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"EFFECT OF PLANNED TEACHING REGARDING ENTERAL NUTRITION ON KNOWLEDGE AND PRACTICE AMONG ICU STAFF NURSES".

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Abstract
Enteral nutrition is a major component of the nursing care for many patients admitted in ICU. Enteral nutrition can be wisely used to support patient wellbeing and recovery from illness. The nurse's role in enteral nutrition is very important one, it usually entails placing the feeding tube, determining when a temporary tube is needed, maintaining the tube, administering the feeding tube, preventing and identifying complications associated with this type of treatment, and participating in the assessment of the patient's response to enteral nutrition. The aim of the present study was to assess the effect of planned teaching regarding enteral nutrition on knowledge and practice among ICU staff nurses. A present study was conducted by using quantitative research approach. The Quasi Experimental-One group pre-test post-test design was adopted for this study. The conceptual framework was based on Ida jean Orlando which consists of five steps: assessment, diagnosis, planning, implementation and evaluation. The study showed that 54% of nurses had poor knowledge and majority of nurses were lacking the appropriate practices regarding enteral nutrition. 72% nurses had good knowledge score after planned teaching and also their practices improved after planned teaching. The planned teaching was effective in improving nurse's knowledge and practices regarding enteral nutrition. There was significant association of pre-test knowledge score of nurses with qualification and participation in knowledge events regarding enteral nutrition. Improvement of knowledge and practices would be beneficial to nurses regarding enteral nutrition in many ways like it reduces the chances of enteral nutrition failure, barriers and any other severe life-threatening conditions like bursting of enteral nutrition, aspiration of feed etc.
Keywords— Planned teaching, Enteral Nutrition, ICU Staff Nurses.

I. INTRODUCTION

The gastrointestinal tract is important for maintaining body immunological defenses, improving gut and liver function, lowering infection rates, and promoting improved survival in critical care units. Enteral feeding is used for a patient who has some digestive capacity but is unable or unwilling to eat enough food by mouth. Nutritional support has long been a standard part of critically ill patient care.[1]
The food management challenge of feeding a chronically ill patient is distinctive. Nutritional support should be begun as soon as possible after admission and continued as long as the patient is not eating properly, as excessive hunger increases the risk of morbidity and mortality.[2] Enteral feeding is the preferred method of nutrient administration in critically ill patients. It protects the integrity of the intestine mucosa and provides immunological benefits over parenteral feeding. Enteral nutrition is healthier, more physiological, and less expensive than total parenteral nutrition. Patients are at high risk of malnutrition in the critical care environment, due to the severity of their disease and their hyper-metabolic state. Because their immune systems are weakened, they are more susceptible to infection and septicemia.[3] Infections and delayed healing result in longer stays in intensive care, higher mortality and morbidity, and higher treatment costs.[4]
Proper nutrition from the beginning of enrolment is therefore crucial. The nurse's role in enteral nutrition has many functions like placing the feeding tube, administering the feeding tube, preventing and identifying

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complications associated with this type of treatment, and assessment of the patient's response to enteral nutrition. In more advanced critical care units, however, the Registered Nurses measure the calorie needs of the patient, the requirements of the body, evaluate the normal supply of calories and advocate for early enteral feeding. When enteral feeding is provided to intensive care patients, several studies have reported low caloric intake.[5]

In addition, clinical experience has revealed various enteral feeding-related issues, including pulmonary aspiration, diarrhea, and constipation, drains occlusion, and delayed gastric emptying. As a result, the investigator felt need to give planned teaching regarding enteral nutrition to ICU staff nurses and assess its effectiveness on improving their knowledge and practice regarding enteral nutrition

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Statement "A study to assess the effectiveness of planned teaching regarding enteral nutrition on knowledge and practice among ICU staff nurses in selected hospitals of Sangli -Miraj Kupwad corporation area".

Objectives:

To assess the nurse's existing knowledge and practice regarding enteral nutrition.
To assess the nurse's knowledge and practice regarding enteral nutrition after planned teaching.
To compare knowledge and practice before and after planned teaching.
To find association of pre-test knowledge score with selected demographic variables.

II. MATERIALS AND METHODS

This present study was aimed at assessing the effectiveness of planned teaching regarding enteral nutrition on knowledge and practice among ICU staff nurses. A Quantitative Research approach was adopted for this study. The quasi experimental one group pre- test post-test research design is used. The research tool had three sections that is demographic details, structured questionnaire to assess the knowledge regarding enteral nutrition and an observation checklist to assess the practices regarding enteral nutrition. Content validity of the tool was done by 20 experts. For reliability of the tool test retest method was used. The reliability coefficient 'r' of the questionnaire was 0.79 which is more than 0.7 hence the tool was found reliable. For observation checklist Inter-rater observation method was used and the value of Cohen's kappa was 0.91, which show observation checklist was reliable. Pilot study was also conducted to check the feasibility of the study and the study was found feasible. Sample size 50 was calculated by using power analysis formula. 50 ICU staff nurses from hospitals were selected by using simple random technique. A formal permission was taken from hospitals regarding the study and given the brief description about the study. The researcher himself approached the staff nurses and informed consent was obtained after verbal explanation about the study. The nurses existing knowledge regarding enteral nutrition was assessed using questionnaire also their practices regarding the same were checked using non participatory method. There was a gap of seven days between pretest and posttest assessment.

