

A cross-sectional study on obstetric factors contributing to increased cases of Pre-eclampsia among pregnant women attending antenatal care at Kisugu Health Center III, Kampala District.

Abdallah Walusimbi*, Prosper Mubangizi
Kampala School of Health Sciences

Page | 1

Abstract.

Background:

In Uganda, pre-eclampsia remains one of the leading causes of maternal and perinatal mortality, reflecting broader challenges in maternal health care systems. This study assessed the obstetric factors contributing to increased cases of Pre-eclampsia among pregnant women attending antenatal care at Kisugu Health Center III, Kampala District.

Methodology:

The study design was a quantitative cross-sectional study using a simple random sampling technique. The sample size was 64 eligible pregnant women attending Kisugu Health Center III in Kampala District. Data was collected using structured questionnaires among pregnant women. Microsoft Excel was used to analyze data, and it was presented in the form of frequency distribution tables, pie charts, and bar graphs.

Results:

(21.9%) Of the study participants, were aged 25-30 years, (71.9%) of respondents were single. 62% respondents mentioned that they were screened for preeclampsia during ANC, (70%) of the respondents didn't know the signs and symptoms of pre-eclampsia, 47% were satisfied with antenatal services at Kisugu health center III, 52% of the study participants attended antenatal care occasionally, most of the respondents had space of 2 years between the previous and current pregnancy and (90%) had singleton type of pregnancy.

Conclusion:

The established obstetric factors were: attendance of antenatal care visits, presence of fetal anomalies, type of pregnancy, and screening for preeclampsia.

Recommendation:

The Ministry of Health should conduct integrated ANC targeted screening of preeclampsia, UTI, and febrile illnesses in pregnant women at high risk, such as those with a family history of preeclampsia.

Keywords: Pre-eclampsia, pregnant women, obstetric factors, Kisugu Health Center III.

Submitted: May 11, 2026 **Accepted:** July 30, 2026 **Published:** August 08, 2026

Corresponding author: Abdallah Walusimbi
Kampala School of Health Sciences

Background.

Incidence of pre-Eclampsia in developing countries is approximately seven times higher than in developed countries (on average 2.8% of live births versus 0.4%) (Kartika et al, 2021). Uganda is a developing country, and pre-eclampsia is the second leading cause of maternal morbidity and mortality in Uganda (Awor et al., 2023). In Uganda, pre-eclampsia remains a leading cause of maternal and perinatal mortality, reflecting broader challenges in maternal health care systems (Nakimuli et al., 2020).

In Sub-Saharan Africa alone, pre-Eclampsia remains a major public health problem, as the reported prevalence of pre-Eclampsia ranges from 1.8 to 16.7% and contributes to high rates of maternal mortality (Mou et al., 2021). Preeclampsia is the second leading cause of maternal death in Uganda, according to Awor et al. (2023). According to the Uganda Ministry of Health, preeclampsia is the second leading cause of maternal death (Uganda Ministry of Health, 2022). The prevalence of preeclampsia is not well-documented, and the associated data are scarce (Mou et al., 2021). Additionally, the Black race stood out as a significant

risk factor in all the studies where the communities had a mixed race, insinuating that the predominantly black Ugandan communities are at (Awor et al, 2023). Furthermore, few studies have been reported in poor resource settings about risk factors for pre-eclampsia (Kiondo et al., 2017).

This study assessed the obstetric factors contributing to increased cases of Pre-eclampsia among pregnant women attending antenatal care at Kisugu Health Center III, Kampala District.

Methodology.

Study Design.

This was a quantitative cross-sectional study which was used to investigate the risk factors for preeclampsia among pregnant women attending Antenatal care at Kisugu Health Centre III, Kampala District.

Study site.

This study was conducted at Kisugu Health Centre III, a public health facility, located in Kisugu town council, Kampala District, in the central region of Uganda. Kisugu Health Centre III provides primary health care

services and maternal and child health services to the residents of the village and the neighboring villages within the region.

Study Population

The target and Study population comprised pregnant women attending antenatal care services at Kisugu Health Centre III, Kampala District.

