Nutrition Education on Anaemia to Adolescent Girls through Video and Folk Songs and Its Impact: A case Study of Two Villages in Transitional Zone between Arid and Semi-Arid Regions

Pratibha Tewari* Kamlesh Pareek and Hemlata Talesra

ABSTRACT: *Present study is an action oriented research plan in which innovative educational tools (video and folk songs) have been used with or without iron folate supplementation to assess the effectiveness of various strategies to increase hemoglobin level and knowledge of various aspects of anaemia on adolescent girls in transitional zone between arid and semi-arid region. The majority of participants in both the study villages were illiterate and anaemic. It appears when nutrition education through innovative instructional tools like, video and folk songs was combined with medical intervention (iron folate supplementation) the target population becomes more receptive, which in turn facilitate adequate follow up of intervention. This ultimately resulted in appreciable increase both in knowledge of anaemia and hemoglobin level of participants. The results also indicated that when education component was combined with iron folate supplementation, the participants succeeded in increasing their hemoglobin level and knowledge on aneamia many folds higher in comparison to simple iron folate supplementation or simple educational treatments. This calls for immediate planning on the part of central and various state government to include nutritional education in form of functional nutrition education in their rural development, poverty alleviation and nutritional intervention programmes.*

Key words: *Adolescent girls, aneamia, folk songs, hemoglobin, iron folate supplementation, nutrition education, video.*

INTRODUCTION

It is generally acknowledged that centrally planned food and nutrition programmes have too often failed to deliver services to most malnourished. Gopalan, (1980) stated that the challenge is how to reach the unreached? For meeting this challenge more attention needs to be paid to impart nutrition education to masses as it appears to be practical and promising in underlying nutritional problems and poverty (Devadas, 1993). Arid western Rajasthan popularly referred as *Thar* desert, is spread in 12 districts of the state and covers an area of 1,95,000 sq km. Pali district where the present study was carried out is located in transitional zone between arid and semi –arid part having total annual rainfall about 400 mm and more. Transitional zone exhibit mix of environmental conditions found in arid and semi-arid zone. Majority of the area of the district is rain-fed and therefore, only single crop i.e. *Kharif* crop is grown except in patches, where some kind of irrigation facilities existed, *Rabi* crop is also taken. The anaemia which effect 30% of the total world population and 60-70 % of Indian population (Gopalan, 1980) is also highly prevalent in arid western Rajasthan (Tewari, 1993). Adolescent girl in arid western Rajasthan are particularly suffering from iron deficiency anaemia and figures may be as high as 80% (Dr. S. L. Chopara-personal communication). National Nutrition policy of India under the "direct intervention strategy" proposes to cover all adolescent girls from poor families in Integrated Child Development Scheme.

To educate vast rural communities regarding importance of nutritional awareness campaigns must have sufficient component of indigenous strategy. In this context, role of different varieties of arts to impart informal education to rural messes can play a very important role. According to Efland (1984) arts have played a numbers of roles in education, social

*   Central Arid Zone Research Institute, Jodhpur-342003; *E-mail: pratibhatewari1@gmail.com*

cohesion and therapy. Present study was conducted to assess the prevalence of iron deficiency anaemia and impact of imparting nutrition education through video and folk songs to adolescent girls of two villages in Pali district which is located in transitional zone between arid and semi-arid region in western Rajasthan.

METHODOLOGY

For designing and executing the present research plan following major aspects have been covered: • sampling, • development of instructional tools • development of test tools, • hemoglobin estimation, • experimental design • execution of research plan and •data analysis. The clusters sampling has been found suitable and accordingly "Gundoj" from Pali Panchayat Samiti and "Nimmera Kalan" from aipur Panchayat Samiti of Pali district were selected for the study. In each village 150 households were taken for preliminary survey considering that a sample of 150 household will be sufficient to select 120 girls of 13 to 18 years age. Village "Gundoj" was located 20 km north-east of Pali district on Delhi- Ahmedabad national highway. The total population of village was 4634, of which 52.5% were male and 47.5% were female. Total area of village 5417 ha, of which 4574 ha was devoted to agriculture. In this village 73.4 % population was illiterate and female literacy rate was only 14.5%. Village Nimmera Kalan was located 77 km north-east of Pali in Pali-Ajmer road (part of Delhi-Ahmedabad national highway). Total population of village 3474, of which 51.5% were male and 49.5 were are female. The village has total land area of 1957 ha, of which 85.7% was devoted to agriculture. Of the total population, 76.9% are illiterates and female literacy was only 13.7%.

