

A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge and Practice of Nasogastric Tube Feeding to Adult Patient among Nursing Personnel Working in Selected Hospitals, Bangalore

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ABSTRACT

Administration of nutrients directly into the stomach, duodenum, or jejunum through a tube is more physiologically beneficial and cost effective than parenteral feeding. In the hospital settings, most of the critically ill patients are on naso gastric tube feeding to meet their nutritional needs. The unhygienic practices and improper insertion of naso gastric tube by the nursing personnel's increases the risk of infection and other health hazards. Nursing practice still needs to understand how modern technology and instrumental device in naso gastric tube feeding works. Though the nursing personnel are handling the procedure with knowledge and skills, the exciting condition of the patient cannot be satisfied due to the misplacement of the tube. Hence the researcher conducted "A study to assess the effectiveness of structured teaching programme on knowledge and practice of Naso gastric tube feeding to adult patient among nursing personnel" working in selected hospitals, Bangalore. A quantitative research approach and Non probability convenient sampling technique was used. The sample was selected by using simple random technique was used to select 50 nursing personnel working in selected hospital, Bangalore. Structured questionnaire was used to assess the levels of knowledge and practice. Descriptive and inferential statistics were used for analysis and interpretation of data. Effectiveness of Structured teaching programme on the levels of knowledge and practice regarding Naso gastric tube feeding among

nursing personnel was assessed by using Paired 't' test. Association between pretest knowledge level with the selected demographic variables was analyzed using Chi-square test.

Key Words: Naso gastric tube feeding, Nursing personnel, adult patient.

INTRODUCTION

Naso gastric tube feeding widely preferred over parenteral nutrition in adult while nurses inserting Naso gastric tube this is important to determine the correct insertion distance for placing Nasogastric tube and to determine the internal position after the tube has been placed. There is a need to change the practices of insertion and determining placement, according to most up-to-date evidence, in order to increase the safety of inserting Naso gastric tube feeding.

Naso gastric tube feeding has gained acceptance in the nutritional support of various groups of patients. The use of Naso gastric route has been facilitated by the development of highly flexible Naso gastric tubes. The insertion of Naso gastric tubes has been described as being easy, requiring little training and usually uneventful. Wire stylets are commonly used to stiffen these soft, flexible tubes for blind insertion and also to aid in identifying the position of the tube on x-ray examination. A case of malpositioning of a fine bore Nasogastric

tube into both main bronchi detected on chest x-ray in an otherwise asymptomatic patient is reported.

Enteral nutrition has become widely preferred over parenteral nutrition in adults and children with functioning gastrointestinal tracts when the need for tube feeding is expected to be 6 weeks or less. It is estimated that between 750,000 and 1,000,000 Nasogastric tubes are used in adults and children per year (National Patient Safety Agency, 2005). In a cross-sectional study done in 2005-2006 in a large Midwestern children's hospital, 44 percent of the children had enteral tubes in place. Of the 1,206 enteral tubes identified, 2/3rds were Nasogastric (NG) tubes (Chin, unpublished manuscript).

All health care setting, most of the all critically ill patient are in naso gastric tube feeding for meeting the nutritional needs during improper insertion of tube and feeding is a serious help hazards though the nursing personnel are handling the procedure with knowledge and skills that exciting condition of the patient cannot be satisfactory due to misplacement of the tube.

In recent years patient safety has emerged as a major issue of concern to healthcare providers. Various approaches for improving safety have been used, including attempts to apply the experience of safety experts from other industries to hospital care. So, the nursing personnel should analyse the purposes of Nasogastric tube feeding that is the most common purpose for inserting a Nasogastric tube is to deliver tube feedings to a patient when they are unable to eat.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of structured teaching programme on knowledge and practice of nasogastric tube feeding to adult patient among nursing personnel working in selected hospitals, Bangalore.

OBJECTIVES

1. To assess the pre-test knowledge and practice regarding Naso gastric tube feeding among nursing personnel.
2. To evaluate the effectiveness of Structured teaching programme regarding Naso gastric tube feeding among nursing personnel.
3. To correlate the relationship between knowledge and practice scores on Naso gastric tube feeding among nursing personnel.
4. To know the association between pre-test knowledge scores with selected socio- demographic variables of nursing personnel.
5. To know the association between pre-test practice scores with selected socio-demographic variables of nursing personnel.
6. To find out the Association between post-test practice and selected demographic variables of nursing personnel.

