

A Study to Assess the Effectiveness of a Bundle of Care on Wound Healing Among Mothers Who Underwent Lscs at Sri Manakula Vinayagar Medical College & Hospital, Puducherry

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Abstract:

Introduction: Caesarean section is the surgical procedure by which one or more babies are delivered through an incision in the mother's abdomen. It is often performed because vaginal delivery would put the mother or child at risk (of paralysis or even death). Reasons for the operation include, but are not limited to, obstructed labour, twin pregnancy, high blood pressure in the mother, breech birth, shoulder presentation, and problems with the placenta or cord. **Aim of the study:** A study to assess the effectiveness of a bundle of care on wound healing among mothers who underwent LSCS at Sri Manakula Vinayagar Medical College & Hospital, Puducherry. **Objectives:** 1. To assess the level of wound among mothers who undergone LSCS at SMVMCH, Puducherry. 2. To assess the effectiveness of a bundle of care on wound healing among mothers who underwent LSCS at Sri Manakula Vinayagar Medical College & Hospital, Puducherry. 3. Association between the pre and post interventions of a bundle of care on wound healing among mothers who underwent LSCS at SMVMCH, Puducherry with their selected demographic variables. **Methodology: Research approach:** Quantitative Research approach were used as for the present study. **Research design:** True experimental research design were used, population comprises of delivered mothers, and sample consists mother underwent LSCS at SMVMCH, Puducherry. The sample size consists of 60 mothers from postnatal ward. Simple random sampling techniques were used in this study. **Setting of the study:** Sri Manakula Vinayagar Medical College and Hospital, Puducherry. **Result:** level of wound healing by using REEDA Scale in pre-test Mild healing were 59 (98.3%), and Moderately healing were 1 (1.7%). In posttest were good healing were 48 (80%), and moderately healing were 12 (20%), Bundle of care shows that improvement in healing status, with significant reductions in redness, edema, ecchymosis, and discharge after the intervention. Dietary pattern was found to have a significant association with wound healing. Overall, the bundle of care proved to be a beneficial nursing intervention to enhance postoperative recovery and improve surgical outcomes.

Key words: effectiveness, bundle of care, wound healing, LSCS

I. Introduction

Caesarean section is the surgical procedure by which one or more babies are delivered through an incision in the mother's abdomen. It is often performed because vaginal delivery would put the mother or child at risk (of paralysis or even death). Reasons for the operation include, but are not limited to, obstructed labor, twin pregnancy, high blood pressure in the mother, breech birth, shoulder presentation, and problems with the placenta or umbilical cord. A caesarean delivery may be performed based upon the shape of the mother's pelvis or history of a previous C-section. A trial of vaginal birth after C-section may be possible. The World Health Organization recommends that caesarean section be performed only when medically necessary.

“According to NFHS-5 (2019-21), the rate of caesarean deliveries in India has risen to approximately 21.5%, up from 17.2% in 2016. In private hospitals, nearly half of all deliveries are by C-section, reflecting significant variation by type of health facility. Despite WHO recommendations that rates above 10-15% do not confer added benefit in terms of reducing mortality, many Indian states and private institutions exceed this threshold. These disparities are also influenced by socio-economic status, urbanization, maternal age, and facility type among others.”

Furthermore, psychological support, education on activity restrictions, hygiene, wound care, and adherence to follow-up appointments are integral components of the bundle of care, ensuring continued recovery and early detection of any complications. Evidence from studies conducted in India and globally indicates that the implementation of such structured bundles significantly reduces maternal morbidity, decreases the incidence of surgical site infections (ranging from 5–10% in most settings), and improves overall outcomes

following LSCS. By integrating preoperative preparation, intraoperative precision, and postoperative vigilance, the bundle of care not only enhances maternal and neonatal health outcomes but also contributes to cost-effective, high-quality obstetric care, highlighting its critical role in modern obstetric practice.