Sampling

Sample Size determination

The sample was calculated by using the Kish and Leis Lie formula (1965) for cross-sectional studies.

$$n = z^2 * P (1 - p) / g^2$$

Where

n = is the sample size to be used

z = is the alpha value coefficient corresponding to 85% confidence interval, which is 1.44, and g^2 is the precision of 5% (0.05)

P = proportion in the target population that is estimated to be preterm babies. In our study, a prevalence of 7.5% was used, as adopted from previous conducted studies (Mayrink et al., 2019).

Thus, the calculations using the above method are as follows: $n = 1.44^2 * 0.075 (1 - 0.075) / 0.05^2$

$$n = 1.44^2 * 0.075 (0.925) / 0.05^2 \quad n = 57.5$$

Thus n = 58 participants

Adjusted sample size = $n/1 + \{n/\text{population}\}$ Where n is the sample size

Hence, the adjusted sample size was 58 participants

In order to take care of the non-response rate, we add 10% of the initial sample size. Therefore, $58 + [10\% \text{ of } 58] = 64$ participants.

Sampling Method

A probability, simple random sampling method was employed to identify the participants for the study, and it involved the identification of the pregnant mothers and the collection of data from participants who were identified by use of the sampling method from the Antenatal care unit and in the maternity ward at the health facility.

Sampling Procedure

Using the registers, all pregnant women and those who were admitted to KHCH were identified and traced. Any mother who meets the inclusion criteria will be informed about the research and its purpose and asked to participate by giving consent. Those who gave informed consent were assessed for pre-eclampsia, i.e., measuring their blood pressure and taking their urine sample for Urine protein analysis at no cost. administered questionnaire: A pretested interviewer

questionnaire was administered to all eligible study participants to assess socio-demographic and obstetric factors contributing to preeclampsia.

Study Variables

Dependent Variable

Increasing preeclampsia cases

Independent Variables

The obstetric factors.

Selection Criteria.

Inclusion Criteria

All pregnant women at ≥ 20 weeks of gestation attending Antenatal at Kisugu Health Centre III. That gave informed consent were included in the study.

Exclusion Criteria.

Pregnant women who were critically ill (having preeclampsia with severe features or complications like HELLP syndrome)

Data Collection

Data collection method

The study employed a Survey data collection method, where questionnaires were administered to 64 pregnant women who met the inclusion criteria at the study site and were selected through a random selection.

Data collection tool

Administered questionnaires for respondents, and it was administered to eligible mothers. A data extraction tool was used to extract information from the mothers' files and Antenatal cards.

Data collection procedure

Interviewer-administered questionnaires, which were used by the study team in the Maternity ward and Antenatal care unit. The questionnaires were issued to pregnant mothers who met our inclusion criteria. Medical records, specifically the antenatal card and the admission files of mothers, were retrieved in order to obtain additional information.

The interviews were conducted in both English and Luganda. The exercise of actual data collection was always commenced at 08:00 am and ended at 02:00 pm every day from Monday to Friday for the 20 days of data collection. The evening hours were utilized for passing through the research questionnaires answered to check for completeness.

Results.

Demographic data of respondents

Table 1 shows the demographic data of respondents (N=64).

Age	Frequency (f) =64	Percentage (%) =100%
15-19	11	17.2
20-24	14	21.9
25-30	15	23.4
31-35	13	20.3
>35	11	17.2
Tribe		
Muganda	25	39.1
Musoga	20	31.1
Acholi	4	6.3
Munyankole	8	12.5
Others	7	10.9
Education Level		
None	15	23.4
Primary	32	50
Secondary	10	15.6
Tertiary	7	10.9
Marital Status		
Married	18	28.1
Single	46	71.9
Address		
Rural	38	59.4
Urban	26	40.6
Occupation		
Self-employment/Business	16	24
Subs. Farming/Casual work	4	6.3
House Wife	25	39.1
House-wise + other activity	12	18.8
Un-employed	7	10.9
Alcohol intake		
Yes	60	93.8
No	4	6.3
Tobacco Smoking		
Yes	8	12.5
No	56	87.5

Table 1 shows that most of the respondents are between 25-30 years (21.9%), whereas the least are in the age bracket of 15-19 years and >35years (17.2%). Most of the respondents were Baganda (39.1%), while the least were Acholi (6.3%). More than half of respondents had primary education (50%), while the minority had tertiary education (10.9%). The majority (71.9%) of respondents were single, while the least were married (28.1%). More than half of the participants were rural residents (59.4%), while the least were urban residents (40.6%). Most of the respondents were housewives (39%), whereas the least were Subs. Farming/Casual work (6.3%). The majority of the respondents were drinking alcohol (93.8%) while the least were not (6.25%).

