International Journal of Nursing and Health Research
www.nursingjournal.in
Online ISSN: 2664-6420, Print ISSN: 2664-6412
Received: 19-08-2025, Accepted: 18-09-2025, Published: 04-10-2025
Volume 7, Issue 4, 2025, Page No. 37-45

Effect of STM on prevention of puerperal sepsis among antenatal mothers, residing in selected urban regions of Maharashtra

Vaishnavi Sanjayrao Ingole[1], Swati Prabhakar Gaiki[2]
[1] Department of Obstetrics and Gynecology Nursing, Dr. Panjabrao Deshmukh Nursing Institute, Amaravati, Andhra Pradesh, India
[2] Associate Professor, Department of Obstetrics and Gynecology Nursing, Panjabrao Deshmukh Nursing Institute, Amaravati, Andhra Pradesh, India

Abstract
Aim of the study: the aim of study to find out effect of STM on prevention of puerperal sepsis among antenatal mothers residing in selected urban regions of Maharashtra. 1. To assess the knowledge on prevention of puerperal sepsis among antenatal mothers in control and experimental groups before intervention 2. To assess the knowledge on prevention of puerperal sepsis among antenatal mothers in control and experimental group after intervention. 3. To find out the effect of STM between the post-test knowledge scores on the prevention of puerperal sepsis among antenatal mothers in the control group and experimental group.4. To find out the association between post-test knowledge scores and selected demographic variable of antenatal mothers in the experimental group.
Methodology: A quasi-experiment with non-randomized control group research design used for the study. It was conducted over 190 antenatal mothers by using purposive sampling technique**.**
Results: Assessment was done by using Semi structured questionnaire on Demographic variables and self structured questionnaires on knowledge prevention of puerperal sepsis. Analysis showed that the comparison of knowledge scores before and after intervention among 190 participants. The mean score before the intervention was 8.82 (SD = 1.93, SE = 0.14), and after the intervention, the mean score increased to 16.40 (SD = 7.13, SE = 0.52). A paired t-test was conducted, yielding a t-value of -16.074 with 189 degrees of freedom and a P-value of 0.012, indicating a statistically significant improvement in knowledge after the intervention. This suggests the intervention was effective in enhancing participants' knowledge. These was a significant difference (p0.05) was found between knowledge on prevention of puerperal sepsis and age, qualification, occupation, monthly family income, religion, & type of diet of antenatal mothers. Findings of study revealed that there is association of knowledge with Education, occupation, income & Type of diet and there is no association of knowledge score with any other demographic variable.
Conclusion: The findings of present study, it was concluded that this study leads to the following effect of structure teaching module on prevention of puerperal sepsis among antenatal mothers residing in selected urban region of Maharashtra. Its show association in relation to their demographic variables. Hence, based on the finding, it was concluded undoubtedly that the written prepared material by the researcher in the form of planned teaching helped the subjects to improve their knowledge on structure teaching module on prevention of puerperal sepsis among antenatal mothers residing in selected urban region of Maharashtra.

Keywords: Effectiveness, Structure Teaching Module (STM), prevention of puerperal sepsis, antenatal mothers

Introduction

Puerperal sepsis is a one of the major contributing factors to maternal mortality worldwide and it responsible for around 11% mothers to be death worldwide. It is the third most frequent cause of direct maternal mortality in poor nations. It is estimated that 30 million people globally are affected with puerperal sepsis, with about 6 million of those instances resulting in mortality [1]. 15% of the maternal deaths that occurred during labor and delivery were attributed to puerperal sepsis, according to data from the World Health Organization. in both developed and poor countries [2].

The puerperium is defined as the time from the delivery of the placenta through the first numerous weeks after the delivery. This period is generally considered to be 6 weeks in duration. By 6 weeks after delivery, ultimate of the changes of pregnancy, labor, and delivery have resolved and the body has regressed to the expectant state [3].

According to the World Health Organization (WHO), puerperal sepsis was defined as an infection of the genital tract being any time between rupture of membranes, labor, and the 42- day postpartum. The report also showed that two or further of the following clinical criteria must be present pelvic pain, fever, unusual vaginal discharge, or detention in uterine complication the foul odor of discharge, detention in the reduction of the size of the uterus (subinvolution), pus in the pelvis, salpingitis, parametrizes, and pelvic thrombophlebitis [4]. 3 The most frequent infection is related to the uterus and its surrounding tissues, referred to as puerperal sepsis, postpartum metritis, or postpartum endometritis. Factors that increase the risk include undergoing a caesarean section (C-section), the existence of specific bacteria like group B streptococcus in the vagina, early rupture of membranes, numerous vaginal examinations, manual placenta removal, and extended labor, among others [5]. Among the trouble factors for puerperal sepsis are retained generality products. Severe puerperal

sepsis is constantly caused by crack infections, pelvic abscesses, and chorioamnionitis. Puerperal sepsis ranks third in terms of maternal mortality, after postpartum hemorrhage and hypertensive complaint of pregnancy. It can affect long-term health issues like habitual pelvic inflammatory complaint (PID) and infertility [6]

Background

The puerperal sepsis is one of the main causes of pregnancy-related maternal morbidity and mortality in underdeveloped nations. Life-threatening puerperal sepsis is characterized by organ failure brought on by infection during or after pregnancy, childbirth, abortion, or delivery [7].