NEED FOR STUDY

Worldwide, surgical site infections (SSIs) following cesarean sections remain a leading cause of maternal morbidity and extended hospital stays. The application of evidence-based care bundles has been shown to effectively reduce the incidence of SSIs. For instance, a study in Egypt demonstrated that implementing a surgical care bundle led to a significant reduction in wound infections among women undergoing LSCS.

Globally, surgical site infections (SSIs) following cesarean sections are a significant concern. Implementing evidence-based care bundles has been shown to effectively reduce SSI rates. For instance, a study in the United States observed a decrease in SSI rates from 18.2 to 11.8 per 1,000 cesarean births after introducing a quality improvement care bundle. safety, and improve maternal recovery after LSCS.

A Canadian study evaluated the effectiveness of a surgical site infection (SSI) prevention bundle for women undergoing cesarean sections. The bundle focused on non-antibiotic interventions and did not include antibiotics beyond routine prophylaxis. Components of the bundle included strict aseptic techniques, standardized preoperative skin preparation, proper surgical hand hygiene, and careful postoperative wound care. The study found a significant reduction in SSIs among women who received the bundle compared to those receiving standard care. These results suggest that structured, evidence-based interventions can effectively prevent infections even without additional antibiotic use. The findings emphasize the importance of comprehensive care protocols in enhancing wound healing. Implementing such bundles can improve patient safety, reduce complications, and optimize postoperative recovery. This study provides valuable evidence supporting the use of non-antibiotic strategies to prevent SSIs after cesarean delivery.

STATEMENT OF THE PROBLE

“A study to assess the effectiveness of a bundle of care on wound healing among mothers who underwent LSCS at Sri Manakula Vinayagar Medical College & Hospital, Puducherry”.

OBJECTIVES

- To assess the level of wound among mothers who undergone LSCS at SMVMCH, Puducherry.
- To assess the effectiveness of a bundle of care on wound healing among mothers who underwent LSCS at Sri Manakula Vinayagar Medical College & Hospital, Puducherry.
- Association between the pre and post interventions of a bundle of care on wound healing among mothers who underwent LSCS at SMVMCH, Puducherry with their selected demographic variables.

OPERATIONAL DEFINITION

Effectiveness:

In this study, it refers to difference between the pre and post- test intervention on bundle of care in wound healing among mothers undergone LSCS.

Bundle of care:

In this study, it refers to the Nursing interventions such wound dressing, Nutrition, pharmacological management and exercise.

Wound healing:

In this study, it refers to biological process by which the body repairs and regenerates tissue after injury and assessed by REEDA Scale.

LSCS:

Lower segment cesarean section (LSCS) is a surgical procedure involving the delivery of a baby through an incision made in the lower segment of the uterus.

HYPOTHESIS

- There is a significant difference between the level of wound who undergone LSCS among mothers at SMVMCH, Puducherry.
- There is a significant in comparison between pre and post intervention on bundle of care on wound healing among mothers who underwent LSCS at Sri Manakula Vinayagar Medical College & Hospital, Puducherry

- There is a significant Association between the pre and post interventions of a bundle of care on wound healing among mothers who underwent LSCS at SMVMCH, Puducherry with their selected demographic variables

DELIMITATIONS:

- The sample size were 60 mothers.
- The period of study were 1 weeks.
- The study delimitation to Primi gravida and multi gravida undergone LSCS

Assumption

1. The bundle of care may heal the LSCS among the mothers

II. Methodology

RESEARCH APPROACH

Quantitative Research approach were used as for the present study.

RESEARCHDESIGN

True experimental research design were used.

VARIABLES UNDER THE STUDY

Independent variable:

It is a variable that is believed to cause or influence the others variables.
In this study independent variable is a Bundle of care wound healing

Dependent variable:

It is the variable the researcher is interested to understand, explain to predict.
In this study dependent variable is mother underwent LSCS

POPULATION:

In this study population comprises of delivered mothers

SAMPLE:

In this present study, sample consists mother underwent LSCS at SMVMCH, Puducherry.

SAMPLESIZE:

The samplesizeconsistsof60 mothers from postnatal ward.