Obstetric factors leading to preeclampsia among pregnant women.

Figure 1: Shows the pregnancy whether it was intended or not intended by respondents (N=64)

Page | 4

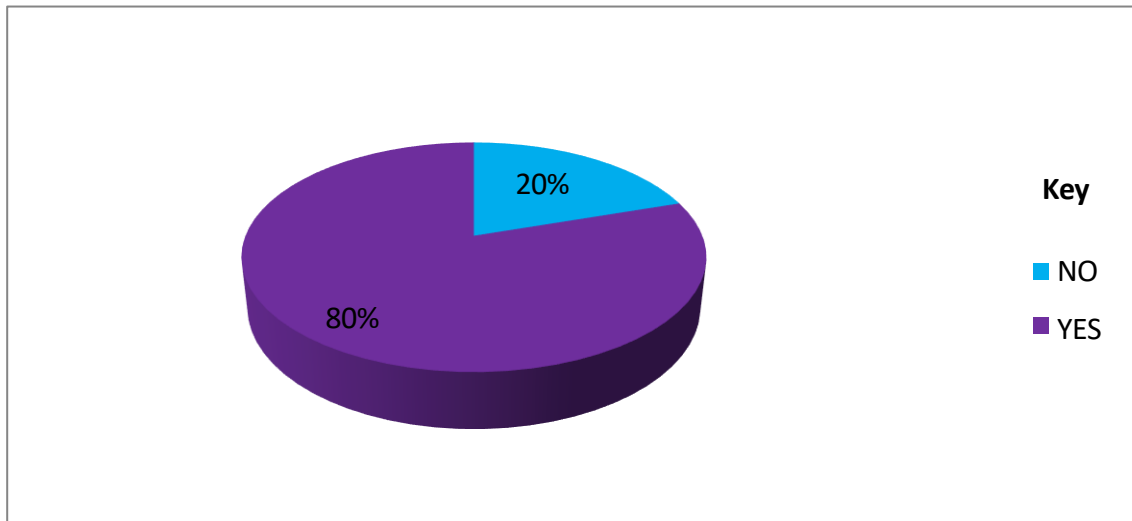


Figure 1 shows that the majority of the respondents (80%) had intended to get pregnant, whereas the minority of the respondents (20%) had never intended to get pregnant.

Figure 2: Shows whether the respondents had an ultrasound scan done on the current pregnancy (N=64)