Puerperal sepsis, an infection of the genital tract that can occur at any time between the rupture of membranes and the 42nd day postpartum, is the third most common cause of direct maternal death in developing nations. It has been reported that the case fatality rate for puerperal sepsis can reach 8%, and it complicates 1-8% of all deliveries. {8} After birth, postpartum infection can happen, and in developing nations, it has been identified as the primary cause of mother morbidity and death. Bacterial infections account for 10% of maternal mortality worldwide; these illnesses are more prevalent in low-income nations but can also directly cause maternal deaths in high-income nations [9].

Between 2003 and 2009, about 73% (1,771,000) of all maternal deaths worldwide were from direct obstetric causes, and puerperal sepsis contributed to 10.7% (261,000) of all maternal deaths [10]. World Health Organization reported about 358,000 maternal deaths occurring during labor and childbirth and 15% were related to puerperal sepsis. Puerperal sepsis is among the preventable conditions in developing and developed nations. It is mainly occurring after discharge in the 1st 24 hr of parturition [11]. In India, a study showed that 50% of maternal deaths due to sepsis were related to unsafe induced abortion. Sepsis has been shown to have a very high case fatality rate. The incidence of puerperal sepsis shows variations among published reports. In Nigeria, for example, two studies showed an incidence of puerperal sepsis of 1.49 and 1.36% respectively 4,8. Even lower rates of puerperal sepsis have been reported in West Africa, as low as 0.09% [14]

Need of The Study

There is a need of raise awareness on the prevention of puerperal sepsis as well as early detection and treatment of puerperal sepsis because of the Puerperal infection is an infection of the reproductive tract associated with childbirth that can occur any time from birth to 6 weeks postpartum.

15% of the 50,000 maternal deaths that occur each year are due to puerperal sepsis, which continues to be the third most common cause of death after childbirth or miscarriage. It normally happens between 10 days and 6 weeks after delivery. The infection of the uterus and its surrounding tissues is the most prevalent. High percentages of respondents agreed, according to the most recent study, that anemia (75%) influences puerperal sepsis infections in women, followed by early cesarean section (62.5%), delay in seeking medical attention (62.5%), and several vaginal examinations (56.3%). the common effect of puerperal sepsis in most women while the majority (81.3%) of the respondents revealed that poor vagina hygiene causes an infection where endogenous infectious agent are mostly harbored [15].

Research has shown that many postpartum women lack awareness of puerperal sepsis prevention. study done in Dar es Salaam, Tanzania, just 11.4% of postpartum women reported using the proper self-care techniques, even though 62.1% of them knew enough to prevent puerperal sepsis. Knowledge and self-care behaviors were positively correlated with higher educational attainment and information from healthcare professionals. This emphasizes the value of educational initiatives and the proactive participation of medical practitioners in information sharing [16].

According to a study conducted in northwest Ethiopia, 40.8% of postpartum women showed effective behaviors for avoiding puerperal sepsis. These practices were significantly influenced by elements including access to healthcare information and attendance during prenatal care [17].

Research is required to evaluate the efficacy of hospital infection control measures, such as the use of prophylactic antibiotics, hand hygiene, and Sterilization methods. Developing improved infection prevention guidelines and policies can be aided by an understanding of the issues faced by healthcare facilities [18]. With the above facts and figures puerperal sepsis is a deadly disease among women, these studies to improve awareness and knowledge regarding puerperal sepsis and its factors, hence, preventive measures and women's personal hygiene during antenatal visits be emphasized. Thus, healthcare givers should follow an aseptic technique to prevent puerperal sepsis infections among women during delivery.

Problem statement

"Effect of stm on prevention of puerperal sepsis among antenatal mothers, residing in selected urban regions of Maharashtra."

Objectives

1. To assess the knowledge on prevention of puerperal sepsis among antenatal mothers in control and experimental groups before intervention.
2. To assess the knowledge on prevention of puerperal sepsis among antenatal mothers in control and experimental group after intervention.
3. To find out the effect of STM between the post-test knowledge scores on the prevention of puerperal sepsis among antenatal mothers in the control group and experimental group.
4. To find out the association between post-test knowledge scores and selected demographic variable of antenatal mothers in the experimental group.

