A STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING PREMATURE RUPTURE OF MEMBRANES (PROM) AMONG IV-YEAR B.SC NURSING STUDENTS STUDYING IN SELECTED NURSING COLLEGES AT BANGALORE

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INTRODUCTION:

The normal development, structural integrity and function of the fetal membranes are essential for the normal progress and outcome of pregnancy. One of the most important function of the membranes is to remain intact until the onset of labour at term in order to maintain the protective intrauterine fluid environment, upon which fetus depends for its survival in utero.[1]

Premature rupture of membranes (PROM) is defined as the spontaneous rupture of amniotic membranes with a release of amniotic fluid at least one hour before the onset of labour. If the membranes rupture after 37 weeks of gestation it is called term PROM. If the Rupture of membranes (ROM) occur after 28 weeks but before 37 weeks of gestation is termed as the preterm premature rupture of membranes (PPROM).[2]

The fetal membranes insulate the fetus and the amniotic fluid against microbial infections. Together with the amniotic fluid the membranes protect the fetus against blunt trauma and the umbilical cord against compression with its multiple functions it is not surprising that the PPROM can cause potentially severe adverse effects in pregnancies.[3]

Spontaneous rupture of membranes usually occurs near the end of the first stage of labour. However, in 10% of pregnancies at term fetal membranes fail to maintain their structural integrity, resulting pre-labour rupture and subsequently in 95-98% of cases it precipitates labour within 48 hours.[2]

Patient with PROM present with leakage of fluid vaginal discharge, vaginal bleeding and pelvic pressure at they are not having contractions. PROM is diagnosed by vaginal speculum examination of the cervix and vaginal activity pooling of fluid in the vagina or leakage of fluid from the vagina or cervix.[4]

Nearly 85% of neonatal mortality and morbidity related to prematurely .PPROM complicating 3% of all pregnancies and occurs in approximately 150,000 pregnancies yearly in the United States. When PPROM occurs remote from term significantly risks of morbidity, mortality are present for both fetus and the mothers.[4]

PPROM is associated with increased risk of chorioamnionitis, unfavorable cervix, dysfunctional labour, increased LSCS rates, PPH and endometritis in mother's. In the fetus there is increased occurrence of hyaline membrane

disease, intraventricular hemorrhage, sepsis, postural deformity, cordprolapse, fetal distress and increased fetal wastage[5]. A careful considerations of various factors and appropriate management is necessary of the cases with PROM.[6]

Treatment will depend on several factors including the gestational age and maturity of the fetus, whether active labor is present, signs of infection, and fetal distress. If the fetus is at term, appears developmentally mature, and there are no signs of infection (fever) or fetal distress (decreased fetal heart rate or movement), the woman may be placed on bed rest and monitored closely (for 24 hours) for labor to begin. [7]

NEED FOR THE STUDY:

Premature rupture of membranes (PROM) refers to breaking of the membranous sac that surrounds a fetus (amniotic sac) prior to labor. Although the membranes must rupture during labor to allow normal delivery of the fetus at full term, premature spontaneous rupture may occur prior to the onset of labor at any stage of pregnancy. Premature rupture of membranes (PROM) is one of the commonest complications and it has a diverse etiology and management policies, it is associated with increased maternal and fetal morbidity. Hence induction of labour was done for early delivery.[8]

The incidence of PROM was more in low – socioeconomic group and higher in cesarean section. PROM risk factors are found that in lower genital tract infection with associated coital activity, age below 20 years, inadequate antenatal care, illiteracy, operative deliveries, pelvic examinations during last three months of pregnancy, ascorbic acid deficiency may lead to PROM, previous surgery in the cervix like conization increase the risk of PPROM. Approximately 45–50% of preterm births are idiopathic, 30% are related to preterm rupture of membranes (PROM) and another 15–20% are attributed to medically indicated or elective preterm deliveries. Estimation of preterm birth rates and, ideally, their proper categorization (e.g. spontaneous versus indicated) are essential for accurate determination of global incidence in order to inform policy and programmes on interventions to reduce the risk of premature labour and delivery. Premature rupture of membranes is reported to occur in 6% to 10% of pregnancies, with 80% of these cases occurring at term. PROM occurs in 30% to 40% of pre-term deliveries. [9]