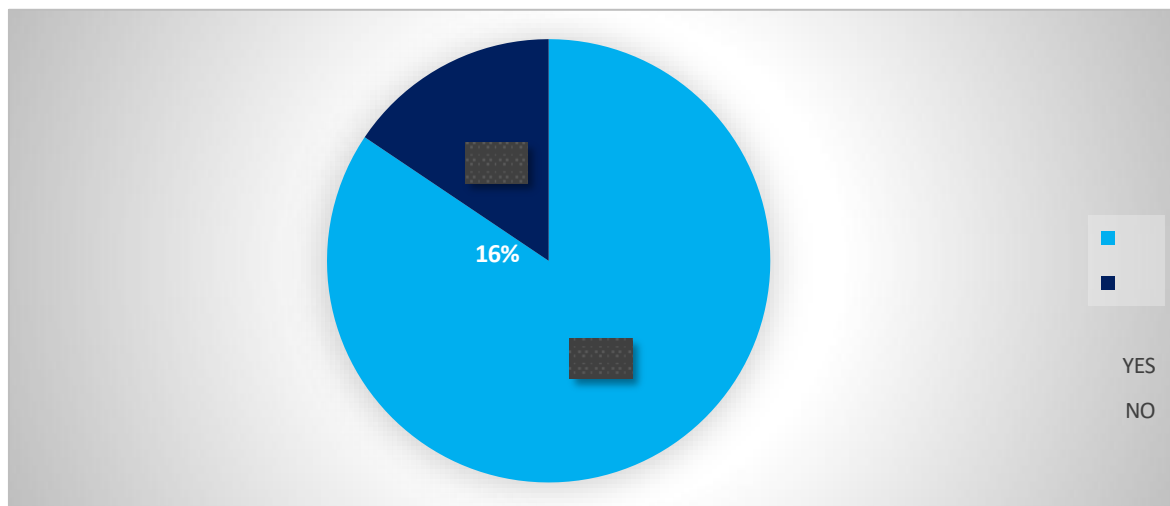


Figure 2 shows that the majority of the respondents (84%) had an Ultrasound Scan, whereas the minority of the respondents (16%) didn't have any Ultrasound Scan.

Figure 3: Shows the type of pregnancy of respondents (N=64).

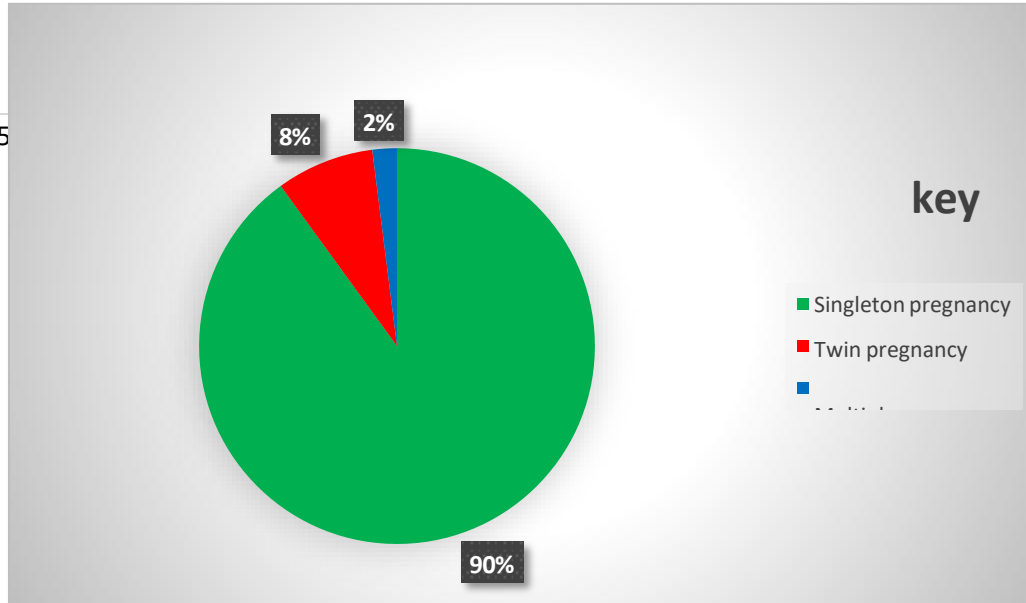


Figure 3 shows that the majority of the respondents (90%) had a singleton type of pregnancy, whereas the minority of the respondents (2%) had multiple pregnancies.

Figure 4: Shows the gender of the fetus of respondents (N=64).