HYPOTHESES

H₀₁: There will be significant difference in the level of knowledge of nursing personnel on Naso gastric tube feeding after administration of structured teaching programme.

H₀₂: There will be significant difference in the level of practice of nursing personnel on Naso gastric tube feeding after administration of structured teaching programme.

H₀₃: There will be significant association between the pre test knowledge level of nursing personnel regarding Naso gastric tube feeding with their selected socio demographic variables.

H₀₄: There will be significant association of pre test practice level of nursing Personnel with their selected socio demographic variables.

METHODOLOGY

The purpose of the study was to assess Effectiveness of structured teaching programme on knowledge and practice of

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Naso gastric tube feeding to adult patient among nursing personnel. A quantitative research approach and Non probability convenient sampling technique was used. The sample was selected by using simple random technique was used to select 50 nursing personnel working in selected hospital, Bangalore.

Structured questionnaire was used to assess the levels of knowledge and practice. Descriptive and inferential statistics were used for analysis and interpretation of data. Effectiveness of Structured teaching programme on the levels of knowledge and practice regarding Nasogastric tube feeding among nursing personnel was assessed by using Paired 't' test. Association between pre-test knowledge level with the selected demographic variables was analysed using Chi-square test.

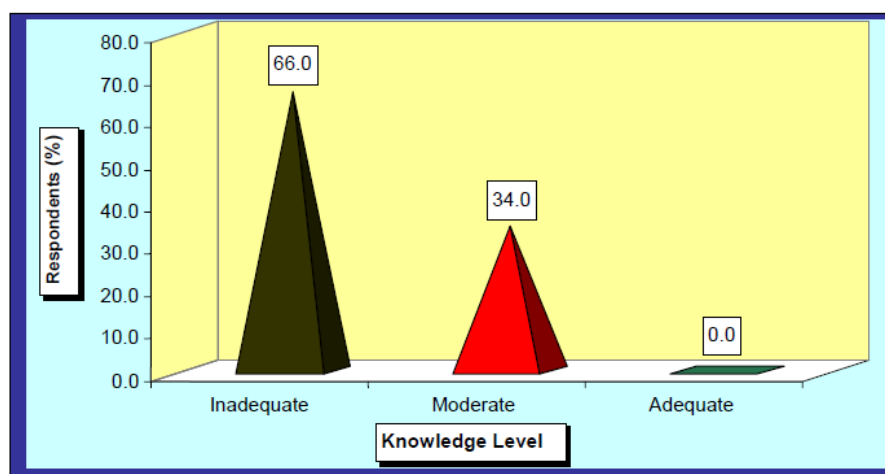
RESULT AND DISCUSSION

The objective was to assess the pre-test knowledge and practice regarding Nasogastric tube feeding among nursing personnel.

Table 1.1: Frequency and percentage distribution of pre-test level of knowledge on Naso gastric tube feeding among Nursing personnel. n = 50

Knowledge Level	Category	Respondents	
		Number	Percent
Inadequate	< 50 % Score	33	66.0
Moderate	51-75 % Score	17	34.0
Adequate	> 75 % Score	0	0.0
Total		50	100.0

The table 1.1 depicts that in pre test majority of the respondents 33 (66%) had inadequate knowledge and 17(34%) had moderate knowledge and 0(0%) had adequate knowledge regarding naso gastric tube feeding.



Graph 1: Percentage distribution of pre-test level of knowledge on Naso gastric tube feeding among Nursing personnel.

- In pre-test majority of the respondents 33 (66%) had inadequate knowledge and 17(34%) had moderate knowledge and 0(0%) had adequate knowledge regarding naso gastric tube feeding.
- The overall mean score of pre-test knowledge is 13.50, standard deviations is 12.5, and mean score percentage is (45.2%).
- In pre-test majority of the respondents 31 (62%) had inadequate practice and 19(38%) had moderate practice and 0(0%) had adequate practice regarding Naso gastric tube feeding
- The overall mean score of pre-test practice is 15.72, standard deviation is 6.9, and mean score percentage is (52.4%).

