Original Article

# The Frequency of Pre-Eclampsia and Eclampsia in Un-booked Pregnant Patients Presenting in a Tertiary Care Unit



**Umme-Farwa, Farah Deeba Nasrullah, Ana Mehreen, Saima Shaikh and Pushpa Bai**


## ABSTRACT

**Objective:** To determine the frequency of pre-eclampsia and eclampsia in un-booked pregnant females aged 18-40 yrs. presenting to a gynecology unit III CHK.

**Study Design:** Descriptive, cross sectional.

**Place and Duration of Study:** This study was conducted at the Department of Gynecology and Obstetrics until III CHK Karachi from May, 2018 to November, 2018 for a period of six months.

**Materials and Methods:** A total of 245 un-booked primigravida and multigravidas between 18 - 40 years of age were included in the study. Patients with complications due to any other diagnosed medical disorders i-e chronic hypertension, diabetes, thyroid disorders, known renal disease were excluded. In study population complete blood count, liver function tests, renal function tests, coagulation profile and 24 hours urine for protein was performed. All patients were managed according to the existing protocol in the department. Pre-eclampsia was diagnosed by blood pressure monitoring and proteinuria by using urine dipstick, urine detailed report or 24 hours urinary protein.

**Results:** the study included women between 18 to 40 years with mean age of 29.61 ± 4.48 years. Majority of the patients 127 (51.84%) belonged to later age group (31 to 40 years). The mean gestational age of women was 26 ± 4.59 weeks. Mean gravidity was 3.31 ± 0.80. Mean parity was 2.22 ± 0.78. Mean BMI was 29.06 ± 2.56 kg/m2. Frequency of pre-eclampsia and eclampsia in un-booked pregnant females was found in 29 (11.84%) and 19 (7.76%) women respectively.

**Conclusion:** This study concluded that frequency of pre-eclampsia and eclampsia in un-booked pregnant females is significantly high.


**Key Words:** preeclampsia, eclampsia, un-booked, high risk pregnancy, medical disorders.

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## INTRODUCTION

The primary aim of antenatal care is to achieve better maternal and fetal outcome and early recognition and management of high risk patients. Studies have shown increases prevalence of adverse fetal and maternal outcome in unsupervised and un-booked pregnancies which is more than pregnancies receiving adequate antenatal care. [1] Delay in reaching health facilities may be related to poor knowledge about health problem and may have a definite role in cases of adverse pregnancy outcome [2]

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Un-booked patients are defined as those who due to any reason fail to seek antenatal care services in health care facility.[3] Childbirth in the low income countries like Pakistan may be associated with life threatening complication due to poverty and lake of awareness. WHO/UNICEF estimated maternal mortality ratio in Pakistan to be 340/100,000 livebirths. According to one Pakistani study 4.6% of un-booked patients encountered major obstetric hemorrhage while 2% of patients developed severe preeclampsia while in booked cases obstetric haemorrhage and pre-eclampsia was observed in 1 and 0.5 % women respectively.[4] According to another study16.6% of un-booked patients had PIH while rate of cesarean sections among un-booked patients was 18.3% in booked cases it was 8.6 and 8.5% respectively. [5] An early antenatal visit to a health care facility has many benefits, including accurate dating by LMP and ultrasound, early recognition of high risk pregnancies and detection of pregnancy complication like gestational diabetes, pregnancy induced hypertension and pre-eclampsia by objective assessment of maternal baselines weight, blood pressure and urine analysis.[6]