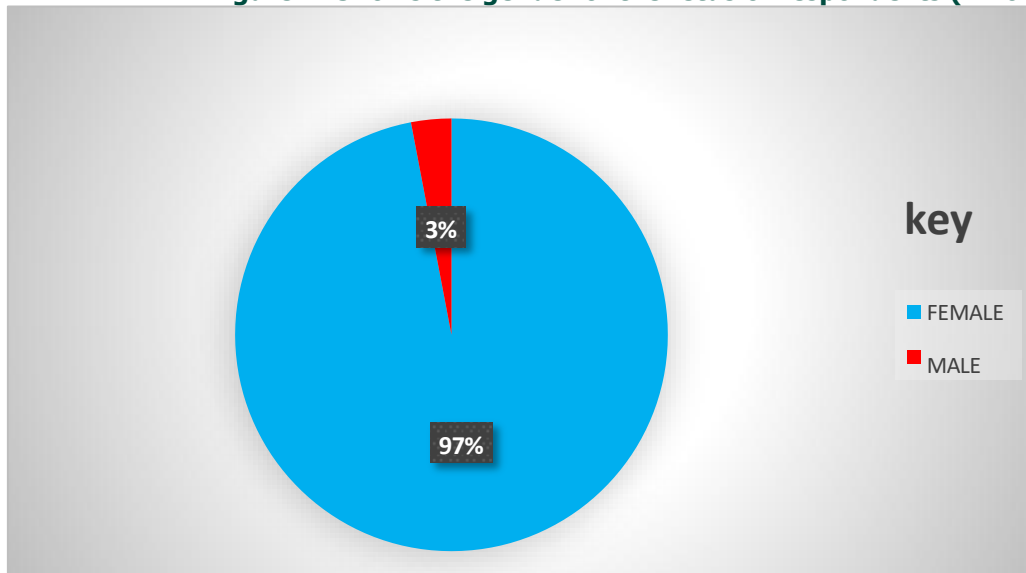


Figure 4 shows that the majority of the respondents, the gender of their fetus was female (97%) had a female fetus, whereas a minority was males with (3%).

Figure 5: Shows fetal anomalies of respondents on ultrasound scan (N=64)

Page

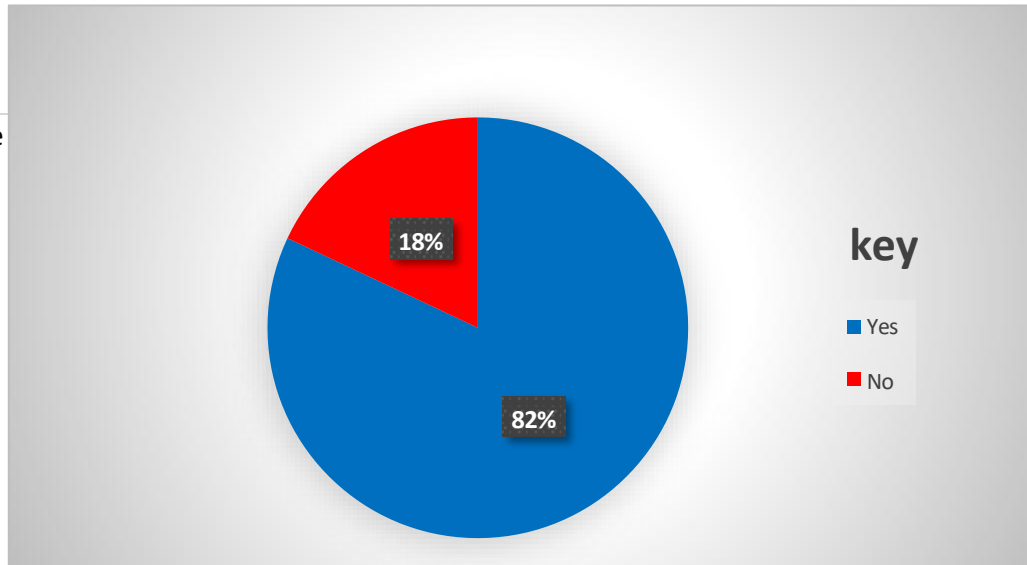


Figure 5 shows majority 82% said the ultrasound scan revealed fetal anomalies, whereas the minority 18% ultrasound scan revealed no fetal anomalies.

Figure 6 : Shows the interval between the previous pregnancy and the current pregnancy.