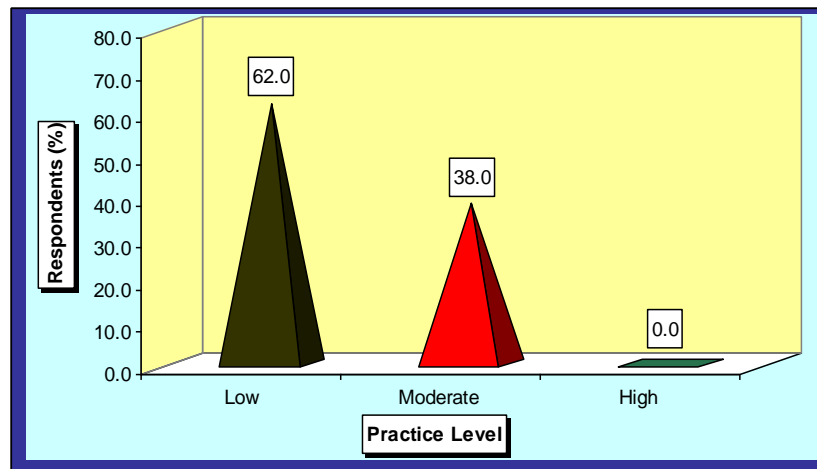
Table 1.2: Frequency and percentage distribution of pre-test level of practice on Naso gastric tube feeding among Nursing personnel. n = 50

Practice Level	Category	Respondents	
		Number	Percent (%)
Low	< 50 % Score	31	62.0
Moderate	51-75 % Score	19	38.0
High	> 75 % Score	0	0.0
Total		50	100.0

The table 1.2 depicts that in pre test majority of the respondents 31 (62%) had

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inadequate practice and 19(38%) had moderate practice regarding naso gastric tube feeding. 0(0%) had adequate



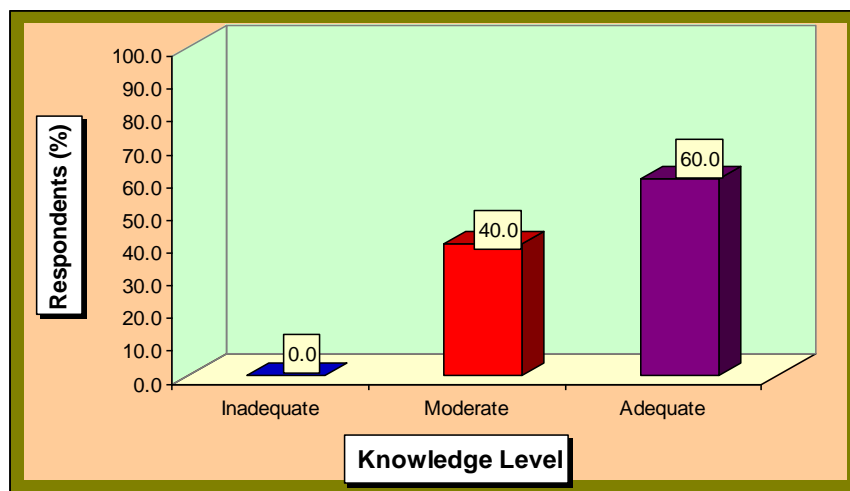
Graph 02: Percentage distribution of pre-test level of practice on Naso gastric tube feeding among nursing personnel.

Table 1.3: Frequency and percentage distribution of post-test level of knowledge on Naso gastric tube feeding among Nursing personnel.

n =50

Knowledge Level	Category	Respondents	
		Number	Percent (%)
Inadequate	< 50 % Score	0	0.0
Moderate	51-75 % Score	20	40.0
Adequate	> 75 % Score	30	60.0
Total		50	100.0

The table 1.3: depicts that in post-test knowledge majority of the respondents 30 (60%) had adequate knowledge, 20(40%) had moderate knowledge and 0(0%) had inadequate knowledge regarding naso gastric tube feeding.



Graph 03: Percentage distribution of post-test level of knowledge on Naso gastric tube feeding among Nursing personnel.

