

EFFECT OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING THE USE OF OXYTOCICS IN THE INDUCTION OF LABOUR AMONG STAFF NURSES

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ABSTRACT: Oxytocics are the drugs of varying chemical nature that have the power to excite contractions of uterine muscles. Simultaneously many maternal and fetal dangers are anticipated with the use of oxytocics. Adequate understanding of pharmacology of the drug is necessary for the safe and effective administration of it. The present study was aimed to assess the effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour among staff nurses. The objectives were to assess the level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour, to determine the effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour and to find out the association between level of knowledge and selected demographic variables. Quantitative approach was used in the study. The study was conducted in five hospitals in Ernakulum district. Using convenience sampling technique 50 staff nurses working in labour room was selected for the study. The tools were baseline proforma and structured knowledge questionnaire on use of oxytocics in the induction of labour. The collected data was analysed using descriptive and inferential statistics. The result showed that the mean posttest scores (22.32) was higher than the mean pretest scores (9.24). Paired 't' test computed between the pre and posttest level of knowledge scores showed that the p-value ($p < 0.000$) is less than 0.05 level of significance. Hence the study concluded that the structured teaching programme was effective in improving the knowledge of staff nurses. Fisher's exact test showed that there was no significant association between the pretest knowledge scores and demographic variables among the staff nurses.

Index terms- Effect; Structured Teaching Programme; Knowledge; Oxytocics; Induction of labour; Staff Nurses.

INTRODUCTION

Labour and birth represent the end of pregnancy and the beginning of extra uterine life for the new born infant.¹ During pregnancy there are progressive anatomical and physiological changes not only confined to the genital organs but also to all systems of the body. Endocrine glands also play an important role in the physiology of reproduction. Oxytocin and prostaglandin are essential for control of labour. Oestrogen increases release of oxytocin in maternal pituitary and accelerates lysosomal disintegration in amnion cells resulting in increased prostaglandin synthesis. Oxytocin receptors are increased in the uterus with the onset of labour and promotes release of prostaglandins which in turn results in the activation of myometrial contractile system.² Many complications arise during the administration of oxytocics, which is mainly due to lack of knowledge regarding the use of oxytocics in induction of labour.

Adequate understanding of pharmacology of the drug is necessary for the safe and effective administration of the drug. It is necessary that the nurses working in the obstetric unit should get educated about the use and administration of oxytocics drugs. Administration of the drug is the greatest responsibility of a nurse. The education of the staff nurses is very important. It helps to avoid error in drug administration. This is supported by a retrospective study conducted on 61 cases of ruptured uterus in Avolowo university teaching hospital, Nigeria, to identify the cause of ruptured uterus. The study revealed that 41% cases are due to injudicious use of oxytocin via wrong route and excessive dosage by the health personnel.¹¹

An adequate knowledge of pharmacology of any drug is a necessary for any administrator before the use of the drug. A drug has an important role in saving or improving health of an individual. Hence while administering oxytocics drugs the nurse should have thorough knowledge of the indications, action and side effects of these drugs as well as the nursing considerations related to each of them in order to plan and implementing effective nursing process.¹²

The investigator through her clinical experience and observation noted that most of the staff nurses who are working in the obstetric unit seem to have inadequate knowledge regarding the use of oxytocics in induction of labour. Previous researchers found that there were statistical significant association between level of knowledge and implementation of orders regarding administration of oxytocin.¹³ Non judicious use of oxytocics can result in maternal and foetal complications. So the researcher felt that it is important to educate the staff nurses working in obstetric unit regarding the use of oxytocics in induction of labour.

LITERATURE SURVEY

Medical methods of induction of labour

A systematic review was conducted on methods of induction of labour. The objective of the study was to assess the evidence supporting the use of each method of labour induction. The study reported that prostaglandin E2 (PGE2) and vaginal misoprostol were more effective than oxytocin in bringing about vaginal delivery within 24 hours but were associated with more uterine hyper stimulation. Mechanical methods

reduced uterine hyper stimulation compared with PGE2 and misoprostol. They concluded that research is needed to determine benefits and harms of many induction methods.¹⁶