Hypothesis

H01 – there is no significant difference between the pre-test and post-test knowledge scores on the prevention of puerperal sepsis among antenatal mothers in the control and experimental group

H02 - there is no significant difference between the post-test knowledge score on the prevention of puerperal sepsis among antenatal mothers in the control and experimental group

H03 - there is no significant association between post-test knowledge scores on the prevention of puerperal sepsis and selected demographic variable of antenatal mothers

a. Title

"Effect of structured teaching programmed on prevention of puerperal sepsis among antenatal mothers residing in selected urban region of Maharashtra"

b. Objectives

1. To assess the knowledge on prevention of puerperal sepsis among antenatal mothers in control and experimental groups before intervention.
2. To assess the knowledge on prevention of puerperal sepsis among antenatal mothers in control and experimental group after intervention.
3. To find out the effect of STM between the post-test knowledge scores on the prevention of puerperal sepsis among antenatal mothers in the control group and experimental group.
4. To find out the association between post-test knowledge scores and selected demographic variable of antenatal mothers in the experimental group.

c. Operational Definition

1. **Assess:** It refers to the statistical measurement of knowledge by using a structured interview schedule (SIS) on the prevention of puerperal sepsis among antenatal mothers before and after an intervention.

2. **Effect:** It refers to statistical difference (result of teaching through the STM) in the pretest and post-test knowledge scores of antenatal mothers in experimental and control group as measured by structured interview schedule on prevention of puerperal sepsis.

3. **STM on puerperal sepsis:** It refers to a systematically organized instructional material on the prevention of puerperal sepsis that is used to teach antenatal mothers of selected urban region it includes various information including definition causes, signs and symptoms, and prevention of puerperal sepsis.

4. **Knowledge:** It refers to the verbal responses of the antenatal mothers to knowledge items In the SIS on the prevention of puerperal sepsis. The knowledge on puerperal sepsis shall be divided into; very poor, poor, average, good, and very good knowledge.

5. **Urban region:** It refers to the highly densely populated area selected by the researcher where the samples are drawn for research study.

6. **Antenatal mothers:** It refers to women who are pregnant primi / multi residing in selec*ted urban region.*

d. Hypothesis

1. **H01** – there is no significant difference between the pre-test and post-test knowledge scores on the prevention of puerperal sepsis among antenatal mothers in the control and experimental group
2. **H02** - there is no significant difference between the post-test knowledge score on the prevention of puerperal sepsis among antenatal mothers in the control and experimental group
3. **H03** - there is no significant association between post-test knowledge scores on the prevention of puerperal sepsis and selected demographic variable of antenatal mothers

e. Dilimitations

1. The study will be limited to 190 antenatal mothers residing in selected urban region of Maharashtra

f. Ethical Aspect

The study was approved by the Institutional Ethical Committee and the study will be conducted in accordance with the ethical guidelines prescribed by Central Ethics Committee on Human Research.

g. Review of Literature

The review of literature is done under following areas

1. Literature related to incidence and prevalence rate of puerperal sepsis
2. Literature related to general information about puerperal sepsis
3. Literature related to knowledge on prevention of puerperal sepsis
4. Literature related to structure teaching programme on prevention of puerperal sepsis

h. Conceptual Framework

The conceptual framework A conceptual framework for the study was based on the General systems theory of Ludwig Von Bertalanffy (1968). The system consists set of interacting components; input, throughput, output, and feedback within the boundary that filters the type and rate of exchange with the environment.

Methodology

- **Research approach:** Quantitative research approach
- **Research design:** A quasi-experiment with non-randomized control group research design
- **Setting of the study:** The study is conducted in selected urban region of Maharashtra.
- **Research variable:** The dependant variable is Knowledge regarding prevention of puerperal sepsis and Independent Variable is structure teaching module.
- **Demographic variables:** age, education, occupation, income, religion, no of children, type of diet.
- **Population:** antenatal mothers
- **Target population:** It includes all the antenatal mothers
- **Accessible population:** antenatal mothers who were available for research studies were considered as accessible population

Sampling

- **Sample size:** 190 antenatal mothers
- **Sampling technique:** purposive sampling technique

Sampling criteria

- **Inclusion criteria**

1. Antenatal mothers who were willing to participate in the study.

2. Antenatal mothers who were available at the time of data collection

- **Exclusive criteria**

1. Antenatal mothers who were not interested in participation

Antenatal mothers who have previous knowledge about puerperal sepsis

Description of Tools

1. **Section I:** Semi structured questionnaire on demographic variables
2. **Section II:** Self Structured Questionnaire on knowledge regarding prevention of puerperal sepsis

Validity

Content validity of SIS and STM were established in consultation with 8 experts from obstetrics and gynaecology Nursing Expert (4), surgeon (1), Statistician (1), educationist (1) Language expert (1). The suggestions of subject experts were taken into consideration and reframed the same.

Reliability

In his study, Karl Pearson's correlation coefficient was calculated and MCQ was found to be reliable r = 0898. Hence, the MCQ was considered reliable.

Pilot study

The pilot study was conducted among purposively selected antenatal mothers (19) to find out the effect of STM on prevention of puerperal sepsis selected urban region, after prior permission from the authorities concerned. Informed consent was obtained from antenatal mothers and data was collected during the month of march 2025.

Data collection

After obtaining a legal permission, the investigator has fixed the date and time for data collection. According to tentative schedule, the investigator has visited the urban region collected data from dated 10 / 03 /2025 to 30/03/2025

Result

Section A

Distribution antenatal mother according to thire demographic variables in experimental and control group.

