

A Study to Assess the Effectiveness of Structure Teaching Programme on Knowledge Regarding Birthing Ball Therapy on Labour Pain During First Stage of Labour among 3rd Year GNM Students at Sions Bagalkot, Karnataka

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Abstract: *Introduction:* Birthing ball was originally developed in 1963 and it is used as a physical therapy for the neuro development treatment. It was introduced as a childbirth tool in 1980 by Perez and Simkin. Perez in 2001 stated that the birthing ball was physically beneficial use during pregnancy and labor by producing optimal positioning and pain reduction during contraction while eliciting non habitual movement¹. The studies conducted on the child birth describes that the child birth and the delay in the progress of the labors as the most severe pain that they has ever experienced and this makes mother discomfort, agitated and anxious. The cause of the pain can be either psychological or physical factors, relief of the pain can be achieved by several methods like psycho prophylactic methods, systemic drugs, local and regional nerve block, and general anesthesia. Sitting on the birthing ball encourages². Pregnancy is one of the wonderful and noble services imposed by nature. The traditional trend of managing labor and delivery as a normal process has given way to a risk management approach. Discomfort is one of the biggest obstacles of labor and delivery. Women in the developing countries with merge health facilities usually lie in bed during the first stage of labor. Lying on the back (supine) puts the weight of the pregnant uterus on abdominal blood vessels and contraction may be less strong than when upright. Effective contraction helps cervical dilatation and the descent of the baby. Being upright will make contractions stronger and more efficient. It will allow gravity to keep the baby's head pressed down, which will help the cervix to dilate faster so that labor is speeded up. Birthing ball helps the mother to be in an upright position and also it opens pelvis, encouraging baby to move down³. **Results:** After the administration of STP 71% of subjects acquired the good knowledge on Birthing ball therapy where as in pre-test there were only 27% GNM students had average knowledge. Analysis of the knowledge scores in the pre-test and post-test revealed that the mean and with mean and SD 12.7±2.85, whereas mean percentage in post-test was 80.90% with mean and SD 27.08±2.78. Paired 't' test used indicated a significant difference between mean pre test (12.7±2.85) and posttest (27.80±2.78) knowledge scores of 3rd year GNM students at 0.05 level of significance [t=36.05, (p<0.05)]. **Aims and objectives of the following study:** (1) To assess the pretest knowledge regarding Birthing Ball therapy on labour pain during first stage of labour among GNM 3rd year students at SIONS Bagalkot. (2) To determine the effectiveness of structure teaching programme on knowledge regarding birthing ball therapy on labour pain during first stage of labour among GNM 3rd year students at SIONS Bagalkot. (3) To find out the association between post-test knowledge score about birthing ball therapy with their socio demographic variables. **Hypothesis:** H1: There will be a significant difference between pre-test and post-test knowledge scores of 3rd year GNM students. H2: There will be a significant association between post test knowledge level of GNM 3rd year students.

Keywords: Effectiveness, structured, labor pain, knowledge, Birthing ball Therapy

1. Introduction

Labor is a physiological process during which the fetus, membranes, umbilical cord and placenta are expelled from the uterus, it occurs between 37 and 42 weeks. According to the 2013 Indian birth reports, birth rate in India is 20.22 births per 1000 population⁶. The labor process is divided into four stages that delineate milestones in a continuous process. The first stage of labor also called as the dilating stage begins with the onset of the true labor pain and ends with the full dilatation of the cervix. The second stage begins with the full dilatation of the cervix and ends with expulsion of the placenta and membranes and the fourth stage is the observation of mother and new born at least one hour after deliver of placenta⁴.

Birthing ball is a large air filled rubber ball which is strong enough to support the weight of the mother. It helps to wide and flex the pelvic bone and joints and helps the baby to descent into birth canal more easily and also helps in the strengthening the muscles of the pelvic floor, which is responsible for the pushing stage of child birth. The birthing ball facilitates positional changes and can used as a comfort tool for women in labor⁵.

Objectives

- 1) To assess the pretest knowledge regarding Birthing Ball therapy on labor pain during first stage of labor among GNM 3rd year students at SIONS Bagalkot.
- 2) To determine the effectiveness of structure teaching program me on knowledge regarding birthing ball

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therapy on labor pain during first stage of labor among GNM 3rd year students at SIONS Bagalkot.

- 3) To find out the association between post-test knowledge score about birthing ball therapy with their socio demographic variables.

2. Research Methodology

The methodology of a research study is defined as the way pertinent information is gathered in an order to answer the research problem. It enables the research methodology involves a systematic procedure by research starts from the identification of problem to its final conclusion.

Research Approach

Research approach refers to the approach or the methodology that has been adopted to conduct the research. It basically involves the selection of research problems, the conceptual frame work that has to be adopted.

A descriptive survey approach was used in the study since the study aimed to assess the knowledge regarding birthing ball labor pains among GNM 3rd year students, Bagalkot, Karnataka.