The outcomes of induction of labour

A prospective study was conducted on intra-vaginal use of misoprostol for induction of labour in intrauterine death at Mymensingh Medical College Hospital. The objective of the study was to assess the efficacy of vaginal misoprostol for induction of labour in intrauterine foetal death cases and to detect any intrapartum or postpartum complications. For this study, fifty cases of IUD were selected among admitted patients who were diagnosed by detailed history, clinical examination and by ultrasonography. Most of the patients (80%) had no history of antenatal check-up and belongs to below average socioeconomic status. Most case (64%) had less Bishop's score (<3) & all cases had unfavourable cervix, score <6. Vaginal delivery was 98% and only 2% needed caesarean section. Complications were found in a minor group of patients. Nausea, vomiting, occurred in 12% of cases. Others were fever (2%), shivering (6%), PPH (4%), chorioamnionitis (2%) etc. The study concluded that vaginal misoprostol for cervical ripening and labour induction is very effective with less side effects.²⁹

Complications of induction of labour with oxytocics

A retrospective, population based cohort study was conducted on amniotic fluid embolism and medical induction of labour. The objective of the study was to assess the association between overall and fatal rates of amniotic fluid embolism and medical and surgical induction, maternal age, fetal presentation, mode of delivery, and pregnancy and labour complications. The findings of the study showed that, total rate of amniotic-fluid embolism was 14.8 per 100,000 multiple-birth deliveries and 6.0 per 100,000 singleton deliveries (odds ratio 2.5 (95% CI 0.9-6.2)). One hundred and eighty cases of amniotic fluid embolism in women with singleton deliveries during the study period, 24 (13%) were fatal. Medical induction of labour nearly doubled the risk of overall cases of amniotic fluid embolism (adjusted odds ratio 1.8 (1.3-2.7)), and the association was stronger for fatal cases (crude odds ratio 3.5 (1.5-8.4)). Maternal age of 35 years or older caesarean or instrumental vaginal delivery, polyhydramnios, cervical laceration or uterine rupture, placenta previa or abruption, eclampsia, and fetal distress were also associated with an increased risk. The study concluded that, although medical induction of labour seems to increase the risk of amniotic fluid embolism, physicians should be aware of this risk when making decisions about elective labour induction.³⁰

Role of a nurse in the effective use of oxytocics

A randomised control trial was conducted by Gagnon AJ and Waghorn K on the effect of one-to-one nurse labour support for nulliparous women 37 weeks or more gestation, carrying singletons, in labour with vertex presentation, stimulated with oxytocin, less than 5 cm dilated at baseline, and not scheduled for caesarean delivery or induction or having paid labor support were included in the study. One-to-one care consisted of

the presence of a nurse during labor and birth that provided emotional support, physical comfort, and instruction on relaxation and coping techniques. Usual care consisted of care for 2-3 labouring women with supportive activities varying by nurse. The result of the study showed a beneficial trend, because of one-to-one support, with a 56% reduction in risk of total caesarean deliveries [RR of experimental vs. Control = 0.44 (95% confidence interval = 0.19 to 1.01)]. The study recommended a one-to-one nursing for women stimulated with oxytocin which helps improving the intrapartum nursing care and thus reduce the complications.³³

Effect of structured teaching programme on staff nurses

A study was conducted by Manisha B and Sudha AR on the effectiveness of self-instructional module on the knowledge of obstetric drugs among nurses working in maternity unit in KLES Institute of Dr. Prabhakar Kore Hospital, Belgaum. The objective of the study was to assess the knowledge of nurses regarding obstetric drugs. An evaluative approach with one group pre-test/post-test design was used to conduct the study. Purposive sampling technique was used to collect the data from 30 staff nurses using a structured knowledge questionnaire on oxytocics drugs. Analysis of data revealed that the overall pre-test mean knowledge score was 21.63, whereas the post-test mean knowledge score was 38.26. The calculated 't' value ($t=26.46$) was greater than the table value ($t=2.045$). The study concluded that there was increase in the knowledge score in all the areas included in the study after the administration of self-instructional module.³⁷

METHODOLOGY

Research approach: In view of the nature of the problem selected for the study, quantitative approach was considered as appropriate to describe record, analyse and interpret the knowledge on the use of oxytocics in the induction of labour among staff nurses.

Research design: One group pre-test post-test design was adopted to study the effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour among staff nurses.

Variables: There were three types of variables identified in this study.

Dependent variable: In the present study, knowledge of staff nurses regarding the use of oxytocics in the induction of labour was the dependent variable.