Table 1: frequency and percentage distribution of demographic variable of the women in experimental and control group

Sr. No.	Demographic Variables	Experimental Group		Control Group		Chi sq Value	P value
		f	%	*f*	%		
1	Age of antenatal others					8.883	0.012
	a. 19 – 25 year	26	27.4%	44	46.3%		
	b. 26 – 32 year	41	43.2%	36	37.9%		
	c. 33 – 39 year	28	29.5%	15	15.8%		
2	Education					1.322	0.516
	a. Primary education	16	16.8%	22	23.2%		
	b. Secondary education	42	44.2%	41	43.2%		
	c. Graduate and above	37	38.9%	32	33.7%		
3	Occupation					20.349	<0.01
	a. Government job	7	7.4%	5	5.3%		
	b. Private job	37	38.9%	15	15.8%		
	c. Housewife	42	44.2%	46	48.4%		
	d. Others	9	9.5%	29	30.5%		
4	Income					9.293	0.026
	a. 1,000 – 10,000 Rs/month	51	53.7%	71	74.7%		
	b. 11,000 – 20,000 Rs/ month	21	22.1%	12	12.6%		
	c. 21,000 – 30,000 Rs/ month	16	16.8%	9	9.5%		
	d. 31,000 Rs/month – and above	7	7.4%	3	3.2%		
5	Type of diet					23.162	0.01
	a. Vegetarian	19	20.0%	51	53.7%		
	b. Non-vegetarian	76	80.0%	44	46.3%		
6.	No of children						
	a. 0	56	58.9%	49	51.6%	6.171	0.104
	b. 1	30	31.6%	41	43.2%		
	c. 2	5	5.3%	5	5.3%		
	d. 3 and above	4	4.2%	0	0.0%		
7.	Religion					10.24	0.017
	a. Hindu	39	41.1%	47	49.5 %		
	b. Muslim	19	20.0%	5	5.3%		
	c. Buddhist	23	24.4%	31	32.6%		
	d. Others	14	14.7%	12	12.6%		

The table presents the distribution of participants by age group across control and experimental groups, with a total sample size of 190 (95 in each group). Among participants aged 19–25 years, 26 were in the control group (27.4%) and 44 in the experimental group (46.3%), making up 36.8% of the total. In the 26–32 years category, 41 were from the control group (43.2%) and 36 from the experimental group (37.9%), contributing to 40.5% of the total sample. For the 33–39 years age group, there were 28 participants in the control group (29.5%) and 15 in the experimental group (15.8%), accounting for 22.6% of the total sample. The Chi-square value of 8.883 and a P-value of 0.012 indicate a statistically significant difference in age distribution between the two groups, suggesting that the allocation across age categories was not uniform.

The table shows the education level distribution among 190 participants, with 95 in both control and experimental groups. In the control group, 16 (16.8%) had primary education, 42 (44.2%) had secondary education, and 37 (38.9%) were graduates or above. In the experimental group, 22 (23.2%) had primary, 41 (43.2%) had secondary, and 32 (33.7%) were graduates or above. Overall, 20.0% had primary, 43.7% had secondary, and 36.3% had graduate-level education or higher. The Chi-square value is 1.322 with a P-value of 0.516

The table presents the occupational distribution among 190 participants, split equally between control and experimental

groups (95 each). In the control group, 7 (7.4%) had government jobs, 37 (38.9%) were in private jobs, 42 (44.2%) were housewives, and 9 (9.5%) were in other occupations. In the experimental group, 5 (5.3%) had government jobs, 15 (15.8%) were in private jobs, 46 (48.4%) were housewives, and 29 (30.5%) fell under other occupations. Overall, 6.3% had government jobs, 27.4% had private jobs, 46.3% were housewives, and 20.0% were in other occupations. The Chi-square value is 20.349 with a P-value <0.01, indicating a statistically significant difference in occupation between the two groups. (15.8%) were in private jobs, 46 (48.4%) were housewives, and 29 (30.5%) fell under other occupations. Overall, 6.3% had government jobs, 27.4% had private jobs, 46.3% were housewives, and 20.0% were in other occupations. The Chi-square value is 20.349 with a P-value <0.01, indicating a statistically significant difference in occupation between the two groups.

The table displays the monthly income distribution of 190 participants, with 95 in each of the control and experimental groups. Among the control group, 51 participants (53.7%) earned between 1,000–10,000 Rs, 21 (22.1%) earned 11,000–20,000 Rs, 16 (16.8%) earned 21,000–30,000 Rs, and 7 (7.4%) earned 31,000 Rs and above. In the experimental group, 71 participants (74.7%) earned between 1,000–10,000 Rs, 12 (12.6%) earned 11,000–20,000 Rs, 9 (9.5%) earned 21,000–30,000 Rs, and 3 (3.2%) earned 31,000 Rs and above. Overall, 64.2% of participants earned 1,000–10,000 Rs, making it the most common income category, followed by 17.4% in the 11,000–20,000 Rs range, 13.2% in the 21,000–30,000 Rs range, and 5.3% earning 31,000 Rs or more. The Chi-square value is 9.293 with a P-value of 0.026, indicating a statistically significant difference in income distribution between the control and experimental groups.

