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**“To Evaluate the Effectiveness of Selected Nursing Interventions  
in Prevention of Pre-Eclampsia among at risk Primigravid  
Mothers”**

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**ABSTRACT**

*Professor Sonal Shukla conducted a departmental study in the years 2021-2022, "This present study aimed to evaluate the effectiveness of selected nursing interventions in prevention of pre-eclampsia among at risk primigravid mothers at Government Hospital, Jharkand," to meet the needs of community people in the adopted areas by A.G. College of Nursing, Jharkhand.*

*Pre-eclampsia is regarded as a serious health problem, and effective preventative strategies are currently unavailable. Maternal age extremes (age 18 years vs. age > 30 years), obesity, and nulliparity have all been identified as risk factors for pre-eclampsia. Women who have been diagnosed as high risk can be targeted for more intense antenatal surveillance and preventive measures.*

**KEY WORDS:** *Primi Gravida mothers, pre-eclampsia, fetus , proteinuria, Surveillance.*

As a leading cause of maternal mortality, preeclampsia and related hypertensive disorders of pregnancy claim the lives of nearly 76,000 mothers and 500,000 babies worldwide every year. To raise awareness about preeclampsia as a life-threatening complication of pregnancy, maternal health organizations around the world are joining forces to host the first-ever World Preeclampsia Day on 22 May.

Co-sponsors BabyCenter, Ending Eclampsia/USAID, the International Society for the Study of Hypertension in Pregnancy and PRE-EMPT (Pre-eclampsia & Eclampsia Monitoring, Prevention & Treatment) join the Preeclampsia Foundation on this global initiative. Participating organizations will host events in their communities to bring attention to the global impact of preeclampsia. The proclamation endorsed by World Preeclampsia Day co-sponsors and many other maternal health organizations calls on the maternal health community to recognize the global burden of preeclampsia:

We join together to bring to light the relatively high prevalence and devastating impact of preeclampsia and related hypertensive disorders of pregnancy including eclampsia and hemolysis, elevated liver enzymes, low platelet count (HELLP) syndrome. These disorders are not rare complications of pregnancy; indeed, they affect 8-10% of pregnancies worldwide.

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. There are other uncertainties too: the diagnosis, screening and management of pre-eclampsia remain controversial, as does the classification of its severity. However, it is generally accepted that the onset of a new episode of hypertension during pregnancy (with persistent diastolic blood pressure >90 mm Hg) with the occurrence of substantial proteinuria (>0.3 g/24 h) can be used as criteria for identifying pre-eclampsia. Although pathophysiological changes (e.g. inadequate placentation) exist from very early stages of the pregnancy, hypertension and proteinuria usually become apparent in the second half of pregnancy and are present in 2%–8% of all pregnancies overall.

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: severe hypertension, heavy proteinuria or substantial maternal organ dysfunction. Early onset (before 32–34 weeks of pregnancy) of pre-eclampsia and fetal morbidity are used as independent criteria to classify pre-eclampsia as severe in some parts of the world. Maternal deaths can occur among severe cases, but the progression from mild to severe can be rapid, unexpected, and occasionally fulminant. Primary prevention of pre-eclampsia is controversial and subject of active research, particularly with regard to the use of anti-inflammatory agents and micronutrients including calcium, vitamin D and antioxidant vitamins C and E supplements. The only definitive treatment for pre-eclampsia is termination of pregnancy/delivery of the fetus and placenta, though some women with pre-eclampsia also present a transient aggravation of the disease in the postpartum period. Management of women with pre-eclampsia aims at minimizing further pregnancy-related complications, avoiding unnecessary prematurity and maximizing maternal and infant survival

This present study was carried out with an aim **“To evaluate the effectiveness of selected nursing interventions in prevention of pre-eclampsia among at risk primigravid mothers at Government Hospital, Jharkhand”**.

The study's objectives were to examine and compare the post-interventional level and clinical parameters of pre-eclampsia, as well as the post-interventional level of maternal, fetal, and newborn outcome among at-risk primigravid mothers between the study group and the control group.

A literature review was compiled from several sources. This study's conceptual framework was based on Ernestine Widenbach's *Helping Art of Clinical Nursing Theory* (1964).

The study was a true experimental research design that included 211 mothers, 108 in the study and 103 in the control group who met the inclusion criteria. Proportionate stratified random sampling was used to select samples, which were divided into three groups: Group A - mothers aged less than or equal to 18 years, Group B - mothers aged 30 years and above, and Group C - pre-pregnancy BMI >27.5 (obese) in both the study and control groups.

Age, occupation, type of family, socioeconomic position, and pre pregnancy BMI were matched in both the groups. Ethical considerations of the investigation were considered throughout the study. A checklist for screening and sample selection, a structured questionnaire to assess socio-demographic and anthropometric variables, a tool for surveillance of pre-eclamptic features (systolic blood pressure, diastolic blood pressure, proteinuria, edema, weight gain), and a tool to assess the maternal, fetal, and neonatal outcome of at-risk primigravid mothers for pre-eclampsia are all part of this study. The instruments were validated by the professionals in the field of Obstetrics & Gynecology. The tool's reliability for monitoring pre-eclamptic features was evaluated using the inter-rater observer method, which yielded a spearman's rank correlation co-efficient value of 0.8. Hence the tool was considered dependable.

