



RESEARCH ARTICLE

A STUDY TO ASSESS THE EFFECTIVENESS OF VIDEO ASSISTED TEACHING MODULE (VATM) ON KNOWLEDGE AND PRACTICE AMONG MOTHERS REGARDING IDENTIFICATION AND MANAGEMENT OF DANGER SIGNS (IMNCI) IN YOUNG INFANTS - A PILOT STUDY

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ABSTRACT

Introduction: It has also been noted that one-third of all neonatal deaths occur on the first day of life, almost half within 3 days & nearly three-quarters within the first week of life. In developing countries, about 34 of every 1000 live births result in neonatal death. The primary cause of neonatal deaths are sepsis (52%) which includes pneumonia, meningitis, neonatal tetanus, diarrhoea, birth asphyxia (20%) and others (13%). Lack of specificity of the clinical manifestation of various neonatal condition has been noted, resulting in difficulty in making a definitive diagnosis, delay in seeking health care and resultant high mortality. It is necessary for the caregivers & health-care providers to recognize the danger signs in a sick neonate and thereafter seek the appropriate level of health care, which in turn would reduce mortality.

Methodology: Quantitative research approach with pre and post control group design was chosen for the study. Non probability purposive sampling technique was used for selecting the sample size of 40. Structured knowledge questionnaire was used for assessing the knowledge and checklist was used for practice. Pretest was done with the tool and on the same day VATM was administered. After 7 days and one month of pre test, post-test was done with the same tool.

Results: The post- test mean knowledge score (31.80) was higher than the pre test mean score (18.30). The post- test mean practice score (12.20) was higher than the pre test mean score (6.75). Association was found with age of the mother, educational status and order of the child.

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INTRODUCTION

Child health has remained as the essential component of most of the national programmes in India. Globally 10 million children die annually before their fifth birthday, most of them in the neonatal period. More than 98% of these deaths occur in developing countries, almost half of the deaths in under five-years old occur in infancy. Of the infant deaths, about two-third occur in the neonatal period. It has also been noted that one-third of all neonatal deaths occur on the first day of life, almost half within 3 days & nearly three-quarters within the first week of life. In developing countries, about 34 of every 1000 live births result in neonatal death. Projections based on the 1996 analysis the Global burden of disease indicates that these conditions will continue to be the major contributors to child health till the year 2020, unless significantly greater efforts are made to control them. In response to this, it was

recognized that there was a need for an integrated approach in order to manage the child in a holistic manner. WHO in collaboration with UNICEF responded to this challenge by developing a strategy known as integrated management of childhood illness (IMCI). In order to address the reduction in neonatal morbidity and mortality India's IMCI adaptation committee developed a strategy as integrated management of neonatal and childhood illness (IMNCI). In recent times IMNCI strategy has emerged as a promising approach where neonatal period has identified as an essential entry point for interventions to reduce neonatal mortality rates. IMNCI aims to reduce death, illness and disability and to promote improved growth and development among children who are under five years of age. IMNCI includes both preventive and curative elements that are implemented by families, communities as well as by health facilities. Neonatal illness exhibits a rapid course of progressive and can prove to be fatal if not identified and treated correctly in a timely manner. Inadequate care-seeking has been reported for neonates delivered at home. Worldwide the mortality in children less than five years is 7.7

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million deaths in 2010, consisting of 3 million neonatal deaths, 2.3 million post neonatal deaths 2.3million childhood deaths (1-4years).Four million neonatal deaths occur globally every. Every year 5.7 million babies die during their first 4 weeks of life. In India neonatal mortality rate is 44per 1000 live births. In Tamilnadu the current neonatal mortality accounts for 49.5 per 1000 live births (WHO 2009).