A video programme on anaemia was specifically developed for study. After writing and arranging the script of the video, the format was decided it included interview of experts, and explanation of experts regarding cause, prevention and control of anaemia. It also included teaching by doing through demonstration of use of green leafy vegetables and other suitable foods. All these information's are incorporated in a story board as follows:

Shot No.	Time segment	Video	Shot Description	Audio/ Music

The video programme was developed with the close cooperation of Educational Media Research Centre (EMRC) of J.N. V. University, Jodhpur.

The very rich folk music of Rajasthan, especially of *Marwad* region is acknowledge internationally (Dhama and Bhatnagar, 1985). *The Mand, Panihari, Gorbhand* and many story telling form like *Runi chhe ra Dhaniya* are some pre-dominant folk musical style of Rajasthan. According to (Parmar, 1967) their feature are so chiseled that they appeared to be more stable then the spoken languages to which they belong. The songs giving massage of anaemia, and its prevention and treatment were composed on the basis of musical style of 3 prominent folk songs. First one was based on story telling form of the service of *"Baba Ramdev Ji"* a local legendary God like figure, the second one followed by the musical style of *Suvatio (Suva)*, which is much like by women folk. The third song composed followed the famous musical style of *Gorband.*

For the collection of data two different schedules were prepared i.e. primary survey schedule and pre and post knowledge test schedule. The primary survey schedule contains questions on general information of the family, agriculture related information, food habit, health related information and education related information. Pre and post knowledge test schedule were the basic tool to guide the study and therefore, designed very carefully through interactions with selected adolescent girls of both the villages. The questions in this schedule broadly covered four major aspects viz. What is anaemia?, What are reasons responsible for anaemia?, What are the symptoms of anaemia? and what is the treatment of anaemia?.

Nutritional deficiency as a result of inadequate intake of food is major contribution factor of iron deficiency anaemia in women and children. Of the total iron content of the body, 60-70 % is contained in hemoglobin of red blood cells. Though several methods are available for hemoglobin estimation, however, in the present study for the estimation of hemoglobin Sahli's method was used, as for this kind of study it is the most suitable method (Firkin et. al., 1990).

The experimental design for treatments given in selected villages is set on Figure 1. After obtaining formal permission from CMHO, Pali, first of all primary survey was done by contacting adolescent's girls through the heads of the family in each villages. The sample size was of 120 girls in each village. In the village Nimmera Kalan only 114 girls could be available for participation in the study and therefore, rest of 6 girls were selected from nearby village to

make the sample of 120. The selected girls in each villages were subject to pre test by using developed pre and post knowledge test schedule. In both the village the majority of girls were illiterate and even those who attended primary school were not able to read properly. Therefore, pre test knowledge was taken by individually asking the questions set in the schedule to each girl in both the villages. After pre-knowledge test administered, the next step was to make the sub groups of the subject

These girls were divided in three groups of 40-40-40 according to experimental design. The educational treatments in both villages were given under more or less similar condition. The education through video was given in a big room of the village school in the evening hours. Education through folk songs was given to the girls in the court yard of village temple. Once the educational treatments were repeated after fortnight, they were followed by distribution of iron foliate tablets (each tablets containing dessiccated ferrous sulphate 335 mg equivalent to 100 mg of elemental iron and 0.5 mg folic acid) next morning in the presence of medical doctor. Medical doctor instructed the participating girls to take one tablet per day after meals. After 90 days of educational intervention and iron folate tablet distribution, hemoglobin of each participating girl in

each village was estimated. Post –intervention hemoglobin test was followed by the knowledge test of participating girls by filling the schedule through same procedure as was adopted in case of pre-knowledge test. Data collected were subjected to appropriate statistical analysis.