The table presents data on the type of diet among 190 participants, evenly divided between the control and experimental groups (95 each). In the control group, 19 participants (20.0%) followed a vegetarian diet, while 76 (80.0%) followed a non-vegetarian diet. In contrast, the experimental group had 51 participants (53.7%) on a vegetarian diet and 44 (46.3%) on a non-vegetarian diet. Overall, 36.8% of the total participants were vegetarians,and 63.2% were non-vegetarians. The Chi-square value is 23.162 with a P-value of 0.01, indicating a statistically significant difference in dietary habits between the control and experimental groups.

The table shows the distribution of participants based on the number of children in both control and experimental groups, each consisting of 95 individuals. In the control group, 56 participants (58.9%) had no children, 30 (31.6%) had one child, 5 (5.3%) had two children, and 4 (4.2%) had three or more children. In the experimental group, 49 participants (51.6%) had no children, 41 (43.2%) had one child, 5 (5.3%) had two children, and none had three or more children. Overall, 55.3% of the total participants had no children, 37.4% had one, 5.3% had two, and 2.1% had three or more children. The Chi-square value is 6.171 with a P-value of 0.104, indicating no statistically significant difference between the groups in terms of number of children.

The table presents the distribution of participants by religion across the control and experimental groups, each with 95 individuals. In the control group, 39 participants (41.1%) were Hindu, 19 (20.0%) Muslim, 23 (24.2%) Buddhist, and 14 (14.7%) identified as others. In the experimental group, 47 participants (49.5%) were Hindu, 5 (5.3%) Muslim, 31 (32.6%) Buddhist, and 12 (12.6%) belonged to other religions. Overall, among the total 190 participants, 45.3% were Hindu, 12.6% Muslim, 28.4% Buddhist, and 13.7% followed other religions. The Chi-square value is 10.25 with a P-value of 0.017, indicating a statistically significant association between religion and group allocation.

Section B

Assessment of level of before & after intervention of knowledge score among antenatal mothers in control and experimental group.

Table 2: Assessment with level of Before and after Intervention knowledge score

Group		N	Mean	Std. Deviation	Std. Error Mean	df	T-test	P-value
Before Intervention	Control	95	8.3579	2.04167	0.20947	188	-3.362	0.001
	Experimental	95	9.2737	1.69757	0.17417			
After intervention	Control group	95	9.7684	1.90996	0.19596	188	-35.284	0.012
	Experimental Group	95	23.0316	0.32078	0.32078			

The table compares the Before Intervention scores on the prevention of puerperal sepsis between the control and experimental groups. The control group (N=95) had a mean score of 8.36 with a standard deviation of 2.04 and a standard error of 0.21. The experimental group (N=95) had a higher mean score of 9.27, a standard deviation of 1.70, and a standard error of 0.17. An independent samples t-test was conducted with 188 degrees of freedom, resulting in a t-value of -3.362 and a P-value of 0.001, indicating a statistically significant difference in Before Intervention knowledge scores between the two groups.

The After-Intervention knowledge scores on the prevention of puerperal sepsis for both control and experimental groups. In the control group (N=95), the mean score was 9.77, with a standard deviation of 1.91 and a standard error of 0.20. In contrast, the experimental group (N=95) achieved a much higher mean score of 23.03, with a standard deviation of 3.13 and a standard error of 0.32. An independent samples t-test was performed, yielding a t-value of -35.284 with 188 degrees of freedom, and a P-value of 0.012. This indicates a highly significant difference in After Intervention knowledge scores between the two groups, demonstrating the effectiveness of the intervention (STM) in improving knowledge.

Section C

Assessment of Effectiveness of Stm Between the Post-Test Knowledge Scores on The Prevention of Puerperal Sepsis Among Antenatal Mothers in The Control Group and Experimental Group**.**

Table 3: Significance of difference between knowledge score in control and Experimental group of antenatal Mothers.

		Mean	N	Std. Deviation	Std. Error Mean	t-test	df	P-value
Knowledge	Control	8.8158	190	1.92801	0.13987	-16.074	189	0.012
	Experimental	16.4	190	7.1335	0.51752			

The table shows the comparison of knowledge scores before and after intervention among 190 participants. The mean score before the intervention was 8.82 (SD = 1.93, SE = 0.14), and after the intervention, the mean score increased to 16.40 (SD = 7.13, SE = 0.52). A paired t-test was conducted, yielding a t-value of -16.074 with 189 degrees of freedom and a P-value of 0.012, indicating a statistically significant improvement in knowledge after the intervention. This suggests the intervention was effective in enhancing participants' knowledge.

Section D

Association of post-test knowledge scores and selected demographic variable of antenatal mothers.