Independent variable: In the present study the independent variable was structured teaching programme on the use of oxytocics in the induction of labour.

Extraneous variable: In this study it is comprised of the age of the staff nurses, qualification, total years of experience as a staff nurse and years of experience in labour room.

Setting of the study: The study was conducted in different hospitals in Ernakulum district, Kerala where there are separate department for the maternal and child health with well-equipped labour rooms.

Population: The population in this study constitutes all staff nurses working in labour room of selected hospitals at Ernakulum district, Kerala.

Sample: The samples of the present study comprised of staff nurses who are working in labour room of selected hospitals at Ernakulum district, Kerala who meets the inclusion criteria. Sample size was 50.

Sampling technique: In this study, convenience sampling technique was used to select the samples.

Inclusion criteria

- Nurses who are registered in the Kerala Nursing Council.
- Nurses who are working in labour rooms of selected hospitals.

Exclusion criteria

- Staff nurses who have undergone specialised training on oxytocics in induction during labour.

Tool or instruments

The tools for the study were prepared on the basis of the objectives of the study. This included:

1. Baseline proforma to collect the demographic variables of the staff nurses
2. Structured knowledge questionnaire to assess the level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour.

Development/ selection of the tool

The following steps are adopted in the development of the tool:

- Review of literature on the relevant topic from text books, journals and internet search
- Discussion with experts and guides in the field of obstetrics and gynaecology
- Selection and preparation of the blue print of the tool
- Construction of demographic proforma
- Construction of structured knowledge questionnaire to assess the knowledge of staff nurses regarding the use of oxytocics in induction of labour
- Content validation and modification as per suggestions
- Reliability testing
- Pre-testing
- Preparation of the final tool

Description of the tool

The tool consisted of baseline proforma and structured knowledge questionnaire.

Tool I – Baseline Proforma

It consisted of four items related to demographic variables such as age, qualification, total years of experience as a staff nurse and years of experience in labour room.

Tool II – Structured knowledge questionnaire on the use of oxytocics in induction of labour

It consisted of 30 multiple choice questions with four options from the following areas: Oxytocics, definition, types, Oxytocin - indications and contraindications, adverse effects, methods of administration, nurses' responsibility, prostaglandin- indications and contraindications, adverse effects, advantages and disadvantages and nurse's responsibility. Each correct answer was given a score of one and for wrong answer a score of zero. The maximum score of structured knowledge questionnaire was 30.

Scoring key

Total score: 30 = 100%

0-35% = poor knowledge

36-70% = Average knowledge

71-100% = Good knowledge

Description of the structured teaching programme

A lesson plan is the actual plan of action. Lesson plan reveals the knowledge and philosophy of the teacher, her understanding of students, objectives of education, the content to be thought and teaching ability to utilise appropriate method of teaching. It guides the teacher in presentation of subject matter and keeps the teacher on the track, ensure steady progress and definite outcome of teaching and learning.⁴⁴

The steps involved in the development of structured teaching programme were:

- Framing the outline of lesson plan: This included the setting of the general and specific objectives, specifying the venue, learners and duration of session.
- Framing the outline of the content: The topic is broken down into sub topics pertaining to different domains. The content of the lesson plan on oxytocics included subtopics such as definition and types of Oxytocics, indications, contraindications, adverse effects, methods of administration of oxytocins and prostaglandins, and nurses responsibility in it.
- Deciding methods of instruction and audio visual aids: The method of instruction adopted was lecture cum discussion. Power Point was developed by the researcher to use as visual aid.
- Evaluation of lesson plan: Evaluation of lesson plan was done by sending the content to the experts in the field of Obstetrics and Gynaecology for validation. There was 90%

of agreement by seven experts and modifications were made in discussion with research advisors, experts and guides.

Content validity: To establish the content validity of the tool the prepared instruments; baseline proforma, structured knowledge questionnaire on oxytocics and structured teaching programme along with the problem statement, objectives, operational definitions and criteria check list designed for validation were send to 7 experts in the field of medicine and nursing. They were requested to give their opinions and suggestions about

the content of the tool. There was 100% agreement for all the items in the base line proforma and the structured teaching programme on use of oxytocics in induction of labour. For structured knowledge questionnaire, 26 items got 100% and 4 items got 80% agreement. The corrections, suggestions and opinions made by the experts, were incorporated and the tool was reframed in consultation with the guide.