Research Design

The research design is the plan, structure and strategy of investigation for answering the research questions. It is overall plan or blue print the researcher selects to carry out the study. Researcher design reveals the overall plan for organization of scientific investigation. It helps the researcher in the selection of subjects, manipulation of independent variables and observation of a type statistical method to be used to interpret data. Descriptive design is adopted for the present study.

Variables under the Study

A variable is a content that has measurable changing attributes. Variables are qualities, or characteristics of persons, things or situation that change or vary.

Socio-demographic variables: Setting refers to the area where the study was conducted. It is the physical location and condition in which data collection takes place during the study. The criteria for selection of an appropriate setting included the availability of subjects, feasibility of conducting, the study getting permission from the concerned authority etc. this study was conducted in SIONS, Bagalkot.

3. Materials and Methods

Population; Population is the entire set of individuals or objects having some common characteristics, in this study population of SIONS, Bagalkot. sample is the subset of a population selected to participate in the study. Sampling refers to the process of selecting a portion of population to represent the entire population. The sample of present study comprise of SIONS, Bagalkot. Sampling technique adopted for the selection of sample is convenient sampling technique. In the present study was collected by the use of closed ended structured interview schedule. The following steps were carried out in preparing the tool. Literature

review. Preparation of blue print, Consultation with the guide, statistician subject experts of pediatrics nursing.

Description of the final tool: Knowledge questionnaire and attitude scale will be used to collect data from samples which consist of two parts. **Part I:** Format to collect socio-demographic data. **Part II:** Structured knowledge questionnaire to assess the knowledge of GNM 3rd year students. It consists of 20 items on knowledge regarding birthing ball therapy on labor pain during first stage of labor.

Section A: Demographic data: The items included in the first draft were 4 items for obtaining information about the selected baseline data about the pre university students which were relevant. The socio demographic variables include Age, Education, Religion, Family income, diet pattern. These all information was data.

Section B: Structured knowledge questionnaire: Multiple choice questions having 3 distracters with one correct answer. It consists of 60 items which includes 20 questions to assess the knowledge of the students. Each correct response carried a weightage of one score. Thus the maximum score is 20 and the minimum score was 0. The questions were prepared in English.

Reliability of the tool: The reliability of the instrument was established by administering the tool 5 GNM 3rd year students. The co-efficient of internal consistency was completed for interview structure knowledge questionnaire using split-half technique. the reliability of the test was found out by using Karl Pearson'S co-efficient of correlation formula. The reliability co-efficient obtained was 0.9 which is the tool is reliable.

Presentation of data: Self administered structured closed ended knowledge questionnaire was used which consists of two sections. **Part I:** Description of socio-demographic characteristics of sample. **Part II:** Assessment of pre-test knowledge of the 3rd year GNM students regarding Birthing ball therapy.

Section A: assessment of the level of pre-test knowledge of 3rd year GNM students. **Section B:** area wise mean, SD and mean percentage of pre-test knowledge scores. **Part III:** Evaluation of the effectiveness of the STP on birthing ball therapy. Section B: Area wise effectiveness of the STP. **Section C:** Testing of hypothesis. **Part IV:** Association between pre-test knowledge scores of GNM students regarding Birthing ball therapy and selected socio-demographic variables.

Table 1: Frequency and percentage distribution of socio – demographic characteristics

Variables	Frequency	Percentage{ % }
Gender		
Male	50	50%
Female	50	50%
Age		
18-20	33	33%
21-23	60	60%
24-26	07	07%
27-29	00	00%
Marital status		

Married	21	21%
Unmarried	79	79%
Family monthly income		
Less than 5000	42	42%
5000-10000	28	28%
10000-15000	24	24%
15000 above	06%	06%
Religion		
Hindu	77	77%
Muslim	22	22%
Christian	01	01%
Types of family		
Joint family	37	37%
Nuclear family	63	63%
Residence		
Rural	64%	64%
Urban	36%	36%
Sources of information		
Family	50	50%
Relative/friends	10	10%
Books /journal	24	24%
Tv /news paper	16	16%
Health care person		
Yes	45	45%
No	55	55%

Table 2: Percentage wise distribution of study subjects according to level of knowledge in pre test

Level of knowledge	Range of scores	Number of respondents	Percentage %
Very poor	0-7	4	4%
Poor	8-14	69	69%
Average	15-21	27	27%
Good	22-28	0	0
Excellent	29-34	0	0
Total		100	100

Percentage wise distribution of study subjects according to level of knowledge in pretest out of 100 GNM3rd year students 69% is poor knowledge, were has average 27% knowledge, and 04% of students have very poor knowledge there were GNM none of the Good and Excellent knowledge. There were GNM students who had very poor birthing ball therapy.