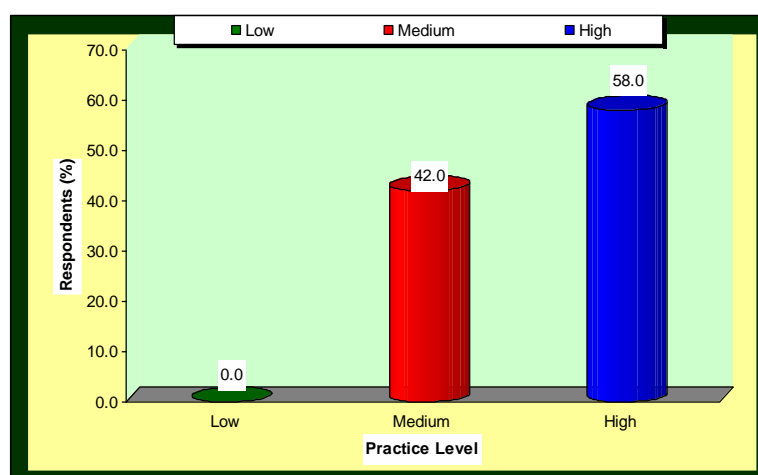
To evaluate the effectiveness of Structured teaching programme regarding Naso gastric tube feeding among nursing personnel by post-test score.

The table 1.4 depicts that in post-test practice majority of the respondents 29 (58%) had adequate practice, 21(42%) had moderate practice and 0(0%) had inadequate

practice regarding naso gastric tube feeding.

Table 1.4: Frequency and percentage distribution of post-test level of practice on Naso gastric tube feeding among Nursing personnel. n = 50

Practice Level	Category	Respondents	
		Number	Percent (%)
Low	< 50 % Score	0	0.0
Moderate	51-75 % Score	21	42.0
High	> 75 % Score	29	58.0
Total		50	100.0



Graph 04: Percentage distribution of post-test level of practice on Naso gastric tube feeding among Nursing personnel

- In post-test knowledge majority of the respondents 30 (60%) had adequate knowledge, 20(40%) had moderate knowledge and 0(0%) had inadequate knowledge regarding naso gastric tube feeding.
- The overall mean score of post-test knowledge is 21.94, standard deviation is 8.8, and mean score percentage is (73.1%).
- In post-test practice majority of the respondents 29 (58%) had adequate practice, 21(42%) had moderate practice and 0(0%) had inadequate practice regarding naso gastric tube feeding
- The overall mean score of post-test practice is 22.48, standard deviation is 6.5, and mean score percentage is (74.9%).
- The overall mean percentage of post-test knowledge is 73.1 with standard deviation of 8.8. The mean percentage of enhancement is (27.9%) with standard deviation of 9.2, and its paired 't' value is 21.44.
- The overall mean percentage of, post-test practice is 74.9 with standard deviation of 6.5. The mean percentage of enhancement is (22.5%) with standard deviation of 4.7, and its paired 't' value is 33.85.

To correlate the relationship between knowledge and practice scores on Naso gastric tube feeding among nursing personnel.

Correlation between knowledge and practice scores on Naso gastric tube feeding among Nursing personnel.

Table 1.5: Correlation between knowledge and practice scores of respondents on Naso gastric tube feeding, n=50

	Aspects	Max. Score	Respondents Response			Correlation coefficient (r)
			Mean	Mean (%)	SD	
Pre test	Knowledge	30	13.56	45.2	12.5	+0.679*
	Practice	30	15.72	52.4	6.9	
Post test	Knowledge	30	21.94	73.1	8.8	+0.310*
	Practice	30	22.48	74.9	6.5	

* Significant at 5 % Level, $r (0.05, 48 \text{ df}) = 0.273$

Table 1.5 shows descriptive measures of correlation between knowledge and practice regarding naso gastric tube feeding among nursing personnel. The mean of pre-test knowledge is 13.56, standard

deviation is 12.5 and mean percentage is 45.2.

- The mean of pre-test practice is 15.72, standard deviation is 6.9 and mean percentage is (52.4%).

- The correlation and coefficient of pre-test knowledge and practice is +0.679*
- The mean of post-test knowledge is 21.94, standard deviation is 8.8 and means percentage is (73.1%).
- The mean of post-test practice is 24.48, standard deviation is 6.5 and mean percentage is (74.9%).
- The correlation and coefficient of post-test knowledge and practice is +0.310*.
- The correlation and coefficient of post-test knowledge and practice is higher than the knowledge and practice of pre-test.

To know the association between pre-test knowledge scores with selected socio-demographic variables of Nursing personnel.