Table 4: comparative assessment of knowledge category and age using chi- square analysis This section deals with association of post-test knowledge of antenatal mothers with age, education, occupation, Income, Type of diet, No. of Children, Religion, respectively.

			Knowledge Category					Total	Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
Age	19-25 years	Frequency	1	24	5	24	16	70	8.105	0.423
		%	25.00%	28.60%	33.30%	43.60%	50.00%	36.80%		
	26-32 years	Frequency	1	38	6	21	11	77		
		%	25.00%	45.20%	40.00%	38.20%	34.40%	40.50%		
	33-39 years	Frequency	2	22	4	10	5	43		
		%	50.00%	26.20%	26.70%	18.20%	15.60%	22.60%		
Total		Frequency	4	84	15	55	32	190		
		%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		

The table presents the distribution of knowledge categories on a certain topic across different age groups among 190 participants, with a Chi-square value of 8.105 and a P-value of 0.023, indicating a non- statistically significant association between age and knowledge level. Among the 19–25 years group (n=70), 25% had very poor knowledge, 28.6% poor, 33.3% average, 43.6% good, and 50% very good. In the 26–32 years group (n=77), 25% had very poor knowledge, 45.2% poor, 40% average, 38.2% good, and 34.4% very good. Among the 33–39 years group (n=43), 50% had very poor knowledge, 26.2% poor, 26.7% average, 18.2% good, and 15.6% very good. Overall, out of 190 participants, the frequencies for each knowledge level were: 4 (very poor), 84 (poor), 15 (average), 55 (good), and 32 (very good), showing that younger participants generally had higher knowledge scores.

Table 5: comparative assessment of knowledge category and education using chi- square analysis.

			Knowledge Category				Total		Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
Education	Primary education	Frequency	0	14	6	17	1	38	23.263	0.003
		%	0.0%	16.7%	40.0%	30.9%	3.1%	20.0%		
	Secondary education	Frequency	2	36	6	27	12	83		
		%	50.0%	42.9%	40.0%	49.1%	37.5%	43.7%		
	Graduate and above	Frequency	2	34	3	11	19	69		
		%	50.0%	40.5%	20.0%	20.0%	59.4%	36.3%		
Total		Frequency	4	84	15	55	32	190		
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

The table shows the relationship between education level and knowledge category among 190 participants, with a Chi-square value of 23.263 and a P-value of 0.003, indicating a statistically significant association. Among those with primary education (n=38), none had very poor knowledge, 16.7% had poor, 40% average, 30.9% good, and 3.1% very good knowledge. In the secondary education group (n=83), 50% had very poor knowledge, 42.9% poor, 40% average, 49.1% good, and 37.5% very good. Among those with graduate and above education (n=69), 50% had very poor knowledge, 40.5% poor, 20% average, 20% good, and 59.4% very good knowledge. Overall, the highest percentage of very good knowledge was found among graduates and above, while poor knowledge was most common in the secondary education group, suggesting education level significantly influences knowledge outcomes.

Table 6: comparative assessment of knowledge category and occupation using chi- square analysis.

			Knowledge Category					Total	Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
Occupation	Government job	Frequency	1	5	1	3	2	12	43.215	0.01
		%	25.0%	6.0%	6.7%	5.5%	6.3%	6.3%		
	Private job	Frequency	2	35	0	3	12	52		

		%	50.0%	41.7%	0.0%	5.5%	37.5%	27.4%		
	House wife	Frequency	0	38	8	32	10	88		
		%	0.0%	45.2%	53.3%	58.2%	31.3%	46.3%		
	other	Frequency	1	6	6	17	8	38		
		%	25.0%	7.1%	40.0%	30.9%	25.0%	20.0%		
Total		Frequency	4	84	15	55	32	190		
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

The table presents the association between occupation and knowledge category among 190 participants, showing a Chi-square value of 43.215 and a P-value of 0.01, indicating a statistically significant relationship. Among those in government jobs (n=12), 25% had very poor knowledge, while only small percentages were observed in other categories. In private jobs (n=52), half (50%) had very poor knowledge, 41.7% had poor knowledge, and 37.5% had very good knowledge. Among housewives (n=88), none had very poor knowledge, but the highest proportion of poor (45.2%) and good knowledge (58.2%) was seen, with 31.3% also achieving very good knowledge. In the 'other' occupations (n=38), 25% had very poor knowledge, and 30.9% had good knowledge. Overall, housewives showed a greater spread across knowledge levels, while private job holders had a notable proportion with very poor and very good knowledge, indicating varied awareness possibly influenced by occupational role

Table 7: comparative assessment of knowledge category and income using chi- square analysis.

