



A Study to Assess the Effectiveness of Planned Teaching Programme on the Knowledge Regarding Management of Pre-Eclampsia among Antenatal Mothers

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i58A34156

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/78173>

Original Research Article

Received 10 October 2021
Accepted 14 December 2021
Published 15 December 2021

ABSTRACT

Background of the Study: Pre-eclampsia is a multisystem disorder with an unknown aetiology that appears as hypertension of 140/90 mm hg or higher with proteinuria after the 20th week in a previously normotensive and non-proteinuric woman. Pre-eclampsia is unique among hypertension illnesses in terms of the effects it has on maternal and newborn health. It is a leading cause of maternal and neonatal mortality and morbidity around the world.

Objectives of the Study: 1. To assess the existing knowledge regarding pre-eclampsia among antenatal mothers. 2. To evaluate the effectiveness of planned teaching on knowledge regarding pre-eclampsia among antenatal mothers. 3. To find out the association between knowledge score with selected Demographic variables.

Materials and Methods: 100 samples were taken from selected Hospital Wardha by Non probability sampling technique. Research design descriptive survey was used. Statistical compare ANOVA and t-test formula used.

Results: In pre test Antenatal mothers have 65% fair knowledge regarding pre-eclampsia , and

mean knowledge score was 2.02%. In post-test of Antenatal mothers have 52% Excellent knowledge and mean knowledge score was 0.97 % regarding management of pre-eclampsia.

Conclusion: It is concluded that In Pre – test level of knowledge score fair was 65 % and mean knowledge score was 2.02 % And In Post - test level of knowledge score excellent was 52 % and mean knowledge score was 0.97 %. Study conclude that their is lack of knowledge of Pre-eclampsia among antenatal mothers. After the completion of the study it is revealed that the planned teaching program was effective in gaining the knowledge regarding management of pre-eclampsia among antenatal mothers. It can improve their health status and prevent from sideeffect.

Keywords: *Eclampsia; gestational hypertension; pregnancy induced hypertension; pre-eclampsia; toxemiamortality.*

1. INTRODUCTION

Pre-eclampsia is the most common medical complication in the pregnancy, is defined as pre-eclampsia is a multiple system disorder of unknown etiology characterized by development of hypertension to the extent of 140/90 mm hg or more with proteinuria after 20th week in a previously normotensive and non-proteinuric woman. Pre-eclampsia stands out among the hypertensive disorders for its impact on maternal and neonatal health. It is one of the leading causes of maternal and perinatal mortality and morbidity worldwide. However, the pathogenesis of pre-eclampsia is only partially understood and it is related to disturbances in placentation at the beginning of pregnancy, followed by generalized inflammation and progressive endothelial damage. Obesity, chronic hypertension and diabetes are among the risk factors for pre-eclampsia, which also include Nulliparity, adolescent pregnancy and conditions leading to hyperplacentation and large placentas (e.g. twin pregnancy). Pre-eclampsia is usually classified as mild or severe. In most settings, pre-eclampsia is classified as severe when any of the following conditions is present conditions is present : severe hypertension, heavy proteinuria or substantial maternal organ dysfunction [1].

1.1 Aim of the Study

A study to assess the effectiveness of planned teaching programmed on knowledge regarding management of pre-eclampsia among antenatal mothers on selected care of pre-eclampsia patient in selected hospitals [2].

2. METHODS

Non - probability descriptive research approach was selected for this study. The study was conducted in hospital of the Sawangi (Meghe) Wardha city [3]. The population of the study was

antenatal mothers of Hospital. Sample size was 100. The formula use for sample size calculation is compare ANOVA And tt-test. Sample size 100 is sufficient and purposeful for data analysis and interpretation. Antenatal mothers were selected by using a non-probability convenient sampling technique. This study included those who are antenatal mothers are present at the time of the study. The demographic performs structured questionnaires on knowledge regarding pre-eclampsia and also management of Pre-eclampsia among antenatal mothers with a formal teaching program in this research [4].

The investigator obtained permission from the concerned authorities of Smt. Radhikabai Memorial College of Nursing and the hospital respectively. Informed consent is taken from the participants. The subject is requested to complete the tool after assuring confidentiality of the information. Consent is obtained from the subject. Explained what is the need and purpose behind conducting the research. The participant's actively participated data got collected and finally the investigator thanked all of the research samples as well as the authorities for their assistance after the data collection process was completed [5].