Reliability of the tool: The reliability of the structured knowledge questionnaire was established by administering the tool to 5 staff nurses who are working in the labour room of Ernakulum Medical Centre, Ernakulum on 30/12/2014. It was done by split half method using Karl Pearson Correlation Co-efficient formula. The value was $r = 0.84$. This indicated that the structured knowledge questionnaire was reliable.

Pretesting of the tool: After obtaining administrative permission from the hospital, the tools were given to 5 staff nurses who met the inclusion criteria, working in labour room at Ernakulum Medical Centre, Ernakulum on 05/01/2015 for pretesting. The knowledge questionnaire to assess the knowledge was administered to 5 staff nurses. The items were clearly understood by the staff nurses and there was no ambiguity in language. They took an average of 25-30 minutes to complete the tool.

Pilot study: After obtaining the administrative permission the pilot study was conducted in Little Flower Hospital, Angamaly from 16/1/2015 to 22/1/2015. The investigator used convenience sampling technique to select the study subjects. Researcher personally approached each subject, introduced herself, explained the purpose of the study and ascertained the willingness. The samples were assured adequate confidentiality and anonymity. The investigator obtained informed consent from each sample. Baseline information was collected and the investigator assessed the level of knowledge of the participants using the questionnaire. The pre-test and Structured Teaching Programme administered approximately 1.15 – 1.30 hours and the post test was done on day 7. All respondents co-operated well with the investigator. The study was found to be feasible.

Data collection process

- Approval from the institutional ethical committee was obtained. (Appendix A)
- Letter seeking permission for conducting the study was obtained from principal, Little Flower College of nursing. (Appendix B)
- Letter granting permission to conduct the study was obtained from the authorities of selected hospitals. (Appendix C)
- Informed consent was obtained from the participants. (Appendix J)

The data collection for main study was done from 23/1/2015 to 7/2/2015. 50 staff nurses were selected by convenience sampling technique. After introducing herself, the investigator clearly explains the purpose of the study to the subjects, assured about the anonymity and confidentiality of the information. After obtaining permission from the concerned authority to conduct the study, staff nurses who met the inclusion criteria were selected, individual informed consent was taken and data was collected. The study was done in five selected hospitals; Najath hospital, Carmel hospital, KG hospital, MAGJ hospital, Sanjoe hospital, Ernakulum.

Plan for data analysis: In this study the data was planned to be analyzed by using descriptive and inferential statistics, based on the objectives of the study

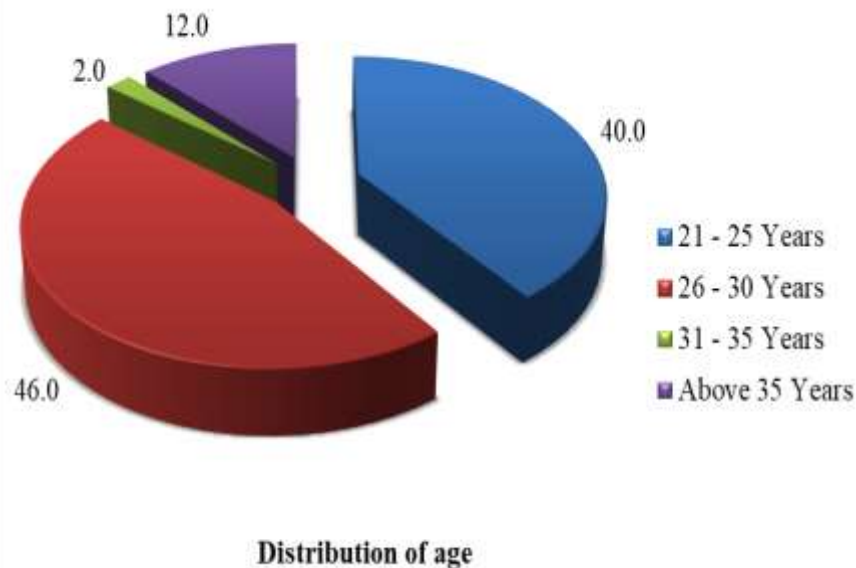
- Demographic data was planned to be analyzed using frequency and percentage distribution.
- Knowledge score was planned to be analyzed by computing frequency, percentage, mean and standard deviation.
- Effect of structured teaching programme on the use of oxytocics in induction of labour was planned to be calculated using paired ‘t’ test.
- Association between pre-test knowledge scores and selected demographic variable was planned to be calculated using fisher’s exact test.