Need for the study

The primary cause of neonatal deaths are sepsis(52%) which includes pneumonia, meningitis, neonatal tetanus, diarrhoea), birth asphyxia (20%)and others(13%).Lack of specificity of the clinical manifestation of various neonatal condition has been noted, resulting in difficulty in making a definitive diagnosis, delay in seeking health care and resultant high mortality (WHO 2009). However, the integrated management of Neonatal and childhood illness (IMNCI) approach has attempted to provide a standard case definition of various neonatal condition, for e.g. Neonatal sepsis, jaundice and pneumonia, based on the presence of certain clinical sign. For effective implementation of IMNCI strategy it is necessary for the caregivers &health-care providers to recognize the danger signs in a sick neonate and thereafter seek the appropriate level of health care, which in turn would reduce mortality. There is an urgent need to train immediate neonatal caregivers, like mothers under IMNCI programme. This would ensure prompt recognition of neonatal danger signs &consequently appropriate medical care seeking.

Statement of the problem

A study to assess the effectiveness of Video Assisted Teaching Module (VATM) on knowledge and practice among mothers regarding identification and management of danger signs (according to IMNCI) in young infants.

Objectives

- To assess the knowledge and practice of mothers regarding identification and management of danger signs in young infants in both groups.
- To assess the effectiveness of video assisted teaching module on knowledge and practice of mothers regarding identification and management of danger signs in young infants in experimental group
- To find out the association between knowledge of mothers regarding identification and management of danger signs in young infants with selected demographic variables.
- To find out the correlation between knowledge and practice of mothers regarding identification and management of danger signs in young infants.

Hypothesis

- H₁**-There will be a significant difference between posttest knowledge score of mothers in experimental and control group on identification and management of danger signs in young infants.
- H₂**- There will be a significant difference between posttest practice score of mothers in experimental and control group on identification and management of danger signs in young infants.

H₃- There will be a significant association between posttest knowledge score of mothers and socio demographic variables in experimental group.

H₄- There will be a significant correlation between knowledge and practice of mothers on identification and management of danger signs in young infants in experimental group.

Research approach and design

Quantitative approach with pre and posttest control design will be used for the study. It is a formal, objective, systematic process used to describe variables, test relationships between them and examine cause- and- effect interactions among variables. There is no randomization, only control group will be taken and intervention will be given to the experimental group.

Setting: The setting selected for the study is St. Joseph of Cluny hospital, Tindivanam.

Population: All mothers having young infants up to 2 months of age and attending outpatient department of St. Joseph of Cluny hospital, Tindivanam, and also who are admitted in the postnatal wards.

Sampling technique: Non probability purposive sampling technique was used.

Sample: Mothers having young infant upto two months of age and meeting the inclusion criteria.

Sample size: 20 in experimental group and 20 in control group

Criteria for sample selection

Inclusion criteria

- Young infant (0-2) months
- Both male and female child.
- Mothers in the post natal ward having young infant
- Mothers attending pediatric outpatient department in selected hospitals.
- Mothers who can read and understand Tamil.

Exclusion criteria

- Young infant attending well baby clinic
- Children who are acutely ill

Development of the tool

The tool was prepared based on review of literature and experts opinion. It consists of 3 sections.

Section A: consisting of demographic data of the young infant and the mother which includes age ,sex, religion, place of residence, number of children in the family, occupation of the father and mother, order of the child, literacy level of the mother, etc.

Section B: Includes structured knowledge questionnaire on identification and management of danger signs based on IMNCI guidelines such as questions related to bacterial infection, jaundice, diarrhea, malnutrition/feeding problems. Totally it has 43 questions equally distributed to

all the danger signs. Each question is given a score of 1 for correct response and 0 for wrong answer. Total score is 43.

Section C: Includes a check list to assess the practice of mothers on ORS preparation, and breastfeeding techniques based on IMNCI guidelines. Totally it has 16 items. Each item is given a score of 1 for correct practice and 0 for wrong practice. Total score is 16.

Consent was obtained from the study participants by explaining the purpose of the study clearly and also by assuring confidentiality of the data that will be collected. Samples were chosen by non-probability purposive sampling technique in experimental and control group. Data collection was carried out using predesigned structured questionnaire for knowledge and checklist for practice.

Step 1: pre and posttest for control group Structured knowledge questionnaire and practice checklist was administered individually to the control group and after 7 days posttest was assessed by using the same structured knowledge questionnaire and practice checklist. The time taken to complete the pretest is 20 minutes.