Association of knowledge with selected socio-demographic variables

Table 1.6: Association between pre-test knowledge and selected demographic variables of age, gender, educational status, experience, Present designation and Place of work. n=50

Demographic Variables	Category	Sample	Respondents Knowledge				χ^2 value	P Value
			Inadequate		Moderate			
			N	%	N	%		
Age Group (years)	21-25	15	9	60.0	6	40.0	1.87 NS	> 0.05
	26-30	20	12	60.0	8	40.0		
	31-35	15	12	80.0	3	20.0		
Gender	Male	24	20	83.3	4	16.7	6.18*	< 0.05
	Female	26	13	50.0	13	50.0		
Educational Status	GNM	18	10	55.6	8	44.4	1.39 NS	> 0.05
	BSC(N)	22	16	72.7	6	27.3		
	MSC(N)	10	7	70.0	3	30.0		
Experience	0-1 years	17	9	52.9	8	47.1	2.61 NS	> 0.05
	1-2 years	18	12	66.7	6	33.3		
	2-4 years	15	12	80.0	6	20.0		
Present designation	Staff nurse	22	10	45.5	12	54.5	8.24*	< 0.05
	Head nurse	16	12	75.0	4	25.0		
	Nursing superintendent	12	11	91.7	1	8.3		
Place of work	Medical ward	11	7	63.6	4	36.4	1.11 NS	> 0.05
	Surejcal ward	17	10	58.8	7	41.2		

In regards to nursing personnel age 21 – 25 years, 9(60.0%) had inadequate knowledge and 6(40.0%) had moderate knowledge. Among 26-30 years, 12(60.0%) had inadequate knowledge, and 8 (40.0%) had moderate knowledge. Among 31-35 years 12(80.0%) had inadequate knowledge and 3 (20.0%) had moderate knowledge. The obtain χ^2 value is 1.87 was no significant at < 0.05 level. So, the hypothesis (H_3) was rejected. H_{01} is accepted.

In regards to nursing personnel gender male 24 (83.3%) have inadequate knowledge, and 26(50.0%) had moderate knowledge. Among female 13(50.0%) had inadequate knowledge and 13(50.0%) had moderate knowledge regarding biomedical waste management. The obtain χ^2 value is 6-18 was significant at < 0.05 level. So, hypothesis H_3 is accepted.

In regards to the educational status of nursing personnel GNM 10(55.6%) had inadequate knowledge, and 8(44.4%) had moderate knowledge. Among BSC(N) 16 (72.7%) had inadequate knowledge and 6(27.3%) had moderate knowledge. Among MSC(N) 7(70.0%) had inadequate knowledge and 3(30.0%) had moderate knowledge. The obtain χ^2 value is 1.39 was no significant at < 0.05 level. So the hypothesis (H_3) was rejected. H_{01} is accepted.

In regards to the work experience of nursing personnel 0-1 years 9(52.9%) had inadequate knowledge and 8(47.1%) had moderate knowledge. Among 1-2 years experience 12(66.7%) had inadequate knowledge and 6(33.3%) had moderate knowledge among 2-4 years of experience 12(80.0%) had inadequate knowledge and 6(20.0%) had moderate knowledge. The

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obtain χ^2 value is 2.61 was no significant at < 0.05 level. So the hypothesis (H_3) was rejected. H_{01} is accepted.

In regards to the present designation of nursing personnel in staff nurse 10 (45.5%) had inadequate knowledge and 12(54.5%) had moderate knowledge. Among head nurse 12(75.0%) had inadequate knowledge and 4(25.0%) had moderate knowledge among nursing superintendent 11(91.7%) had inadequate knowledge and 1(8.3%) had moderate knowledge. The obtain χ^2 value is 6-18 was

significant at < 0.05 level. So the hypothesis (H_3) is accepted.

In regards to the place of work of nursing personnel in medical ward 7 (63.6%) had inadequate knowledge and 4(36.4%) had moderate knowledge. Among surgical ward 10(58.8%) had inadequate knowledge and 7(41.2%) had moderate knowledge. The obtain χ^2 value is 1.1 was no significant at < 0.05 level. So the hypothesis (H_3) was rejected and H_{01} is accepted.

To know the association between pre-test practice scores with selected socio demographic variables of Nursing personnel.