RESULTS

Some background information

In the village Gundoj, and Nimmera Kalan 38.3% and 35.8% participants respectively belong to small family size (less than 5 members) and rest of the participants had more than 5 members in the families. Agriculture is the main occupation of participants' families in both the villages. Majority of the participants' families in both the villages had land holding between 1.0 and 6.0 ha. In Gundoj families of 10% participants' were landless, while same in Nimmera Kalan were 10.8%. Married participants' in Gundoj and Nimmera Kalan were 5.8% and 6.7%, respectively. In both the villages farming system was mixed crop-livestock based. Pearl millet is the main *Kharif* crop and Maize are also sown in limited area. Other crops in *Kharif* season are: Mung bean, Moth bean, Seasum, clusterbean, etc. In *Rabi* season, the mustard was the main crop in the both villages. After mustard gram was highly favoured by the farmers'. However, the area under Rabi crops is very limited because, only source of water is tube wells, which are possessed by very few farmers.

Participants', food habits, health problems and other relevant information

Average age of participating adolescent girls in village Gundoj and Nimmera Kalan was 16.7 and 15.9 years, respectively. In both the villages 80% participants were vegetarian and those responded as non-vegetarian were just occasional non-vegetarians (Table 1). Cereals and pulses were most common daily foods in both the villages. Milk and milk products were observed to be consumed by less than 20% participants in both the villages. Green leafy vegetables and fruits are consumed in very low quantity in both the villages. In village Gundoj 50% participants responded as not having health problem, while the same figure for village Nimmera Kalan was 43.3%. In village Gundoj and Nimmera Kalan only 21.7% and 20.8% participants girls, respectively indicated that they immediately contact to doctor on falling ill. Though majority of selected
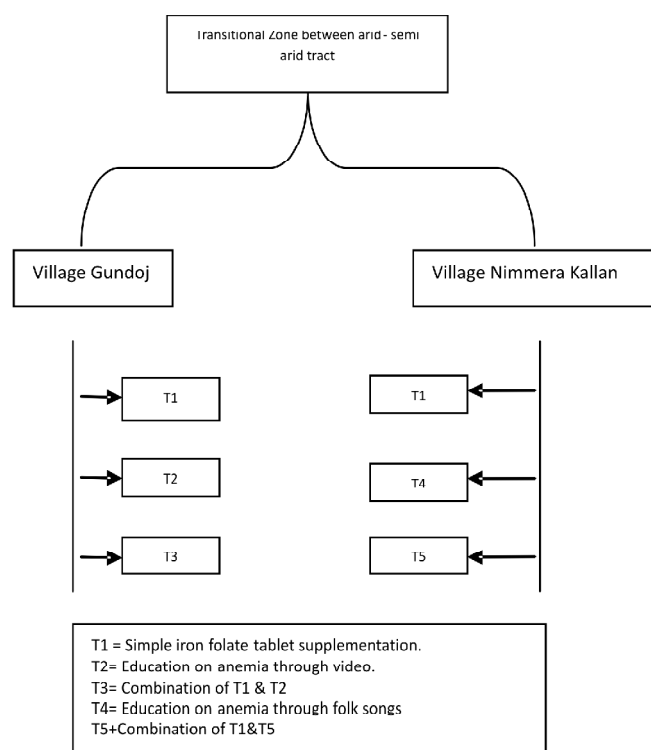

Figure 1: Details of experimental design

participants were illiterates both the villages however, a sizeable chunk of participants in Gundoj (61.7%) and Nimmera Kalan (55.0%) wanted to have some kind of education. On asking what types of programmes are preferred on radio and television, the most common reply was entertaining programmes viz. films, film music, serials and dramas. Only 21.7% and 17.5% participants found to be interested in educational programme on radio and television.

Table 1
Information on participant's food habits, health problems & views about education