Prematurity represents 8% of birth and it is one of the leading causes of infant complications. The preterm premature rupture of membranes (PPROM) represents one-third of preterm birth and the rupture of membranes increase the risk of fetal exposition to infection which could lead to neurological sequels. Classic management of women with PPROM before 32SA is based on the extension of the pregnancy with the risk of adding complications like a secondary infection. Moreover, different studies have shown that fetal infection could be one of the most important risk factor for subsequent neurological complications. However, it is difficult to know if it is better to extend the pregnancy to gain in maturity or to arrest the pregnancy to avoid the risk of intrauterine infection.[10]

Preterm premature rupture of the membranes (PPROM) represents one-third of preterm births and is the leading cause of prenatal mortality and morbidity. During the latency period, several events such as the ascent of pathogenic microorganisms from the lower genital area could create complications which may culminate in cerebral palsy. Avoiding intrauterine infection appears as one of the most important objective in the PPROM management. Most authors propose the conservative management of women with PPROM, associating antibiotic therapy to corticosteroid administration in patients with PPROM before 30 to 32 weeks. The main benefit of conservative management is prolonging pregnancy, but the benefit must be balanced with the risks of fetal complications.[12]

PROM can be dangerous to the fetus and the mother because the amniotic sac acts as a protective barrier for the fetus, shielding it from bacteria and viruses. Once the membranes have ruptured, the risk of infection increases the longer the fetus remains in the uterus. In addition, so much fluid may be lost that there is no cushion left around the umbilical cord, which can cause it to become compressed and cut off oxygen and blood to the fetus.[14]

PROM is a significant obstetrical problem. Despite exhaustive research most of the aspects of PROM remain enigmatic. It contributes to increased maternal as well as perinatal mortality and morbidity. Careful antenatal monitoring,

detection and prompt treatment of infection is necessary. Strict aseptic precautions, appropriate therapy, regular antenatal follow up are important factors in the prevention and management of PROM .[10]

Hence the investigator felt that it is of paramount important, which is necessary to detect PROM at earliest, so that this would contribute towards reducing the maternal and neonatal mortality and morbidity rates in the country. There should be greater role for health education to help people to identify obstetrical complications and their involvement in pregnancy care. This study will undertake to impart the knowledge of IV-year BSc students regarding PROM through structured teaching programme.

HYPOTHESIS:

❖ **H₁** : The mean posttest knowledge scores of IV year B.SC nursing students will be significantly higher than their mean pretest knowledge scores.

❖ **H₂** : There will be significant association between the knowledge regarding PROM among IV year B.SC nursing students and selected demographic variables such as age, gender, religion etc.

CONCEPTUAL FRAMEWORK BASED ON HEALTH PROMOTION MODEL:

Theories are linked to the real world through definition that specifies how concepts will be known, experienced, observed and measured. Theories guide decision making by providing the supporting conceptualization for the study such as significance of the problem, background and problem definition or statement of the problem. Thus theory is an abstract generalization that presents a systematic explanation about the relationships among phenomena.[15]

Concept is defined as a complex mental formulation of an object properly event that is derived from individual perception and experience. [16]

Conceptual frame work is interrelated concepts or abstractions that are assembled together in some rational scheme by virtue of their relevance to common and sometimes referred to as conceptual scheme. [17]

The conceptual framework selected for this study is modified conceptual framework based on revised Pender's (2002) and otava charter (1986) health promotion model.

The health promotion model proposed by Pender defines health as a positive, dynamics state not merely the absence of disease. The health promotion model was designed to be a "complimentary counterpart to models of health protection" health promotion is directed at increasing a client's level of wellbeing.[17]

The health promotion model describes the multi-dimensional nature of persons as they interact within their environment to peruse health. The model focuses on the three functions of a client's cognitive perceptual factors (individual perceptions), individual characteristics and experience and behavioural outcome.[17]

According to this model, activity related to cognition and affect is individual's response to knowledge questionnaire.

The individual characteristics are age, religion, previous source of information, type of hospital you have practical experienced, in which ward you have more experience in hospital, If in OBG ward how many years' experience you have. According to modern people move back and forth in a reciprocal fashion of knowledge regarding premature rupture of membrane.