Table 1.7: Association between pre-test practice and selected demographic variables of age, gender, educational status, experience, present designation and place of work. n=50

Demographic Variables	Category	Sample	Respondents Knowledge				χ^2 value	P Value
			Low		Moderate			
			N	%	N	%		
Age Group (years)	21-25	15	7	46.7	8	53.3	6.79*	< 0.05
	26-30	20	11	55.0	9	45.0		
	31-35	15	13	86.7	2	13.3		
Gender	Male	24	19	79.2	5	20.8	5.77*	< 0.05
	Female	26	12	46.2	14	53.8		
Educational Status	GNM	18	7	38.9	11	61.1	7.77*	< 0.05
	BSC(N)	22	15	68.2	7	31.8		
	MSC(N)	10	9	90.0	1	10.0		
Experience	0-1 years	17	9	52.9	8	47.1	6.57*	> 0.05
	1-2 years	18	9	50.0	9	50.0		
	2-4 years	15	13	86.7	2	13.3		
Present designation	Staff nurse	22	12	54.5	10	45.5	3.06 NS	> 0.05
	Head nurse	16	9	56.3	7	43.8		
	Nursing superintendent	12	10	83.3	2	16.7		
Place of work	Medical ward	11	5	45.5	6	54.5	2.66 NS	> 0.05
	Surgical ward	17	10	58.8	7	41.2		
	Emergency ward	13	10	76.9	3	23.1		
	ICU	9	6	66.7	3	33.3		
Combined		50	31	62.0	19	38.0		

* Significant at 5% Level, NS : Non-significant

In regards to nursing personnel age 21 – 25 years, 7(46.7%) had inadequate practice and 8(53.3%) had moderate practice. Among 26-30 years, 11(55.0%) had inadequate practice, and 9(45.0%) had moderate practice. Among 31-35 years 13(86.7%) had inadequate practice and 2 (13.3%) had moderate practice. The obtain χ^2 value is 6.7 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to nursing personnel gender male 19(79.2%) have inadequate practice, and 5(20.8%) had moderate practice. Among female 12(46.2%) had inadequate practice and 14(53.8%) had

moderate practice. The obtain χ^2 value is 5.77 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to the educational status of nursing personnel GNM 7(38.9%) had inadequate practice, and 11(61.1%) had moderate practice. Among BSC(N) 15(68.2%) had inadequate practice and 7(31.8%) had moderate practice. Among MSC(N) 9(90.0%) had inadequate practice and 1(10.0%) had moderate practice. The obtain χ^2 value is 7.77 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to the work experience of nursing personnel 0-1 years 9(52.9%) had inadequate practice and 8(47.1%) had moderate practice. Among 1-2 years experience 9(50.0%) had inadequate practice and 9(50.0%) had moderate practice among 2-4 years of experience 13(86.7%) had inadequate practice and 2(13.3%) had moderate practice The obtain χ^2 value is 6.57 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to the Present designation of nursing personnel staff nurse 12(54.5%) had inadequate practice and 10(45.5%) had moderate practice. Among head nurse 9(56.3%) had inadequate practice and 7(43.8%) had moderate practice among Nursing superintendent 10(83.3%) had inadequate practice and 2(16.7%) had

moderate practice. The obtain χ^2 value is 3.06 was no significant at < 0.05 level. So the hypothesis (H_4) was rejected and H_{01} is accepted.

In regards to the Place of work received by nursing personnel in Medical ward 5 (45.5%) had inadequate practice and 6(54.5%) had moderate practice. Among surgical ward 10(58.8%) had inadequate practice and 7(41.2%) had moderate practice. Among Emergency ward 10(76.9%) had inadequate practice and 3(23.1%) had moderate practice. Among ICU 6(66.7%) had inadequate practice and 3(33.3%) had moderate practice. The obtain χ^2 value is 2.66 was no significant at < 0.05 level. So the hypothesis (H_4) was rejected and H_{01} is accepted.