SAMPLINGTECHNIQUE:

Simple random sampling techniques was used in this study.

SETTINGOFTESTUDY:

The study was connected at Sri Manakula Vinayagar Medical College and Hospital, Puducherry. It comprises of 1.5km from Sri Manakula Vinayagar Nursing College and it takes 10 minutes to go and conduct the research.

CRITERIAFORSAMPLESELECTION:

- **Inclusioncriteria:** Mother who underwent LSCS
- Both the primigravida and multi gravida mothers
- Mothers who is willing to participate in this study.

Exclusion criteria:

- Mothers who are not willing to participate in this study.
- Mothers who are not available at the time of data collection.

ESCRPTIONOFTOOL:

The level of wound healing was interrupted as follows:

Observational checklist of REEDA Scale is scored as good healing -0, mild healing 1-5, moderate healing 6-10 and poor healing 11 – 15.

level of wound	SCORE	PERCENTAGE%
Good Healing	0	0
Mild Healing	1 – 5	7 - 33
Moderate Healing	6 – 10	34 - 66
Poor Healing	11 – 15	67 - 100

DESCRIPTION OF THE TOOL

Demographic variables include Age, Educational status, Religion, residency, dietary pattern, occupation, family monthly income, physical activities, number of babies, and source of information.

SECTION B

This section consists of observational checklist by using REEDA scale which include Redness of perineal area, edema, ecchymosis, discharge from the wound and approximation of suture .Based on the observation the score will be allotted for mothers.

DATA COLLECTION PROCEDURE

The data was collected from SMVMCH, Puducherry. Formal approval was obtained. The purpose of the study was explained to the mothers before starting the data collection. Consent was obtained from the participants after explaining the purpose of the study. The data collection period is 1Week, 60 mothers was selected by simple random sampling technique. A pre assessment was conducted for the mothers by using REEDA scale.

The researcher giving care to the wound twice daily for one week period. By using REEDA Scale posttest intervention was done. The collected data were noted. The researcher assured the participants of the confidentiality of their responses.

PLAN FOR DATA ANALYSIS

The collected data were coded and analyzed by using descriptive and inferential statistics. The analysis of data was done by the following methods.

Descriptive statistics

Descriptive statistic was used to find the mean, standard deviation, and frequency percentage.

Inferential statistics

Paired t-test was used to assess the effectiveness of bundle of care on vaginal hysterectomy among women. Chi-squared test was used to find out the association of effectiveness of bundle of care with selected demographic variables.

III. Data Analysis And Interpretation

SECTION A: Description of demographical variables of the mothers who undergone LSCS

SECTION B: To assess the level of wound among mothers who underwent LSCS.

SECTION C: To assess the effectiveness of Pretest and post test on bundle of care on wound healing among mothers who underwent LSCS.

SECTION D: Association between the effectiveness of pretest and posttest bundle of care on wound healing among mothers who underwent LSCS.

Table: 12Frequency and percentage wise distribution to assess the effectiveness of a bundle of care on level of wound healing among mothers at SMVMCH, Puducherry.

Level of Wound healing by using REEDA Scale	Pre test		Post test	
	f	%	f	%
Good Healing	0	0	48	80
Moderately healing	1	1.7	12	20
Mild healing	59	98.3	0	0
Poor healing	0	0	0	0
Total	60	100	60	100

Table: 12 shows that level of wound healing by using REEDA Scale in pre-test Mild healing were 59 (98.3%), and Moderately healing were 1(1.7%). In posttest were good healing were 48(80%), and moderately healing were 12(20%) respectively.

Figure 11: cylinder diagram showing percentage wise distribution according to their level of wound healing.