3. RESEARCH METHODOLOGY

Research Approach: Evaluating Approach was used in this study.

Research Design: Quasi experimental one group pre test and post test.

Setting of the Study: Selected Acharya Vinoba Bhave Rural Hospital area.

Sample: Antenatal Mothers.

Sampling Technique: Non Probability sampling technique.

Sample Size: 100

Tool: Structured knowledge questionnaires and planned teaching.

3.1 Inclusion Criteria

The study include:

- ANC mothers admitted to obstetrics and gynaecology wards and OPD.
- Those mothers are willing to participate in these study.

3.2 Exclusion Criteria

The study excludes:

- Those mothers having chronic illness not participates in this study.

4. RESULTS

- Distribution of antenatal mothers according to their age reveals that 33(33%) in 19-24 years, 50(50%) in 25-30 years, 17(17%) in 31-35 years and 0(0%) in above 36 years.
- Distribution of antenatal mothers according to their place of residence reveals that 40(40%) in urban area and 60(60%) in rural area.
- Distribution of antenatal mothers according to their type of family reveals that 33(33%) in nuclear family, 50(50%) in joint family and 17(17%) in extended family.
- Distribution of antenatal mothers according to their religion reveals that 49(49%) in Hindu, 35(35%) in Buddha, 16(16%) in Muslim and 0(0%) in others.
- Distribution of antenatal mothers according to their educational status of mother reveals that 22(22%) in illiterate, 32(32%) in primary, 44(44%) in graduate and 2(2%) in post graduate.
- Distribution of antenatal mothers according to their monthly family income reveals that 20(20%) in 2000-5000 Rs., 17(17%) in 6000-9000 Rs., 58(58%) in 10000-14000 Rs. And 5(5%) in 14000 & above.
- (65.00%) of Antenatal mothers have good knowledge regarding pre-eclampsia in pretest.
- (35.00%) of Antenatal mothers have good knowledge regarding medical and

surgical management of pre-eclampsia in pretest.

- (35.00%) of Antenatal mothers have good Knowledge regarding dietary management of pre-eclampsia in pretest.
- (16.67%) of Antenatal mothers have good Knowledge regarding nursing care of Pre-eclampsia in Pretest.
- (95%) of Antenatal mothers have Excellent knowledge regarding pre-eclampsia in post-test.
- (97%) of Antenatal mothers have Excellent knowledge regarding medical and surgical management of pre-eclampsia in post-test.
- (100%) of Antenatal mothers have excellent Knowledge regarding dietary management of pre-eclampsia in post-test.
- (16.67%) of Antenatal mothers have excellent Knowledge regarding nursing care of pre-eclampsia in post-test [6].

Table 1. Percentage wise distribution of antenatal mothers in selected hospitals according to their demographic variables n=100

Demographic variable	Frequency	Percentage (%)
Age		
19-24	33	33%
25-30	50	50%
31-35	17	17%
Above 36	0	0
Education		
Illiterate	22	22%
Primary	32	32%
Graduate	44	44%
Other	2	2%
Religion		
Hindu	49	49%
Buddhist	35	35%
Muslim	16	16%
Other	0	0
Family Type		
Nuclear	33	33%
Joint	50	50%
Extended	17	17%
Income		
2000-5000	20	20%
6000-9000	17	17%
10000-14000	58	58%
Above 14000	5	5%
Residence		
Rural	60	60%
Urban	40	40%

The data shows that 33 percent of the samples were in the age range of 19-24 years, while 50.00 percent were in the age group of 25-30 years. 17 percent of the samples were between the ages of 31 and 35. As a result, it's assumed that the majority of the samples under investigation were between the ages of 25 and 30.

The distribution of samples according to their education shows that 22% of the samples were illiterate and 32% were from primary school. Graduates accounted for 44% of the samples, while the rest accounted for 2%. As a result, it's assumed that the majority of the samples under investigation came from the Graduate group [7].