Mitu et al conducted a study on pre-eclampsia in developing countries and observed prevalence as low as 1.8% to as high as 16.7% [7] A Nigerian study conducted in dept. of Obs and Gyn Jos university on un-booked pregnant females found 40% of patients ending up in preterm labor, 9% pregnancies ending in utero fetal demise, 4.2% of patients with abruptio placentae, 2.8% with antepartum eclampsia and cesarean section rate of 15.1% in un-booked patients. [3] In and another Nigerian study observed 92.2% of matern al deaths occurring in un-booked patients and significantly higher rate of eclampsia, hemorrhage, instrumental delivery, emergency cesarean section, ruptured uterus and obstructed labor in these women, while only 7.8% of cases of maternal deaths were observed in booked cases .[8] In our setup of Civil Hospital Karachi which is a tertiary care centre, majority of the patients are un-booked due to poor socio-economic status, unawareness and lack of health care facilities in remote areas. Many complications are avoidable but delay in diagnosis and management leads to poor maternal and fetal outcomes with resultant maternal and fetal morbidity and even mortality in many cases. In the light of current situation and poor outcomes of unsupervised pregnancies, this study was aimed to assess the complications due to un-booked status of mother in CHK, so as to counsel them for further pregnancies and early booking to avoid these complications. Making females aware of these unwanted complications associated with their negligence that may result in long term morbidity of mother and/or baby may motivate them to visit hospitals during their pregnancies to end up with a healthy mother and baby.

## MATERIALS AND METHODS

This was a descriptive, Cross-sectional study conducted in the Department of Gynecology and Obstetrics unit III CHK Karachi from 23rd May 2018 to 22nd November 2018. [6]Non-probability, consecutive sampling technique was used to calculate sample size to be 245 by using epi version 3.0 taking hypertensive disorders of pregnancy in un-booked patient to be 19.8% with 95% confidence level and 5% confidence limit.[6] Un-booked pregnant women between 18-40years were included in the study, Un-booked women were defined as those having less than three visits to hospital during pregnancy. Women of any parity presenting to Civil Hospital Karachi with gestational age between 24-42 weeks of pregnancy calculated by LMP/ early available scan, patients visited elsewhere and referred due to pre-eclampsia or eclampsia were also included in the study.

Women with complications due to any other diagnosed medical disorder i-e chronic hypertension, diabetes, thyroid disorders, patients with autoimmune disorders like SLE and APLS and patients with known renal disorders were excluded from this study.

All patients admitted in labor room who fulfilled inclusion criteria were enrolled. Informed verbal consent was taken from patients or attendants for use of their data for study purpose. Detailed history included age, parity gestational age and past medical and obstetric history. Physical examination included general physical examination i-e, height ,weight and blood pressure measurement on two occasions at least 2-4 hours apart, per abdominal for symphysio-fundal height, fetal heart sounds and vaginal examination was performed to diagnose labour by researcher. Gestational age was calculated from LMP or available early trimester scan. Investigations included complete blood count, liver function tests, renal function tests, coagulation profile and 24 hours urine for protein. All patients were managed according to the existing protocol in the department. Pre-eclampsia was diagnosed by blood pressure ≥140/90 mmHg and proteinuria by urine dipstick, Urine DR or 24 hours urinary protein. All the data was entered in pre-designed Performa.

All data was entered and analyzed using SPSS version 22. Mean and standard deviation were calculated for quantitative variables including patient's age, height, weight, BMI, gestational age, gravidity, parity, number and duration of fits. Frequency and percentages were calculated for presenting complaints, residence, pre-eclampsia and eclampsia. Chi-square test was used to assess outcomes like age, gestational age, gravidity, parity, BMI, residence and presenting complaints. P-values of less than or equal to 0.05 was taken as significant.

## RESULTS

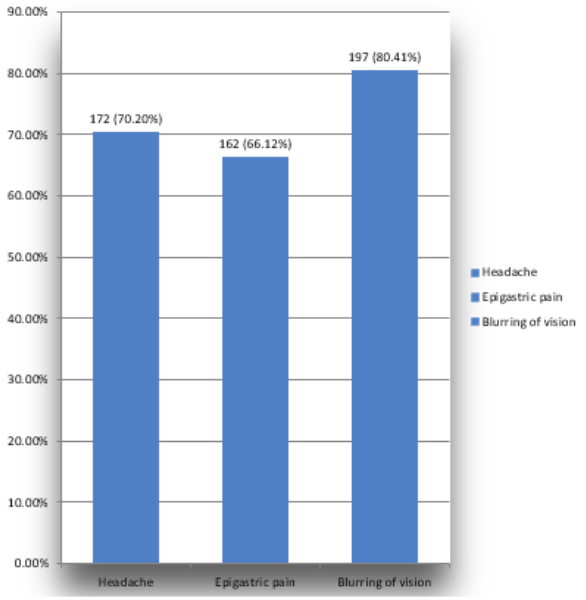


**Figure No.1: Distribution of patients according to presenting complaints**

**Table No.1: Stratification of pre-eclampsia with respect to age, gestational age, gravidity, parity, BMI, residence and presenting complaints**

