

# Effectiveness of Structured Teaching Programme Regarding Prevention of Cholelithiasis among Antenatal Mothers in Selected Antenatal Clinics at Bangalore, Karnataka, India

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**Abstract:** ***Background and Objectives:** This study was under taken to evaluate the effectiveness of structured teaching programme on Prevention of Cholelithiasis among Antenatal Mothers in Selected Antenatal Clinics at Bangalore. **Objective of the Study:** To assess the knowledge regarding prevention of Cholelithiasis among antenatal mothers who are attending antenatal clinics. To evaluate the effectiveness of Structured Teaching Programme on prevention of cholelithiasis among antenatal mothers. To identify the association between knowledge regarding prevention of Cholelithiasis and selected demographic variables. **Methods:** The study involved evaluatory approach with Quasi experimental research design, a non-probability purposive sampling technique was used to draw the sample. 60 Antenatal Mothers were made to mark the structured questionnaire by following inclusion and exclusion criteria. The pre-test was followed by implementation of structured teaching programme and post test conducted after 8 days using the same structured questionnaire to find out the effectiveness of structured teaching programme. The results were described by using descriptive and inferential statistical analysis. **Results:** Regarding effectiveness of structure teaching programme, the overall mean knowledge score percent in the pre-test is 53.15% and 79.32% in the post-test. The mean knowledge score during pre-test is 21.26 and 31.73 in the post-test. The statistical Paired-'t' test indicates that enhancement in the mean knowledge scores were found to be significant at 0.05 percent level for all the aspects under the study. **Conclusion:** The overall findings of the study clearly showed that the structured teaching programme was significantly effective in improving the knowledge on prevention of cholelithiasis among antenatal mothers*

**Keywords:** Evaluate, effectiveness, structured teaching programme, antenatal mothers

## 1. Introduction

*“Diamond snatched by a thief is better than a pebble in the tummy”*

*-Albert Einstein*

Being a woman is just a human but being a mother is divine. Having a baby is one of the most important events in a woman's lifetime and, as well as being a time of great joy. Having a child is a major life change, and mothers need to undergo many changes physically and mentally. There can be minor ailments due to physical changes occurring in almost all the systems of body. One such important system is Gastro Intestinal system, also their dietary requirements also alters. All these factors contributes for prevalence of gall bladder diseases during pregnancy.

Reports from science daily shows that gallbladder disease affects 10 to 25% adults in United States show that gallbladder disease affects 10-25% of adults. Although some persons who have affected may not have the symptoms. It has the second highest cost of any digestive disease at \$5.8 billion annually and results in over 800,000 hospitalizations each year.

Disorder of the gall bladder and ducts are extremely common in worldwide above 20 million people are affecting the gall stones and almost 3,75,000 cholecystectomies every year. Women account for nearly seventy percent those for gallstones. Gallstones are small, hard pellets that can form in

the gallbladder, a sac-like organ that lies under the liver on the right side of the abdomen. Most people with gallstones don't even know they have them. But in some cases a stone may cause the gallbladder to become inflamed, resulting in pain, infection, or other serious complications.

Several recent reports have indicated an increased prevalence of gallstones in association with pregnancy. If these reports are true, the early puerperium should be a favorable time to detect the disease in its initial stages and follow its natural course. Accordingly, the gallbladder was examined by ultrasound in 980 women during the immediate postpartum period and in 150 nulliparous, age-matched healthy volunteers. Gallstones were detected in 12.2% of the puerperal women and in 1.3% of the control group. In addition, increased levels of the hormone estrogen as a result of pregnancy, hormone therapy, or the use of combined (estrogen-containing) forms of hormonal contraception, may increase cholesterol levels in bile and also decrease gallbladder movement, resulting in gallstone formation.<sup>3</sup>

The population based survey from India was shown that prevalence of gall stones was found to be 6.1%. Incidents among males were 3.3% and among females were 9.2%. As per NCRP 2000 3% male and 9% female are affected by gallstones in Bangalore. This calls for active research in this newly arising disease.

Gall stones are not a recent problem. A study conducted on Egyptian mummy dates from 18<sup>th</sup> dynasty at CT numerous

calcified gallstones are found. Gall stones are a common problem in this recent era. But reports suggest that the preventable diseases are under studied. So search and innovation must develop to implement effective preventive strategies. Gall stones can arise from certain risk factors like high cholesterol DM, physical inactivity etc. we can prevent the occurrence of gallstones by controlling this risk factors. Despite the advanced source of knowledge, people do not have much awareness regarding various preventive measures so it is necessary to make public aware about this factors.<sup>2</sup>

No clear relationship has been proven between diet and gallstone formation. However, low-fibre, high-cholesterol diets, and diets high in starchy foods have been suggested as contributing to gallstone formation. Other nutritional factors that may increase risk of gallstones include rapid weight loss, constipation, eating fewer meals per day, eating less fish, and low intakes of the nutrients folate, magnesium, calcium, and vitamin-C. On the other hand, wine and whole grain bread may decrease the risk of gallstones.