The table shows that 49 percent of the samples belonged to the Hindu religion, whereas 35 percent belonged to the Buddhist faith. The Muslim group accounted for 16% of the samples. As a result, it's assumed that the majority of the samples under investigation were from Hindus. According to the table, 33 percent of the samples

belonged to the Nuclear Family Type, whereas 50 percent belonged to the Joint Family Type. The Extended family type accounted for 17% of the samples. As a result, it's assumed that the majority of the samples under investigation belonged to the Joint Family type.

The data shows that 20% of the samples were in the 2000-5000 income range, while 17% of the samples were in the 6000-9000 range. The 10000-14000 group accounted for 58% of the samples, while the Above 14000 group accounted for 5%.

The table shows the distribution of residence of participants. 60% of the samples were from rural area while 40% were from urban area [8].

4.1 Pre-Test

The Table 1 shows that in pre – test the level of knowledge score fair was 65%, good was 35%, minimum score was 6%, maximum score was 15% and mean knowledge score was 2.02%.

Table 2. Distribution of Antenatal mothers according to their level of knowledge regarding selected care of pre-eclampsia in pre-test

Level of knowledge score	Score Range	Pre-test	
		Frequency	Percentage
Poor	1-5	0	0
Fair	6-10	65	65%
Good	11-15	35	35%
Excellent	16-20	0	0
Minimum Score		6	
Maximum Score		15	
Mean Knowledge Score		9.52	2.02

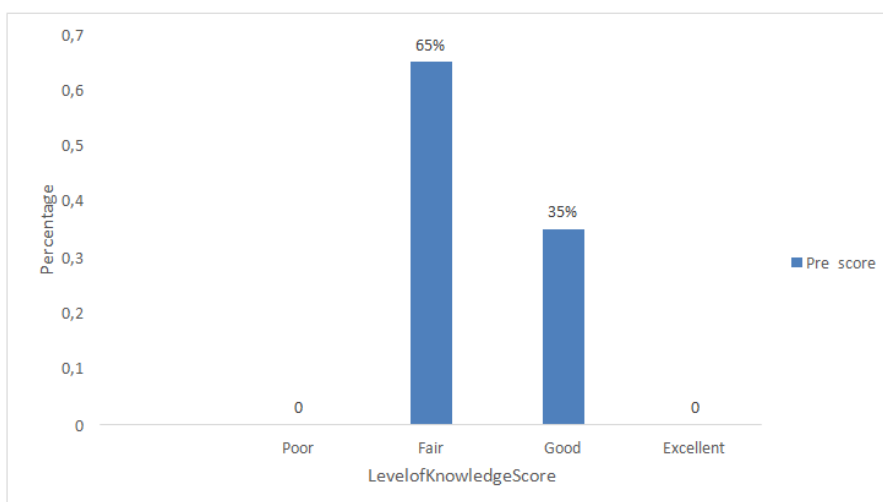


Fig. 1. Distribution of Antenatal mothers according to their level of knowledge regarding selected care of Pre-eclampsia in pre-test

4.2 Post-Test

In Post test the knowledge of antenatal mothers regarding the management of preeclampsia. The above table shows that in post-test the level of

knowledge score good was 48 %, excellent was 52 %, minimum score was 13 %, maximum score was 17 %, and mean knowledgescore was 0.97% [9].

Table 3. Distribution of Antenatal mothers according to their level of knowledge regarding selected care of pre-eclampsia post-test

Level of knowledge score	Score Range	Post-test	
		Frequency	Percentage
Poor	1-5	0	0
Fair	6-10	0	0
Good	11-15	48	48%
Excellent	16-20	52	52%
Minimum Score		13	
Maximum Score		17	
Mean Knowledge Score		15.6	0.97