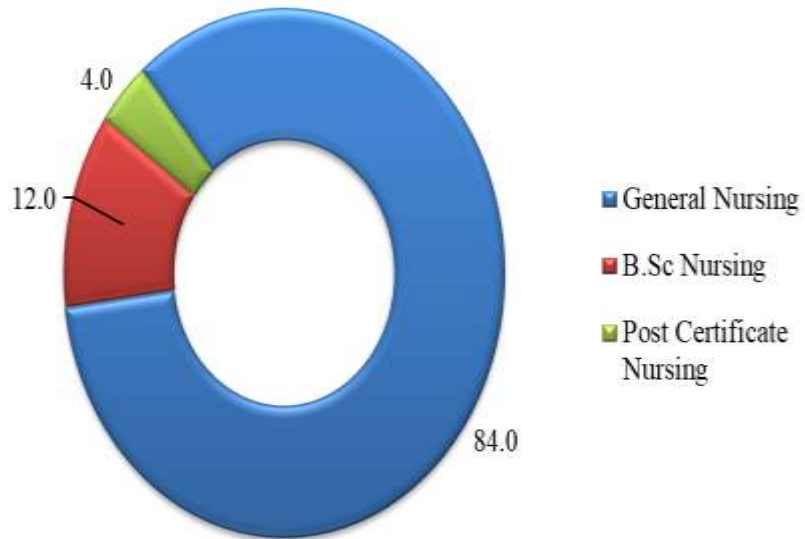
For testing hypothesis, the level of significance was set at 0.05. **Section I: Description of**

ANALYSIS AND INTERPRETATION

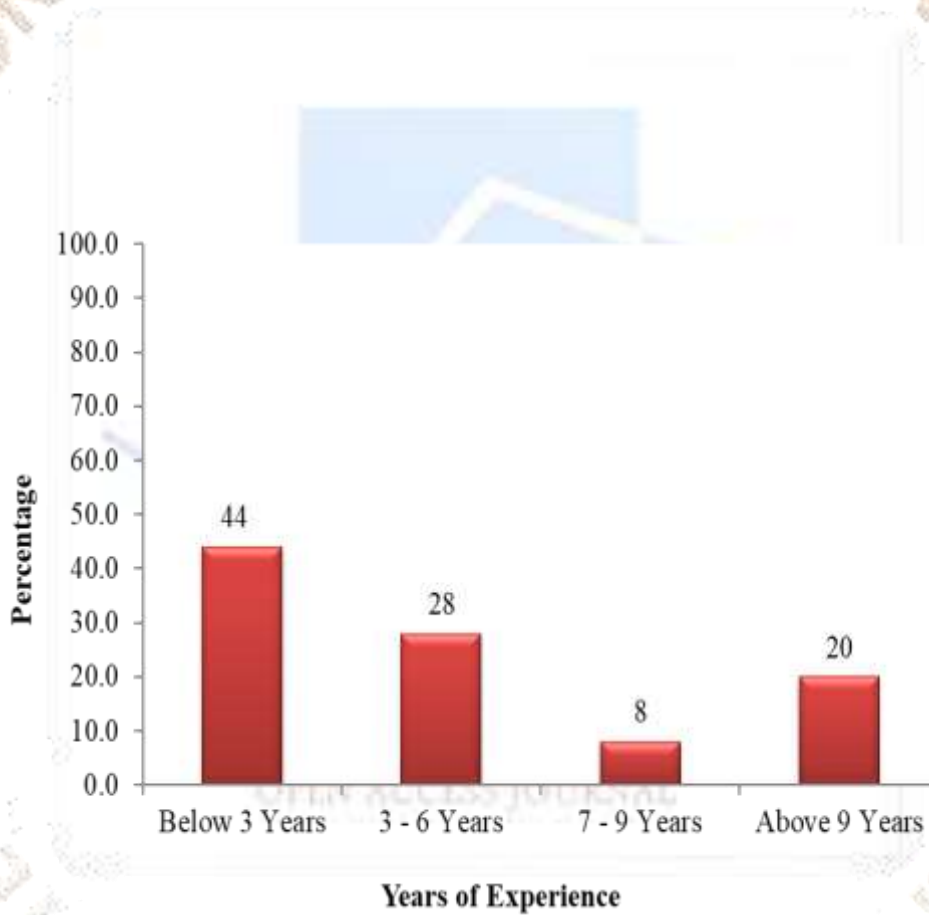
Section I: Demographic variables of staff nurses