The outcome shows the knowledge whether it is inadequate, moderate or adequate and positive or negative respectively. Health promotion model is to bring out the awareness on adequate knowledge of IV-year BSc nursing students regarding management of premature rupture of membrane through the administration of structured teaching programme.

OBJECTIVE OF THE STUDY:

➢ To determine the knowledge of IV-year B.SC nursing students regarding premature rupture of membranes "PROM".

➢ To develop and implement structured teaching programme among IV-year B.SC nursing on PROM.

➢ To compare the level of knowledge of IV-year B.SC nursing regarding "PROM" before and after STP.

➢ To identify the association between of pre test knowledge with selected demographic variables.

METHODOLOGY:

Research methodology aims at helping the researcher to answer the research questions effectively, accurately and economically, studying how research is done scientifically.[15]

This chapter deals with the description of methodology and the different steps undertaken for gathering and organizing data for investigation. It includes the researcher approach, research design, study setting, population, sample and sampling technique, data collection method, development and description of tool, validity, reliability, data collection procedure and plan for data analysis and assessing the effectiveness of STP on the knowledge based on the statement and objectives of the study.

RESEARCH APPROACH:

This chapter deals with type of research approach used in the setting of the study. According to Polit and Hungler the classical approach for the conduct of evaluation research consists of four broad phases

- Determining the objective of the programme
- Developing a means for measuring the attainment of these objectives
- Data collection and interpreting data in terms of the objective
- In the analysis of data, the difference of initial and terminal measurements represents the effect of the independent variable.

In view of the nature of the problem selected for the study and objective to be accomplished, an evaluation research was considered an appropriate research approach for the present study.

RESEARCH DESIGN:

The purpose of a design is to achieve a greater control and thus improve validity of the study in examining the research problem. Design has been developed by researchers to meet unique research needs as they emerged. The present study attempts to assess the effectiveness of structured teaching programme on knowledge regarding premature rupture of membranes (PROM) among IV-year B.Sc nursing students studying in selected nursing colleges at Bangalore. Hence in the view of the nature of the problem selected for the present study, pre-experimental one group pretest and posttest design was considered as an appropriate one.

POPULATION:

Population is defined as the entire aggregation of cases that meet a designated set of criteria (Polit and Hungler, 1999). All the IV year nursing students studying at selected nursing Colleges at Bangalore under the study area of Bangalore constitute the target population for the study.

SAMPLING:

Sampling technique: According to Polit and Hungler, sample is subset of a population selected to appropriate in a research study. The process selecting a portion of the population to represent the entire population the sample of the study compress of 60 IV-year BSc nursing students studying at selected nursing colleges at Bangalore. convenience sampling technique was used .[15]

Sample Size: **Sample Size**: The study originated with a sample of 60 nursing students as a sample size for explicating the effectiveness of structured teaching programme on knowledge regarding premature rupture of membrane among IV B.Sc nursing students studying at selected nursing colleges at Bangalore.

DATA COLLECTION TECHNIQUE:

Methods of data collection include development of tool, testing of validity and reliability and data collection procedure. The instrument selected in research should be as far as possible the vehicle that would best obtain data for drawing conclusions, which are pertinent for the study.

A structured questionnaire was selected as appropriate method of data collection for the study. This method is applicable for nursing students and a good deal of information could be obtained by administering structured questionnaire to the nursing students.

DEVELOPMENT OF THE TOOL:

The investigator developed the questionnaire tool used in nursing research: principle and methods, corrections were made by experts. The instrument used for data collection was structured questionnaire to assess the effectiveness of structured teaching programme on knowledge and practice regarding diet during lactation.

The structured questionnaire consisted of two parts:

Part I: This part deals with demographic characteristics of the nursing students such as age, religion, previous source of information, Type of hospital you have practical experienced, In which ward you have more experience in hospital, If in OBG ward how many years' experience you have and this was not scored but used for descriptive analysis.

Part II: It consists of 30 structured questionnaires to assess the knowledge of nursing students regarding premature rupture of membrane. Each correct answer was given a score of one and the wrong answer was given a score of zero.