III. RESULTS AND DISCUSSIONS

In this study, 54% of staff nurses were between age group of 25-30years. 46% nurses were G.N.M. 60% of staff nurses was female. 56% of staff nurses were having experience of 2-4 years in ICU.68% of staff nurses did not participate in knowledge event regarding enteral nutrition**.**

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Table 1: Knowledge score before and after planned teaching

N: 50

	Pretest		Posttest	
Grading	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Poor (0-12)	27	54%	0	0%
Average (13-18)	23	46%	14	28%
Good (19-25)	0	0%	36	72%

54% of staff nurses were having poor knowledge regarding enteral nutrition before planned teaching whereas 46% had average knowledge. Whereas 72% of staff nurses were in the category of good knowledge score whereas 28% were in average knowledge score category after planned teaching.

Table 2. Comparison of pre-test and post-test knowledge score

N: 50

Knowledge score	**Mean**	**S.D.**	**t value**	**P value**
Pre test	13	1.52		
Post test	20	1.52	77.47	0.00001

It is concluded in this study that the knowledge score of nurses was improved after planned teaching as 'p' value is 0.00001; the result is significant at $p < 0.05$.

Also in one of the descriptive study major information gaps in relation to enteral nutrition were discovered, the study was on Intensive care nurses' awareness of enteral nutrition: a descriptive questionnaire, the study showed that dietitians were the most trusted source of enteral nutrition knowledge for nurses.[6]

Table 3. Frequency and percentage of practices before planned teaching

N: 50

Practices	**Yes**		**No**	
	Freq.	**%**	**Freq.**	**%**
Calculation of caloric requirement according to need of the patient	18	36	32	64
Checking of bowl sound before feeding	15	30	35	70
Elevation of head end before feeding	36	72	14	28
RT Aspiration and ensuring digestion before feeding	12	24	38	76
Consideration of patients likes and dislikes	22	44	28	56
Replacement of articles after feeding	16	32	34	68

Before planned teaching 64 % of nurses working in ICU were not calculating the caloric requirement whereas 70 of nurses were not even checking the bowl sounds before feeding the patient .76 % of nurses were not ensuring digestion by checking RT aspiration before feed. 56 % of nurses considered patients likes and dislikes for feeding. 68% nurses not replaced articles properly after feeding.

The study finding is in a similar line with Dashti-Khavidaki et al., (2012) who found that the majority of studied sample had unsatisfactory practice in various domains of drug administration via enteral catheters in the case group pre-test before instructive program[7]

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Table 4. Frequency and percentage of practices after planned teaching
N: 50

Practices	Yes		No	
	Freq.	%	Freq.	%
Calculation of caloric requirement according to need of the patient	38	76	12	24
Checking of bowl sound before feeding	34	68	16	32
Elevation of head end before feeding	46	92	4	8
RT Aspiration and ensuring digestion before feeding	28	56	22	44
Consideration of patients likes and dislikes	42	84	8	16
Replacement of articles after feeding	37	74	13	26

After planned teaching 76% nurses calculated caloric requirement according to need of the patient and 68% nurses checked bowl sound before feeding. 92% nurses elevated head of patient before feeding, 56% nurses were done RT aspiration and ensuring digestion before feeding whereas 84% nurses considered likes and dislikes of patients after planned teaching.
After planned teaching 70% nurses did evaluation of nutritional goal achievement, 76% nurses secured feeding tube properly. 40% nurses have used tube feeding pump appropriately, 32% nurses labeled accurately on feeding pump, 74% nurses replaced articles properly after feeding.

Table 5. Comparison of pretest and posttest Practices score
N: 50

Practices score	Mean	S.D.	t value	P value
Pre-test	9.80	0.76		
Post test	16.00	1.43	20.32	0.00001

The result is significant at p< 0.05: 'p' value is 0.00001, so, it is concluded that the Practice score of nurses was improved after planned teaching.
Similarly in one of the study conducted on nurses' awareness and activities about enteral nutrition at Al-Manial University Hospital in Egypt's Critical Care Department: The study concluded that nurses in the critical care department lacked awareness and practiced certain unhealthy procedures regarding enteral feeding; however, the instructional programme had a positive effect on enhancing nurses' knowledge and practice regarding enteral nutrition in the critical care department. The study proposed creating a written revised enteral nutrition protocol to ensure adequate understanding, cohesive, and healthy nursing practice.[8]

Table 6: Association of pre-test knowledge score with demographic variables
N: 50

S.N.	Demographic variable	Chi Square	P value	Association
1	Age	0.72	0.40	No association
2	Gender	3.00	0.083	No association
3	Qualification	31.19	0.00001	Significant association
4	Experience in ICU	0.00	1	No association
5	Participation in knowledge event regarding enteral	8.33	0.0039	Significant association

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	nutrition			

This table shows the association of pre-test knowledge score with selected demographic variables. There is no association of pre-test knowledge score with Age, gender and experience in ICU. But significant association of pre-test knowledge score is found with the education of nurses and participation in knowledge event regarding enteral nutrition.

The study finding is in concurrence with Ahamed & Mondal (2014) who reported that there was a significant association of knowledge of staff in regards to enteral nutrition with the professional qualification and period of experience.[9]

Conclusion- The study showed that 54% of nurses had poor knowledge and majority of nurses were lacking the appropriate practices regarding enteral nutrition. 72% nurses had good knowledge score after planned teaching and also their practices improved after planned teaching. The planned teaching was effective in improving nurse's knowledge and practices regarding enteral nutrition. There was significant association of pre-test knowledge score of nurses with qualification and participation in knowledge events regarding enteral nutrition.

Recommendations

A similar study can be done on larger population for the generalization of findings.

Alternative teaching techniques, such as interactive learning sessions and an organized teaching programme may be used to perform and analyze similar research.

A comparative study can be done among nurses working in government and private hospitals regarding knowledge on enteral nutrition

A descriptive study can be done among nurses to assess the knowledge, attitude and practices regarding enteral nutrition.

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