Particular	Gundoj (%)	Nimmera Kalan (%)
Food habits[a]		
Vegetarian	98.3 (118)*	95.7 (117)
Non vegetarian	1.7 (2)	2.5 (3)
Common daily foods[b]		
Cereals and pulses	100 (120)	100.0 (120)
Milk and milk products	17.5 (21)	14.2 (17)
Green leafy vegetables	10.0 (12)	8.3 (10)
Other vegetables	28.3 (34)	25.0 (30)
Fuits	1.7 (2)	0.8 (1)
Eggs	0.0 (0)	0.0 (0)
Meat and fleshy food	0.0 (0)	0.0 (0)
Food eaten during pregnancy and lactation in addition to normal food[b]		
Milk	49.2 (59)	45.8 (55)
Butter and Ghee	41.7 (50)	41.7 (50)
Dry fruits	18.3 (22)	20.0 (24)
Traditional medicinal Foods	65.8 (79)	62.2(75)
Excess fruits and vegetables	21.7 (26)	20.8 (25)
Common health problems[b]		
No problem	50.0 (60)	43.3 (52)
Pain in back	10.0 (12)	14.2 (17)
Pain in extremities	1.7 (2)	0.0 (0)
Weakness	30.0 (36)	34.2 (41)
Breathlessness	13.3 (16)	15.0 (18)
Tiredness during normal works	32.5 (39)	37.5 (45)
Doctor helps is sought in case of falling ill[a]		
Immediately	21.7 (26)	20.8 (25)
After 3-4- days	53.3 (64)	55.0 (66)
After 7 days	20.0 (24)	20.8 (25)
Never	5.0 (6)	3.3 (4)
Views regarding education[a]		
Want to study	61.7 (74)	55.0 (66)
Do not want to study	38.3 (46)	45.0 (54)
Type of education desired[c]		
Formal	40.6 (30)	31.8 (21)
Informal	21.6 (126)	16.7 (11)
Non- formal	37.8 (28)	15.5 (34)
Programme preferred on TV/ radio[a]		
Entertainment	57.5 (69)	58.3 (70)
Educational	21.7 (26)	17.5 (21)
Both	20.8 (25)	24.3 (29)

a = percentage were computed on the individual response of participants (one participants, one response)
b= Percentages were computed on the basis of multiple responses of participants (one participants may have more than one response)
c= Percentages were computed only on the basis of participant having affirmative response (one participants may have more than one response)
*= value of parenthesis indicate number of participants

Hemoglobin levels of participants and impact of interventions

Major aim of present study was to analyze impact of iron supplementation, nutritional education and combination of iron supplementation and nutrition education on hemoglobin level of participants. Data on pre and post intervention hemoglobin level of participants at individual village level are set in Table 2.

Table 2
Mean haemoglobin level of participants' before and after the treatments in each village

Village/ treatment	Pre treatment			Post treatment		
	Mean (g/100ml)	Std Error (±)	Range	Mean (g/100ml)	Std Error (±)	Range
Gundoj						
T1	8.81	0.08	8.0-9.9	10.04	0.08	9.0-11.0
T2	8.71	0.09	8.0-9.7	9.51	0.10	8.0-10.5
T3	8.77	0.07	8.0-9.6	11.113	0.07	9.8-11.8
Nimmera Kalan						
T1	8.68	0.05	8.0-9.3	9.43	0.06	8.5-10.3
T4	8.69	0.07	8.0-9.7	9.46	0.09	8.5-10.5
T5	8.50	0.06	8.0-9.3	9.91	0.12	8.8-11.7

T1= Simple iron folate tablet supplementation; T2= Education and anaemia through video; T3 = Combination of T1 & T2; T4= Education on anaemia through folk songs; T5 = Combination of T1 & T 4

The treatments employed in village Gundoj were T1, T2 and T3. In this village pre- treatment mean hemoglobin level of participants ranged from 8.71 g/100 ml (T2) to 8.8 g/100 ml (T1). The post- intervention mean hemoglobin value exhibited an increase of 13.9, 9.2% and 25.5% in treatment group T1, T2 and T3, respectively. Thus, post intervention range of hemoglobin level of participants showed an appreciable improvement in each treatment group. In second village i.e. Nimmera Kalan the treatments employed where T1, T4 and T5. The pre-treatment mean range of hemoglobin level of participants was 8.68 g /100 ml, 8.69 g/100 and 8.50 g/ 100 ml in treatment T1, T4 and T5, respectively. The post-treatment mean range of hemoglobin level of participants in treatment T1, T4 and T5 showed an increase of 8.6% , 8.9% and 16.5%, respectively over the pre-treatment values. From the findings it was evident that all the treatment employed improved hemoglobin level of the participants.

