lemon grass for obesity, whereas 3.85 percent used it against aches and pains. Further, to cure gastrointestinal problems, headache and arthritis 3.08 percent, 2.31 percent and 1.54 percent of the respondents used Lemon grass. Lemon grass plant was grown by respondents at household level, they were not cultivating on commercial scale. The probable reasons for this could be constraint of land, lack of marketing and they have been uneconomical because of unavailability of minimum support price and remunerative prices. Most of the respondents had grown lemon grass plant on open land in their houses. Lemon grass plant was mostly procured from private nurseries, relatives and private sellers. The respondents were not purchasing Lemon grass seed or plants

from Punjab Agricultural University as all of them were rural women. Probably they were not fully aware of the availability of seeds or plants from PAU. Moreover, the accessibility of seeds or plants in the neighbourhood and from relatives was more convenient. In case of obesity, respondents have regularly used lemon grass plants. Respondents used lemon grass for prevention against aches and pains. Lemon grass plant have been found useful to control gastrointestinal problems.

The findings regarding use of the medicinal plants to treat various ailments are in line with the results of research studies conducted by Muthu *et al.* (2006) ^[15], Sidhu *et al.* (2011) ^[20] Bist *et al.* (2013) ^[2], Prakash (2014) ^[17], Dogra *et al.* (2015) ^[3], Jaiswal *et al.* (2016) ^[6] and Kaur *et al.* (2020) ^[9]. Least use of medicinal plants has been made in case of ailments namely dental problems and anaemia. Creating more awareness is paramount to bringing change in cultivation of medicinal plants for their use in cure and treatment of various ailments. The findings are in line with the results of research studies conducted by Jyoti (2015) ^[7] and Sharma (2015) ^[15]. They analysed that majority of rural women had used medicinal plants to a low extent.

Effectiveness of developed media package in terms of creating awareness related to Lemon grass medicinal plant: Effectiveness of developed media package of Lemon grass plant was measured as a mean change in health benefit

of Lemon grass, its nutritive value and usage into different forms for curing various ailments and change in awareness level of the respondents after the exposure of media package.

Table 2: Change in the awareness regarding the health benefits of Lemon grass before and after the intervention (n=130)

Health benefits of Lemon grass	Before the intervention (Mean score)	After the intervention (Mean score)	Mean change
Anti-bacterial	1.00	1.47	0.47
Anti-fungal	1.00	1.45	0.45
Antioxidant	1.02	2.42	1.40
Treats gastric problems	1.00	2.42	1.42
Relives anxiety	1.02	1.37	0.35
Cures anaemia	1.00	1.37	0.37
Treats toothache and headache	1.00	1.31	0.31
Prevents cancer	1.00	1.31	0.31
Reduces obesity	1.21	2.55	1.35
Reduces hypertension	1.00	2.08	1.08
Managing liver problems	1.05	2.33	1.28
Reduces dandruff	1.00	1.28	0.28
Treats menstrual disorder	1.00	1.18	0.18
Prevents arthritis and joint pains	1.00	1.28	0.28
Average mean	1.02	1.70	0.68

*Mean range (1-3)

The information related to health benefits of Lemon grass is provided in Table 2. The awareness was enhanced by 0.68 as the mean score increased to 1.70 from 1.02 after the intervention. The health benefits of Lemon grass as a medicinal plant were apparently higher as indicated by scores for treating gastric problems (1.42), as an antioxidant (1.40), for reducing obesity (1.35), for managing liver problems (1.28) and reducing hypertension (1.08). Awareness about the health benefits of Lemon grass was higher for reducing obesity before the intervention because women were already aware about the health benefit of Lemon grass. Further change of mean exhibited higher awareness about Lemon grass for treating gastric problems, as an antioxidant, reducing obesity and for managing liver problems. The findings related to curing of various ailments are reliable with the results of research studies conducted by Nambiar and Matela (2012) [16] and Kiani *et al.* (2022) [13].

Table 3: Change in the awareness regarding the nutritive value of Lemon grass before and after the intervention (n=130)

Nutritive value of Lemon grass	Before the intervention (Mean score)	After the intervention (Mean score)	Mean change
Carbohydrate	1.01	1.22	0.21
Calcium	1.00	2.36	1.36
Sodium	1.00	1.16	0.16
Potassium	1.00	1.35	0.35
Magnesium	1.01	1.37	0.36
Iron	1.00	2.48	1.48
Phosphorus	1.00	1.24	0.24
Phytate	1.02	1.18	0.16
Average mean	1.00	1.55	0.55

*Mean range (1-3)

Data pertaining to the awareness of respondents regarding nutritive value of Lemon grass have been provided in Table 3. It revealed a shift in awareness of 0.55 i.e. from 1.00 to 1.55 after the intervention. The change in awareness was

noticeable for iron (1.48) and calcium (1.36). Before the intervention awareness about nutritive value of lemon grass plant revealed almost equal mean scores because it is very difficult to memorize the essential nutrients. The change in awareness was more pronounced with respect to lemon grass as the respondents were less aware about their nutritive value before the intervention. The findings of the study are consistent with the results of research studies conducted by Singh (2022) [22]. He studied nutritive value of natural sweeteners of Punjab.

