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A Study to Assess the Effectiveness of Video-Assisted Teaching (VAT) Program on Knowledge Regarding Selected Newborn Danger Signs and their Management Among Postnatal Primi Mothers, in Selected Hospitals, in Bangalore

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Abstract

Background: The neonatal period (i.e., the first 28 days of life) is the most critical time for the survival of an infant. Although the global neonatal mortality rate has declined significantly by 40% between 1990 and 2013, this decline has not been on pace with the 56% decline in the under-5 mortality rate globally over the same period.

DANGER SIGN: Neonates and young infants often present with non-specific symptoms and signs that indicate severe illness. These signs might be present at or after delivery or in a newborn presenting to the hospital or develop during a hospital stay. The signs include diarrhea and jaundice. Not feeding well, convulsions, drowsy or unconscious, movement only when stimulated or no movement at all fast breathing (60 breaths per min), grunting, severe chest in drawing, raised temperature, > 38°C, hypothermia, < 35.5°C.

Objective: assess the existing level of knowledge regarding selected danger signs of newborn & their management, evaluate the effectiveness of the VAT program, and determine the association between the pretest knowledge scores with their selected demographic variables.

Method: The research approach is evaluative; the research design is quasi-experimental design and the setting is a postnatal ward in Sapthagiri Hospital Bangalore. The sample of this study comprised 60 postnatal primipara mothers. A convenient sampling technique was used to draw samples for the study.

Results: In the pretest, 83.3% had inadequate knowledge, and 16.7% had Moderately Adequate knowledge. In the post-test, 85% had adequate knowledge, 15% had moderately adequate knowledge and none of them had inadequate knowledge. In the post-test, 100% had good knowledge, and none of them had average as well as poor knowledge. The pretest mean percentage was 44.06% and the post-test mean percentage was 85.04%.

Interpretation and conclusion: Overall findings showed that the video-assisted teaching program was significant in improving the knowledge and practice scores of postnatal primipara mothers on knowledge regarding newborn danger signs and their management.

Keywords: Effectiveness, VAT, knowledge, selected newborn, danger sign, management.

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Introduction

Aneonate is a baby, specifically a baby, in the first four weeks after birth. The neonatal period (i.e., the first 28 days of life) is the most critical time for the survival of an infant. Although the global neonatal mortality rate has declined significantly by 40% between 1990 and 2013, this decline has not been on pace with the 56% decline in the under-5 mortality rate globally over the same period. When stratified by regions and countries, this slow pace of neonatal mortality decline becomes bleak, with the slowest pace of improvement recorded in Sub-Saharan Africa and South and East Asia. For instance, of the 86 million neonatal deaths recorded worldwide between 1990 and 2013, over 65% of them occurred in 10 countries in these regions with India and Nigeria accounting for 25% and 10% of these deaths, respectively. According to a report in 2013, almost 2 million newborns died in the first week of life, accounting for 73% of all neonatal deaths that year.[1]

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In Nigeria, the death of newborn babies accounts for more than 28% of all deaths in children before their 5th birthday.[2]

Though the highest absolute number of newborn deaths occurs in Asia due to the high birth rate and population in its countries, Africa still accounts for the highest national neonatal mortality rates seen around the world.

These disturbing statistics of neonatal mortality occur because a newborn can die within minutes if prompt recognition, diagnosis and treatment are not initiated.[3] The modified three-delay model responsible for newborn death shows that household and health facility-related delays were the major contributors to late presentation, treatment initiation and subsequent newborn deaths in many developing countries. These delays, especially at the household level, are particularly important because once there is a delay in recognition of the danger signs of newborn illnesses, there are automatic delays at all other levels, i.e., initiation of appropriate treatment and/or referral to a better-resourced hospital, etc. Therefore, it becomes necessary to survey the knowledge of the signs that mothers in developing countries may perceive as "danger signs" (signs leading either to recognition of illness or health care seeking) in sick newborns. This study sought to determine what mothers in Enugu state perceive as danger signs and their knowledge of the WHO-recognized danger signs. It further explored the socio-demographic features of mothers that influence knowledge of these danger signs and the health-seeking behaviors of the mothers and/or caregivers.[4]

Your newborn baby is going through many changes in getting used to life in the outside world. This adjustment almost always goes well. But there are certain warning signs you should watch for with newborns. We can find many danger signs among the neonates' jaundice, hypothermia, diarrhea and neonatal sepsis are the parameters of my study.