Step 2: pre and posttest for experimental group-- Pretest assessment of knowledge and practice was carried out by using the structured knowledge questionnaire and checklist on practice. Everyday 5samples was chosen and on the same day VATM was administered. After 7 days of VATM posttest assessment was carried out using the same tool which was used for the pretest.

Step 3: posttest2 for experimental group and control group. -- After 1 month posttest 2 was done for both groups. The data obtained were compiled for data analysis.

Data analysis and interpretation

Table 1. Demographic variables of mothers

		N= 40			
		Group			
Demographic variables		Experiment (n=20)		Control (n=20)	
		n	%	n	%
Age	< 25 years	12	60	10	50
	26 -30 years	8	40	10	50
Religion	Hindu	18	90	18	90
	Christian	1	5	1	5
	Muslim	1	5	1	5
Education of mother	No formal education	1	5	2	10
	Middle school	10	50	5	25
	Higher secondary	6	30	7	35
	Graduate	3	15	6	30
Occupation of mother	Coolie	8	40	6	30
	Private employee	1	5	1	5
	Government employee	1	5	1	5
	Home maker	10	50	12	60
Place of residence	Urban	17	85	15	75
	Rural	3	15	5	25
Type of family	Nuclear family	13	65	9	45
	Joint family	7	35	11	55
Monthly income	< Rs.3000	3	15	4	20
	Rs.3001 - 8000	11	55	5	25
	Rs.8001 - 13000	4	20	10	50
	> Rs.13000	2	10	1	5
Source of information	Mass media	2	10	1	5
	News paper	3	15	1	5
	Medical personnel	15	75	18	90
What is the type of delivery?	Normal delivery	14	70	10	50
	LSCS	6	30	10	50

Regarding feeding practices, in both groups only 2 mothers initiated breast feeding within ½ hour of birth and 18 in 1 hour. 5mothers in experimental and 4 in control group have fed their infants in 24 hours and 6 mothers in experiment group and 3 in control group fed only on the second day due to respiratory discomfort in the newborn. Prelacteal feeds were given by 7 mothers in experiment group and 5 in control group. Regarding the age of the child, most of them were in the age group of 0-2 weeks and gender distribution was equal (50%) in both groups. Majority of young infants were weighing between 2.5 -3.0 kg and nearly ¾ were second child of their family. During pretest, in experiment group, 70.0% of the mothers were having inadequate level of knowledge, 30% of the mothers were having moderate level of knowledge and none of the mothers were having adequate level of knowledge.

Table 2. Feeding practices

		N= 40			
		Group			
		Experiment(n=20)		Control(n=20)	
		n	%	n	%
When did you initiate breast feeding?	Within ½ hour	2	10	2	10
	Within 1 hour	7	35	11	55
	Within 24 hours	5	25	4	20
Did you give prelacteal feeds?	2nd day	6	30	3	15
	Yes	7	35	5	25
	No	13	65	15	75
	Glucose water	3	15	1	5
	Honey	1	5	1	5
	lactogen	3	15	3	15

Table 3. Children information

		N= 40			
		Group			
Variables		Experiment(n=20)		Control(n=20)	
		n	%	n	%
Age of child	0 -2 weeks	17	85	16	80
	3 -4 weeks	3	15	4	20
Sex of child	Male	10	50	7	35
	Female	10	50	13	65
Weight of child	< 2.5 kg	6	30	3	15
	2.5 -3.0 kg	10	50	12	60
	3.0 -3.5 kg	4	20	5	25
Order of child	1st child	5	25	5	25
	2nd child	13	65	14	70
	3rd child	2	10	1	5

Table 4. Pretest level of knowledge score

		N= 40				
		Group				
		Experiment		Control		Chi square value
		n	%	n	%	
Inadequate		14	70	15	75	$\chi^2=0.12$ p=0.72 DF=2 not significant
Moderate		6	30	5	25	
Adequate		0	0	0	0	

Table 5. Post-test1 level of knowledge score

		N= 40				
		Group				
		Experiment		Control		Chi square value
		n	%	n	%	
Inadequate		1	5	15	75	$\chi^2=17.19$ p=0.001*** DF= 2 significant
Moderate		15	75	5	25	
Adequate		4	20	0	0	

