To Assess the Effectiveness of Structured Teaching Program on Knowledge and Practice Regarding Meows Chart Among Staff Nurses Working in Maternity Unit

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ABSTRACT

Background:The high mother's illness constitutes one of major concern worldwide. Mothers mortality has been like "the tip of the iceberg" while its base co-relates to the overall morbidity which occurs in mother due to health problems associated with pregnancy and postpartum. For every woman who dies from pregnancy-related causes, another 20-30 mother suffer the effects of acute or chronic morbidity causing permanent sequelae. Modified Early Warning Score (MEOWS) was introduced to obstetric units in the UK to decrease mother's mortality by enhancing early diagnosis of clinical signs of collapse in mother who were evolving critical illnesses. The variables of vital signs for the MEOWS chart accounts for this. The use of the MEOWS is a tool to assist the early identification and management of the diagnosis mothers. **Methodology:**In this study quantitative research approach with one-group pretest-posttest design is used. 50 staff nurses were selected by Non-probability convenience sampling technique **Results:**The findings of the study disclosed that the mean post test knowledge score was significantly higher than their mean pretest knowledge score. The calculated, "t" value ($t=12.565$, $p<0.001$) was greater than the table value at 0.001 levels. Hence it is concluded that there was a highly significant increase in knowledge of labour room staff nurses through structured teaching programme regarding MEOWS chart. Therefore the formulated hypothesis (H1) was accepted at 0.05 levels of significance.

KEY WORDS: KNOWLEDGE ,PRACTICE, MEOWS, STAFF NURSES.

INTRODUCTION

Mothers Early Obstetric Warning System (MEOWS) chart approved from Confidential Enquiry into Mothers and Child Health report is based on the principle that malformation in physiological variables introduces critical illness. The 'track and trigger' of physiological variables on this chart can help in recognition of mother's morbidity at an early stage, ultimately hesitant the cascade of severe mothers morbidity and mortality. In the UK a MEOWS chart has been used in obstetric clients to track mothers physiological variables, and to help early recognition and therapy of clinical retrogression after recommendation by

the Confidential Enquiry into Mothers and Child Health report.

The development of early warning systems from simple bedside monitoring charts appear from the knowledge that physiological malformation introduces critical illness. A variety of early warning systems, developed in the non-obstetric client population, assign weighted values to a number of physiological variables according to their degree of digression from the normal. When the measurement reaches defined threshold, a mandatory action is started to expedite further assessment of the client by a suitably qualified clinician. It is thought that early intervention will result in improved client outcome. MEOWS are a score attributed to these variables and documented on the MEOWS monitoring chart. The further away from 'normal' the individual's monitoring are the higher will be the score. A score ≥ 3 triggers the use of a 'call out cascade' giving specific instructions regarding level of monitoring, referral for advice, review, and instant actions to be considered.

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Need Of The Study: MEOWS chart emerged as a useful bedside screening tool for prediction of mother's death and should be used routinely in every obstetric unit. Strict monitoring and proof of all the vital variables should be fundamental part of any client's assessment to pick up acute illness at very early stage and to make a difference in final outcome. The use of the MEOWS does not demand critical care or define therapy but is a tool to help the early recognition and management of the collapse woman. However, no tool can replace the actual physical examination of a woman and clinical assessment of her condition. Often there are clinical signs that introduce collapse. In the last two 'Saving Mothers Lives' reports substandard care was identified where signs and symptoms were not realized and acted upon. Both reports recommended that a national Obstetric Early Warning Scoring system should be introduced and used for all obstetric mother, including those being cared for outside the obstetric setting.

