

# Effectiveness of Self Instructional Module (SIM) on knowledge regarding Infant CPR among III year GNM students in selected Nursing Schools, Bangalore

Prof. Sujatha M<sup>1</sup>, Mrs. Rajani K.R<sup>2</sup>

<sup>1</sup>Professor CUM Principal, Sri Sharada College of Nursing, Bangalore, Karnataka, India

<sup>2</sup>Associate professor, Sri Sharada College of Nursing, Bangalore, Karnataka, India

**Corresponding Author:** Prof. Sujatha M, Professor CUM Principal, Sri Sharada College of Nursing, Bangalore, Karnataka, India

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## ABSTRACT

Infants (0-1 year) constitute 2.9% of the total population in India. The first few hours, days and months of their lives is still an obstacle race. About 40% of total infant mortality occurs in the first month of life mainly due to respiratory failure and cardiac failure, which could be manageable by effective cardiopulmonary resuscitation. CPR is the basic emergency procedure for life support in infants. It decides the life of an infant who is at risk of survival from the dependent to independent life. The nurse is often the first responder in a cardiac arrest situation who probably has the absolute knowledge of the victim during his/her stay in the Ward. Nurses may have to respond to cardiac arrest situation in and around the Home, either during domiciliary nursing (home care) or in the neighborhood as being the most medically qualified person available. The findings of the study revealed that the self instructional module was effective in creating awareness among the GNM students on CPR.

**Key Words:** Effectiveness, Self instructional module, Knowledge, Infant CPR, GNM students

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## INTRODUCTION

*"I come as a child new to this world. My first breath is taken as your mouth devours mine, My heart takes a skipped beat as you touch my face, My newly opened eyes bear witness to your arms."*

*-Carol shivers*

Resuscitation bringing back of the seemingly dead of life has been a dream of man since time immemorial<sup>1</sup>. The first moments of an infant's life can be critical. This is the time when an infant is making abrupt transition from the mother's uterus to extra uterine environment<sup>2</sup>.

More than 100 million babies are born annually worldwide. They have to make the transition from a fluid filled environment in which the placenta serves as the gas exchange organ for the fetus, to an air filled environment in which the own cardiopulmonary system has to independently function within minutes of birth for survival<sup>3</sup>. It's always an amazing alert that 90% of neonates successfully make this transition without any need for help. The remaining 10% of the newborn require some assistance to begin breathing at birth and 1% or more require intensive resuscitation effort. Worldwide each year 10.6 million children's die; 40% of them are infants<sup>4</sup>.

Birth asphyxia is responsible for 20% of neonatal death of the 26 million infant born in India per annum, 4-6% fail to experience spontaneous breathing at birth and suffer from asphyxia. Timely and appropriate management of asphyxiated babies at birth save them and provide a better quality of life amongst survivors without any neurological sequelae<sup>5</sup>.

Cardiopulmonary resuscitation is necessary for infant during many emergencies, including serious injuries, medical conditions, sudden infant death syndrome, severe respiratory infections, neurological and heart disorders. So an important function of the nurse is to assess the Infants respiratory difficulty and to institute appropriate nursing management to correct the situation until assistance can be obtained<sup>6</sup>.

Effective CPR of the newborn and infant requires adequate training and preparation of the staff involved in the care of women in labour. Knowledge of maternal and intra partum risk factors may influence the postnatal course of the infant. As poor cardio respiratory adaptation at birth (Low APGAR scores) cannot be predicted in majority of the cases, all staff involved in the care.

### **NEED FOR THE STUDY**

CPR is the basic emergency procedure for life support in infants. It decides the life of an infant who is at risk of survival from the dependent to independent life. Infant mortality rates in the developing countries are higher than in the developed countries. About one quarter to one third of all child death occurs in the first one year of life. Worldwide 24 million deaths occur in the developing countries. This make the infant's period most hazardous time of life<sup>7</sup>.

In India according to the year 2002 the data on infant mortality rate was 67/100 live births. Among these 67 deaths, 43.3 were neonates and 24.6 were infants. These statistics have proved a threat to human life especially in increasing the mortality and morbidity. The government is trying its best to improve infant's life through various laws, regulations and policies delivered through health care system. Among them the infants population policy in the year 2000 has put forward a goal to reduce infant mortality rate below 30 by 2025<sup>8</sup>.

Infant care provider plays a major role in the reduction of infant mortality and morbidity. It's estimated globally that babies at birth do not establish spontaneous breathing and are in need of CPR at birth<sup>9</sup>.