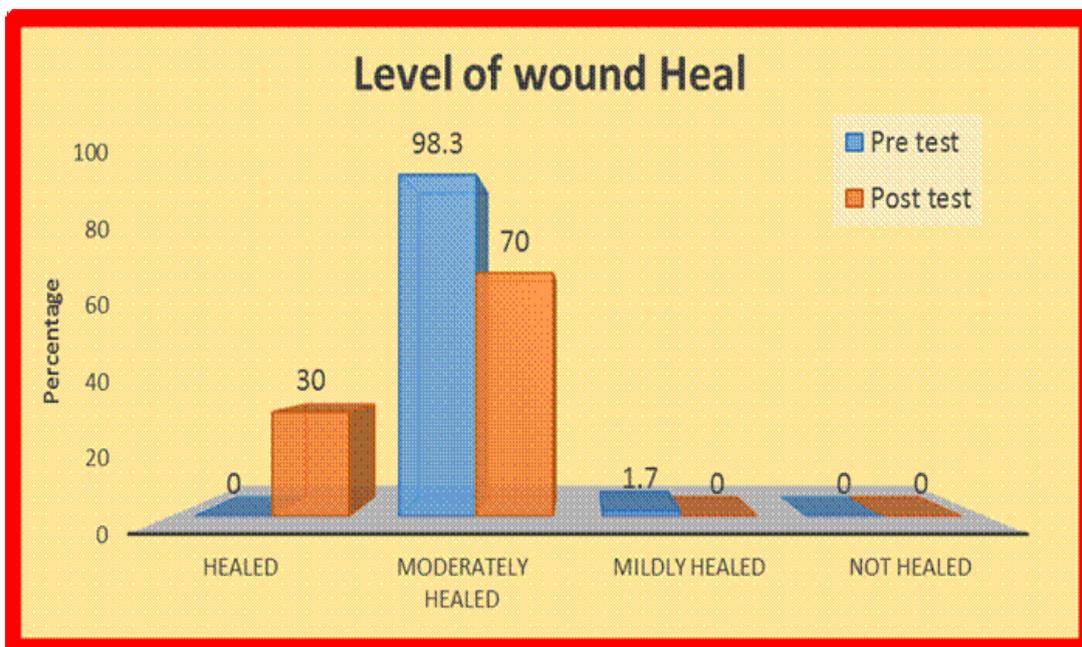


Table-13 overall mean, mean percentage and SD to assess the effectiveness on pre and post interventions of a bundle of care on wound healing among mothers who underwent LSCS at SMVMCH, Puducherry.

	Pre test			Post test			Mean Difference	Paired 't' value	p-value
	Mean	SD	Mean%	Mean	SD	Mean%			
Redness	0.62	0.74	21	0.15	0.36	5	0.47	5.79	p<0.001***
Edema	0.78	0.64	26	0.27	0.44	9	0.52	7.06	p<0.001***
Ecchymosis	0.45	0.62	15	0.18	0.39	6	0.27	4.28	p<0.001***
Discharge	0.65	0.76	22	0.38	0.58	12.7	0.27	3.77	p<0.001***
overall	2.5	0.70	21	0.98	0.79	8.17	1.52	13.16	p<0.001***

Table-13 depict that in pretest the mean were 2.5,SD were 0.07 and were mean % 21and in posttest the mean were 0.98,SD were 0.079 and mean were % 8.17.The mean difference were 13.16 and the p-value were p<0.001 shows that highly significant. Hence null hypothesis was accepted.

Section E: Association between the pre and post interventions of a bundle of care on wound healing among mothers who underwent LSCS at SMVMCH, Puducherry with their selected demographic variables.

Table5: Frequency and percentage wise distribution Association the effectiveness in posttest and selected demographic variable according to demographic variables.

Demographic variables	Healed		Moderately		χ ² -value	p-value
	f	%	f	%		
1.Age in years:					0.753 (df=3)	0.861 NS
20-25 years	9	15	16	26.7		
26-30 years	5	8.3	15	25		
31-35 years	3	5	8	13.3		
36 above years	1	1.7	3	5		
2.Education level:					1.09 (df=2)	0.577 NS
Primary school	4	6.7	9	15		
High school	8	13.3	24	40		
Higher secondary school	6	10	9	15		
Graduate	0	0	0	0		
3.Religion:					0.887 (df=2)	0.642 NS
Hindu	18	30	40	66.7		
Christian	0	0	1	1.7		
Muslim	0	0	1	1.7		