In the study of the CEMACH recommended modified early obstetric warning system (MEOWS) they prospectively reviewed 676 consecutive obstetric admissions, looking at their completed MEOWS charts for triggers and their notes for evidence of morbidity. Two hundred clients (30%) triggered and 86 clients (13%) had morbidity according to criteria, including hemorrhage (43%), hypertensive disease of pregnancy (31%) and suspected infection (20%). The MEOWS was 89% sensitive, 79% specific, with a positive predictive value 39% and a negative predictive value of 98%. There were no admissions to the intensive care unit, cardio respiratory arrests or deaths during the study period. This study suggests that MEOWS is a useful bedside tool for predicting morbidity. Adjustment of the trigger variables may improve positive predictive value.

In South Africa, Modified Early Warning Scoring (MEWS) chart was developed for general wards and the aim of the study was to validate and construct the content of a monitoring chart for nurses incorporating a modified early warning scoring (MEWS) system for physiological variables in bedside. Result was Five consensus rounds achieved $\geq 70\%$ agreement for cut points in five of seven physiological variables respiratory and heart rates, systolic BP, temperature and urine output. For conscious level and oxygen saturation a relaxed rule of $<70\%$ agreement was applied. A reporting algorithm was established and incorporated in the MEWS chart representing decision rules determining the degree of urgency. Variables and cut points differed from those in MEWS used in developed countries. Conclusion of the study was that MEWS for developing countries should record at least seven variables. Experts from developing countries are best placed to specify cut points in physiological variables. Further research is needed to explore the ability of the MEWS chart to identify physiological and clinical retrogradation.

Objectives:

1. To assess the existing knowledge regarding MEOWS chart among Staff nurses.
2. To assess the practice regarding MEOWS chart among Staff nurses.
3. To assess the efficacy of structured teaching program on knowledge and practice regarding MEOWS chart among Staff nurses.
4. To associate the knowledge and practice with selected demographic variables among Staff nurses.

MATERIAL AND METHODS

In this study quantitative research approach with one-group pretest-posttest design is used. 50 staff nurses were selected by Non-probability convenience sampling technique.

Inclusion Criteria

- Staff nurses who are working in labor room.
- Staff nurses who are willing to participate.
- Exclusive Criteria
- Staff nurses who have attended classes regarding MEOWS chart.

Data Collection Method: The investigator obtained approval from the concerned authority of AVBR Hospital. Informed consent is taken from the participants. Sampling method is convenience sampling. Data is collected from the subjects using demographic variables and structured questionnaire and implementing the structured teaching program. The subject is requested to complete the tool after assuring confidentiality of the information. Consent is obtained from the subject. Pretest on knowledge given and practice was observed. After the pretest, Staff nurses were given a teaching by using planned teaching program. After 7 days of time the participants were given posttest with the same questionnaire on knowledge and monitoring checklist on practice.

RESULTS

Part I: Description Of Baseline Variables. N=30

Figure 1: Distribution of subjects according to their age in years

Figure 1 shows that greater percentages 86.66% of subjects were in the age group of <25 years, whereas 13.33% were between 25–30 years of age. N=30

Figure 2 shows that 36.66% of the respondents were B.Sc nursing, and 60% of the respondents were GNM and 3.33% of the respondent was PBB.sc. N=30

Figure 2: Distribution of subjects according to the educational status

Figure 3 shows that 46.66% had <1 year experience, 43.33% had 1–3 years of experience and 6.66% had 3–5 years of experience in labour room.

Figure 3: Distribution of subjects according to the years of experience in labour room

Part II: Analysis Of Knowledge And Practice Score Regarding Meows Chart Among Staff Nurses

Section A: Analysis of pretest and posttest knowledge percentage score regarding MEOWS chart among staff nurses

N=30

The table 4 depicts that in pretest 15 (50%) subjects had poor level of knowledge, 15 (50%) subjects had average level of knowledge and none of the subjects had good level of knowledge, whereas in posttest 20(66.66%) subjects had gained good level of knowledge, 10(33.33%) staffs gained adequate level of knowledge while none had inadequate level of knowledge regarding MEOWS chart.