Neonatal jaundice is a yellowish discoloration of the white part of the eye and skin in a newborn baby due to high bilirubin levels. Other symptoms may include excess sleepiness or poor feeding.[5]

Neonatal hypothermia is a core temperature <36 to 36°C. In premature newborns, hypothermia increases morbidity and mortality. Hypothermia may be purely environmental or represent intercurrent (e.g. sepsis). Maintaining an appropriate environmental temperature in the delivery room or operating room is critical in preventing hypothermia. It should be re-warmed and any underlying condition must be diagnosed and treated.[6]

A lot of different textures, colors, and odors in a baby's poopy diaper based on what they are eating (breast milk, formula, or solid foods). The poop is normally much softer than an adult's, and it's not uncommon for it to be even softer than usual sometimes. But if it suddenly gets much looser or more watery and happens more often -- lasting for three or more poops -- it may be diarrhea.[7]

Objective

- To assess the existing level of knowledge regarding selected danger signs of newborns & their management among postnatal Primi-parlous.
- To evaluate the effectiveness of the VAT program regarding selected danger signs of newborns and their management among postnatal primi-paraous.
- To determine the association between the pretest knowledge scores with their selected demographic variables among postnatal primipara mothers regarding selected danger signs of newborns and their management.

Hypothesis

H_1 -There will be a significant difference between pretest and post-test knowledge

Regarding danger signs of neonates and their management.

Ho- There will be no significant difference between pretest and post-test knowledge regarding danger signs of neonates and their management.

H_2 -There will be a significant association between mean pretest knowledge with post-test knowledge score with selected demographic variables.

Ho- There will be no significant association between mean pretest knowledge with post-test knowledge score with selected demographic variables.

Material and Methods

The research approach is evaluative, the research design is quasi-experimental design and the setting is a postnatal ward in Sapthagiri Hospital Bangalore. The sample of this study comprised 60 postnatal primipara mothers. A convenient sampling technique was used to draw samples for the study.

In the pretest, 83.3% had inadequate knowledge, and 16.7% had Moderately Adequate knowledge. In the post-test, 85% had adequate knowledge, 15% had moderately adequate knowledge and none of them had inadequate knowledge. In the post-test, 100% had good knowledge, and none of them had average as well as poor knowledge. The pretest mean percentage was 44.06% and the post-test mean percentage was 85.04%. The paired t-test was carried out and it was found invariably significant at p <0.05 level, hence null hypothesis (H0) is rejected and the research hypothesis (H1) was accepted. The knowledge was significantly associated with demographic variables religion of the mother at p <0.05 level.

Result

Classification of samples based on their demographic variables as shown in Table 1. According to age, 35% of them were <20 years old, 45% of them were 21 to 25 years old, and 20% were >25 years old (Figure 1).

Regarding religion, 60% were Hindus, 36.7% were Muslim and the remaining 3.3% were Christians (Figure 2).

As per educational qualification, 45% of them were 10th & below, 25% of them were PUC, 28.3% were degree holders, and 1.7% of them had post-graduation (Figure 3).

Regarding occupation, 56.7% of them were housewives, 25% were employed, 11.7% had other occupations and 6.7% of them were having own businesses (Figure 4).

Table 1: Classification of samples based on their demographic variables

N = 60

S. No	Demographic variable		Frequency	Percentage (%)
1	Age (years)	< 20	21	35.00
		21–25	27	45.00
		>25	12	20.00
2	Religion	Hindu	36	60.00
		Muslim	22	36.70
		Christian	2	3.30
3	Educational status	10th & below	27	45.00
		PUC	15	25.0
		Degree	17	28.30
		Postgraduate	01	01.70
4	Occupation	Housewife	34	56.70
		Employed	15	25.00
		Own business	04	06.70
		Others	07	11.70
5	Type of family	Nuclear	37	61.70
		Joint	23	38.30
6	Type of delivery	Normal without episiotomy	34	56.70
		Normal with episiotomy	11	18.30
		Caesarian	15	25.0
7	Gestational week at delivery (weeks)	37	17	28.3
		38	18	30.0
		39	11	18.3
		40	14	23.3
8	Source of information	Family member/ relative	31	51.7
		Social media	11	18.30
		Other	18	30.0