Other	0	0	0	0		
4.Residency:						
Rural	6	10	14	23.3	3.80	0.283
Urban	6	10	12	20	(df=3)	NS
Suburban	6	10	9	15		
Others	0	0	7	11.7		
5.Dietary Pattern:						
Vegetarian	0	0	8	13.3	3.94	0.047*
Non- vegetarian	0	0	0	0	(df=1)	S
Both	18	30	34	56.7		
Ovo-vegetarian	0	0	0	0		
6.Mother occupation :						
Home maker	10	16.7	15	25	3.84	0.279
Government sector	0	0	3	5	(df=2)	NS
Private sector	0	0	3	5		
causal labourer	8	13.3	21	35		
7.Family Monthly Income:						
<10000	4	6.7	17	28.3	3.46	0.325
10001-25000	8	13.3	16	26.7	(df=3)	NS
250001-35000	1	1.7	4	6.7		
>35000	5	8.3	5	8.3		
8.Physical activities:						
Exercise	2	3.3	4	6.7	0.903	0.825
Yoga	0	0	1	1.7	(df=3)	NS
Meditation	0	0	1	1.7		
Nil	16	26.7	36	60		
9.Number of babies:						
1 baby	2	3.3	5	8.3	0.481	0.923
2 babies	9	15	20	33.3	(df=3)	NS
>2 babies	6	10	16	26.7		
Nil	1	1.7	1	1.7		
10.Source of information:						
Mother	4	6.7	9	15	1.09	0.779
Husband	2	3.3	6	10	(df=3)	NS
Children	5	8.3	7	11.7		
Relatives	7	11.7	20	33.3		

*p<0.05 significant, ** p<0.01 & ***p<0.001 Highly significant.

Table 4 represents the association between post-test wound healing status and selected demographic variables of mothers who underwent LSCSat SMVMCH. The chi-square test revealed no significant association between wound healing and age, education, religion, residency, mother’s occupation, family monthly income, physical activities, number of babies, or source of information ($p > 0.05$). However, a significant association was observed with dietary pattern ($\chi^2 = 3.94$, $df = 1$, $p = 0.047$), indicating that dietary habits influenced the level of wound healing following the bundle of care intervention.

IV. Discussion

The study was conducted to assess the effectiveness of bundle of care on wound healing among mothers who underwent LSCSat SMVMCH, Puducherry. This chapter deals with the discussion on the study's findings interpreted from the statistical analysis. The findings are discussed in relation to the study's objectives are:

1. a)The first objectives deals with demographical variables of the mothers who underwent LSCS

The chi-square test revealed no significant association between wound healing and age, education, religion, residency, mother’s occupation, family monthly income, physical activities, number of babies, or source of information ($p > 0.05$). However, a significant association was observed with dietary pattern ($\chi^2 = 3.94$, $df = 1$, $p = 0.047$), indicating that dietary habits influenced the level of wound healing following the bundle of care intervention.

1.b)The first objectives is to assess the level of wound among mothers who underwent LSCS at SMVMCH.

The mean score for redness was 0.15 (SD = 0.36) with a mean percentage of 5.0%. Edema recorded a mean of 0.27 (SD = 0.44) with a mean percentage of 9.0%, while ecchymosis showed a mean of 0.18 (SD = 0.39) with a mean percentage of 6.0%. Discharge had the highest mean score of 0.38 (SD = 0.58), corresponding to 12.7%. The overall mean was 0.98 (SD = 0.79) with a mean percentage of 8.17%.

In the pre-test, redness (Mean% = 21), edema (Mean% = 26), ecchymosis (Mean% = 15), and discharge (Mean% = 22) showed higher values compared to the post-test scores. After the intervention, the

mean percentages decreased substantially, with redness reduced to 5%, edema to 9%, ecchymosis to 6%, and discharge to 12.7%. The overall mean percentage declined from 21.0% in the pre-test to 8.17% in the post-test, showing a difference of 12.83%. These findings indicate a clear improvement in wound healing following the application of the bundle of care.