Table 1.8: Association between post-test practice and selected demographic variables of age, gender, educational status, experience, present designation and place of work. n=50

Demographic Variables	Category	Sample	Respondents Knowledge				χ^2 value	P Value
			Moderate		High			
			N	%	N	%		
Age Group (years)	21-25	15	3	20.0	12	80.0	9.43*	< 0.05
	26-30	20	7	35.0	13	65.0		
	31-35	15	11	73.3	4	26.7		
Gender	Male	24	6	25.0	18	75.0	5.48*	< 0.05
	Female	26	15	57.7	11	42.3		
Educational Status	GNM	18	7	38.9	11	61.1	1.69 NS	> 0.05
	BSC(N)	22	8	36.4	14	63.6		
	MSC(N)	10	6	60.0	4	40.0		
Experience	0-1 years	17	6	35.3	11	64.7	6.56*	< 0.05
	1-2 years	18	5	27.8	13	72.2		
	2-4 years	15	10	66.7	5	33.3		
Present designation	Staff nurse	22	8	36.4	14	63.6	0.62 NS	> 0.05
	Head nurse	16	7	43.7	9	56.3		
	Nursing superintendent	12	6	50.0	6	50.0		
Place of work	Medical ward	11	3	27.3	8	72.7	3.35 NS	> 0.05
	Surgical ward	17	6	35.3	11	64.7		
	Emergency ward	13	8	61.5	5	38.5		
	ICU	9	4	44.4	5	55.6		
Combined		50	21	42.0	29	58.0		

* Significant at 5% Level,

NS : Non-significant

In regards to the Age group of nursing personnel 21-25years 3(20.0%) had inadequate practice and 12(80.0%) had moderate practice. Among 26-30 years, 7(35.0%) had inadequate practice, and 13(65.0%) had moderate practice. Among 31-35 years 11(73.3%) had inadequate practice and 4 (26.7%) had moderate practice. The obtain χ^2 value is 9.43 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to nursing personnel gender male 6(25.0%) have inadequate practice, and 18(75.0%) had moderate practice. Among female 15(57.7%) had inadequate practice and 11(42.3%) had moderate practice. The obtain χ^2 value is 5.48 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to the educational status of nursing personnel GNM 7(38.9%) had inadequate practice and 11(61.1%) had moderate practice. Among BSC(N)

8(36.4%) had inadequate practice and 14(63.6%) had moderate practice. Among MSC(N) 6(60.0%) had inadequate practice and 4(40.0%) had moderate practice. The obtain χ^2 value is 1.69 was no significant at < 0.05 level. So the hypothesis (H_4) was rejected and H_{01} is accepted.

In regards to the work experience of nursing personnel 0-1 years 6(35.3%) had inadequate practice and 11(64.7%) had moderate practice. Among 1-2 years experience 5(27.8%) had inadequate practice and 13(72.2%) had moderate practice among 2-4 years of experience 10(66.7%) had inadequate practice and 5(33.3%) had moderate practice. The obtain χ^2 value is 6.56 was significant at < 0.05 level. So the hypothesis H_4 was accepted.

In regards to the nursing personnel staff nurse 8(36.4%) had inadequate practice and 14(63.6%) had moderate practice. Among head nurse 7(43.7%) had inadequate practice and 9(56.3%) had moderate practice among Nursing superintendent 6(50.0%) had inadequate practice and 6(50.0%) had moderate practice. The obtain χ^2 value is 0.62 was no significant at < 0.05 level. So the hypothesis (H_4) was rejected and H_{01} is accepted.

In regards to the Place of work of nursing personnel in Medical ward 3 (27.3%) had inadequate practice and 8(72.2%) had moderate practice. In surgical ward 6(35.3%) had inadequate practice and 11(64.7%) had moderate practice. In emergency ward 8(61.5%) had inadequate practice and 5(38.5%) had moderate practice. In ICU 4(44.4%) had inadequate practice and 5(55.6%) had moderate practice. The obtain χ^2 value is 3.35 was no significant at < 0.05 level. So the hypothesis (H_4) was rejected and H_{01} is accepted.

CONCLUSION

The findings of the study concluded that there was a significant increase in the levels of knowledge and practice, after structured teaching programme among nursing personnel regarding Naso gastric

tube feeding. This shows that the structured teaching programme was effective.

Recommendations:

Based on the findings, the following recommendations are proposed for future research.

1. A comparative study may be undertaken in all types of health care settings.
2. A similar study can be carried out for other health care professionals who are involved in Naso gastric tube feeding in the hospital settings.
3. A study may be undertaken to evaluate the practices of final feeding complications of patients.
4. A comparative study may be conducted between the nurses and other high health care personnel.
5. Experimental studies may be conducted in treatment facilities.

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