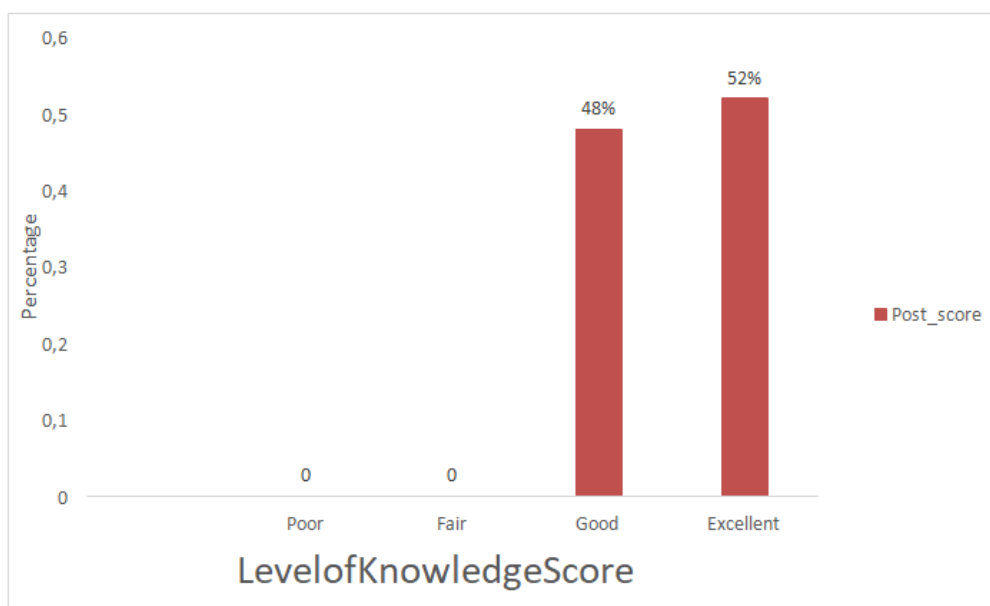


Fig. 2. Distribution of Antenatal mothers according to their level of knowledge regarding selected care of pre-eclampsia in post-test

Table 4. Distribution of Antenatal mothers according to their level of knowledge regarding selected care of pre-eclampsia

Level of Knowledge Score	Score Range	Level of Knowledge Score	
		Prescore	Postscore
Poor	1-5	0	0
Fair	6-10	65(65%)	0
Good	11-15	35(35%)	48(48%)
Excellent	16-20	0	52(52%)
Minimum Score		6	13
Maximum Score		15	17
Mean Knowledge Score		9.52(2.02)	15.6(0.97)

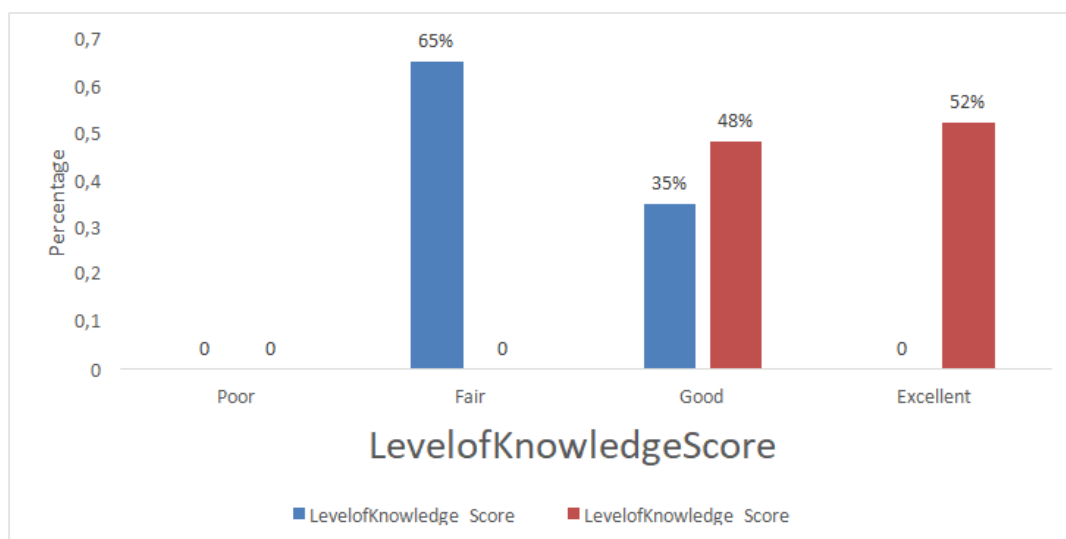


Fig. 3. Distribution of Antenatal mothers according to their level of knowledge regarding selected care of pre-eclampsia

4.3 Comparison of Pre-test and Post-test Score

The Table 4 shows that the comparison between the pre-test and post-test the level of knowledge score good 35% in pre-test and 48 % in post test, excellent 52% in post-test , minimum score 6 % in pre-test and 13 % in post-test, maximum score 15 % in pre-test and 17%in post-test, Mean Knowledge Score 2.02 % in pre-test and 0.97 % in post-test [10].