The second objectives is to assess the effectiveness of Pretest and posttest intervention of bundle of care on wound healing among mothers who underwent LSCS at SMVMCH, Puducherry.

In the pre-test, 98.3% (n=59) of the women were moderately healed, and only 1.7% (n=1) were mildly healed, with none fully healed or not healed. In the post-test, 30.0% (n=18) were fully healed, while 70.0% (n=42) were moderately healed. No participants were classified as mildly healed or not healed in the post-test.

The third objectives is Association between the effectiveness of pretest and post test of bundle of care on wound healing among mothers who underwent LSCS with their selected demographic variables .

"The Chi-square test revealed a statistically significant association in age mother who underwent LSCS($\chi^2 = 10.56, p = 0.03$). No significant association was found between educational status ($p > 0.05$).

V. Conclusion

The study concluded that the bundle of care was effective in promoting wound healing among mothers who underwent LSCS at SMVMCH, Puducherry. Bundle of care shows that improvement in healing status, with significant reductions in redness, edema, ecchymosis, and discharge after the intervention. Dietary pattern was found to have a significant association with wound healing. Overall, the bundle of care proved to be a beneficial nursing intervention to enhance postoperative recovery and improve surgical outcomes.

NURSING IMPLICATIONS

The findings of this study have implications for nursing practice, education, administration, and research in enhancing knowledge and improving the quality of care to mother underwent LSCS.

NURSING EDUCATION

- Nurse educators should develop and implement structured educational programs on bundle of care in wound healing process.
- Training should emphasize preoperative preparation, intraoperative care, and postoperative management, focusing on infection prevention, pain control, and early ambulation.
- Educational sessions should incorporate evidence-based practices and protocols to ensure that nursing students and staff are well-prepared to deliver holistic care to surgical patients.

NURSING PRACTICE

- The study findings can guide nurses in recognizing the importance of standardized bundle of care in reducing postoperative complications among mother underwent Lscs.
- Nurse play a vital role in implementing and monitoring bundles of care providing patient education, and supporting women in their physical and psychological recovery.
- Community health nurses can extend awareness about postoperative self-care and follow-up measures to improve women's quality of life after surgery.

NURSING ADMINISTRATION

- In-service education and workshops should be conducted to keep nursing personnel updated on bundle care protocols for LSCS.
- Nursing administrators should ensure the availability of guidelines, checklists, and teaching materials to maintain consistency in patient care.
- Policies and protocols incorporating bundle care practices should be developed and supervised to enhance patient safety and surgical outcomes.

NURSING RESEARCH

- The findings of this study provide a baseline for developing evidence-based protocols to standardize nursing interventions for LSCS mothers.
- Future research may focus on the effectiveness of bundle of care in different surgical procedures, contributing nursing practices.
- Research can also explore the long-term outcomes of care of bundle, such as reduced hospital stay, lower readmission rates, and improved patient satisfaction.

RECOMMENDATIONS

- A similar study can be conducted with a larger sample size across multiple hospitals to strengthen the generalizability of results.
- Further studies may compare the effectiveness of bundle of care versus routine care among LSCS.
- Longitudinal research should be undertaken to evaluate the sustained impact of bundle of care on recovery, complication rates, and overall quality of life among surgical patients.

LIMITATION

- The study is limited to only mother underwent LSCS
- The study is limited to 60 samples.