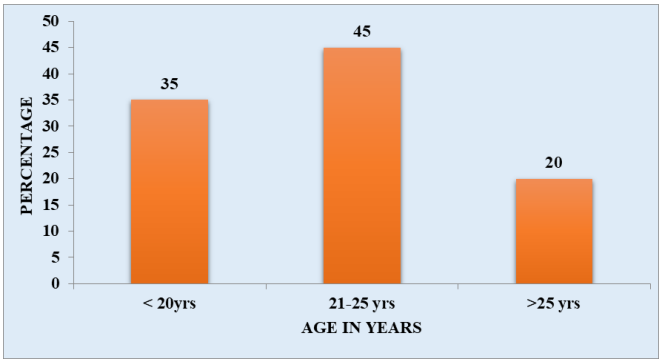

Figure 1: Classification of samples based on age in years N = 60

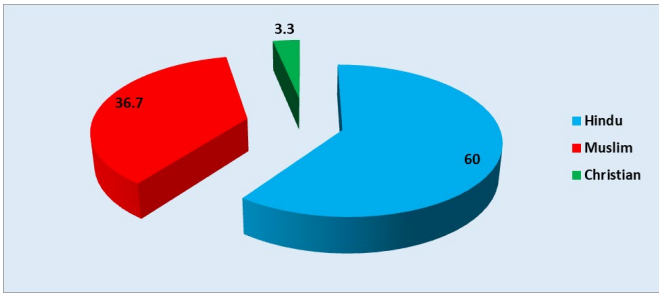

Figure 2: Classification of samples based on religion N = 60

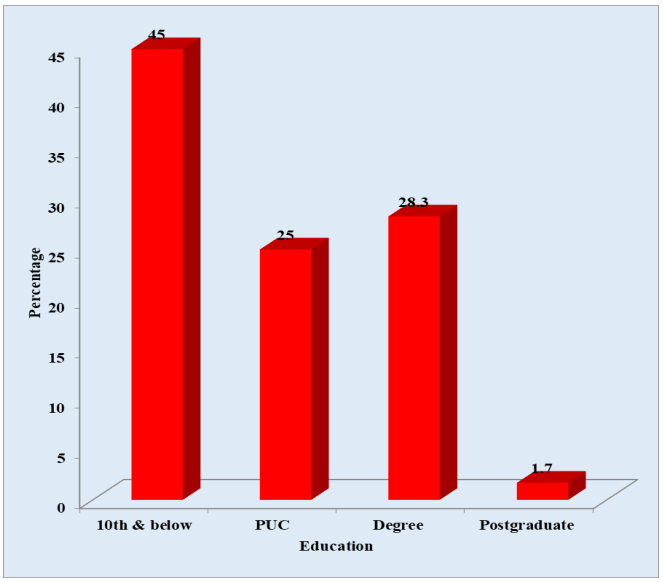

Figure 3: Classification of samples based on education N = 60

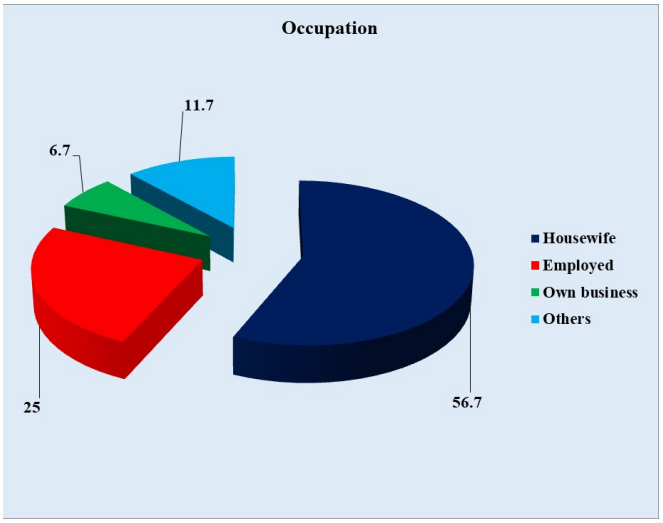

Figure 4: Classification of samples based on occupation N=60

The above diagram depicts that 61.7% of samples had nuclear family and 5% had 38.3% of them had joint family (Figure 5).