Table 6. Post-test2 level of knowledge score

		N= 40				
		Group				
		Experiment		Control		Chi square value
		n	%	n	%	
Inadequate		0	0	14	70	$\chi^2=25.06$ p=0.001*** DF= 2 significant
Moderate		7	35	6	30	
Adequate		13	65	0	0	

In control group, 75% of the mothers were having inadequate level of knowledge, 25% of the mothers were having moderate level of knowledge and none of the mothers were having adequate level of knowledge. Statistically there was no significant difference in knowledge between experiment and control group.

practice and none of the mothers were having good level of practice score. In control, 70.0% of the mothers were having poor level of practice, 30.0% of the mothers were having moderate level of practice and none of the mothers were having good level of practice score.

Table 7. Pretest, Post_test1 and post-test 2 knowledge score (Experiment group)

S. No	Domains	Pre-test		Post-test1		Post-test2		Mean difference	Repeated measures Fried man test
		Mean	SD	Mean	SD	Mean	SD		
1	General information	2.15	.88	2.65	.93	3.30	.86	1.15	$\chi^2=14.65$ P=0.001***
2	Bacterial infection	4.45	1.47	6.80	1.28	7.35	1.98	2.9	$\chi^2=24.02$ P=0.001***
3	Jaundice	2.05	1.36	3.55	.76	3.80	1.01	1.75	$\chi^2=14.84$ P=0.001***
4	Diarrhoea	5.75	2.65	9.65	2.43	9.60	2.66	3.85	$\chi^2=21.71$ P=0.001***
5	Feeding problem	3.90	1.37	6.80	2.46	7.75	1.45	3.85	$\chi^2=21.94$ P=0.001***
	Total	18.30	4.23	29.45	4.16	31.80	5.03	13.50	$\chi^2=32.39$ P=0.001***

N= 40

Table 8. Pretest, Post_test1 and post-test 2 knowledge score (Control group)

S. No	Domains	Pre-test		Post-test1		Post-test2		Mean difference	Repeated measures Friedman test
		Mean	SD	Mean	SD	Mean	SD		
1	General information	2.05	.94	2.25	.72	2.35	.81	0.3	$\chi^2=4.33$ p=0.11
2	Bacterial infection	3.90	1.07	4.15	1.04	4.25	1.62	0.35	$\chi^2=3.25$ p=0.19
3	Jaundice	2.15	.93	2.60	.99	2.75	1.25	0.6	$\chi^2=4.22$ p=0.12
4	Diarrhoea	5.50	1.79	5.75	1.92	5.85	1.84	0.35	$\chi^2=5.65$ p=0.09
5	Feeding problem	4.50	1.70	5.00	1.84	5.10	1.83	0.6	$\chi^2=3.21$ p=0.20
	Total	18.10	4.20	19.75	3.09	20.30	2.43	2.2	$\chi^2=5.77$ p=0.08

N= 40

In experiment group, 5.0% of the mothers were having inadequate level of knowledge, 75.0% of the mothers were having moderate level of knowledge and 20% of the mothers were having adequate level of knowledge score. In control group, 75.0% of the mothers were having inadequate level of knowledge, 25.0% of the mothers were having moderate level of knowledge and none of the mothers were having adequate level of knowledge score. Statistically there was a significant difference in knowledge between experiment and control group. In experiment group, none of the mothers were having inadequate level of knowledge, 35% of the mothers were having moderate level of knowledge and 65% of the mothers were having adequate level of knowledge score. In control group, 70.0% of the mothers were having inadequate level of knowledge, 30.0% of the mothers were having moderate level of knowledge and none of the mothers were having adequate level of knowledge score. Statistically there was a significant difference in knowledge level between experiment and control group. The total mean score in pretest was 18.30 with the standard deviation of 4.23 and in post test I it was 29.45 with the standard deviation of 4.16 and in posttest II the mean was 31.80 with the standard deviation of 5.03. Mean difference was found to be 13.50. Statistically there is a significant improvement in the knowledge score at p<0.001 level of significance. In all domains, mean difference score between base line and post-test2 was small and it is not statistically.

Statistically there was no significant difference in practice between experiment and control group during the pretest.