Table 3: Area wise Mean, SD and mean percentage of the knowledge scores in pre-test and post-test

Knowledge area	Max score	Pre-test (O1)		Post-test (O2)		effectiveness (O2-O1)	
		Mean ±	Mean%	Mean ±	Mean%	Mean±SD	Mean%
General information labor	10	5.04 ± 1.37	50.40%	8.09 ± 2.27	80.90%	3.052±2.24	30.51%
Items related to birthing ball therapy	24	7.73 ± 2.45	32.20%	8.99 ± 2.84	37.45%	11.26±3.22	46.91%
Total	34	12.7 ± 2.85	37.35%	27.08 ± 2.78	79.64%	14.31±3.62	42.08

Finding comparison of mean percentage of the knowledge score of the pre test and post-test reveals an increase of 37.35 percent in the mean knowledge score of the GNM students STP. Area wise mean percentage in pre-test **37.35%**, and post test mean percentage **79.64%** were has mean standard deviation is **14.31 ±3.62** and Total mean percentage is **42.08**.

Table 4: Significance of the difference between the pre-test and post-test knowledge scores of the GNM students, N=100

	Test	mean	SD	Mean Diff	Paired t-value	Table value
General questions on labor	Pre test	5.04	1.37	3.05	11.47*	1.96
	Post test	8.09	2.27			
Questions related to Birthing ball	Pre test	7.37	2.45	11.37	82.63*	1.96
	Post test	18.99	2.84			
Total	Pre test	12.7	2.85	15.1	36.05*	1.96
	Post test	27.8	2.78			

DF=99

As calculated paired 't' value 36.05* higher than the table value (1.96) for degree of freedom 99 and 5% level of significance. There is difference between pre test and post test knowledge scores of nursing students (pre test 12.7) and (post test 27.80) hence, the null hypothesis is accepted.

Table 5: Section 4: Association between posttest knowledge scores and selected socio demographic variables, N=100

S. No	Socio-demographic variables	Df	Chi-square value	Table value	Level of significance
1	Gender	1	1.604	3.84	p>0.05 NS
2	Age	1	1.303	3.84	p>0.05 NS
3	Marital status	1	3.927	3.84	p>0.05 NS
4	Religion	1	0.687	3.84	p>0.05 NS
5	Type of family	1	1.999	3.84	P>0.05 NS
6	Residence	1	0.117	3.84	p>0.05 NS
7	Attended any work shop	1	0.411	3.84	p>0.05 NS
8	Sources of information	1	0.475	3.84	p>0.05 NS
9	Monthly income	1	0.687	3.84L	p>0.05 NS
10	Healthcare in family	1	0.235	3.84	p>0.05

Chi square test was used to find out the association between posttest knowledge scores of GNM 3rd year students with their socio demographic variables by using 2x2 and 2x3 contingency table.

There is significance association between posttest knowledge and socio demographic variables association was found knowledge and marital status 3, 92, hence the **H2** is accepted for marital status and rejected for the socio demographic variables.

There is significant difference between posttest knowledge scores and socio-demographic variables.

4. Summary

This chapter deals with nursing implications, limitations, suggestions, and recommendations drawn from: The most common way of childbirth is a vaginal delivery. It involves three stages of labor. The shortening and opening of the cervix during the first stage, descent and birth of the baby during the second stage, and the delivery of the placenta during the third stage. labor is the process of giving birth. Signs that you might be going into labor include; contractions that are regular then start to come closer together⁵.

The result of the study: The research design selected for this study was pre-experimental, i. e. one group pre-test, post-test design. The independent variable was STP and dependent variable was knowledge of 3rd year GNM students on birthing ball therapy. The complete Enumeration sampling technique was used to select a sample of 100 3rd year GNM students studying in SIONS Bagalkot. The tool prepared by the investigator was self administered structured closed ended knowledge questionnaire. The tool and STP were validated by ten experts. Reliability (split-half method) of the tool was established by Karl Pearson's Correlation Coefficient. The pilot study was conducted to confirm the feasibility for conducting the main study. The actual study was conducted on 100 GNM students from 20.03.2019 to 26.04.2019. Following the pretest, structured teaching program was administered and post test was given eight days the administration of STP. The obtained data were analyzed in terms of objectives and hypothesis using descriptive and inferential statistics.

5. Results

After the administration of STP 71% of subjects acquired the good knowledge on Birthing ball therapy where as in pre-test there were only 27% GNM students had average knowledge.

Analysis of the knowledge scores in the pre-test and post-test revealed that the mean and with mean and **SD12.7± 2.85**, whereas mean percentage in post-test was 80.90% with mean and **SD 27.08± 2.78**.

Paired 't' test used indicated a significant difference between mean pre test (**12.7± 2.85**) and posttest (**27.80± 2.78**) knowledge scores of 3rd year GNM students at 0.05 level of significance [t=36.05, (p<0.05)].

Conflict of interest: None

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