Majority of the gallstones are caused by complex interaction of genetic and environmental factors. Women tend to have higher body fat and less active liver than males which in turn increase the risk of gallstones in them. Most of the gall stones are silent and will not produce any symptoms this silent stones in future can result in pancreatitis, cholecystitis and gall bladder cancer.<sup>1</sup>

A Cohort study conducted by Gunner Shultto evaluate the incidence and symptoms of and risk factors for biliary sludge and gallstones during pregnancy and to assess the natural history of these conditions in the first year after delivery. A total of 272 pregnant women recruited in the first trimester. Overall, from the first trimester of pregnancy until the immediate postpartum period, 67 women were newly diagnosed with biliary sludge, and 6 women were newly diagnosed with gallstones. The respective incidence rates were 31% and 2%. During pregnancy, 28% of women experienced biliary pain, which was associated only with presence of stones. After delivery, 92 women had sludge and 23 had stones. Sludge disappeared in 61% of these women, after a mean follow-up of 5 months, and stones disappeared in 28% of women after 9.7 months of follow-up. As the study results biliary sludge occurred frequently during pregnancy but was generally asymptomatic and often disappeared spontaneously after delivery. Gallstones were much less frequent and were more likely to be associated with biliary pain.<sup>4</sup>

The morbidity and burden of cost incurred by gall stones are staggering. Yet there is a dearth of understanding in the epidemiology and the cause of disease. The results of these investigations should generate new important and useful insights into the pathogenesis and provide rational strategies on the prevention of this common costly disease.

Although, problems due to this disease are preventable, people are not aware about these factors. Hence, the gap in knowledge is a growing risk that necessitates the need to systematically investigate the knowledge of preventive measures of cholelithiasis. It is also anticipated that this

study may increase the awareness among women's regarding prevention of cholelithiasis.

## 2. Objective of the Study

- 1) To assess the knowledge regarding prevention of Cholelithiasis among antenatal mothers who are attending antenatal clinics
- 2) To evaluate the effectiveness of Structured Teaching Programme on prevention of cholelithiasis among antenatal mothers
- 3) To identify the association between knowledge regarding prevention of Cholelithiasis and selected demographic variables.

## 3. Methodology

A quasi experimental research with Evaluative approach was used to assess the effect of structured teaching programme on prevention of cholelithiasis among antenatal mothers. The sample size consists of 60 (sixty) antenatal mothers in selected antenatal clinics at Bangalore, using A non probability purposive sampling technique. A structured questionnaire was prepared to assess the knowledge of antenatal mothers regarding prevention of cholelithiasis. The structured knowledge questionnaire comprised of two parts, **Part I:** Consists of 10 items related to the socio-demographic variables under the study such as Age, Educational status, Religion, Occupation, Income, Availability of health services, Gravida, Type of diet, Socio-economic status and Residing area. **Part II:** Consists of 40 items which is designed to elicit information regarding knowledge on prevention of cholelithiasis. The score for correct response to each item was "one" and incorrect response was "zero". Thus for 40 items maximum obtainable score was 40 and minimum score was zero. The tool was validated by 6experts in the field of medical surgical nursing, Statistian, Psychologist, Sociologist and English language expert. Modifications were made on the basis of recommendations and suggestions of the experts. Split Half method with Spearman's Brown Prophecy formula was used to test the reliability of the tool. The reliability of the tool was 0.989 using Split Half method with Spearman's Brown Prophecy formula It was statistically significant and thus reliable.

Permission for data collection was obtained from the ethical committee of the college and consent was taken antenatal mothers. The main study was conducted during march and april 2014 for period of 6 weeks in selected antenatal clinics at Bangalore. The pre-test was conducted by using structured questionnaire followed by structured teaching programme. After 8 days, the post-test was conducted by using the same structured questionnaire to evaluate the effectiveness of structured teaching programme on the knowledge regarding prevention of cholelithiasis. The obtained data were analyzed using descriptive and inferential statistics.

The mean percentage knowledge score in post-test (90.84 %) was higher than the mean percentage knowledge score in pre-test (48.57%). The enhancement mean percentage knowledge scores (42.27%) were found to be significant at

5% (P<0.05) level. The findings of the pilot study has also revealed that the study is feasible.