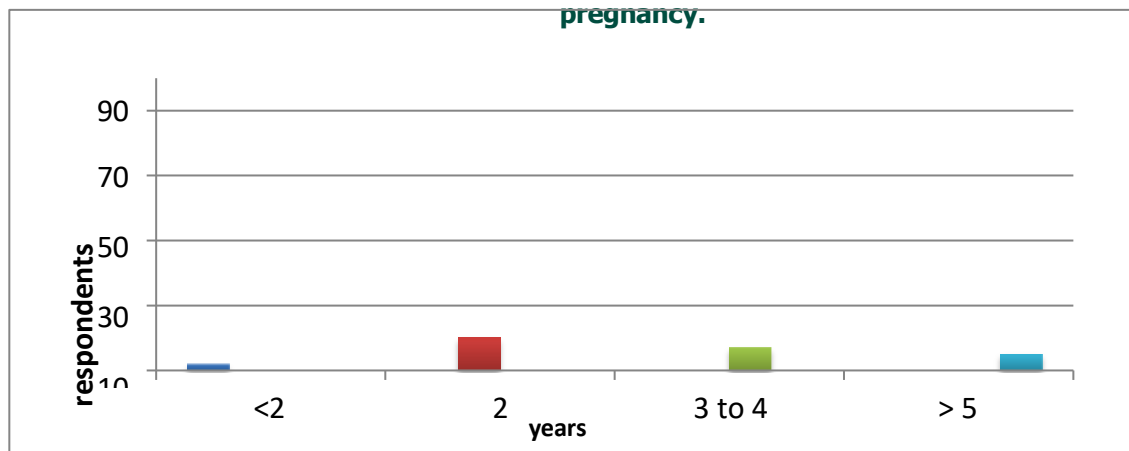


Figure 6 shows that most of the respondents had a space of 2 years between the previous and current pregnancy, whereas the least had a space >5 years.

Figure 7: Shows how frequently the respondents attended antenatal care appointments (N=64)

Page

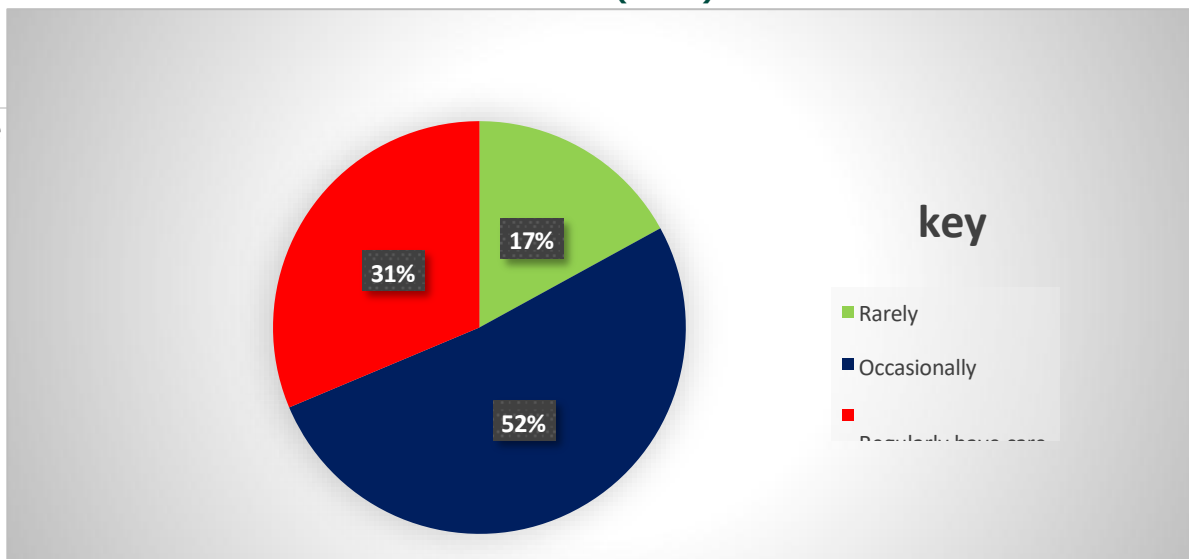


Figure 7 shows that more than half of the respondents 52% attended antenatal care occasionally, whereas a minority 17% attended antenatal care rarely.

Figure 8: Shows how satisfied respondents are with antenatal care services at Kisugu Health Center III (N=64)