According to types of delivery, 56.7% had a normal vaginal delivery without episiotomy, 18.3% they have had a normal

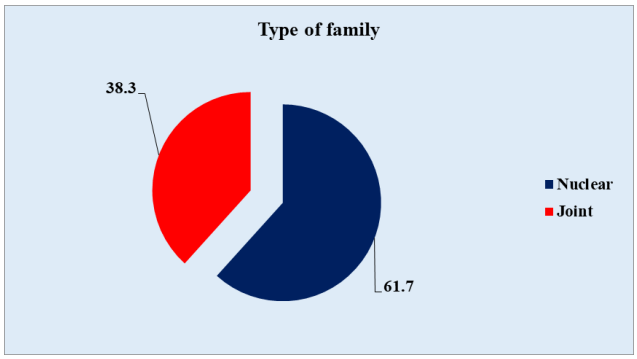

Figure 5: Classification of samples based on type of family N=60

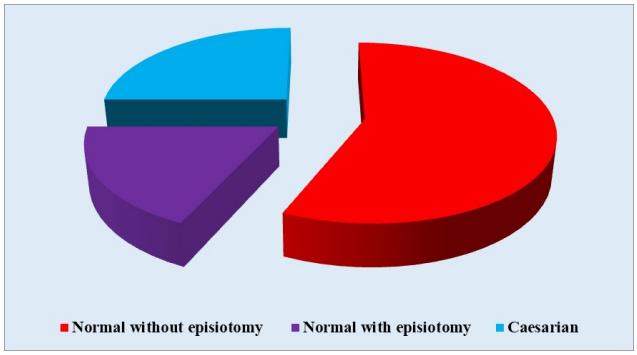

Figure 6: Classification of samples based on type of delivery N=60

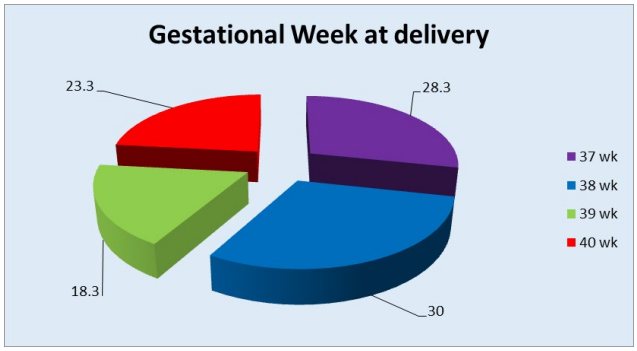

Figure 7: Classification of samples based on gestational week at delivery N=60

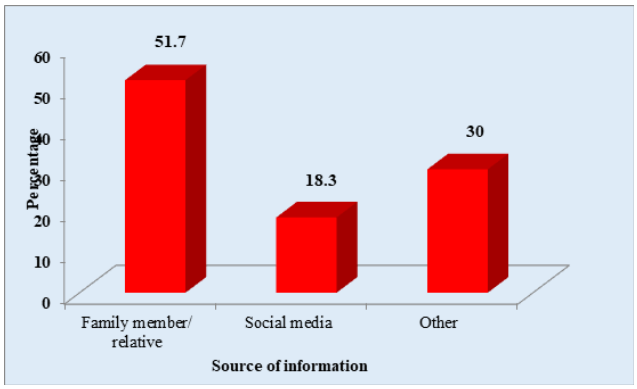

Figure 8: Classification of samples based on source of information N=60

vaginal delivery with episiotomy, and 25% of them had a caesarian section (Figure 6).

Regarding gestational weeks at delivery, 30% had 38 wks of gestation 28.3% had 37 weeks, 23.3% had 40 weeks, and 18.3% had 39 weeks of gestation at the time of delivery (Figure 7).

Regarding previous sources of information, 51.7% had family members & relatives as sources of information, 18.3% had social media and 30% had another source of information (Figure 8).

