



IMPACT OF NUTRITION EDUCATION REGARDING PRODUCT FORMULATION FROM DEHYDRATED VEGETABLES

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ABSTRACT

Awareness about the nutrient content of vegetables is very less especially in the rural areas where they are grown abundantly. These vegetables have a short shelf life, however by means of dehydration, they can be preserved and made available in off-season thus providing important minerals and vitamins to population groups throughout the year. In view of this, the present study was undertaken with the objective to produce a video film on products developed from dehydrated vegetables i.e. spinach and carrot. Its impact on rural women was then studied. Rural women between the age of 18-35 years were selected from two villages of lucknow district namely Mohanlalganj (n=40) as experimental group and Sisandi (n=40) as control group. The film entitled '*Nirjalikrit palak avam gajar se bane paushtik alpahar*' was produced for nutrition education showing the importance of vegetables, their dehydration and product formulation to combat micronutrient deficiencies. Video film was shown only to the experimental group first; without discussion and then with discussion. Results showed that before nutrition education, majority of the respondents ($\geq 90\%$) were in low knowledge category in both the groups. When the experimental group was exposed to video film, their knowledge level rose and majority of the respondents obtained medium score (67.5%) and when the same group was exposed to video film followed by discussion, their mean knowledge score further increased to 83.10 percent. Whereas there was no improvement in the knowledge scores of control group. The difference in the pre and post exposure knowledge scores (70.68 %) of experimental group was found to be highly significant ($P \leq 0.01$). Percent retention in knowledge was found to be 74.52, 30 days after exposure to video film. Education level of respondents was positively and significantly correlated with knowledge scores of the experimental group. Therefore it can be concluded that this film can be used in teaching and popularizing of recipes developed by incorporating dehydrated vegetables.

INTRODUCTION

Indian dietaries are mostly vegetarian and only the liberal amount of vegetables have been advocated as an important source of several nutrients. Vegetables have a short shelf life, so by means of dehydration, they can be preserved and made available in off-season thus providing important minerals and vitamins to population groups throughout the year. Beside this, the people awareness about nutrient content in green and yellow leafy vegetable is very less especially in the rural areas where the vegetables are grown in abundance and prevalence of anaemia is high. This kind of situation where the people are not aware of the ways to deal with the problem, can lead to grain reproduction subsequently posing a huge challenge. Therefore to cope up with this, it is very essential to give education on the proper utilization of green leafy vegetables which would help them to prevent from various diseases. So, in order to utilize these surplus vegetables, education regarding dehydration and transforming these vegetables into traditional recipes must be imparted to the rural women as their role in combating malnutrition and various diseases through changing socio-cultural barriers is unique and vital.

Mass media is now being increasingly viewed as the means of communication. The success of any medium depends on the extent to which it is being utilized by audience. Mass media is considered to be the most powerful method of communication.

According to **Srivastava**

et al.(2004), mass media is a very suitable tool for rapid progress of developing countries like India where illiteracy is high and material resources are in short supply. Video films have become very common in rural areas today and are effective medium for communicating necessary information to the rural masses. Nutrition related films are rarely available. The educational component in these films can emphasize the importance of green leafy vegetables and their utilization in conventional recipes.

The Present Study: Under an ICAR funded project entitled "Value added products from dehydrated vegetables to combat nutritional deficiency in rural masses" efforts have been made to develop iron and carotene rich recipes by incorporating dehydrated vegetables namely- Spinach and Carrot. Surveys conducted under the project also showed that the prevalence of anaemia was high among pre-school and adolescent girls and nutritional awareness of the women was very poor. Since vegetables are produced in surplus in the areas identified under the project, there is a need to teach rural people about their preservation and utilization.

Therefore the present study was undertaken in order to develop a video film to teach the rural women about the nutritional importance of green leafy and yellow vegetables, their dehydration and usages into various conventional recipes.

The objectives of the study were as follows :-

- (1.) To produce a video film on product formulation from dehydrated green leafy vegetables and carrot.
- (2.) To find out the impact of nutrition education on the rural women's knowledge using the developed film .

METHOD :-The investigation was an experiment with pre-test - post-test and retention design. The investigators followed the following steps in conducting the experiment : data collection, production of the video, and validation of the video.

Selection Of Sample

Selection Of District:- Lucknow district of Uttar Pradesh was selected purposively for the present study because of accessibility.

Selection Of Locale:- Two villages namely Mohanlalganj and Sisandi from Telibagh block Lucknow District were selected for the study..Sisandi considered as control group and Mohanlalganj as experimental group.