Score interpretation:

The instrument consists of 30 multiple choice questions regarding premature rupture of membrane. The maximum score was 30 and the minimum score was 0. Based on the scoring the % of knowledge was calculated using the formula

Obtained score/ total score X 100

The scores were interpreted as follows

- <50- Inadequate
- 51 to 75- Moderately adequate
- >75- Adequate

Organization of the content of the STP

Objectives were distributed under following learning area. The components included in the STP are.

- Introduce about the topic
- Define the Premature rupture of membrane, preterm PROM and prolong PROM.
- List out the risk factors of PROM
- Explain about the causes and incidence of PROM.
- List out the sign and symptoms of PROM
- Discuss about the diagnosis of PROM
- Describe about the treatment of premature rupture of membrane including antibiotic, corticosteroids
- Discuss about the special consideration and prevention and complication
- Summary.

Development of criteria checklist

Criteria checklist was prepared to develop STP based on the literature review and the opinion of experts. The criteria checklist consisted of statements under the board headings.

- Objectives.
- Content selection.
- Organization of content.

- Language.
- Visual images used.
- Feasibility and practicability.

RESULTS:

A result is the final consequence of a sequence of actions or events expressed qualitatively or quantitatively. Reaching no result can mean that the research actions are inefficient, ineffective, meaningless or flawed. Analysis is the process of breaking a complex topic or substance into smaller parts to gain a better understanding of it. In order to achieve the research results the collected data must be processed and analyzed in some orderly coherent fashion so that patterns and relationship can be discerned. [16] This chapter deals with the quantitative results of the study attempted to assess the knowledge among a sample of 60 IV-year nursing students regarding the premature rupture of membrane. The collected data were organized, tabulated, analyzed and interpreted by means of tables and graphs under following sections.

Plan for data analysis

The term analysis refers to a number of closely related operations, which are performed with the purpose of summarizing the collected data and organizing the data in such a manner that they answer the research questions. Data collected was analyzed by using descriptive and inferential statistics.

Section I Frequencies and Percentage Analysis

In this section the description of socio-demographic variables of the subjects are portrayed.

Section II Descriptive Analysis

In this section the descriptive statistics of knowledge score of the nursing student before and after STP as well as the mean and SD are calculated to assess the knowledge of the 60 nursing students regarding premature rupture of membrane.

Section III Inferential Analysis

In this section chi-square is used to find the association of selected socio demographic variables with knowledge of the nursing students regarding premature rupture of membrane.

Section I: Frequencies and Percentage Analysis

Data shows that according to their age the higher percentage of nurses (38.3%) are between the age group of 26 to 30 and about 31.7% of the nurses are in the age group 21-25 years and a very low percentage (30.0%) of the nurses are in the age group of 31-35 years. Highest percentage of the nurses (63.3%) belongs to Hindu religion and about 20% of the nurses are belongs to Christian religion and a very low percentage of the nurses 16.7% belong to Muslim religion. Highest percentage of the nurses (41.7 %) have got the information from the health personnel and about 33.3% of the nurses have got the information from the mass media and a very low percentage of the nurses 25 % have got the previous information from the internet. Higher percentage of the nurses (45%) have experienced in government hospital and (30 %) of the nurses have experienced in Nursing home and the lowest percentage (25 %) of nurses have experienced in private clinic. The higher percentage of the nurses (43.3%) have experienced in OBG ward and about 36.7% of the nurses they have experienced in medical surgical ward and lowest percentage (20 %) of nurses have experienced in pediatric ward. Higher percentage of the nurses (48.3 %) have one year to two year experienced , (30%) of the nurses have experienced of 2-3 years exp. and more than that and (21.7 %) of the nursing students have 3-5 years experienced in OBG ward experienced.

Section II Descriptive Analysis

Assessment of knowledge of IV year B.Sc. Nursing Students regarding Premature Rupture of Membranes (PROM).

Table 1: Overall knowledge score on premature rupture of membranes (PROM)

N=60

Questions	Mean	SD	Mean % of Knowledge
Overall Knowledge	8.75	1.24	29.17

In the present study during the pre-test, the mothers had a maximum mean of 3.87 with a standard deviation of 1.24 and mean percentage of 25.78 % regarding practice on diet during lactation. While in the post test, the lactating mother had maximum mean score of 12.78 with a standard deviation of 0.69 and mean percentage is 85.22%.