Assessment of pre and post-test knowledge regarding neonatal danger sign and its management among postnatal primiparous mothers

Table 2 shows the pretest range was 6 to 20, the mean 13.22, the

Table 2: Range, mean, standard deviation and mean percentage of pre and post-test knowledge

No.	*Knowledge Aspects*	*Statements*	*Range*	*Mean*	*SD*	*Mean (%)*
1	Pretest knowledge	30	6-20	13.22	2.9	44.06
2	Post-test knowledge	30	18-30	25.62	3.01	85.4

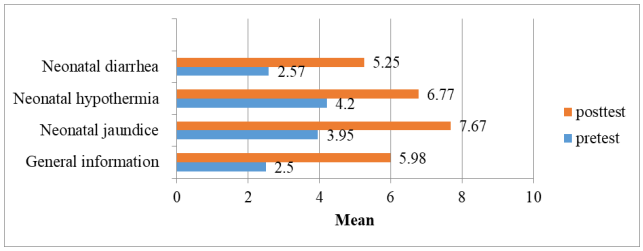

Figure 9: Showing comparison of pretest and post-test mean

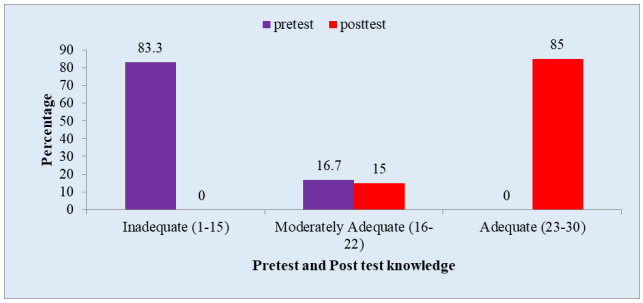

Figure 10: Frequency distribution of samples according to pre and post-test level of knowledge

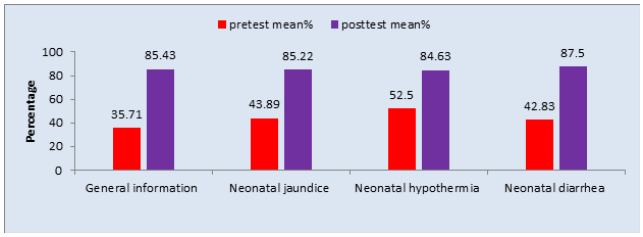

Figure 11: Pretest and post test mean percentage

Table 3: Mean, standard deviation and mean percentage of pre and post-test aspect-wise knowledge

S No.	Aspects of knowledge	Max score	Pretest			Post-test		
			Mean	SD	Mean %	Mean	SD	Mean %
1	General information	7	2.50	1.05	35.71	5.98	1.03	85.43
2	Neonatal jaundice	9	3.95	1.52	43.89	7.67	1.11	85.22
3	Neonatal hypothermia	8	4.20	0.87	52.50	6.77	0.96	84.63
4	Neonatal diarrhoea	6	2.57	0.94	42.83	5.25	0.83	87.50

Table 4: Frequency distribution of samples according to pre and post-test level of knowledge regarding neonatal danger signs and their management among postnatal primiparous mothers

Knowledge Level	Classification of respondents			
	Pretest		Post-test	
	Number	Percentage (%)	Number	Percentage(%)
Inadequate (1-15)	50	83.3	00	00
Moderately Adequate (16–22)	10	16.7	09	15
Adequate (23–30)	00	00	51	85
Total	60	100	60	100

Table 5: Effectiveness of video-assisted teaching (VAT) on knowledge regarding neonatal danger sign and its management among postnatal primiparous mothers

Aspects	Max. Score	Respondents knowledge Scores			Mean diff	SE of Mean Diff	Paired 't' test	Df	p-value	Inference
		Mean	SE of Mean	Mean %						
Pretest	30	13.22	0.374	44.06	12.4	0.385	32.2	59	<0.05	HS
Post-test	30	25.62	0.389	85.4						

Table 6: Outcomes of paired T-Test analysis on comparison of pre and post-test aspect-wise knowledge

S. No.	Aspects	Max score	Enhancement					Paired t-test	p-value
			Mean diff	SE of Mean difference	Pretest Mean%	Post test Mean%	Enhancement in Mean%		
1	General information	7	3.483	0.164	35.71	85.43	49.71	21.26	<0.05
2	Neonatal jaundice	9	3.717	0.199	43.89	85.22	41.33	18.67	<0.05
3	Neonatal hypothermia	8	2.567	0.127	52.50	84.63	32.13	20.27	<0.05
4	Neonatal diarrhoea	6	2.683	0.140	42.83	87.50	44.67	19.22	<0.05

standard deviation was 2.9, the mean percentage was 44.06% and the post-test range was 18 to 30. The mean was 25.62, the standard deviation was 3.01, and the mean percentage was 85.4%.