Selected nursing interventions (increased calcium lactate supplement dose from 300 mg to 1200 mg and stretching exercises for 20 minutes a day, 5 days a week, from 17 weeks of gestation until the end of pregnancy) were given to at-risk primigravid mothers for pre-eclampsia in the study group, while routine measures were used in the control group.

Post-eclampsia clinical characteristics (systolic blood pressure, diastolic blood pressure, proteinuria, edema, and weight gain) were measured and scored for mothers in both groups at 16, 20, 24, 28, 32, and 36 weeks of gestation and at the end of pregnancy. The investigator's scale was used to interpret the scores. After delivery, both groups' maternal, fetal, and neonatal outcomes were evaluated by reviewing their records. Data was analyzed by statistical package for Social Sciences (SPSS) version 16 and Instate were used for data analysis.

### **MAJOR FINDINGS OF THE STUDY**

- ◆ At the end of pregnancy, 18 (15.62%, 95% CI  $\pm 6.88$ , 8.96% - 23.12%) at-risk primigravid mothers out of 108 mothers in study group and 32 (29.66%, 95% CI  $\pm 8.72$ , 21.59% - 39.02%) mothers out of 103 mothers in control group (overall) developed pre-eclampsia at the end of pregnancy.
- ◆ Statistically significant difference was observed with all the clinical parameters of pre-eclampsia like systolic blood pressure, diastolic blood pressure, proteinuria at  $p \leq 0.01^{**}$  level (RR 1.899, 95% CI 1.128 – 3.52), edema (RR 5.758, 95% CI 1.695 - 20.015) and weight gain (RR 7.99, 95% CI 1.924 - 34.689) at  $P \leq 0.001^{***}$  level among the at-risk primigravid mothers between study and control group (overall) at the end of pregnancy.
- ◆ Overall, the at-risk primigravid mothers in control group had 2.9 times risk (OR 3.444, 95% CI 1.345 -7.854) at 28 weeks of gestation, 1.9 times risk (OR 2.624, 95% CI 1.321 -5.872) at 32 weeks of gestation, 2.8 times risk (OR 3.124, 95% CI 1.415-5.897) at 36 weeks of gestation, 2.2 times risk (OR 2.416, 95% CI 1.248-4.527) at the end of pregnancy in developing pre-eclampsia than the study group
- ◆ In overall, the comparison of the mean sum rank of the post interventional level of pre-eclampsia shows a statistically significant difference at  $t=4728.21$ ,  $p=0.001^{***}$  at 24<sup>th</sup> week,  $t=5124.66$ ,  $p=0.001^{**}$  at 28<sup>th</sup> week,  $t=5124.22$ ,  $p=0.001^{**}$  at 32<sup>nd</sup> week,  $t=4895.55$ ,  $p=0.001^{**}$  at 36<sup>th</sup> week of gestation and  $t=4784.25$ ,  $p=0.001^{**}$  at the end of pregnancy among the at risk primi gravid between the study and control group.

- ◆ There was no statistically significant association between the socio-demographic and anthropometric variables and the post-interventional level of pre-eclampsia among at-risk primigravid mothers in the study group at the  $p \leq 0.05$  level, while socioeconomic status was statistically significant with the level of pre-eclampsia in the control group ( $\chi^2=7.82$ ,  $P=0.001$ ).
- ◆ At the  $p < 0.01^{**}$  level, educational qualification was found to have a statistically significant association with the post interventional level of clinical parameter (weight gain) for pre-eclampsia among the at-risk primigravid mothers in the study group at  $\chi^2=14.42$ ,  $p=0.006$  and type of family at  $\chi^2=13.25$ ,  $p=0.001$ .
- ◆ At risk factors for pre-eclampsia, age was found to be statistically significant at  $\chi^2=16.24$ ,  $p=0.044$ , pre-pregnancy BMI was found to be statistically significant at  $\chi^2=16.11$ ,  $p=0.011$ , at risk factors for pre-eclampsia were found to be statistically significant at  $\chi^2=17.58$ ,  $p=0.001$ , with (oedema) among at-risk primigravid mothers in the control group.
- ◆ The at-risk primigravid mothers' maternal, fetal, and neonatal outcomes were statistically significantly different from the control group at the  $p \leq 0.001$  level.

## CONCLUSION

The study finding showed that, there was 50 percent reduction in the incidence of pre-eclampsia in the study group compared to the control group, which supports the usefulness of chosen nursing interventions in prevention of pre-eclampsia. The study also shows that the control group has a higher risk of maternal, fetal, and neonatal outcomes than the study group.

Pre-eclampsia is a serious hazard to both the mother and the fetus, and this study found a way to identify risk variables at the booking visit so that the recommended nursing intervention can be adopted as a standard policy in the prevention of pre-eclampsia.

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