#### 4. Results

**Table 1:** Analysis of association between selected demographic variables and over all post-test knowledge scores, N=60

Demographic variables	Responses	Overall post-test Knowledge			
		Median and below Frequency	Above median Frequency	Chi square & Inference	α-Value
Age in years	<25years	18	13	0.243 <sup>NS</sup> df=1	0.622
	26-30years	15	14		
Education	No formal education	12	7	0.767 <sup>NS</sup> df=2	0.681
	Primary education	9	9		
	Secondary education	12	11		
Religion	Hindu	26	20	0.184 <sup>NS</sup> df=1	0.668
	Christian	7	7		
Occupation	Private	14	10	0.180 <sup>NS</sup> df=1	0.672
	House wife	19	17		
Income	<10,000	19	18	0.519 <sup>NS</sup> df=1	0.471
	11,000-20,000	14	9		
Availability of health services	Government	13	10	0.591 <sup>NS</sup> df=2	0.744
	Private	13	9		
	Both	7	8		
Gravida	Primi	15	12	0.006 <sup>NS</sup> df=1	0.938
	Multi	18	15		
Type of diet	Vegetarian	15	10	0.433 <sup>NS</sup> df=1	0.511
	Mixed	18	17		
Residence area	Urban	17	12	0.297 <sup>NS</sup> df=1	0.586
	Rural	16	15		

\*is significant; <sup>NS</sup> is not significant;

**Note:**

- 1) The responses of some of the demographic variables have been merged as the expected frequencies were less than or equal to 5.

The above data shows that the α-value for each of the variables is more than 0.05 (α>0.05) this is statistically signifying that there is no significant association between demographic variables and post-test knowledge scores.

**Table 2:** Aspect wise statistical analyses of pre-test and post-test mean knowledge score of respondents. N=60

Aspect wise	Pre-test		Post-test		t-value	P-value Inference
	Mean	SD	Mean	SD		
Knowledge regarding anatomy and physiology of gall bladder	3.08	0.92	4.41	0.86	12.339	<0.05*
Knowledge regarding meaning, incidence, causes, relation between gallstones & pregnancy	6.31	0.99	8.8	1.23	16.028	<0.05*
Knowledge regarding biliary colic, characteristics of biliary colic, types of gall stones symptoms	4.20	0.95	6.16	1.49	12.623	<0.05*
Knowledge regarding diagnosis, complications, prevention and treatment of gallstones	7.66	3.41	12.35	2.93	18.830	<0.05*
Overall knowledge	21.26	4.21	31.73	3.93	43.932	<0.05*