Mean, standard deviation and mean percentage of pre and post-test aspect-wise knowledge

Mean, standard deviation and mean percentage of pre and post-test aspect-wise knowledge as shown in Table 3.

Frequency distribution of samples according to pre and post-test level of knowledge regarding neonatal danger signs and their management among postnatal primiparous mothers

Table 4 shows in the pretest 83.3% had inadequate knowledge, and 16.7% had Moderately Adequate knowledge but, in the post-test, 85% had adequate knowledge, 15% had moderately adequate knowledge and none of them had inadequate

Table 7: Association findings

S. No.	Demographic		Below median	Above median	total	Chi-square	Df	p-value	Sign
1	Age in years	< 20	11	10	21	4.88	2	<0.05	NS
		21–25	19	8	27				
		>25	4	8	12				
2	Religion	Hindu	15	21	36	13.81	2	>0.05	S
		Muslim	19	3	22				
		Christian	0	2	2				
3	Educational status	10^{th} & above	20	7	27	6.91	3	<0.05	NS
		PUC	7	8	15				
		Degree	7	10	17				
		Postgraduate	0	1	1				
4	Occupation	Housewife	20	14	34	1.22	3	<0.05	NS
		Employed	8	7	15				
		Own business	3	1	4				
		Others	3	4	7				
5	Type of Family	Nuclear	24	13	37	2.64	1	<0.05	NS
		Joint	10	13	23				
6	Type of delivery	Normal without episiotomy	22	12	34	4.43	2	<0.05	NS
		Normal with episiotomy	7	4	11				
		Caesarian	5	10	15				
7	Gestational week at delivery	37 wk	9	8	17	0.32	3	<0.05	NS
		38 wk	10	8	18				
		39 wk	7	4	11				
		40 wk	8	6	14				
8	Source of information	Family member/ relative	18	13	31	0.733	2	<0.05	NS
		Social media	5	6	11				
		Other	11	7	18				

knowledge. It evidenced that there is an increase in the knowledge after VAT

Figure 9 shows in the pretest 83.3% had inadequate knowledge, and 16.7% had Moderately Adequate knowledge but, in the post-test, 85% had adequate knowledge, 15% had moderately adequate knowledge and none of them had inadequate knowledge. It evidenced that there is an increase in the knowledge after VAT.

Outcomes of paired t-test analysis on the comparison of pretest and post-test knowledge

Testing hypothesis 1

H_1 -There will be a significant difference between pretest and post-test knowledge regarding danger signs of neonate and its management.

Ho- There will be no significant difference between pretest and post-test knowledge regarding the danger signs of neonates and their management.

The Table 5 represents the mean pretest and post-test knowledge. The paired t-test was carried out and it was found invariably significant at p <0.05 level, hence null hypothesis (H_0) is rejected and the research hypothesis (H_1) was accepted. It provides evidence that video-assisted teaching (VAT) was significantly effective in improving knowledge (Figure 10).

Outcomes of paired T-Test analysis on comparison of pre and post-test aspect-wise knowledge

Figure 11 shows in the pretest 83.3% had inadequate knowledge, and 16.7% had moderately adequate knowledge but, in the post-test, 85% had adequate knowledge, 15% had moderately adequate knowledge and none of them had inadequate knowledge. It evidenced that there is an increase in the knowledge after VAT

Table 6 shows the outcomes of the association between post-test knowledge and demographic variables regarding selected danger signs of newborns and their management. Only religion is significantly associated with knowledge at a 95% level of confidence (p >0.05).

Testing of Hypothesis -2

H : There is no significant association between post-test knowledge and selected demographic
0

Variables.

H : There is a significant association between post-test knowledge and selected demographic
2

Variables.