Table 9. Pretest level of practice score

	Group				Chi square value
	Experiment		Control		
	n	%	n	%	
Poor	13	65.0%	14	70.0%	$\chi^2=0.11$ p=0.74 DF= 1 not significant
Moderate	7	35.0%	6	30.0%	
Good	0	0.0%	0	0.0%	

N= 40

Table 10. Post-test1 level of practice score

	Group				Chi square value
	Experiment		Control		
	n	%	n	%	
Poor	3	15.0%	14	70.0%	$\chi^2=14.12$ p=0.001*** DF= 2 significant
Moderate	12	60.0%	6	30.0%	
Good	5	25.0%	0	0.0%	

N= 40

In experiment, 15.0% of the mothers were having poor level of practice, 60.0% of the mothers were having moderate level of practice and 25% of the mothers were having good level of practice score. In control, 70.0% of the mothers were having poor level of practice, 30.0% of the mothers were having moderate level of practice and none of the mothers were having good level of practice score. Statistically there was a significant difference in practice between experiment and control group.

Table 11. Post-test2 level of practice score

	Group				Chi square value
	Experiment		Control		
	n	%	n	%	
Poor	0	0.0%	14	70.0%	$\chi^2=26.00$ p=0.001*** DF= 2 significant
Moderate	7	35.0%	6	30.0%	
Good	13	65.0%	0	0.0%	

N= 40

In experiment, none of the mothers are having poor level of practice, 35% of the mothers are having moderate level of practice and 65% of the mothers are having good level of practice score. In control, 70.0% of the mothers are having poor level of practice, 30.0% of the mothers are having moderate level of practice and none of the mothers are having

In experiment, 65.0% of the mothers were having poor level of practice, 35% of the mothers were having moderate level of

good level of practice score. Statistically there is a significant difference between experiment and control group. It was confirmed using chi square test. On an average, among experiment, in posttest, mothers have gained 31.3% of knowledge after VATM and in control group it is only 5.1%.

Table 12. Effectiveness of VATM on knowledge

		Maximum score	Mean \pm SD	Knowledge gain score	% of Knowledge gain score
Experiment	Pre-test	43	18.30 \pm 4.23	13.5	31.3%
	Post test	43	31.80 \pm 5.03		
Control	Pre-test	43	18.10 \pm 4.24	2.2	5.1%
	Post test	43	20.30 \pm 2.43		

N= 40

Table 13. Effectiveness of VATM on practice

		Maximum score	Mean \pm SD	Practice gain score	% of Practice gain score
Experiment	Pre-test	16	6.75 \pm 3.42	5.45	34.1%
	Post test	16	12.20 \pm 1.61		
Control	Pre-test	16	6.50 \pm 2.12	0.9	5.5%
	Post test	16	7.40 \pm 1.82		

N= 40

On an average, among experiment group, in posttest, mothers have gained 34.1% of practice score after VATM and in control group it is only 5.5%.

Association

Significant association was found between knowledge gain score and demographic variables like mothers of increased age, nuclear family, and information from medical personnel, mothers who have given prelacteal feds, and increase in the order of the child at $p < 0.05$ level of significance.

DISCUSSION

Objective 1

In pretest 70% of mothers in experimental group and 75% in control group had inadequate knowledge and 65% of mothers in experimental group and 70% in control group had poor practice on identification and management of danger signs like bacterial infection, jaundice, diarrhea and feeding problem in young infants. This is similar to the findings of Jacob Sandberg *et al.* (2014), who identified "inadequate knowledge of neonatal danger signs among recently delivered women". In this study out of 765 recently delivered women, 58.3% of mothers had knowledge on only one of the key danger signs and only 14.8% could name at least two danger signs. The most common danger sign was fast breathing and difficulty feeding which was recognized by 30% of women and only 20% has given the response of fever and difficulty feeding as danger sign.