Table 2: Distribution of subjects according to pretest Level of Knowledge:

N=60

Level of Knowledge	Frequency	Percentage
Moderately adequate	35	58.3
Inadequate	25	41.7
Total	60	100.0

In the present study it was found that the level of knowledge of the nursing students was as follows, about 58.3 % of the nursing students had moderately adequate knowledge on premature rupture of membrane and about 25 % of the nursing students had inadequate knowledge on premature rupture of membrane.

Table 3 Post test overall knowledge score on premature rupture of membranes (PROM).

N=60

Knowledge	Mean	SD	Mean % of Knowledge
Overall post-test Knowledge	24.73	1.72	**82.43**

In the present study the assessment of posttest knowledge of nursing students regarding premature rupture of membranes (PROM) , The overall knowledge score of the nursing students had mean score of 24.73 and SD of 1.72 and mean percentage of 82.43% regarding premature rupture of membrane.

Table 4: distribution of subjects according to post-test level of knowledge

N=60

Level of Knowledge	Frequency	Percentage
Adequate	33	55.0
Moderately Adequate	27	45.0
Total	60	100.0

In the distribution of the nursing students according to the posttest level of the knowledge found that about 55 % of the nursing students had adequate knowledge on premature rupture of membrane and 45% of the nursing students had moderately adequate knowledge on premature rupture of membrane.

Table 5: Comparison of pre and post test knowledge scores regarding premature rupture of membranes (PROM) among nursing students

N=60

Knowledge	No. of Nursing students	Pre-test	Post-test	Mean of differences	paired t-test
Overall Knowledge score	60	8.75	24.73	15.98 (SD=2.10)	t=58.866

HS, p-0.000, df=59

In the present study on comparison of the pretest and posttest knowledge scores of the nursing students it was found that the difference in the mean was 15.98 and the difference in the SD (standard deviation) was 2.10. On calculation of the paired t-test it was found to be 58.866. The p-value was found to be 0.000 at degrees of freedom 59. Hence it was found to be highly significant.

Table 6: Comparison of average knowledge score percentage on premature rupture of membranes (PROM) before and after administration of structured teaching programme

N=60

Area of Knowledge	Pre-test %	Post-test %	% Enhancement
Over all	29.17	82.43	53.26

In the present study of comparison of average knowledge score percentage on premature rupture of membranes before and after the administration of structured teaching programme found that nursing students had mean score percentage of 29.17 before the administration of structured teaching programme and after the teaching programme nursing students had a mean score percentage of 82.43 and over all enhancement of the present study is 53.26%. It is evident from the present study that the Chi- Square value computed for the Type of hospital you have practical experienced, in which ward you have more experienced in Hospital and duration of experienced in OBG ward of the nursing students with the level of knowledge is statistically not significant which indicates that there is no association between the knowledge score and the demographic variables in relation to the knowledge.

Section III Inferential Analysis

- The study conclude that the Chi- Square value computed for the age, religion and previous source of knowledge with the level of knowledge is statistically not significant which indicates that there is no association between the knowledge score and the demographic variables in relation to the knowledge.
- It is also evident from the present study that the Chi- Square value computed for the Type of hospital you have practical experienced, in which ward you have more experienced in Hospital and duration of experienced in OBG ward of the nursing students with the level of knowledge is statistically not significant which indicates that there is no association between the knowledge score and the demographic variables in relation to the knowledge.
- The present posttest that the Chi- Square value computed for the age, religion and previous source of knowledge with the level of knowledge is statistically not significant which indicates that there is no association between the knowledge score and the demographic variables in relation to the knowledge.

CONCLUSION:

The following conclusions were drawn on the basis of the present study to assess the effectiveness of structured teaching programme on Knowledge regarding premature rupture of membranes (PROM) among IV-year B.SC nursing students studying in selected nursing Colleges at Bangalore. This section brings about the limitations of the study into practice.

The findings of the study have several implications on nursing practice, nursing administration, nursing education and nursing research.

The study shows that the nursing students are having inadequate knowledge (41.7%) on management of premature rupture of membranes.

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