5. DISCUSSION

The current research was carried out as part of a larger project. “To assess the effectiveness of planned teaching programmed on knowledge regarding management of pre-eclampsia among antenatal mothers on selected care of pre-eclampsia patient in selected hospitals”. In the planned teaching program we have to discussed about the definition of preeclampsia, type, risk factors, causes, pathophysiology, sign and symptoms. And explain in detail about medical and surgical management. And also explain in detail about the nursing management, health education and role of nurse in management of Pre-eclampsia [11].

The study was to assess the knowledge about preeclampsia among antenatal women in a tertiary teaching hospital in Kelantan. The design selected for the study is cross-sectional design conducted on 76 antenatal mothers above 20 weeks of gestational age and attending antenatal

clinical in Hospital University Sains Malaysia, Kelantan. Non-probability purposives sampling technique was used. The tool included socio-demographic proforma and knowledge questionnaire on preeclampsia. The data was analysed in terms of both descriptive and inferential analysis [12]. Data analysis regarding level of knowledge revealed that minority of mothers (18.4%) had adequate knowledge with a mean score of 53.46(±26.42). Maternal age and receipt of information towards preeclampsia how association with knowledge scores at 0.05 level of significance. The study showed a need for awareness program and public education about preeclampsia among antenatal mmothers
Methods:- A cross - sectional design was conducted from December 2014 to February 2015 in Hospital Universiti Sains Malaysia (USM). The sample consists of 76 antenatal mothers obtained through convenience sampling. In this study, the inclusion criteria were antenatal mothers who are above 20 weeks of gestational age and mentally and emotionally stable, be conversant with either English or Bahasa Malaysia, and willing to participate in this study.
Material :- The questionnaire was developed by the researchers based on the literature reviewer. Questionnaire consists of three sections: socio-demographic (age, ethnicity, education, occupation, monthly income and parity), information about preeclampsia and knowledge on preeclampsia. The question on knowledge regarding pre-eclampsia had 15 closed ended dichomous questions with a 'True' and 'False' criteria [13].

To determine the incidence and associated factors of superimposed preeclampsia among pregnant women with chronic hypertension. Methods: A total of 300 pregnant women diagnosed with chronic hypertension were reviewed. Data were retrieved from medical records, including obstetric data, characteristics of hypertension, and pregnancy outcomes. Incidence of superimposed preeclampsia was estimated. Various characteristics were compared to determine associated risk factors. Results: Mean age of the cohort was 34.3 years, 47% were nulliparous, 50% had hypertension before pregnancy, and the others presented with hypertension before 20 weeks [14]. Incidence of superimposed preeclampsia was 43.3% (95% confidence interval (CI) 37.8–48.9). Women with superimposed preeclampsia were significantly more likely to have mean arterial pressure (MAP) ≥ 105 mmHg at 18–20 and 24–28 weeks. Adverse neonatal outcomes were significantly more common among women with superimposed preeclampsia, including small for gestational age, low birth weight, asphyxia, and neonatal intensive care unit admission. Logistic regression analysis demonstrated that only MAP ≥ 105 mmHg at 24–28 weeks was independently associated with the increased risk of superimposed preeclampsia by 1.8-fold (adjusted OR 1.8, 95% CI 1.1–3.1, $p = 0.031$). Conclusion: Incidence of superimposed preeclampsia was 43.3% among pregnant women with chronic hypertension, with increased adverse neonatal outcomes. High MAP ≥ 105 mmHg during late second trimester might be an important predictor of the condition [15].

The above reported study help in the present study and the result of present study was that In Pre-test level of knowledge score fair was 65% and mean knowledge score was 2.02 % And In Post-test level of knowledge score excellent was 52 % and mean knowledge score was 0.97 %. Result of this study is good than previous study. Study conclude that their is lack of knowledge of pre-eclampsia among antenatal mothers. After the completion of the study it is revealed that the planned teaching program was effective in gaining the knowledge regarding management of pre-eclampsia among antenatal mothers [16]. It can improve their health status and prevent from side-effect [17].