\*is significant; NSis not significant

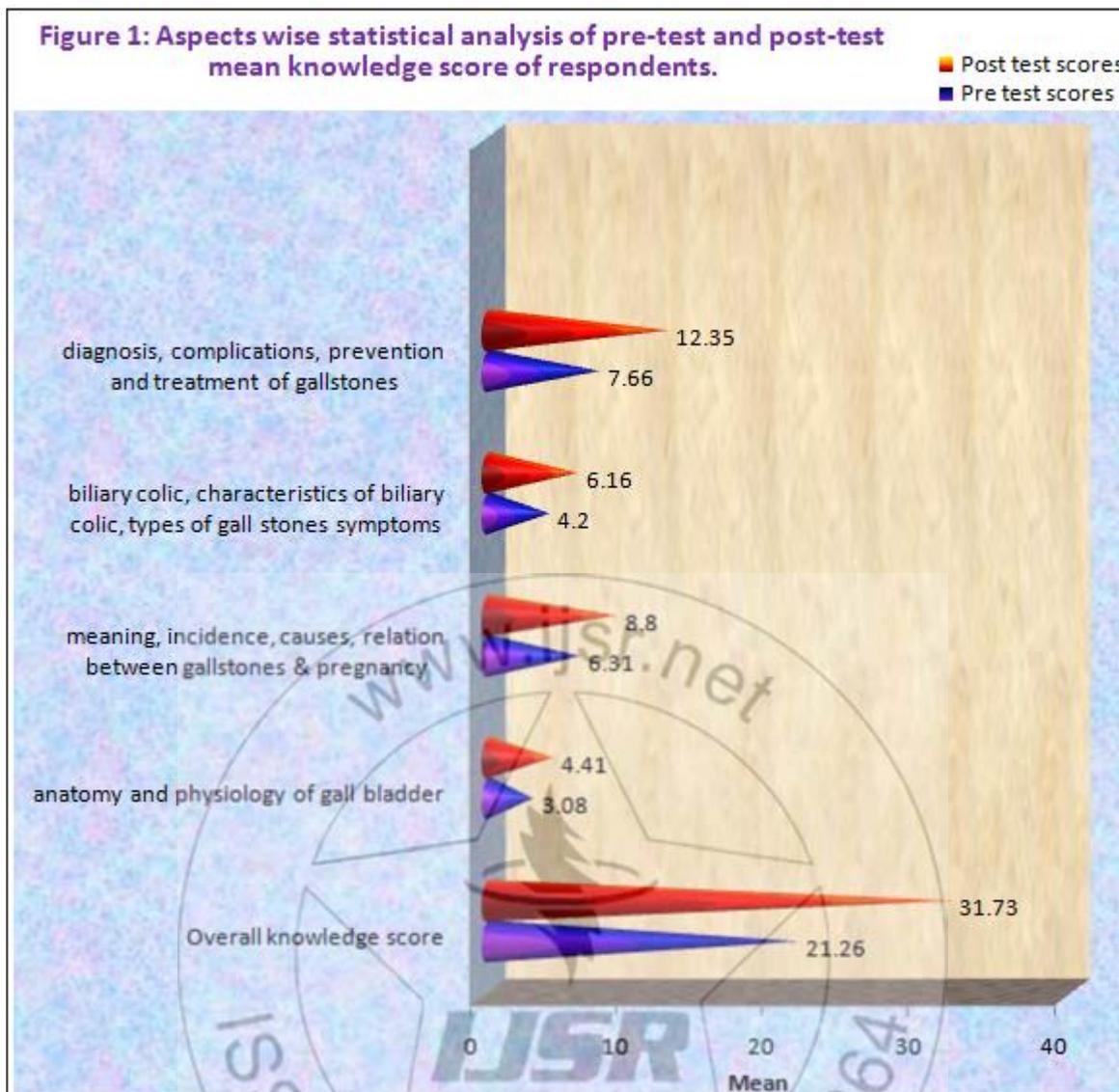


Table 2 and Figure 1, depicts the component wise statistical analyses of pre-test and post-test mean knowledge score of respondents on prevention of cholelithiasis.

The improvement in the knowledge score of the antenatal mothers from the pre-test to post-test is tested for statistical significance using students paired t-test and the result is considered significant whenever  $p \leq 0.05$ .

1. **Anatomy and physiology of gall bladder:** It is observed from this study that in the aspect of anatomy and physiology of gall bladder the mean  $\pm$  SD during the pre-test is found  $3.08 \pm 0.92$  where as during post-test it is  $4.41 \pm 0.86$ . There is an increase of 26.6% of knowledge which is statistically highly significant ( $p < 0.05$ ).
2. **Meaning, incidence, causes, relation between gallstones & pregnancy:** In this aspect the mean  $\pm$  SD during the pre-test is found to be  $6.31 \pm 0.99$  whereas during post-test it is  $8.8 \pm 1.23$ . There is an increase of 24.9% of knowledge which is statistically highly significant ( $p < 0.05$ ).

3. **Biliary colic, characteristics of biliary colic, and types of gall stones symptoms:** with regard to this aspect it is observed from the study that the Mean  $\pm$  SD during the pre-test is  $4.20 \pm 0.95$  whereas during post-test it is  $6.16 \pm 1.49$ . There is an increase of 24.5% of knowledge which is statistically highly significant ( $p < 0.05$ ).
4. **Diagnosis, complications, prevention and treatment of gallstones:** The scores reveal that the Mean  $\pm$  SD during the pre-test is  $7.66 \pm 3.41$  where as during the post test it is  $12.35 \pm 2.93$ . There is an increase of 287.59% of knowledge which is statistically highly significant ( $p < 0.05$ ).

**Overall Knowledge:** It is observed from the study that in the overall comparison of knowledge scores of different components of swine flu is that, the mean  $\pm$  SD during the pre test is found to be  $21.26 \pm 4.21$  where as during post test it is  $31.73 \pm 3.93$ . There is an increase of 26.17% of knowledge which is statistically highly significant

**Table 3:** Levels of pre test and post test scores based on different aspects  
 N=60

Different aspect wise	Pre-test			Post-test		
	≤ 50%	51-75%	>75%	≤50%	51-75%	>75%
Knowledge regarding anatomy and physiology of gall bladder	15	27	18	02	03	55
Knowledge regarding meaning, incidence, causes, relation between gallstones & pregnancy	13	46	01	02	03	55
Knowledge regarding biliary colic, characteristics of biliary colic, types of gall stones symptoms	42	18	-	08	25	27
Knowledge regarding diagnosis, complications, prevention and treatment of gallstones	35	19	06	06	24	30
Overall knowledge	31	29	-	-	28	32