			Knowledge Category					Total	Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
Income	1,000 – 10,000 Rs / month	Frequency	1	44	12	46	19	122	26.49	0.009
		%	25.0%	52.4%	80.0%	83.6%	59.4%	64.2%		
	11, 000 – 20,000 Rs / month	Frequency	0	21	1	4	7	33		
		%	0.0%	25.0%	6.7%	7.3%	21.9%	17.4%		
	21,000 – 30,000 Rs/ month	Frequency	2	14	1	3	5	25		
		%	50.0%	16.7%	6.7%	5.5%	15.6%	13.2%		
	31,000 Rs/ month and above	Frequency	1	5	1	2	1	10		
		%	25.0%	6.0%	6.7%	3.6%	3.1%	5.3%		
Total		Frequency	4	84	15	55	32	190		
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

The table illustrates the relationship between monthly income and knowledge categories among 190 participants, with a Chi-square value of 26.49 and a P-value of 0.009, indicating a statistically significant association. Participants earning 1,000–10,000 Rs/month (n=122) made up the majority and had the highest proportions across all knowledge categories: 25% very poor, 52.4% poor, 80% average, 83.6% good, and 59.4% very good. Those in the 11,000–20,000 Rs/month range (n=33) showed lower percentages across categories, particularly with 25% poor and 21.9% very good knowledge. Participants earning 21,000–30,000 Rs/month (n=25) and above 31,000 Rs/month (n=10) were fewer and had lower representation in all knowledge levels. The data suggests that lower-income groups had a wider distribution across knowledge categories, particularly concentrated in poor to good knowledge levels, reflecting a strong link between income and knowledge levels.

Table 8: comparative assessment of knowledge category and type of diet using chi- square analysis.

			Knowledge Category					Total	Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
Type of diet	vegetarian	Frequency	1	16	6	31	16	70	23.125	0.012
		%	25.0%	19.0%	40.0%	56.4%	50.0%	36.8%		
	nonvegetarian	Frequency	3	68	9	24	16	120		
		%	75.0%	81.0%	60.0%	43.6%	50.0%	63.2%		
Total		Frequency	4	84	15	55	32	190		
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

The association between type of diet and knowledge category among 190 participants, with a Chi-square value of 23.125 and a P-value of 0.012, indicating a statistically significant relationship. Among vegetarians (n=70), higher percentages were found in the good (56.4%) and very good (50.0%) knowledge categories, while lower percentages were in the poor (19.0%) and average (40.0%) categories. In contrast, nonvegetarians (n=120) had higher frequencies in the poor (81.0%) and average (60.0%) knowledge levels, with only 43.6% and 50.0% in good and very good knowledge respectively. This suggests that vegetarians tended to have better knowledge compared to nonvegetarians regarding the topic assessed.

Table 9: Comparative assessment of Knowledge category and No. of Children using Chi- Square Analysis.

			Knowledge Category					Total	Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
No of children	0	Frequency	1	52	7	28	17	105	13.386	0.342
		%	25.0%	61.9%	46.7%	50.9%	53.1%	55.3%		

	1	Frequency	3	23	8	24	13	71		
		%	75.0%	27.4%	53.3%	43.6%	40.6%	37.4%		
	2	Frequency	0	5	0	3	2	10		
		%	0.0%	6.0%	0.0%	5.5%	6.3%	5.3%		
	3 and above	Frequency	0	4	0	0	0	4		
		%	0.0%	4.8%	0.0%	0.0%	0.0%	2.1%		
Total		Frequency	4	84	15	55	32	190		
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

The distribution of knowledge categories across different groups based on the number of children, with a Chi-square value of 13.386 and a P-value of 0.342, indicating no statistically significant association between number of children and knowledge levels. Among mothers with no children (n=105), the majority were in the poor (61.9%) and good (50.9%) categories. Mothers with one child (n=71) had a more balanced distribution, with 27.4% in poor and 43.6% in good knowledge. Those with two children (n=10) and three or more (n=4) were fewer in number and mostly fell into the poor and good categories, with no representation in average, good, or very good levels among those with three or more children. Overall, knowledge levels did not significantly vary based on the number of children.

Table 10: Comparative assessment of Knowledge category and Religion using Chi-Square Analysis.

			Knowledge Category					Total	Chi sq	P-value
			Very Poor	Poor	Average	Good	Very Good			
Religion	Hindu	Frequency	3	31	8	31	13	86	17.056	0.148
		%	75.0%	36.9%	53.3%	56.4%	40.6%	45.3%		
	Muslim	Frequency	0	18	1	3	2	24		
		%	0.0%	21.4%	6.7%	5.5%	6.3%	12.6%		
	Buddhist	Frequency	1	22	3	15	13	54		
		%	25.0%	26.2%	20.0%	27.3%	40.6%	28.4%		
	Others	Frequency	0	13	3	6	4	26		
		%	0.0%	15.5%	20.0%	10.9%	12.5%	13.7%		
Total		Frequency	4	84	15	55	32	190		
		%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

The table presents the relationship between religion and knowledge category regarding the prevention of puerperal sepsis among 190 antenatal mothers. The Chi-square value is 17.056 with a P-value of 0.148, indicating no statistically significant association between religion and knowledge level. Among Hindus (n=86), the majority fell in the poor (36.9%) and good (56.4%) categories. Muslims (n=24) were mostly in the poor category (21.4%) with very few in the higher knowledge levels. Buddhists (n=54) had a relatively balanced distribution, particularly in the poor (26.2%), good (27.3%), and very good (40.6%) categories. Among others (n=26), knowledge levels were mostly poor (15.5%), with some representation in all other categories. Despite some variation, the association between religion and knowledge was not statistically significant.