Bibliography

Book reference

- [1]. Kona H., DC Dutta's Textbook of Gynecology. 6th edition; 2018; Jaypee Brothers Medical Publishers; New Delhi; page no: 389–395.
- [2]. Rock J.A., Jones H.W., Te Linde's Operative Gynecology. 11th edition; 2015; Wolters Kluwer; Philadelphia; page no: 865–872.
- [3]. Hoffman B.L. et al., Williams Gynecology. 3rd edition; 2020; McGraw-Hill Education; New York; page no: 780–785.
- [4]. Jacob A., A Comprehensive Textbook of Midwifery and Gynecological Nursing. 2nd edition; 2014; Jaypee Brothers Medical Publishers; New Delhi; page no: 255–260.
- [5]. Fraser D.M., Cooper M.A., Myles Textbook for Midwives. 16th edition; 2020; Elsevier; London; page no: 840–850.
- [6]. Shish N. Daftary, Fundamentals of Gynecology. 9th edition; 2011; Elsevier India; New Delhi; page no: 301–308.
- [7]. Shaw R.W., Gynaecology. 4th edition; 2011; Churchill Livingstone; Edinburgh; page no: 460–467
- [8]. Sengupta B., Obstetrics and Gynecology. 2nd edition; 2014; New Central Book Agency; Kolkata; page no: 420–425.

Journal reference

- [1]. Harris J.A. et al., American Journal of Obstetrics and Gynecology. 2017; Volume 216, Issue 5; page no: 492.e1–492.e9.
- [2]. G Muthamilselvi, Assess the effectiveness of structured teaching programme on universal precaution among class IV employees working at AarupadaiVeedu Medical College and Hospital, Puducherry, American Journal of Nursing Research 2 (2), 26–30.
- [3]. G Muthamilselvi, Nurses knowledge on prevention of medication errors, J. Med. Sci. Clin. Res 6, 274–296
- [4]. Vulture S. et al., International Journal of Gynecology & Obstetrics.2024;Volume 167, Issue 3; page no: 410–417.
- [5]. Pradhap A. et al., Journal of Obstetrics and Gynaecology Research. 2023;Volume 49, Issue 8; page no: 1254–1260.Sharma R. et al., Indian Journal of Obstetrics and Gynaecology Research. 2022; Volume 9, Issue 2; pageno: 230–235.
- [6]. G. Sathyavathy, Marburg Virus Disease (MVD), International Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959,p- ISSN: 2320–1940 Volume 12, Issue 3 Ser.3 (May. – June. 2023), impact factor: 4.59, Ser.3 (May. – June. 2023), PP 24–31.
- [7]. Sheath S.S., "Vaginal hysterectomy: An Indian perspective." Best Practice & Research Clinical Obstetrics and Gynecology" 2011; Volume 25, Issue 2; page no: 145–160.
- [8]. G. Sathyavathy, Monkey Pox.International Journal of Research in Engineering and Science (IJRES)ISSN (Online): 2320-9364, ISSN (Print): 2320-9356, Impact Factor: 7.52, Volume 10 Issue 8, August 2022, PP. 389-396, <https://www.ijres.org/papers/Volume-10/Issue-8/1008389396.pdf>
- [9]. Sinha R., "Minimally invasive hysterectomy techniques." Journal of Gynecological Endoscopy and Surgery .2012; Volume 3, Issue 1; page no: 3–10.
- [10]. Maheshwari B., "Surgical site infection in obstetrics and gynecology." *Indian Journal of Obstetrics and Gynecology Research. 2019; Volume 6, Issue 4; page no: 564–569.
- [11]. Kamat N.V. et al., "Care bundle approach to reduce surgical site infections in gynecological surgeries." *International Journal of Reproduction, Contraception, Obstetrics and Gynecology.2020; Volume 9, Issue 2; page no: 503–507.
- [12]. Verna A. et al., "Comparative study of outcomes of vaginal versus abdominal hysterectomy." Journal of Obstetrics and Gynecology of India. 2018; Volume 68, Issue 3; page no: 204–208.
- [13]. Thomas A. et al., "Effectiveness of bundle care to reduce post-operative complications in gynecology." Nursing Journal of India.2021; Volume 112, Issue 6; page no: 284–287.
- [14]. Deshpande A. et al., "Implementation of evidence-based surgical bundles to prevent SSI in gynecological procedures." International Journal of Scientific Research. 2020; Volume 9, Issue 7; page no: 12–15.
- [15]. Banerjee N. et al., "Hysterectomy in India: Trends and consequences." The Lancet Public Health. 2019; Volume 4, Issue 11; page no: e543.