Many health settings in India lack the facilities for infant care. Very few setting gives the coverage to the NICUs. Domestic deliveries are still popular in India. However these also have a negative impact on the risky infant sustaining their life. The village dais or untrained personnel conducting deliveries are still common, which in itself may pose a threat to the neonate. They need to be trained as the setting cannot be eradicated<sup>10</sup>.

A study was done to evaluate the knowledge and practice of infant CPR among out hospital emergency care team by using questionnaire method. This study concluded that the lack of knowledge and the repeated changes require more frequent and extensive training regarding CPR for entire personnel especially for the nurses<sup>11</sup>.

Based on the above necessities the investigator felt the need to improve the infant CPR procedure for reducing the neonatal and infant morbidity and mortality rate. As the III year GNM students are immediately going to be a future nurses and this additional information would enhance the knowledge in their carrier. Hence a self instructional module may help the GNM students to gain knowledge on infant CPR.

### **Problem Statement**

Effectiveness of Self Instructional Module (SIM) on knowledge regarding Infant CPR among III year GNM students in selected Nursing Schools, Bangalore.

### **Objectives Of The Study**

1. To assess the pre test level of knowledge regarding infant CPR among III year GNM students.
2. To assess the effectiveness of self instructional module on infant CPR by comparing pre and post test knowledge score.
3. To determine the association between the post test knowledge on infant CPR among III year GNM Students and their selected demographic variables.

### **Hyphothesis**

**H<sub>1</sub>**. There will be significant difference between pretest and posttest knowledge score regarding infant CPR among III year GNM students.

**H<sub>2</sub>**. There will be significant association between the post test knowledge score on infant CPR among III year GNM Students and their selected demographic variables.

### RESEARCH METHODOLOGY

An evaluative research approach was considered appropriate for the study, pre experimental (one group pretest and post test) design was used. The population for the study was III year GNM students from Bangalore City School of Nursing and Thrupti School of Nursing at Bangalore. The sample size consists of 100 students selected by non probability purposive sampling technique. Sample selection was by choice and not by chance. The independent variable was the Self Instructional Module and the dependent variable was the knowledge of the subject. The extraneous variable in this study include gender, age, and performance of infant CPR, previous health course and source of information. The tool was developed and used for the data collection was structured questionnaire. The tool consisted of 2 sections covering the structured questionnaire for collecting Demographic data from the III year GNM students, structured questionnaire on knowledge regarding infant CPR and development of Self Instructional Module. The tool was validated by 8 experts for content validity and feasibility. The reliability of the tool was established by Spearman’s brown split of method (Reliability  $r= 0.96$ ). The pre test was conducted by using structured knowledge questionnaire followed by implementation of the self instructional module. After 7 days, the post test was conducted by using the same questionnaire for evaluating the effectiveness of the self instructional module for the same samples. The data was gathered, analyzed and interpreted according to the objectives and hypotheses by using descriptive and inferential statistics and were presented in tabular and graphical forms.

### RESULTS

The results of the study were as follows;

**Table –1: Frequency and percentage distribution of demographic variables**

n=100			
S.NO	DEMOGRAPHIC VARIABLES	FREQUENCY IN NUMBER	PERCENTAGE (%)
1.	Gender		
	a) Male	21	21
	b) Female	79	79
2.	Age		
	a) 19 – 21	68	68
	b) 22 – 25	23	23
	c) 26 & above	9	9
3.	Performance of Infant CPR		
	a) One time	25	25
	b) Two times	29	29
	c) More than two times	5	5
	d) Nil	41	41
4.	Previous health course		
	a) ANM	10	10
	b) Higher secondary in nursing	18	18
	c) Others (specify, DPN)	14	14
	d) Nil	58	58
5.	Source of Information		
	a) Mass media	79	79
	b) Conference	15	15
	c) Others	6	6

**Table –2: Percentage Distribution of pretest level of knowledge regarding infant CPR among III year GNM students**  
n = 100

Level of Knowledge	Knowledge Score	Pretest	
		Frequency	Percentage
Inadequate	1 – 20	24	24
Moderate	21- 30	65	65
Adequate	31- 40	11	11

**Table -3: Percentage Distribution of post test Level of Knowledge regarding infant CPR among III year GNM students**

n = 100

Level of Knowledge	Knowledge Score	Post test	
		Frequency	Percentage
Inadequate	1 – 20	0	0
Moderate	21- 30	11	11
Adequate	31- 40	89	89