Discussion

The present study was conducted to assess the effectiveness of a Structured Teaching Module (STM) on the prevention of puerperal sepsis among antenatal mothers. Puerperal sepsis remains a significant cause of maternal morbidity and mortality, particularly in developing countries, where hygiene practices and awareness regarding postnatal care may be suboptimal.

The findings of the study revealed a significant improvement in knowledge scores after the administration of the STM. The mean post-test knowledge score was considerably higher compared to the pre-test score, indicating the effectiveness of the structured teaching intervention in enhancing awareness and understanding of preventive measures.

These findings are consistent with the study by Kavitha *et al*. (2015), who reported that health education interventions significantly improved antenatal mothers' knowledge and practices related to infection prevention and postnatal hygiene {59}. Similarly, Ramesh and Joseph (2017) emphasized that antenatal education plays a crucial role in preventing postpartum complications, especially infections like puerperal sepsis.

The current study also demonstrated that factors such as education level, parity, and prior health education exposure were associated with the baseline knowledge levels. Mothers with higher education had better pre-test scores, which is in line with the findings of Desai *et al*. (2016), who noted that literacy and antenatal class attendance positively influenced awareness regarding maternal health risks. Importantly, this study found that many participants were unaware of basic hygienic practices such as handwashing before perineal care, the importance of clean delivery environments, and early signs of infection. After the STM, a noticeable improvement in understanding these preventive practices was observed. These findings are reinforced by WHO recommendations that community-level health education is vital in reducing sepsis-related maternal deaths.

Overall, the structured teaching module proved to be an effective educational strategy in improving the knowledge of antenatal mothers on the prevention of puerperal sepsis, and it has important implications for antenatal counselling and maternal health policies.

Conclusion

After the detailed analysis, this study leads to the following effect of structure teaching module on prevention of puerperal sepsis among antenatal mothers residing in selected urban region of Maharashtra.

Its show association in relation to their demographic variables. Hence, based on the finding, it was concluded undoubtedly that the written prepared material by the researcher in the form of planned teaching helped the subjects to improve their knowledge on structure teaching module on prevention of puerperal sepsis among antenatal mothers residing in selected urban region of Maharashtra.

Acknowledgement
By being grateful to god you acknowledge that nothing is gained by your power alone. This dissertation would not have been possible without the inspiration and support of a number of wonderful people – my thanks and appreciation to all of them for being part of this journey and making the dissertation possible.

References

1. Nchimbi DB, Joho AA. Puerperal sepsis-related knowledge and reported self-care practices among postpartum women in Dar es salaam, Tanzania. Womens Health (Lond Engl), 2022, 18. Available from: http://dx.doi.org/10.1177/17455057221082954
2. Say L, Chou D, Gemmill A, Tuncalp Ö, Moller A-B, Daniels J, *et al*. Global causes of maternal death: a WHO systematic analysis. Lancet Glob Health, 2014, 2. e323- 33. https://doi.org/10.1016/S2214- 109X (14)70227-X.
3. Ngonzi J, Tornes YF, Mukasa PK, Salongo W, Kabakyenga J, Sezalio M, *et al*. Puerperal sepsis is the leading cause of maternal deaths at a Tertiary University Teaching Hospital in Uganda. BMC Pregnancy Childbirth, 2016:16. https://doi.org/10.1186/s12884-016-0986-9
4. Bigna S Buddeberg, Wynne Aveling, Puerperal sepsis in the 21st century: progress, new challenges and the situation worldwide, Postgraduate Medical Journal,2015:91(1080):572–578. https://doi.org/10.1136/postgradmedj-2015-13347
5. McGurk S. Junqueira's basic histology text and atlas – 13th edition Mescher Anthony L Junqueira's basic histology text and atlas – 13th edition 544pp + CD-ROM £45.99 McGraw-hill professional 978 1 2590 723211259072320. Nurs Stand [Internet],2013:28(16):3 Available from: http://dx.doi.org/10.7748/ns2013.12.28 .16.34.s39
6. Atlaw D, Seyoum K. Puerperal sepsis and its associated factors among mothers in University of Gondar referral hospital, Ethiopia, 2017. Int J Preg Child Birth,2019:5(5):190-195. [Google Scholar] Sample Footer Text 104
7. Bishaw KA, Sharew Y, Beka E, Aynalem BY, Zeleke LB, Desta M, *et al*. Incidence and predictors of puerperal sepsis among postpartum women at Debre Markos comprehensive specialized hospital, northwest Ethiopia: A prospective cohort study. Front Glob Womens Health [Internet], 2023, 4. Available from: http://dx.doi.org/10.3389/fgwh.2023.966942