The chronic problem of anaemia in adolescent girls of arid western Rajasthan villages is related to malnutrition in larger extent (Tewari 1993). The common treatment i.e., T1 given in both villages which also served as blind control (simple iron folate tablet supplementation) improved the hemoglobin level to some extent. Treatment T2 i.e., (education on anaemia through video) and T4 (education on anaemia through folk songs) which were educational strategies also succeeded in improving hemoglobin level of participants. The combination of education on anaemia through video and iron foliate supplementation (Treatment –T3) and the combination on anaemia through folk songs and iron foliate supplementation (Treatment– T5) were found to be most effective for increasing the hemoglobin level of participants in the village where the treatment was employed. It is crystal clear from the data that though only iron supplementation and only education had some impact on improvement of hemoglobin level of participants in both the selected villages however, the combination of iron supplementation with educational strategies had dramatic effect on improving the hemoglobin level of participating adolescent girls.

Frequency distribution under different limits of hemoglobin

To analyze the trend of hemoglobin level ranges in which the participants were distributed in each village before the interventions and impact of intervention on these ranges light arbitrary classes of hemoglobin ranges (each class had a difference of 0.50 g / 100 ml) were formed taking minimum pre-treatment value as lower extreme and maximum post-treatment value as upper extreme value. In village Gundoj , majority of participants in each treatment groups before intervention were distributed in hemoglobin range classes of 8.00 g /100 ml, 8.5 g/100 ml and 9.00- 9.50 g/100 ml (Table 3). After the treatment T1 was administered, the majority of participants improved their hemoglobin level and shifted into higher range classes i.e. 9.50 g /100ml (20%), 10.00 g/100 ml (37%) and 10.50 g/100 (25%). In treatment T2, 55%

Table 3
Improvement in participants' frequency distribution pattern under different class limits of hemoglobin different treatment at village Gundoj (in each case N=40)

Class limits of hemoglobin (g/100 ml)	Treatment 1		Treatment 2		Treatment 3	
	Pre	post	Pre	Post	Pre	post
8.00 - <8.50	11	0	14	1	9	0
8.50- <9.00	6	0	7	5	11	0
9.00-<9.50	20	3	13	10	20	0
9.50 - <10.0	3	11	6	12	0	1
10.0 - <10.50	0	15	0	8	0	0
10.50 – <11.0	0	10	0	4	0	7
11.0 - <11.50	0	1	0	0	0	20
11.50 -<12.00	0	6	0	0	0	12

T1= Simple iron foliate tablet supplementation; T2= Education and anaemia through video; T3 = Combination of T1 & T2.

participants did not show any improvement in their hemoglobin range class limit however, rest of the participant improved class limits of hemoglobin range and of them 20% were placed in hemoglobin class range of 10.00 g/100 ml and 10% in the hemoglobin class range of 10.50 g/100 ml.

The maximum improvement in hemoglobin class limits was noticed in treatment T3 (where education on anaemia was given with combination of iron foliate supplementation). It is very interesting that in this treatment group before intervention cent percent participants belong to hemoglobin range classes between 8.00 g/100 ml and 9.50 g/100 ml.

However, after intervention 97 % participants transferred into hemoglobin classes between 10.50 to 12.00 g / 100 ml. In Nimmera Kalan the trend of Pre- hemoglobin range class limits distribution was similar to that of village Gundoj (Table 4). After intervention through treatment, T-3, 72.5% participants shifted to 9.5 to 12.00 g/ 100 ml hemoglobin classes. Before intervention 100 % participants in this treatment group were in hemoglobin range classes between 8.00 to 9.50 g/ 100 ml. In treatment, T1 and T2 increase in hemoglobin range classes between pre and post intervention was also evident.

Table 4
Improvement in participants' frequency distribution pattern under different class limits of hemoglobinin different treatment at village Nimmera Kalan (in each case N=40)

Class limits of hemoglobin(g/100 ml)	Treatment 1		Treatment 2		Treatment 3	
	Pre	post	Pre	Post	Pre	post
8.00 - <8.50	10	0	11	0	19	0
8.50- <9.00	20	4	16	10	14	2
9.00<9.50	10	17	11	8	7	9
9.50 - <10.0	0	13	2	11	0	11
10.0 - <10.50	0	6	0	9	0	11
10.50 – <11.0	0	0	0	2	0	4
11.0 - <11.50	0	0	0	0	0	2
11.50 -<12.00	0	0	0	0	0	1

T1= Simple iron foliate tablet supplementation; T2= Education and anaemia through video; T3 = Combination of T1 & T2.