**Table - 4: Distribution of level of knowledge of III year GNM students based on knowledge variables in pre and post test**

n = 100

Level of Knowledge	General introduction of infant CPR		Breathing and cardiac emergencies		Infant CPR procedure	
	Pretest	Post Test	Pretest	Post Test	Pretest	Post Test
Inadequate	11	0	23	0	34	0
Moderate	23	5	42	4	51	0
Adequate	66	95	35	96	15	100

**Table –5: Comparison of Mean, SD and Mean percentage for the knowledge variables in the pre and post test**

n = 100

SL.NO	Knowledge Variables	Pretest		Post Test		Mean Percentage	
		Mean	SD	Mean	SD	Pretest	Post Test
1.	General introduction of infant CPR	4.69	0.84	5.62	0.58	18.31	16.08
2.	Breathing and cardiac emergencies	13.6	1.85	18.34	3.36	53.1	52.46
3.	Infant CPR procedure	7.32	0.54	11.0	1.21	28.58	31.46

**PART – II**

**Section A - EVALUATION OF THE EFFECTIVENESS OF SIM ON KNOWLEDGE REGARDING INFANT CPR AMONG III YEAR GNM STUDENTS.**

**Table 6: Improvement Mean score of knowledge variables between pre and post test**

n=100

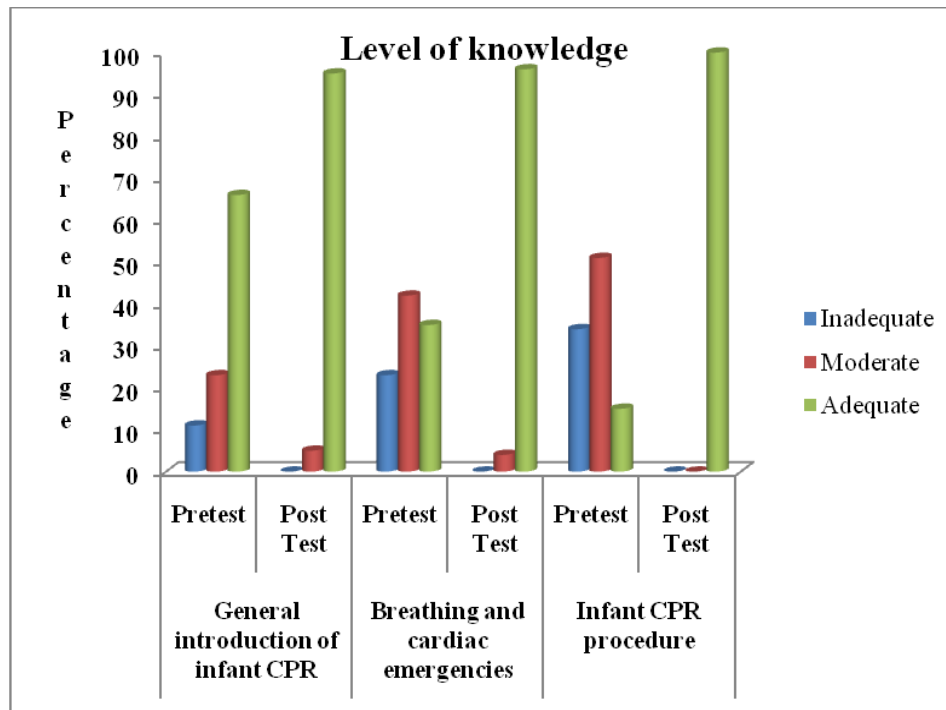
SL. NO	Knowledge Variables	Pretest		Post Test		Mean Difference	Paired 't' value
		Mean	SD	Mean	SD		
1.	General introduction of infant CPR	4.69	0.84	5.62	0.58	0.93	12.66**
2.	Breathing and cardiac emergencies	13.6	1.85	18.34	3.36	4.74	20.77**
3.	Infant CPR procedure	7.32	0.54	11.0	1.21	3.68	27.82**

\*\* Highly significant at 0.001 level

**Table 7: Improvement Mean score of the overall level of knowledge between pre and post test  
n = 100**

Sl. No.	Groups	Mean	Standard deviation	Mean difference	Paired 't' value	P value
1.	Pre test	25.62	2.561	9.33	t = 7.85**	0.001
2.	Post test	34.95	3.494			

\*\* Highly significant at 0.001 level



**Figure 1: Distribution of level of knowledge of III year GNM students based on knowledge variables in pre and post test**