Selection Of Respondents:- For the present study, women between the age group of 18-35 years were considered as respondents. Forty respondents were included in control group and 40 respondents in experimental group.

Survey schedule :- The schedule consisted of following different parts-

(1)General profile (2) Dietary survey (3) Knowledge test

General profile:- Data regarding general information such as age, education, type of family, income, family size etc about respondents were collected using the first part of the schedule.

Dietary Survey:- Dietary habit and food consumption frequency of the respondents were recorded.

Knowledge Test Proforma :- Another schedule knowledge test proforma' was prepared to find out the knowledge level of the respondents before and after, the nutrition education. A set of 37 questions of multiple choice type were prepared for testing knowledge of the respondents.

Collection Of Pre-Exposure Data:- Pre exposure data was collected with the help of survey schedule and knowledge test proforma. The method as suggested by **Kumar et al. (2000)** was used with slight modification for testing, the knowledge of the subjects regarding anaemia, Vitamin 'A' deficiency, dehydration of vegetables, and recipes developed by incorporating dehydrated vegetables. The data were collected using knowledge test proforma among both the experimental and control groups. The researcher asked the questions to the respondents and their answers were filled in the proforma. On account of the wide variation in the scores obtained by subjects their mean percentage of scores falling in different categories were computed as - 0 - 33 percent - low knowledge category , 34-66 percent - medium knowledge category, 67-100 percent - high knowledge category

Production of the video film:- The method of **Siemens (1985)** with some modification to suit the present study was used as guideline for the production of video film.

Planning :- Surveys carried out by the earlier investigators had shown that the rural women were unaware about the importance of green leafy vegetables and their product formulation. It was also found in the present investigation that surplus vegetables were either being wasted or sold by them at lower price. The pre-exposure knowledge test of rural women related to anaemia and Vitamin 'A' was observed to be low (27.35%). On the basis of the above facts, script was planned.

Script:- Script showing the importance of green leafy vegetables and their utilization by incorporating them in various conventional recipe was produced. A total of eleven recipes were included in this film. These recipes were prepared from the vegetables-spinach leaves and Carrot. Keeping this message coming out of the motive of visual creation it has been found suitable to name this script as “-**Nirjalikrit palak avam gajar se bane paushtik alpahar**”.

Selection Of Characters:- The persons found suitable for different characters were chosen. The characters were selected from College of Home Science and College of Agriculture.

Rehearsals :- The minutes of the visual creation was prepared and enacted under the following procedure:-Selection for cast of the visual, costume and dialogue finalization,final rehearsal with full preparation .

Shooting :- Shooting was done according to the scene of the script. The video film was shot by automatic camera with the help of camera team of media center.

Editing :- After the shooting of video film, editing was done by the experts team of media center. Through editing raw materials were arranged in proper sequence. Editing was done in order to remove the extra scenes and disturbing sound from the film and to bring continuity in the story according to the preplanned script. Thus the whole story came out in a smooth flow. The duration of the film was 43 minutes.

Recording of the song:- The song was recorded in the sound proof recording room.

Music:- Music was included according to the requirement of the song.

REVIEW SESSION:- Evaluation of the film was done in two sessions. In the first session the panel of judges were mainly from the field of Foods and Nutrition, Communication and related field, and in second session the panel of judges were six rural women who had been selected from the experimental group.

NUTRITION EDUCATION OF RURAL WOMEN

Two sessions of nutrition education were conducted by discussion and without discussion. After which post exposure scores were taken after each session separately. Video shown only once without any other mode of education, Video shown twice, followed by discussion and question-answer session. During the discussion emphasis was given anemia, vitamin A deficiency, dehydration of green leafy vegetables and development of recipes.

IMPACT EVALUATION:- Post exposure knowledge was assessed with the same knowledge test proforma which was used at pre-exposure stage. These data were applied to experimental and control group. It was done to find out the impact of video film on the knowledge level of rural women. The second post exposure data was taken to find out the impact of video film on the knowledge level of rural women .

STATISTICAL ANALYSIS :- The data collected was tabulated and analyzed with the help of statistical technique (**Imran and Coover 1983**).. Statistical technique viz. frequency percentage, mean score, paired 't' test and correlation co-efficient were applied.

RESULTS & DISCUSSION

GENERAL FINDINGS :-

Majority of the respondents belonged to 18-35 years.

Majority of the respondents were illiterate in both the groups.

All respondents were Hindus.

Majority of the respondents reported that they discarded their surplus vegetable as waste.