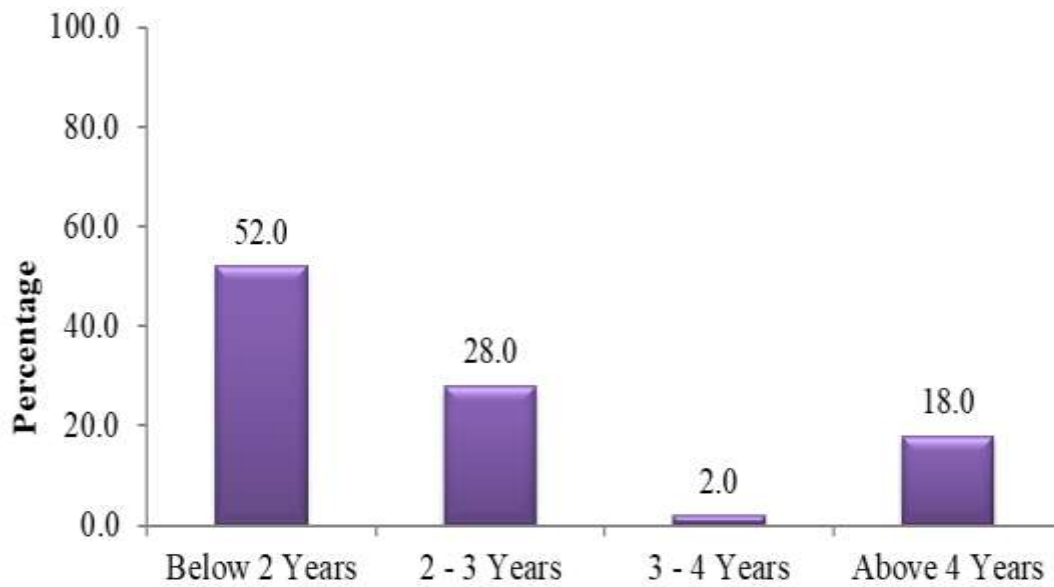
This section describes the distribution of subjects according to their characteristics such as age, qualification, total years of experience as a staff nurse and years of experience in labour room.





Distribution of Qualification

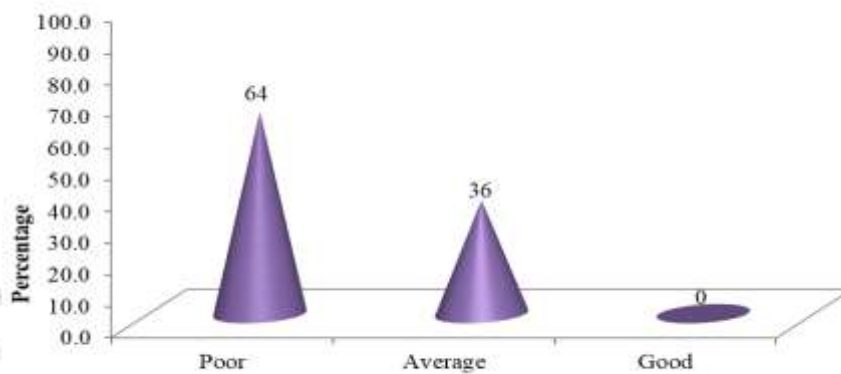




Distribution of Years of Experience in labour room

Section II: Description of level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour

This section deals with the analysis and interpretation of the data to evaluate the knowledge of staff nurses regarding the use of oxytocics in the induction of labour. The knowledge is assessed by a structured knowledge questionnaire having 30 items. Each correct response is given a score of one. The level of knowledge is categorized as poor, average and good.



Pre-test Knowledge on Oxytocics

Section III: Effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour among staff nurses

This section deals with the effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour among staff nurses. The following null hypothesis (H_{01}) was stated to test the statistical difference between the pre and post-test level of knowledge scores of staff nurses, using paired 't' test.