Table 5 and 6 indicated summary of analysis of variance (ANOVA) of village Gundoj and Nimmera Kalan, respectively. The "F" ratio values in each village for the hemoglobin level of participants found to be significant, indicating there by that some methods are significantly different from each other in their effectiveness. On glancing Table 2 in village Gundoj post-treatment hemoglobin value of participants (i.e. in treatment T1, T2 and T3) differ

significantly from each other (LSD at 5% level was 0.22). However, in village Nimmera Kalan there was no significant difference in post-treatment hemoglobin value of participant in treatment T1 and T4, but treatment T5 exhibited significant differences from treatment T1 and T4 (LSD at 5% level was 0. 24 in this case). Analysis of variance of post-treatment hemoglobin values of participants in each village statistically proved the treatment T3 (combination of

Table 5
Analysis of variance (ANOVA) for post treatment hemoglobin values of participants under different treatment at village Gundoj

Source	DF	Sum of squares	Mean squares	F- ratio
Between	2	54.511	27.256	106.111
Within	117	30.053	0.257	
Total	119	84.564		

LSD at 5% level = 0.22

Table 6
Analysis of variance (ANOVA) for post treatment hemoglobin values of participants under different treatment at village Nimmera Kalan

Source	DF	Sum of squares	Mean squares	F- ratio
Between	2	5.722	2.2861	8.949
Within	117	37.408	0.320	
Total	119	43.130		

LSD at 5% level = 0.24

education on anaemia through video and iron folate supplementation) was most effective intervention. Through this intervention maximum improvement in participants' hemoglobin level could be achieved.

Participants' knowledge level of anaemia and impact of interventions

It was very important to analyze knowledge gained by the participants on anaemia, its causes of occurrence, and strategies for prevention and treatment. The data on pre and post intervention knowledge score are set in Table 7. In treatment T1 (simple iron folate supplementation) was common to both the selected village and no knowledge was imparted to selected participants. The post treatment knowledge test score revealed that participants had slightly improved their level of knowledge in respect to the problem of anaemia. In knowledge scale of 0-24 adopted in present studies, the pre- treatment mean knowledge test score of participants in treatment T1 at village Gundoj and Nimmera Kalan was 12.0 % and 9.4 %, respectively. However, post treatment mean knowledge of participants in this treatment group at village Gundoj and Nimmera Kalan was 19.7 % and 15.0 %, respectively.

In the treatment T2, the knowledge test of participants before intervention in 0-24 scale at village Gundoj was 9.4% which after intervention increased to 52.8%. In village Nimmera Kalan, in treatment T4 before intervention knowledge test score of participants was 7.3 %, which after intervention increased to an extent of 41.5 % in same scale. When educational treatments were combined with iron folate supplementation (treatment T3 and T5) the gain in knowledge of anaemia exhibited to maximum improvement in both the villages. The summary of analysis of variance (ANOVA) of participants in village Gundoj and Nimmere Kalan are set in Table 8 and 9. 'F' ratio values in each village for gain in knowledge (in terms of knowledge score) were found to be significant for both the villages. This indicated that some methods significantly differ from each other in their effectiveness to impart the education on anaemia.

Table 7
Mean knowledge test score of participants' before and after the treatments in each village

Village/ treatment	Pre treatment			Post treatment		
	Mean (Score)	Std Error (±)	Range	Mean (Score)	Std Error (±)	Range
Gundoj						
T1	2.90	0.29	0.0-6.0	4.72	0.35	0.0-8.0
T2	2.27	0.29	0.0-6.0	12.67	0.31	9.0-17.0
T3	2.22	0.28	0.0-6.0	14.82	0.54	7.0-21.0
Nimmera Kallan						
T1	2.02	0.31	0.0-8.0	3.60	0.36	0.0-8.0
T4	1.77	0.28	0.0-5.0	9.95	0.28	3.0-15.0
T5	1.82	0.29	0.0-6.0	12.85	0.39	9.0-18.0