6. CONCLUSION

This thesis leads to the following the conclusion, after the detailed analysis this section looks at

determining, the researcher performed descriptive study on a topic, "A study to assess the effectiveness of planned teaching programme on knowledge regarding and management of Pre-eclampsia among antenatal mothers" [18].

Pre-eclampsia is a multisystem disorder with an unknown aetiology that appears as hypertension of 140/90 mm hg or higher with proteinuria after the 20th week in a previously normotensive and non-proteinuric woman. Pre-eclampsia is unique among hypertension illnesses in terms of the effects it has on maternal and newborn health. It is a leading cause of maternal and neonatal mortality and morbidity around the world [19].

The research objectives that have been formulated are:

- To assess the existing knowledge regarding pre-eclampsia among antenatal mothers.
- To evaluate the effectiveness of planned teaching on knowledge regarding pre-eclampsia among antenatal mothers.
- To find out the association between knowledge score with selected demographic variables [20].

All the objectives are fulfilled in this study.

It is concluded that In Pre – test level of knowledge score fair was 65 % and mean knowledge score was 2.02% And In Post-test level of knowledge score excellent was 55% and mean knowledge score was 0.97 %. Study conclude that their is lack of knowledge of pre-eclampsia among antenatal mothers. After the completion of the study it is revealed that the planned teaching program was effective in gaining the knowledge regarding management of pre-eclampsia among antenatal mothers. It can improve their health status and prevent from side-effect [21].

6.1 Nursing Implications

Nursing is a client centered profession – Some of the implications derived from the present study in various areas of nursing areas follows:

6.2 Nursing Education

The present nursing curriculum should include in detail about care of pre-eclampsia patients and all nursing students should have knowledge in depth regarding its care. Nursing teachers might

utilize the study's findings as an educational illustration for nursing students. More emphasis may be placed on the necessity of pre-eclampsia patient care for student nurses, and this study will aid nurses in preventing problems caused by a lack of care [22].

6.3 Nursing Administration

The study's findings point to the necessity for nurses working in wards to have continuing in-service education. Both theoretical and practical input should be included in the in-service education programme. This may help raise awareness among nurse administrators about the importance of providing pre-eclampsia patient care training to incoming staff nurses. Nurse administrators can create a new protocol for preeclampsia patients treatment. With the assistance of specialists, the hospital management should give in-service education and orientation to the antenatal mother on special care [23].

6.4 Nursing Services

The most important role of the nurse is to provide adequate care to the patient so it will improve the patients' health she/he is fully responsible for care of the patient and while given the nursing care to pre-eclampsia patient. The nurses of obstetric department must have special skill in care of preeclampsia patient. This study will help the nurses for prevention of complication due to lack of knowledge regarding nursing Care. Continuing nursing education programmed should be conducted in different settings. It will also help the nurses to keep update knowledge regarding the care of the pre-eclampsia patients [24].

6.5 Nursing Research

The research serves as a foundation for future research in the subject. It is necessary to conduct research to determine the effectiveness of instructional methods and conduct in special care programmed. It is necessary to do research in order to develop novel in-service education approaches. Nurses should be given adequate funding, manpower, and time to undertake research.

7. RECOMMENDATIONS

On the basis of the findings of the study, it is recommended that the following studies can be conducted.

1. A comparative study can be done in rural area to evaluate the knowledge level of patient regarding care of the pre-eclampsia patient.
2. A pre-experimental study can be conducted in community area to assess the knowledge regarding care of the pre-eclampsia patient.
3. A similar study may be conducted on a larger population for generalization of findings.
4. A comparative study can be done between rural and urban population.
5. A similar study can be replicated with a larger population [25].

8. LIMITATION

Study is limited to antenatal mothers in Hospital, Sawangi (Meghe) Wardha.

CONSENT

As per University Standard, Participant's written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Basavanthappa BT. Textbook of midwifery and reproductive health Nursing. published by Jaypee Brothers medical publishers New Delhi. 2007;542-547.
2. Sisir K. Chatopadhyay. Midwifery. 1st edition. BI Publishers. 2009;29.
3. Jacob Annamma. A comprehensive textbook of midwifery. Published by Jaiphebrothers. 2007;296.
4. Barbara K Timby Nancy E. Smith. Introductory medical surgical nursing. 9th edition. published by Lippincott Williams & Wilkins ;1999:1037-1049.
5. Carol Taylor, Carol Lilliset al. Fundamentals of nursing. 5th edition, published by Lippincott Willkins. 2006;931-37.
6. Caroline Bunkers Rosdahi, T. Mary Kowalski. Textbook of basic nursing. Published by Lippincott. 2005;93-97.