The Table 7 presents the association between knowledge with their selected demographic Variables. The Chi-square test was carried out and it was found statistically significant at p <0.05 level with demographic variables. Hence null hypothesis (H) was rejected and the research Hypothesis (H) was accepted. It provides evidence that there is a statistically significant association between knowledge and demographic variables.
0 2

Limitation

- The study is limited to postnatal primipara mothers who are admitted in Sapthagiri Hospital postnatal ward.
- The data collection period is limited to 4 weeks.
- The sample size is limited to 60 postnatal primipara mothers. The small number of samples limits the generalization of the study.
- The study did not use a control group. The investigator had no control over the events that took place between the pretest and post-test.

Implication of the Study

The nursing personnel are challenged to provide standard and quality nursing care. The findings of the study have implications in various areas, such as nursing education, nursing practice, nursing administration and nursing research.

Discussion

In the present study majority, 83.3% of postnatal primi mothers were found to have inadequate knowledge, 16.7% had Moderately Adequate knowledge and none of them was found to have good knowledge but, in the post-test, 85% had adequate knowledge, 15% had moderately adequate knowledge and none of them had inadequate knowledge. It is evidenced that there is an increase in the knowledge after VAT. The pretest ranged between 6 to 20 mean of 13.22 and a standard deviation was 2.9, the mean percentage was 44.06% and the post-test range was 18-30, mean was 25.62, a standard deviation was 3.01, and the mean percentage of 85.04%.

Community-based cross-sectional study design was carried out in Wolkite town from March to April 2017. A total of 368 mothers who gave birth within 12 months before the study period were selected by using a systematic random sampling technique. A pretested Structured questionnaire was used to collect data. The study shows that 31.32% of mothers have good knowledge about neonatal danger signs. From a total of mothers, 64.5% of respondents practice for their sick neonate was unsafe. Mothers' secondary and above educational level, income, place of birth and source of information were factors for having good knowledge. Husbands' education level husbands' occupation), place of delivery and PNC follow-up (AOR = 6.19, CI 1.070, 5.626) were factors that contributed to mothers bringing their sick neonates to health institutions. Hence study concluded that there was poor knowledge of mothers about neonatal danger signs and unsafe practices.

In the present study, the mean percentage of pretest knowledge was 44.6% and the mean percentage post-test was 85.04%. The results indicate that there is a significant improvement in the knowledge of postnatal primipara mothers regarding selected danger signs among newborns and their management. Hence, video-assisted teaching was effective. The paired t-test was carried out and it was found invariably significant at p <0.05 level. Hence null hypothesis (H_0) is rejected and the research hypothesis (H_1) was accepted. It provides evidence that video-assisted teaching (VAT) was significantly effective in improving knowledge.

In the pretest mean knowledge score is 13.22, the mean percentage is 44.6% and the standard deviation is 2.9. Post-test mean knowledge is found to be 25.62, the mean percentage is 85.04% and the standard deviation is 3.01. The knowledge enhancement general information t is 49.75% and the paired t-test value is 21.26. The knowledge enhancement in neonatal jaundice is 41.33% and the paired t-test is 18.67. The knowledge enhancement in neonatal hypothermia is 32.13% and the paired t-test is 20.27 and the knowledge enhancement of neonatal diarrhea is 44.67% and the paired t-test is 19.22. Findings show there was a significant improvement in the knowledge and management regarding selected newborn danger signs among postnatal primipara mothers. It evidenced that VAT was statistically significant in improving knowledge and management among postnatal primipara mothers. "There will be a significant difference between mean pretest and post-test knowledge and management scores of postnatal primipara mothers regarding selected newborn danger sign" is accepted.

Chi-square was calculated to find out the association between the knowledge scores among postnatal primipara mothers after video-assisted teaching intervention with their demographic variables and it was found to be associated with knowledge variables such as religion at p <0.05 level (religion chi-square = 4.21 at 1df) and other variables were not statistically significant. And there was no association found between demographic variables. The result of the chi-square analysis indicated that there is a significant association of knowledge with their selected variables. Hence, the null hypothesis (H0) was rejected and the research hypothesis (H2) was accepted.

Conclusion

Knowledge regarding newborn danger signs and their management is important to reduce newborn morbidity and mortality.

Mothers are the prime caretakers of their newborns so their knowledge of newborn danger signs and its management will help for early identification of danger. Every pregnant woman,

especially primi should be educated regarding newborn danger signs and management. Hence every woman population will not be literate, so video-assisted teaching will be more fruitful for imparting awareness effectively.

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