H_{01} : There is no significant difference in the mean pre and post-test knowledge level of staff nurses at 0.05 level of significance

Section IV: Association between level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour and selected demographic variables

This section deals with association between level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour and selected demographic variables. In order to find out the statistical significance, null hypothesis was stated and tested at 0.05 level of significance.

H_{02} : There is no significant association between pre-test level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour and selected demographic variables

RESULTS

Section I: Description of demographic variables of staff nurses

- 46% of staff nurses belonged to the age group of 26-30 years.
- Most (84%) of the staff nurses have Diploma in General nursing and midwifery.
- Majority (44%) of the staff nurses have below 3 years of experience whereas 8% of them have 7-9 years of experience as staff nurses.
- 52% of staff nurses have below 2 years of experience in labour room.

Section II: Description of level of knowledge of staff nurses regarding the use of oxytocics in induction of labour

In the pretest, the mean knowledge score of staff nurses regarding the use of oxytocics in the induction of labour was 9.24 with standard deviation of 3.45 ranging between 3-17. Among 50 staff nurses in the pretest, 32 (64%) had poor knowledge and 18(36%) had average knowledge.

Section III: Effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour among staff nurses

Paired't' test was used to find out the effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour. The findings of the present study revealed that the p-value is less than 0.05 level of significance. Hence it was inferred that the structured teaching programme was effective in increasing the knowledge level of staff nurses regarding the use of oxytocics in the induction of labour.

Section IV: Association between knowledge of staff nurses regarding the use of oxytocics in the induction of labour and selected demographic variables

Association between knowledge of staff nurses regarding the use of oxytocics in the induction of labour and selected demographic variables was assessed using fisher's exact test and it showed that all the p-values were greater than 0.05 level of significance. Hence it was concluded that there was no significant association between level of knowledge of staff nurses regarding the use of oxytocics in the induction of labour and selected demographic variables.

The present study assessed the effect of structured teaching programme on knowledge regarding the use of oxytocics in the induction of labour among staff nurses. Based on the statistical evidence it was concluded that structured teaching programme was effective in increasing the knowledge of staff nurses regarding the use of oxytocics in the induction of labour which helps to deliver quality care to the women in labour.

CONCLUSION

The present study was conducted to assess the effect of structured teaching programme on knowledge regarding the use of oxytocics in induction of labour among staff nurses. The result of this study revealed that most of the staff nurses had poor knowledge on the use of oxytocics in the induction of labour before the administration of structured teaching programme. Many of the staff nurses had improved their knowledge on oxytocics after the administration of structured teaching programme. It was found that there was no significant association between the pretest knowledge scores of staff nurses regarding the use of oxytocics in induction of labour and selected demographic variables such as age, qualification, total years of experience as a staff nurse and years of experience in labour room. The results of the present study are useful for hospital administrators, staff nurses working in labour room, nurse educators and health care researchers. Finally, all nurses should recognize that knowledge and skills regarding the use of oxytocics in induction of labor not only ensure a safe childbirth but also it prevents complications to the women in labour and the fetus in utero.

Limitations

The limitations of the present study are:

- The study was confined to a small sample selected by convenient sampling techniques which restricts the generalizability.
- Structured knowledge questionnaire to assess the knowledge of staff nurses regarding the use of oxytocics in induction of labour restricts the amount of information that can be obtained from the respondent.
- Data collection instrument developed by the investigator may enhance the possibility of errors.
- No attempt was made to do the follow up to measure the retention of knowledge of the staff nurses regarding the use of oxytocics in induction of labour.

Recommendations

On the basis of the findings of the study the following recommendations are offered for future research.

- A similar study with more samples can be conducted to determine the effect of structured teaching programme on knowledge regarding the use of oxytocics in induction of labour among staff nurses to generalize the topic.
- A descriptive study can be carried out to assess the knowledge, attitude and practice of staff nurse regarding the use of oxytocics in induction of labour.
- A study can be conducted to assess the effect of predicting the neonatal outcome.
- A future study can be conducted in staff nurses in obstetric unit.
- A comparative study may be replaced in different settings
- A similar study could be carried out to find the effectiveness in terms of retention of knowledge.

SUMMARY

The researcher felt a deep sense of satisfaction and fulfilment for having undertaken the study. The study provided the investigator with deeper insight and understanding to the needs of education to staff nurses. The expert opinions and direction from the guide and help from hospital authorities made the study fruitful and interesting.

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