7. Deitra Leonard Lodermilk. Maternity nursing. 6th edition published by Mosby Anaffiliate of Elsevier. 2005;52-55.
8. Sudip Chakarvati; Manual of obstetrics 2nd edition ,Elsevier Publication. 2006;99-108
9. Surratt N. Care of preeclampsia patient research of Vanderbilt University Medical Center, Nashville, TN. 2009;34:56.
10. Heard AR, Dekker GA. Hypertension during pregnancy in South Australia. Epidemiology Branch, Department of Human Services, University of Adelaide. 2008;6:45-89.
11. Thangaratnam S, Coomarasamy A. Tests for predicting complications of pre-eclampsia. The Journal of the Royal Society of Health. March 2003;120:13.
12. Diane M Fraser Margerat A Cooper; Myles Textbook for Midwives. 14th Edition, Published by Churchill Livingstone. 2008;398-755.
13. Lynna Y. Littleton. Maternity nursing care. British Library, 3rd edition. 2001;350-36.
14. Sabaratnam Arukumaram; Essentials of obstetrics.JapeeBrothers. 2006;62-19.
15. Burner and Sudharths; Medical Surgical Nursing, 10th edition, published. Lippincott. 2007; 1021-108.
16. N. Jayani Klossner. Introductory maternity nursing, 1 st edition, Lippincott. 2001;412-422.
17. Sharp S, O' Mahony F, O'Brien S, Ismail KM, Khan KS. A protocol for systematic reviews of pre-eclampsia. Journal of Health Management. 2005;7(17).
18. Dasgupta M. Sarlar, pre-eclampsia and its management. Indian Journal of Community Medicine. 2008;33:77-80.
19. Mareg M, Molla A, Dires SS, Mamo ZB, Hagos B. Determinants of preeclampsia among pregnant mothers attending antenatal care (ANC) and delivery service in gedeozone, southern Ethiopia: case control-study. International Journal of Women's Health. 2020;12:567.
20. Boriboonhirunsarn D, Pradyachaipimol A, Viriyapak B. Incidence of superimposed preeclampsia among pregnant Asian women with chronic hypertension. Hypertension in Pregnancy. 2017; 36(2):226-31.
21. Tarare, Bishmani, Jagruti Chapple. Study about knowledge, awareness and attitude towards reproductive health of women in Borgaon Village of Wardha District. International Journal of Modern Agriculture 2020;9(3):100–103.
22. Salampuria, Shruti, Shubhada Jajoo, Sourya Acharya. Acute respiratory distress syndrome during pregnancy and post-partum - a case series with spectrum of near miss to mortality. Journal of Evolution of Medical and Dental Sciences-JEMDS. 2019;8(49):3724–26. DOI:<https://doi.org/10.14260/jemds/2019/806>.
23. Khandelwal, Smriti, Surekha Atul Tayade, Deepti Shrivastava, Kiran Pralhadrao Dhurve. Complete uterine septum as an incidental finding as a cause of post-partum haemorrhage and role of balloon tamponade. Journal of Evolution of Medical and Dental Sciences-JEMDS. 2020;9(48):3700–3702. DOI:<https://doi.org/10.14260/jemds/2020/812>
24. Singh, Harshika, Manjusha Agrawal, Arvind Bhake, Nihar Gupta. Colour doppler evaluation in high-risk pregnancy and perinatal outcome. Journal of Evolution of Medical and Dental Sciences-JEMDS7. 2018;9(43):4603–8. Avaialble:<https://doi.org/10.14260/jemds/2018/1027>
25. Kshirsagar, Pooja Chandrakant, Neema Acharya, Sourya Acharya, Amardeep Tembhare. Seizures in pregnancy- a rare case of neurocysticercosis mimicking eclampsia. Journal of Evolution OF Medical and Dental Sciences-JEMDS. 2020;9(12):1012–14. DOI:<https://doi.org/10.14260/jemds/2020/217>

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