| | | Pre-eclampsia | | P-value |
|---|---|---|---|---|
| | | Yes | No | |
| **Age (years)** | 18-30 | 13 | 105 | **0.702** |
| | 31-40 | 16 | 111 | |
| **Gestational age (weeks)** | ≤36 | 21 | 194 | **0.007** |
| | >36 | 08 | 22 | |
| **BMI (kg/m$^2$)** | ≤27 | 20 | 49 | **0.0001** |
| | >27 | 09 | 167 | |
| **Presenting complaint** | Headache | 19 | 153 | **0.842** |
| | Epigastric pain | 21 | 141 | |
| | Blurring of vision | 25 | 172 | |
| **Gravidity** | 0-3 | 11 | 136 | **0.010** |
| | >3 | 18 | 80 | |
| **Parity** | 0-2 | 14 | 136 | **0.127** |
| | >2 | 15 | 80 | |
| **Residence** | Rural | 18 | 117 | **0.422** |
| | Urban | 11 | 99 | |

**Table No.2: Stratification of eclampsia with respect to age, gestational age, gravidity, parity, BMI, residence and presenting complaints**

| | | Eclampsia | | |
|---|---|---|---|---|
| | | Yes | No | |
| **Age (years)** | 18-30 | 10 | 108 | **0.685** |
| | 31-40 | 09 | 118 | |
| **Gestational age (weeks)** | ≤36 | 12 | 203 | **0.001** |
| | >36 | 07 | 23 | |
| **BMI (kg/m$^2$)** | ≤27 | 11 | 58 | **0.003** |
| | >27 | 08 | 168 | |
| **Presenting complaint** | Headache | 14 | 158 | **0.977** |
| | Epigastric pain | 14 | 148 | |
| | Blurring of vision | 16 | 183 | |
| **Gravidity** | 0-3 | 15 | 132 | **0.079** |
| | >3 | 04 | 94 | |
| **Parity** | 0-2 | 15 | 135 | **0.099** |
| | >2 | 04 | 91 | |
| **Residence** | Rural | 11 | 124 | **0.799** |
| | Urban | 08 | 102 | |

Mean age of women was 29.61 ± 4.48 years (range 18-40 years). Majority of the patients 127 (51.84%) belonged to age group of 31 to 40 years. Mean gestational age was 26.11 ± 4.59 weeks. Mean gravidity was 3.31 ± 0.80. Mean parity was 2.22 ± 0.78. Mean height was 159.89 ± 14.52 cm. Mean weight was 71.22 ± 7.52 kg. Mean BMI was 29.06 ± 2.56 kg/m2.

Pre-eclampsia and eclampsia in un-booked pregnant females was observed in 29 (11.84%) and 19 (7.76%) women respectively .Stratification of pre-eclampsia & eclampsia with respect to age, gestational age, gravidity, parity, BMI, residence and presenting complaints is shown in table I and 2.

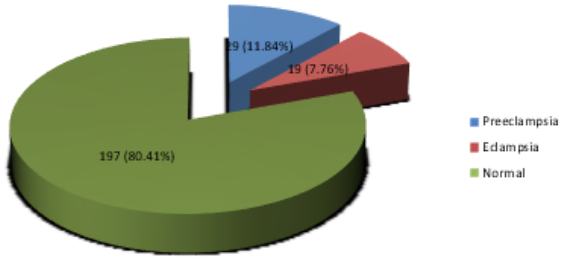


**Figure No.2: Frequency of pre-eclampsia and eclampsia in un-booked pregnant females (n=245)**

# DISCUSSION

Preeclampsia is defined as a disorder involving multiple systems and characterized by hypertension and new-onset proteinuria developing after 20th week of pregnancy.[9,10] However, even in the absence of proteinuria pre-eclampsia is diagnosed in the presence of any of the following conditions : new-onset thrombocytopenia, impaired liver function, renal insufficiency, pulmonary oedema, or visual or cerebral disturbances.[11]