Section B

Analysis of pretest and posttest practice percentage score regarding MEOWS chart among staff nurses N=30

The table 5 depicts that in pretest none of the subjects had poor level of practice, 30 (100%) subjects had average level of practice and none of the subjects had good level of practice, whereas in posttest 28(93.33%) subjects had gained good level of practice, 2(6.66%) staffs gained average level of practice while none had poor level of practice regarding MEOWS chart.

Part III: Evaluation of the efficacy of structured teaching programme regarding MEOWS chart.

The table 6 reveals that pretest mean score was 18.60, posttest mean score was 29.40 with a mean difference of -10.80 and its SD of 0.859. The paired „t” test value is 12.565 at df=29 at <0.001 level of significance. Hence it is concluded that there is a highly significant increase in knowledge regarding MEOWS chart among staff nurses through structured teaching programme. Therefore the formulated hypothesis (H1) is accepted at 0.001 levels of significance.

The table 7 shows that pretest mean score was 22.07, posttest mean score was 26.93 with a mean difference of -4.86 and its SD of 1.907. The paired test value is 13.978 at df=29 significant at <0.001 levels. . Hence it is concluded that there is a highly significant increase in practice of MEOWS chart among staff nurses through structured teaching programme. Therefore the formulated hypothesis (H2) is accepted at 0.001 levels of significance.

DISCUSSION

The high mothers morbidity and mortality rates constitute one of major concern worldwide. This rate can be reduced through the intervention of MEOWS chart. As it is routine procedure performed by the labour room nursing staffs, it is very necessary to know about the procedure. The study has been carry out to evaluate the efficacy of a structured teaching programme on knowledge and practice regarding MEOWS chart among staff nurses in selected Hospitals at Wardha. In order to achieve the objectives of the study, a one group pre test-post test quasi- experimental design was adopted. The data was collected from 30 labour room staff nurses before and after administration of structured teaching programme.

Part I: Description of baseline variables: Distribution of study subjects according to their age showed that majority 86.66% of the subjects were in the age group of <25 years. The distribution of subjects according to the educational qualification revealed that among the 30 subjects about 60% were GNM qualified, and (36.66%) were B.sc nursing qualified. Among the 30 subjects majority 46.66% of subjects were having <1 year experience, 46.66% were having 1–3 years of experience and 6.66% were having 3–5 years of experience.

Table 1. Analysis of pre test and post test knowledge percentage score regarding MEOWS chart among staff nurses.

Level of knowledge (score)	Number of staffnurses			
	Pretest		Posttest	
	Frequency	Percentage	Frequency	percentage
< 50% (Poor)	15	50	0	0
51-74% (Average)	15	50	10	33.33
75% and above (Good)	0	0	20	66.66

Table 2. Analysis of pre test and post test practice percentage score regarding MEOWS chart among staff nurses

Level of practice (score)	Number of staffnurses			
	Pretest		Posttest	
	Frequency	Percentage	Frequency	percentage
< 50% (Poor)	0	0	0	0
51-74% (Average)	30	100	2	6.66
75% and above (Good)	0	0	28	93.33

Table 3. Comparison of pre test and post test knowledge score among the subjects.

Knowledge score	Mean score	Mean difference	SD of Mean difference	Paired „t” test value	df	Level of significance
Pretest	18.60					0.000
Posttest	29.40	-10.80	0.859	12.565	29	Sig

Table 4. Comparison of pre test and post test practice score among the subjects.

Practice score	Mean score	Mean difference	SD of Mean difference	Paired „t” test value	df	Level of significance
Pretest	22.07					0.000
Posttest	26.93	-4.86	1.907	13.978	29	Sig

Part II: Analysis of pretest and posttest knowledge and practice score of labor room staff nurses: In pretest 15 (50%) subjects had poor level (< 50%) of knowledge, 15 (50%) subjects had average level (51-74%) of knowledge and none of the subjects had good level (75% and above) of knowledge, whereas in posttest 20(66.66%) subjects had gained good level (75% and above) of knowledge, 10(33.33%) subjects gained adequate level (51-74%) of knowledge while none had inadequate level (< 50%) of knowledge regarding MEOWS chart. In pretest none of the subjects had poor level (< 50%) of practice, 30 (100%) subjects had average level (51-74%) of practice and none of the subjects had good level (75% and above) of practice, whereas in posttest 28(93.33%) subjects had gained good level (75% and above) of practice, 2(6.66%)

subjects gained average level (51-74%) of practice while none had poor level (< 50%) of practice regarding MEOWS chart.