IMPACT OF NUTRITION EDUCATION IMPARTED BY INVOLVING LOCAL LEADERS ON KNOWLEDGE LEVEL OF RURAL WOMEN

Table 1: Mean knowledge scores (%) of pre and post test on dehydration and product formulation

Group	Pre – exposure mean scores	Post-exposure Mean score with discussion	Difference between pre-post exposure mean score	' t ' Value	Mean retention Knowledge Score
Control (N=40)	13.33	13.4	0.06	1.90	----
Experimental (N=40)	12.42	83.10	70.68	* 18.35	74.54

--- Retention score was not taken for the control group

* Significant at 0.01 level of probability

Table 1 shows the significance of the difference in the level of knowledge before and after exposure of video film as well as after one month by applying the paired 't' test. Result indicates that in the experimental group the mean knowledge scores increased considerably after nutrition education through video film. The percentage gain in knowledge was 70.68 percent in experimental group. When the test of significance was applied between pre and post-test. It was found that the calculated value of t (18.35) was higher than the tabulated value, therefore it can be concluded that nutrition education significantly ($p \leq 0.01$) improved the knowledge level of rural women regarding utilization of surplus green leafy vegetables, whereas in control group no difference was found in the

,mean scores of pre and post test .When the same subjects were tested for their knowledge scores after an interval of one month, it was found that 74.52 percent knowledge was still retained. **Kumari and Puttaraj (2004)** also emphasized the need for providing nutrition education. In their study, nutrition awareness of selected group of respondents was measured twice at the beginning and also after 6 months of the training as compared to initial scores. The scores continued to be significant even after a period of six months.

Table 2 shows the impact of nutrition education on gain in knowledge and retention of knowledge after a period of one month. It was found that when the rural women were exposed to video film first time their gain in knowledge level was 32.93 percent, whereas when the same group was given nutrition education through video followed by a discussion with local leaders, the gain in knowledge level further increased to 70.68 percent. When the knowledge gain of control group was subtracted from those of experimental group in order to obtain the values of “actual gain” the values appeared same to percent knowledge gain. This shows that there was no difference between percent gain of knowledge and actual gain of knowledge. The scores obtained by them 30 days after nutrition education gave a clear picture of knowledge retained. The retention score was 62.10 percent in experimental group (video+discussion).**Srivastava et.al. (2004)** in their study had also reported that when the retention of knowledge of the experimental group was measured after a gap of 30 days, it was found that the scores declined slightly from the immediate post exposure stage however, in comparison to pre exposure ,it remained significantly higher . Based on the result summarized in table, it can be stated that the video film is highly effective in imparting nutrition education to rural women regarding utilization of green leafy vegetables in traditional recipes. Another important part to note is that the involvement of local leaders in imparting the education is very effective.

Table 2 Gain, Actual gain and Retention of knowledge (N=40)

Group	Percent gain in knowledge	Actual gain in knowledge	Percent retention
Experimental group without discussion (N=40)	32.93	32.66	-
Experimental group with discussion (N=40)	70.68	70.40	62.10
Control group (N=40)	0.27	-	-

It is apparent from table 3 that when the relationship between age and nutrition education was assessed, results showed that age was negatively correlated with pre exposure knowledge scores. However, when test was applied between age and post-exposure scores, correlation was found to be positive and significant. Results showed that knowledge related to nutrition was better in younger age groups, but knowledge gained through video film was better among higher age groups. Study conducted by **Hosammi and Sunderswamy (1996)** showed relationship between education and knowledge level. In their study relationship between education and knowledge level was found to be significant. They reported that educated people understand the importance of health, try to know more about the health practices by exposing mass media like T.V. radio etc.

Table 3 Relationship between knowledge scores and independent variables of respondents (N=40)

Characteristics	Correlation between characteristics and nutrition education			
	Pre- exposure		Post – exposure	
	R	t value	r	t value
Age	0.38052	2.53*	0.75949	7.19*
Family size	0.0075	0.046 NS	0.291	1.87 NS
Occupation	0.248381	1.541 NS	0.129711	1.541 NS
Education	0.40182	2.57*	0.77351	7.39*
Per-capita income	0.250268	1.593 NS	0.21086	1.32 NS

* Significant $P \leq .05$

CONCLUSION

It can be concluded that the video film is highly effective in imparting nutrition education to rural women regarding use of dehydrated surplus vegetables into conventional recipes to combat nutritional deficiencies. The programme of nutrition education can be handled by local leaders if they are given proper nutrition education and training.

Nutrition education can be imparted to more groups of rural women with the help of popularized enriched products. Other mass media like television broadcasting on Doordarshan can be further explored. It is possible that the film, if translated into other languages can be useful in educating similar population group of the different parts of the country.

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