The least known danger signs were convulsions, movements only when stimulated and hypothermia stated by less than 5% of respondents. The findings showed poor understanding of danger signs by the mothers. Mohd Haroon Khan *et al.*, (2014) found the "knowledge of pregnant women about danger signs in newborns requiring medical consultation". The result showed that correct knowledge about cold to touch was present in 14% mothers whereas correct knowledge of hot to touch and chest in drawing were present in 91% and 74.5% mothers respectively. Only 37% mothers had correct knowledge regarding loose stool, 43% on drainage of pus from umbilicus

and 36% on convulsions, 32.5% on multiple boils and only 25.5% had correct knowledge on palm and sole yellow. It was concluded that there is a poor knowledge of pregnant women about danger signs in newborns requiring medical attention.

Objective 2

The total mean score of knowledge in pretest was 18.30 with the standard deviation of 4.23 and in post test I it was 29.45 with the standard deviation of 4.16 and in posttest II the mean was 31.80 with the standard deviation of 5.03. Mean difference was found to be 13.50. Statistically there was a significant improvement in the knowledge score at $p < 0.001$ level of significance. Hence the stated research hypothesis H_1 was accepted. Among experiment group, in posttest, mothers have gained 34.1% of practice score after VATM and in control group it is only 5.5% which proved that the research hypothesis H_2 was accepted. Geetarani Nayak (2014) reported that highly significant difference was found between pre & post test score as evident by "t" value of 5.8 with a mean difference 0.9. She also revealed that 84% mothers had shown correct position following intervention as compared to 30% mothers, whereas 90% of mothers had shown improvement in attachment following intervention, which is similar to the study conducted by Gupta Madhu (2008), where she reported out of 20 mothers with babies under 6 months, 8 mothers (40%) had shown correct position following intervention as compared to 27% mothers with babies over 6 months, with respect to attachment, 50% of mothers with babies under 6 months had shown improvement following intervention. Balwinder Kaur *et al.*, (2012) reported out of 29, 3 (10 %) babies were not well attached before administration of IMNCI guideline whereas 29 (100 %) babies were having good attachment after intervention.

Objective 3

Significant association was found between knowledge gain score and demographic variables like mothers of increased age, nuclear family, and information from medical personnel, mothers who have given prelacteal feds, and increase in the order of the child at $p < 0.05$ level of significance. Hence the research hypothesis H_3 was accepted. Nigatu *et al.* (2015) did a community based study to identify the mothers' level of knowledge about neonatal danger signs and associated factors in Northwest of Ethiopia. The finding of the study showed that out of 603 mothers, mothers who had knowledge of three or more neonatal danger signs were found to be 18.2% and were

considered as having good knowledge. Educational level of the parents, mothers who attended antenatal, postnatal clinic and source of information from television was associated with good knowledge of the mother about neonatal danger signs.

Objective 4

In posttest, among experiment group there was a positive moderate correlation between knowledge and practice at ($r=0.48$) $p<0.001$. It means as knowledge increases their practice also increases moderately. Hence the research hypothesis H_4 was accepted Ansavi *et al.* (2012) has done an interventional study to assess the knowledge, attitude and practice regarding diarrhoea and its management in nine different location of Morang district, Nepal found that the intervention had a positive correlation between knowledge and practice.

Implications

Nursing practice

- The nursing staff in the NICU and postnatal ward should educate the mothers on identification of danger signs in the newborn.
- They should also observe the feeding practices of mothers.
- The staff nurses trained in IMNCI guidelines should implement those practices in the ward for better outcome and to reduce the neonatal mortality and morbidity.

Nursing education

- The nurse educator should plan various strategies to educate the mothers regarding attachment, suckling and positioning during breast feeding
- The nurse educator can train the students in identifying the danger signs in young infants, preparation of ORS, and techniques of breastfeeding.

Nursing administration

- In-service training programme to be organized for the nursing personnel on IMNCI guidelines.

- The nurse administrator should develop policies and protocols to promote breast feeding.

Nursing research

- Wider research can be conducted to explore other aspects of feeding problem & breast feeding practices.
- Further studies can utilize the findings in proceeding the study.

Recommendation

- A similar study can be done on large sample in a different setting to have a wider applicability by generalization.
- An experimental study can be done to evaluate the effectiveness of implementing IMNCI guidelines on breast feeding practice among mothers.
- A study can be conducted to identify the health seeking behaviour of mothers.

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