Part III: Evaluation of the efficacy of structured teaching programme regarding MEOWS chart:

H1: The mean post-test knowledge score of staff nurses who have received structured teaching programme will be significantly higher than their mean pre test knowledge score at 0.05 level. The findings of this study revealed that the mean post test knowledge score significantly higher than their mean pretest knowledge score. The calculated „t” value ($t=12.565$, $p<0.001$) was greater than the table value at 0.001 levels. Hence it is

concluded that there was a highly significant increase in knowledge of labour room staff nurses through structured teaching programme regarding MEOWS chart. (Table 6). Therefore the formulated hypothesis (H1) was accepted at 0.05 levels of significance. The above finding was supported by the study conducted at college of nursing, Indore. In this study the „t” test computed knowledge was showed high significance („t”=9.58, $P<0.05$).

H2: The mean post-test practice score of staff nurses who have received structured teaching programme will be significantly higher than their mean pre test practice score at 0.05 level. The findings of this study also revealed that the mean post test practice score was significantly higher than their mean pre test practice score. The calculated „t” value ($t=13.978$, $p<0.001$) was greater than the table value at 0.001 levels. Hence it is concluded that there was a highly significant increase in practice of labour room staff nurses through structured teaching programme regarding MEOWS chart. Therefore, the formulated hypothesis (H2) is accepted at 0.05 levels of significance. The above results were supported by the study conducted by school of nursing and midwifery, London, U.K, on an evaluation of teaching intervention to improve the practice of MEOWS chart in labour room. After teaching programme significant improvements were seen in both posttest knowledge and practice. 4 week later nurses adhered and sustained the taught practices. (29) The finding of this study connects with finding of another study conducted in college of nursing, Indore to assess the efficacy of planned teaching programme regarding MEOWS chart. The result showed that „t” test computed practice was („t” = 17.58, $P<0.05$) showed high significance.

Hence using a planned structured teaching programme was highly effective in improving the knowledge and practice regarding MEOWS chart among labour room staff nurses.

Recommendations

1. Similar study may be undertaken with a larger sample to have a better generalization.
2. The same study can be conducted with an experimental research approach having a control group.

CONCLUSION

Childbirth is a major life event and the physiological and psychological implications of serious illness on the woman and her family cannot be dismissed. While midwives strive to encourage and support normality for expecting and postnatal mother, equal importance must be assigned to identifying and acting on physiological changes occurring in mother, which may indicate illness that without timely intervention can lead to significant mothers morbidity. A modified early obstetric warning tool provides a useful help to clinical judgment during the assessment process and a structure to follow which should ensure timely and appropriate intervention when required. A locally devised tool can be modelled on the

NEWS. The space available must be utilized effectively and enable clear and legible proof.

The MEOWS booklet in AVBR hospital is commenced at 6 weeks pregnancy; however, it is possible that a modified MEOWS is applicable for all hospital admissions from pregnancy booking. Some physiological adaptations will be apparent early in pregnancy and may therefore warrant the use of a modified obstetric tool on admission to gynaecology wards. There may be a place for adapting the principles of early warning scoring for use by community midwives. Childbearing mother may develop illness outside hospital and a structure for assessment, intervention, escalation and appropriate referral is equally relevant in the community setting. A validated national obstetric early warning tool would enable consistency and a necessary uniform approach to the assessment and management of potentially collapse childbearing mother.

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