T1= Simple iron folate tablet supplementation; T2= Education and anaemia through video; T3 = Combination of T1 & T2; T4= Education and anaemia through folk songs; T5 = Combination of T1 & T 4

Table 8
Analysis of variance (ANOVA) for post treatment knowledge test score of participants under different treatments at semi- arid village Gundoj

Source	DF	Sum of squares	Mean squares	F- ratio
Between	2	2264.467	1132.233	169.271
Within	117	780.525	6.671	
Total	119	3044.992		

LSD at 5% level = 01.13

Table 9
Analysis of variance (ANOVA) for post treatment knowledge test score of participants under different treatments at semi- arid village Nimmera Kalan

Source	DF	Sum of squares	Mean squares	F- ratio
Between	2	1790.600	895.300	131.827
Within	117	794.600	6.791	
Total	119	2585.200		

LSD at 5% level = 01.43

These data clearly indicated that education tool like video or folk songs for imparting education on anaemia and iron supplementation had greater impact in terms of knowledge gain of participating adolescent girls. Menon *et al.* (1982) observed at rural women often gained more knowledge regarding nutrition by combination of two methods than the use of one method alone.

DISCUSSION

Though mass media like, video have been tried with great success in many countries (Dave *et al.*, 1995) and in India also (Chouhan and Sinha, 1979). In disseminating knowledge regarding specific problems or in specific subject to rural folks, but not a single study is available from India in which various method like present one was used to assess the impact on education level of the subject and improvement in the attitude and behaviors in respect to specific action. Kumar (1992) in his paper on video's potential and their utilization in extension project discussed that innovative educational tool like video has also been proved very effective in educating illiterate rural folk regarding importance of nutrition in Philippines. On comparing the impact of nutrition education on anaemia through video with supplementation of iron folate and impact of traditional medium like folk songs as instruction tool for nutrition education on anaemia also with iron supplementation, it was discernible that former strategy was more effective in terms of both knowledge gain and improvement of hemoglobin level of participating adolescent girls.

It was very interesting that when in treatment group T1 education on anaemia was not imparted at all, how the participant of this treatment group in each village improved their education level? Detailed discussion with participants of this group in both the villages after completion of the study revealed that this amount of knowledge was gained by the participants through the medical doctor, when he advised them how to take the iron folate tablet at the time of distribution. This indicated that even little bit communication about nutritional disorder enhanced the knowledge of illiterate rural folk.

If nutrition education component could be amalgamated in large scale national / state level nutrition supplementation programme (for different type of nutritional disorder) and other developmental schemes especially, targeted towards rural communities (in form of simple functional knowledge of nutrition) will definitely prove highly effective. Pushpamma (1984) while discussing the role of women of being both the focus and means on nutrition education had the similar view regarding integration of nutrition education in government run development scheme for rural upliftment.

It is very disgusting that despite providing all the nutrition supplementation in priority areas of concern and even financial assistance after independence to improve the health and nutritional status of rural folk especially, children and women, these programmes did not work up to a satisfactory level. Now the question is what are the drawbacks for failure of these noble schemes? The reason was better explained about more than three decades back by (Gopalan 1980), who stated that these programmes always emphasized on feeding rather than educating the masses to change their food habit. Anaemia is

increasing with rapid pace especially, in adolescent girls, pregnant and lactating mother, and children in this part of the country. Correction of the disorder causing the anaemia is of paramount importance. It varies from simple measure, such as correction of dietary faults and simple oral iron administration to major surgical procedures to correct the cause of blood loss (Firkin *et al.*, 1990). The majority of patients of nutritional anaemia respond quickly to oral iron supplementation and correction of dietary faults. The major objective of such iron therapy are to restore hemoglobin level to normal and to replenish exhausted tissue are to store. In rural areas, where illiteracy prevails, it is very essential to first educate the people regarding this disorder and only then success of supplementation programmes can be ensured. It has been well established that simple functional nutrition education programmes significantly change the attitude and practice of target population of rural communities in nutritional front (Devadas 1984; Muthiah Manoharan 1988).

The results of present study clearly demonstrated that when innovative educational tools like video and folk songs were used in combination of iron folate supplementation, the participants gained maximum nutrition knowledge on anaemia and as well as improved their hemoglobin level substantially.

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