Table 4: Change in the awareness regarding the usage into different forms of Lemon grass for curing various ailments (n=130)

Different forms of Lemon grass	Before the intervention (Mean score)	After the intervention (Mean score)	Mean change
Lemon grass leaves			
Healthy skin	1.00	1.41	0.41
Herbal drink	2.25	2.39	0.14
Lemon grass oil			
Fever and cough	1.00	1.41	0.41
Joint pains	1.00	1.41	0.41
Average mean	1.31	1.66	0.35

*Mean range (1-3)

The data of awareness regarding usage into different forms of Lemon grass for curing various ailments is in Table 4. The awareness of usage of Lemon grass improved to a small extent (0.35) only. No major change was observed after the intervention when either leaves or oil of Lemon grass was used. Regarding usage of various forms of Lemon grass before the intervention the awareness was depicted higher for use of its leaves for herbal drink. No major change was observed after the intervention when either leaves or oil of Lemon grass was used. Wifek *et al.* (2016) [25] supported the findings and he also concluded that Lemon grass is extensively utilized in herbal teas and non-alcoholic beverages.

Table 5: Distribution of the respondents according to their level of awareness regarding Lemon grass (n=130)

Level of awareness	Before the intervention f (%)	After the intervention f (%)	(%) change
Health benefits			
Low (14-23)	130 (100.00)	60 (46.15)	-53.85
Medium (24-33)	-	70 (53.85)	53.85
High (34-42)	-	-	-
Nutritive value			
Low (8-13)	130(100.00)	96 (73.85)	-26.15
Medium (14-19)	-	34 (26.15)	26.15
High (20-24)	-	-	-
Usage into different forms of Lemon grass for curing various ailments			
Low (4-6)	130 (100.00)	73 (56.15)	-43.85
Medium (7-9)	-	57(43.85)	43.85
High (10-12)	-	-	-

Data concerning level of awareness regarding Lemon grass has been provided in Table 5. The level of awareness regarding the health benefits of Lemon grass was low (100.00%) before the intervention. The level of awareness changed to medium (53.85%) after the intervention. The awareness level regarding nutritive value of Lemon grass was low (100.00%) before the intervention and the level of awareness of (73.85%) was low and (26.15%) was changed

to medium level after the intervention. The awareness level regarding usage into different forms of Lemon grass for curing various ailments was low (100.00%) before the intervention. The level of awareness of (56.15%) was low and (43.85%) showed a change to medium level after the intervention. The findings related to the level of awareness are supported by Srishailam and Jirli (2024) [23], Gaur *et al.* (2024) [4] and Kachhot (2025) [8].

Table 6: Distribution of respondents according to the overall awareness regarding Lemon grass (n=130)

Parameters of Lemon grass	Before the intervention (Mean score)	After the intervention (Mean score)	Mean change	t-value
Health benefits of Lemon grass	1.02	1.70	0.68	42.69**
Nutritive value of Lemon grass	1.00	1.55	0.55	29.15**
Usage into different forms of Lemon grass for curing various ailments	1.31	1.66	0.35	36.09**

*Mean range (1-3)

Significant at 1% level of significance

The data related to mean change in awareness regarding Lemon grass plant have been provided in Table 6. The data disclosed significant change in awareness. The mean change in awareness was highest in case of health benefits of Lemon grass (0.68) and lowest in case of usage into different forms of Lemon grass for curing various ailments after the intervention (0.35) From t value it could be inferred that the difference in the mean score obtained from pre and post exposure was significantly indicating that the respondents had gained awareness regarding all parameters of Lemon grass. Thus, it could be concluded that the use of developed media package was effective to motivate people for growing and creating awareness about Lemon grass plant. The findings related to the effectiveness of booklet are consistent with the results of research studies conducted by Puri (2001) [18], Gujjar (2001) [5], Thakur (2005) [24] and Kaur (2014) [12]. The finding related to effectiveness of WhatsApp are reliable with the result of research studies conducted by Kumari (2017) [14] and Batra (2019) [1]. The findings related to the effectiveness of video clips are supported with the results of studies conducted by Kaur (2022) [10] and Kaur (2023) [11].

Conclusion

Not even a single respondent was growing medicinal plants at commercial level. The respondents were not purchasing nursery from P.A.U, Ludhiana for growing Lemon grass at household level. It is suggested that there is further need of extension work for promotion and popularization of

medicinal plants for economic benefits of the farmers of Punjab. Significant change between pre and post awareness mean score of Lemon grass plant for all parameters i.e. its health benefits, nutritive value and its usage into different forms of Lemon grass plant for curing various ailments was observed. Awareness level of the respondents had also increased after the exposure of media package. So, prepared media package is proved to be effective to motivate people for growing and creating awareness about Lemon grass plant. This media package can be used by Extension Personnel for their wider outreach.

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