**Table – 8: Association of post test knowledge with Gender, age and performance of infant CPR, previous health course and source of information. n = 100**

Si. No	Demographic variables	Frequency in number	Mean	SD	Chi – square ( $\chi^2$ )	P Value		
1	<b>Gender</b>							
	a) Male b) Female	21 79	16.62 17.25	1.462 0.485	1.251 <sup>NS</sup>	3.84		
2	<b>Age</b>							
	c) 19 - 21 d) 22 – 25 e) 26 & above	68 23 9	17.10 17.09 16.78	0.502 1.486 3.728	1.763 <sup>NS</sup>	5.99		
	3	<b>Performance of Infant CPR</b>						
a) One time b) Two times c) More than two times d) Nil		25 29 5 61	17.20 17.00 17.40 17.00	1.376 3.777 6.960 0.557			5.994 <sup>**</sup>	5.63

4	<b>Previous educational status</b> a) ANM b) Higher secondary in nursing c) Others d) Nil	10  18 14 58	16.90  17.33 17.21 16.98	3.38  1.925 2.458 0.585	8.511**	5.99
5	<b>Source of Information</b> a) Mass media b) Conference c) Nil	79 15 6	17.05 12.47 17.83	0.431 1.662 5.943	6.137**	5.99

\*\* Highly significant at 0.001 level    Ns-Not significant at 0.001 levels

### DISCUSSION

The findings of the study have been discussed with reference to the objectives, hypothesis and with the findings of supportive studies.

**The first objective was to assess the pre test level of knowledge regarding infant CPR among III year GNM students.**

Table 2 depicts the level of knowledge of the III year GNM students based on pre test. In the present study it was observed that in the pre test, out of 100 subjects majority of them 65 (65%) had moderate level of knowledge, about 24 (24%) of the samples had inadequate knowledge and about 11 (11%) had adequate knowledge. This indicated that the knowledge of III year GNM students was inadequate and it was necessary for the investigator to improve the knowledge of subjects by giving specific information on infant CPR, which would enable them to perform infant CPR effectively.

**The second objective was to assess the effectiveness of self instructional module on infant CPR by comparing pre and post test knowledge score.**

From table 3, shows the analysis of overall level of knowledge of subjects during post test revealed that the majority of III year GNM students 89(89%) had adequate knowledge, about 11 (11%) had moderate knowledge, and none of them 0 (0%) had inadequate knowledge.

The comparisons of level of knowledge with pre and post test as revealed table 5 shows that majority had moderate level of knowledge in the pretest whereas with post test majority had adequate level of knowledge. Findings shows the self instructional module was effective.

**The third objective was to find out the association between the posttest knowledge with the selected demographic variables.**

Association was done between post-test knowledge and demographic variables of III year GNM students by using chi-square ( $\chi^2$  test). And it was found that there is statistically significant association between post test knowledge of III year GNM students with Source of Information at 0.001 levels. So the hypothesis  $H_2$  as stated “There is significant association between post test level of knowledge of III year GNM students regarding infant CPR and demographic variables such as performance of infant CPR, previous educational status, and source of information is accepted. With regards gender and age, there was no significantly association found. Hence the hypothesis  $H_2$  was rejected.

**The findings of the study revealed that**

- Majority 79 (79%) of the samples were females and 21 (21%) were of male.
- Majority 68 (68%) of samples belong to the age group between 19-21yrs.
- Major findings are 69 (69%) of samples did not involved in the performance of infant CPR.

- Majority 58 (58%) of the samples did not study any health course.
- Mass media was the source of information for majority 79 (79%) of samples.
- In the pretest the maximum 65 (65%) of sample had moderate level of knowledge.
- In the post test the maximum 89 (89%) of sample had adequate level of knowledge.
- Highest mean 18.34 (SD = 2.49) was for the breathing and cardiac emergencies of infant among the entire knowledge variable.
- The overall post test mean 34.96 (SD = 2.42) was higher than the pretest mean 25.61 (SD= 4.93) and the improved mean score was 9.33. The obtained 't' value was 7.85 which is significant at 0.001 level. So the hypothesis H<sub>1</sub> is accepted.
- Significant association was found between post test level of knowledge and demographic variables such as performance of infant CPR, observation of cardiac arrest and previous health course and source of information and there was no association with age and gender. Hence the hypothesis H<sub>2</sub> is accepted.