Severe pre-eclampsia is diagnosed as the systolic blood pressure of at ≥ 160 mm Hg and/ or diastolic blood pressure of at ≥ 110 mmHg with significant proteinuria. The other criteria for diagnosis of severe pre-eclampsia include thrombocytopenia (platelet count less than 100,000/microliter),abnormal liver functions indicated by elevated levels of liver enzymes, acute/severe epigastric or right upper quadrant pain (caused by stretching of liver capsule by micro haemorrhages), abnormal renal function tests (serum creatinine concentration greater than 1.1mg/dl and elevated uric acid level),presence of pulmonary oedema and cerebral or visual disturbances including severe headache, blurring of vision and altered consiousness.[12]

Eclampsia is an acute obstetrical emergency which is defined as occurrence of new onset tonic clonic seizures during pregnancy or postpartum in a woman with signs and symptoms of preeclampsia.[12,13] Seizures are usually preceded by certain symptoms/signs such as headache, blurring of vision, epigastric pain and hyper-reflexia which occur in women previously having only mild disease and therefore prediction of timing of eclampsia is very difficult.[13] There is great variation of incidence of preeclampsia/eclampsia among different parts of the world. The incidence being low in developed countries owing to some excellent care during antenatal period.[14,15] In contrast there is high incidence of pre-eclampsia/eclampsia in the developing countries due to lack of antenatal carea as a result of poverty, ignorance, negligence, lack of

transportation and health care facilities in remote areas.[14] The incidences of 0.42%, 1.32% and 1.66% were reported in Zaria, Benin and Lagos, respectively.[15,16]

Studies carried out in Ibadan and Zaria observed higher incidence of pre-eclampsia/eclampsia among younger women in their first pregnancy with age less than 25 years .[17] Eclampsia is reported as a major cause of maternal mortality among women residing in Kano, Sokoto, Jos and other Nigerian cities.[18,19,20] Severe Pre-eclampsia/eclampsia is associated with significant fetal complications comprising placental abruption, utero=placental insufficiency leading to fetal growth restriction, iatrogenic pre-term delivery and intrauterine fetal death.[21] The maternal complications of preeclampsia/ eclampsia includes HELLP syndrome (Haemolysis, Elevated Liver enzymes, Low platelet count) , Disseminated Intravascular Coagulation (DIC), acute kidney injury, cerebrovascular hemorrhage, cortical blindness, focal motor deficit ,posterior reversed encephalopathy and adult respiratory distress syndrome9=(ARDS).[22,23] Studies have shown that the women with pre-eclampsia/eclampsia are likely to be among low income group, subjected to early marriage resulting in teen age pregnancy ,high parity and mainly from rural areas.[25,26]

In this study mean age of women was29.61 ± 4.48 years. Pre-eclampsia and eclampsia in un-booked pregnant females was observed in 29 (11.84%) and 19 (7.76%) women respectively. One Indian study showed 17.2% of un-booked mothers had uncontrolled PIH which is almost similar to our findings.[7] In a nigerian study it was observed that 92.2% of maternal deaths encountered in un=booked patients and with significantly higher rate of eclampsia, hemorrhage, instrumental delivery, emergency cesarean section, ruptured uterus and obstructed labor while only 7.8% of cases of maternal deaths were reported in booked patients.[8] Low socio-economic status, poor nutrition and inadequate antenatal care have close relationship with preeclampsia and eclampsia.

# CONCLUSION

This study concluded that frequency of pre-eclampsia and eclampsia in un-booked pregnant females is significantly high. So, we recommend that national awareness programs should be arranged in which pregnant women can be encouraged and emphasize for early antenatal care, accurate dating, early detection of maternal disorders that can threaten pregnancy and its outcome, objective assessment of maternal baselines including weight, blood pressure and urine analysis in order to improve the fetomaternal outcome.

**Author's Contribution:**

| | |
|---|---|
| Concept & Design of Study: | Umme-Farwa |
| Drafting: | Farah Deeba Nasrullah, Ana Mehreen |
| Data Analysis: | Saima Shaikh, Pushpa Bai |
| Revisiting Critically: | Umme-Farwa, Farah Deeba Nasrullah |
| Final Approval of version: | Umme-Farwa |

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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