**Note:** ≤ 50% - Inadequate knowledge  
 51-75% - Moderate knowledge,  
 >75% - Adequate knowledge.

The analysis levels of the pre-test and post-test knowledge reveals the following observations:

- 1) **Anatomy and physiology of gall bladder:** Among the 60 antenatal mothers studied 15 antenatal mothers have inadequate knowledge, 27 have moderate knowledge and 18 have adequate knowledge in pre test whereas in the post test scores 2 have inadequate knowledge, 3 have moderate knowledge and 55 have adequate knowledge.
- 2) **Meaning, incidence, causes, relation between gallstones & pregnancy:** It is observed from the table that 13 antenatal mothers have inadequate knowledge, 46 antenatal mothers have moderate knowledge and 1 antenatal mother have adequate knowledge. In the post test 2 have inadequate knowledge, 3 have moderate knowledge and 55 have adequate knowledge.
- 3) **Biliary colic, characteristics of biliary colic, and types of gall stones symptoms:** With regard to this aspect 42 antenatal mothers have inadequate knowledge and 18 have moderate knowledge in the pre test. While in the post test 8 have inadequate knowledge, 24 have moderate knowledge and 30 have adequate knowledge.
- 4) **Diagnosis, complications, prevention and treatment of gallstones:** The data from the table shows that 35 antenatal mothers have inadequate knowledge, 19 have moderate knowledge, and 6 have adequate knowledge in the pre-test. In the post test 6 have inadequate knowledge, 24 have moderate knowledge and 32 have adequate knowledge.

**Overall knowledge:** The data from the table represents that there is subsequent increase in overall post test scores with 28 antenatal mothers have moderate knowledge and 32 antenatal mothers have adequate knowledge, while in the pre-test 31 antenatal mothers have inadequate knowledge and 29 have moderate knowledge.

## 5. Discussion

The present study confirms that the overall mean percentage knowledge score in post-test (90.84 %) was higher than the mean percentage knowledge score in pre-test (48.57%). The enhancement mean percentage knowledge scores (42.27%) were found to be significant at 5% (P<0.05) level.

## 6. Implications of the Study

The findings of the study have implications in the field of nursing practice, nursing education, nursing administration and nursing research.

### a) Nursing Practice

It helps the health care professionals to gain awareness into the problems faced by antenatal mothers and helps to give guidance and counselling on prevention of cholelithiasis to the antenatal mothers and to her family. Nurses motivate the antenatal mothers to practice prevention measures to prevent cholelithiasis.

### b) Nursing Education

For nurse educator, there are abundant opportunities to educate the antenatal mothers regarding cholelithiasis and its prevention. This study stresses the need for in-service education for the nursing professional in order to provide education on cholelithiasis. The nurse educator should take initiation in conducting community based education programme on cholelithiasis and its preventive measures.

### c) Nursing Administration

The nursing administrator may take part in developing protocols, preparing posters and flash cards on cholelithiasis in designing the health education programmes and strategies for antenatal mothers on prevention of cholelithiasis. The nursing administrator may appoint nursing professionals who have obtained in-service education especially in the cholelithiasis and its preventive strategies training courses.

### d) Nursing Research

This study helps nurse researchers to conduct researches on other cholelithiasis related aspects such as treatment modalities and availability of health care services. Nurses should come forward to take up unsolved questions in the field of cholelithiasis and prevention of cholelithiasis to carry out studies and publish them for the benefit of students, public and nursing fraternity. The public and private agencies should also encourage research in this field through materials and funds.

## 7. Limitations of the Study

- The study is limited to the antenatal mothers in selected antenatal clinics at Bangalore.
- The study did not use any control group.
- The study did not assess the attitude and practice of antenatal mothers.
- Only a single domain that is knowledge is considered in the present study.

- Small number of subjects limits generalization of the study (n=60).

## 8. Conclusion

The findings of the present study show that the antenatal mothers need to know the prevention of cholelithiasis as it is commonly occurs during pregnancy. Knowledge on prevention of cholelithiasis among antenatal mothers was poor in selected antenatal clinics at Bangalore, Karnataka. Although they have gained knowledge on prevention of cholelithiasis, a further reinforcement is required to improve the knowledge particularly in the area of biliary colic, characteristics of biliary colic, and types of gall stones symptoms. As the results clearly demonstrate that structured teaching programme is a promising and valid intervention to increase the knowledge level regarding prevention of cholelithiasis among antenatal mothers.

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