**The study findings were supported by following, a study conducted by<sup>12</sup> to investigate the retention of basic CPR skills and knowledge by qualified nurses following a course in professional development, the finding of the research was while a 3 hour updating CPR skills revealed an initial improvement, the degrees in retention of skills 10 weeks later was significant ( P = 0.0000). Therefore the research supports the importance of CPR refresher courses on a regular basis. Another study<sup>13</sup> conducted on the survey was to determine the experiences and attitudes of European pediatric critical care Nurses about parental presence during the resuscitation of a child by using structured questionnaires method. The results from this survey suggest that European pediatric Nurses are very supportive of parental presence during cardiopulmonary resuscitation. The survey recommended that pediatric intensive care unit establish local policies that cover parental presence during CPR. Another study<sup>14</sup> Perspective study was conducted to evaluate the effectiveness of pediatric cardiopulmonary resuscitation (CPR) among 527 Medical and Nursing students, and recommended Pediatric cardiopulmonary resuscitation should be included in the medical training curriculum. Another study<sup>15</sup> conducted to an evaluated the effectiveness of a SIM for student nurses prepared on phototherapy for neonatal jaundice. The study showed that SIM the effectiveness in increasing the knowledge score of staff nurse.**

## CONCLUSION

Infants (0-1 year) constitute 2.9% of the total population in India. The chances of survival of infant have improved 50% in the 20 years. The first few hours, days and months of their lives is still an obstacle race. About 40% of total infant mortality occurs in the first month of life mainly due to respiratory failure and cardiac failure, which could be manageable by effective cardiopulmonary resuscitation. Hence the researcher was interested to give a Self Instructional Module on infant CPR and conducted a study on "The effectiveness of SIM on knowledge regarding infant CPR among III year GNM students at Bangalore City School of Nursing and Thrputi School of Nursing, Bangalore". The data was collected from 100 respondents before and after the SIM by structured questionnaire. Convenient sampling technique was used to select the sample.

The findings of the study revealed that there was a marked increase in overall knowledge score of post-test (32.47) than the pre-test score (24.58) which represent the effectiveness (t = 7.85, P<0.001) of SIM on infant CPR. Thus, SIM was effective in improving the knowledge of subjects on Infant CPR. On the basis of the findings, the researcher concluded that the prepared SIM was very effective. So the III year GNM students can be encouraged to read the Self Instructional Module to improve their knowledge level.

## IMPLICATIONS

The findings of this study have scope in the following areas:

### Nursing Education

- The Student Nurses from School of Nursing and College of Nursing should be encouraged to attend specialized courses and seminars regarding infant CPR.
- Nursing schools, colleges and teachers should come forward and encourage the students to presents seminar on trends in infant CPR with the help of modern audio visual aids.

### Nursing Practice

Nurses are key person of a health team, who play a major role in the health promotion and maintenance; it is a practicing profession, so that the researchers generally update the practice regarding infant CPR.

### **Nursing Administration**

- The study assists the nursing administrative authorities to initiate and carry out health education programme in health care settings.
- Nursing mentors should enhance nursing services through reinforcement of teaching through the readymade video package.
- Nursing administrator can offer opportunity for the new staff nurses to attend in service education programme regarding infant CPR.

### **Nursing Research**

- The study helps the investigator to develop insight regarding infant CPR through self instructional module.
- This study will serve as a valuable reference material for future investigators.
- Large scale studies can be conducted.

### **RECOMMENDATIONS**

- A similar study can be under taken by utilizing other domains like attitude and practice.
- A similar study can be under taken on large scale.
- A case control study may be conducted to assess the knowledge, practice and attitude of health personnel regarding infant CPR.
- A similar study can be under taken using different teaching methods.

### **SUMMARY**

The nurse is often the first responder in a cardiac arrest situation. Nurses have to respond to cardiac arrest situation in and around the Home, either during domiciliary nursing (home care) or in the neighborhood as being the most medically qualified person available. All this places a lot of responsibility on the qualified nurse to be adequately CPR trained. The nurse working in the Critical Care Set Up (ICU/PICU/NICU) has an even greater likelihood of being frequently presented with Cardiac arrest situations, and therefore an even greater responsibility to be adequately trained in advanced life support techniques. Therefore trained personnel are necessary to anticipate the need for CPR by assessing the risk factors itself. So this led the investigator for selecting this study “The Effectiveness of Self instructional module on Knowledge Regarding infant CPR among III year GNM students in selected nursing schools, Bangalore.”

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