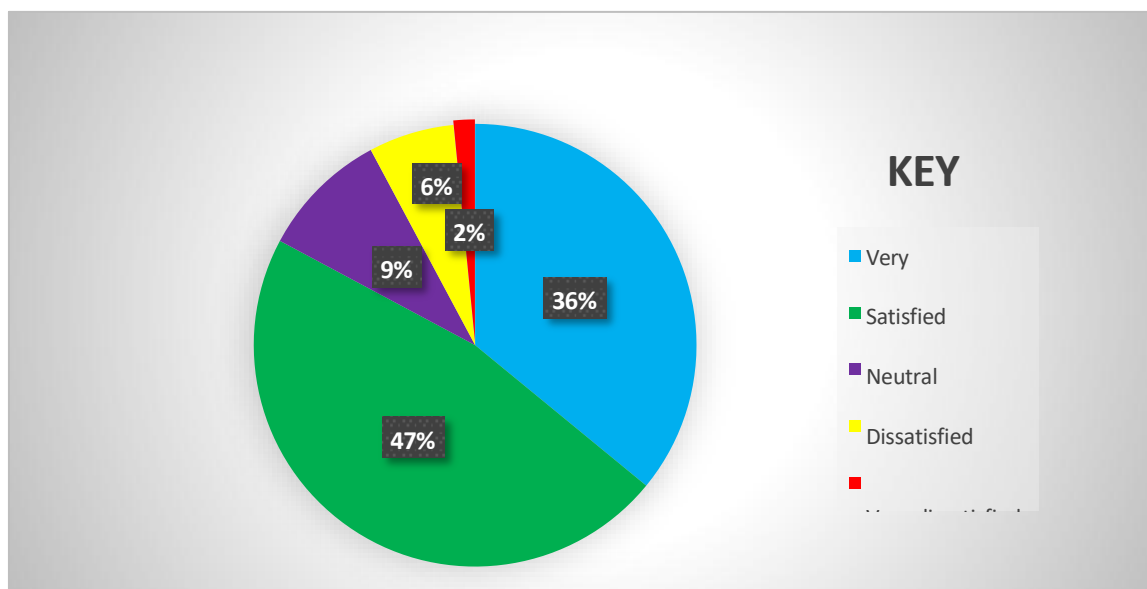


Figure 8 shows that most of the pregnant mothers were satisfied 47% with antenatal services at Kisugu health center III, whereas a minority were very dissatisfied, 2%, with the services.

Figure 9: Shows the distribution of respondents according to whether they know the signs and symptoms of preeclampsia (N=64).

Page | 8

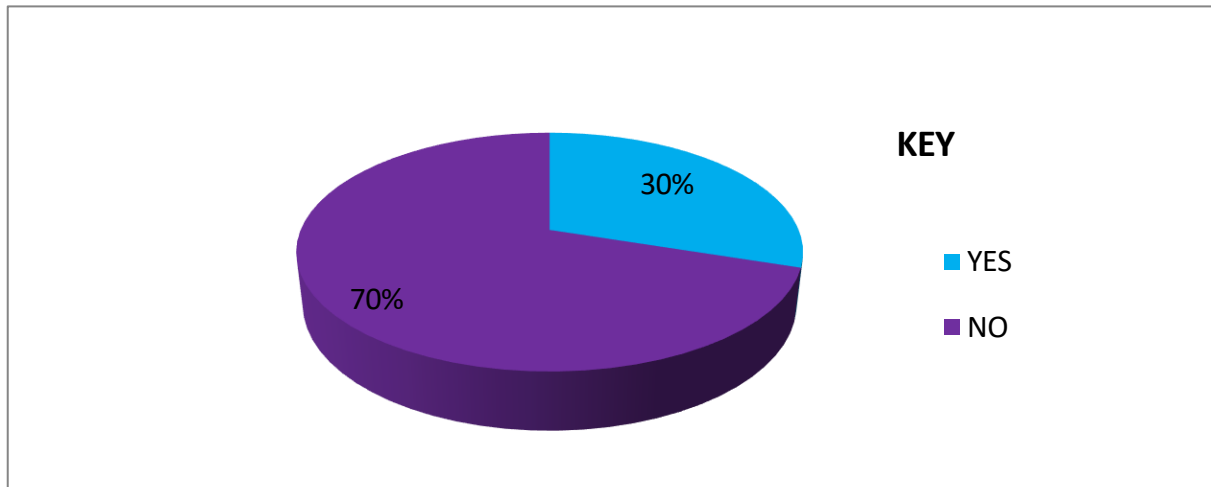


Figure 9 shows that the majority (70%) of the respondents didn't know the signs and symptoms of pre-eclampsia, while the minority of the respondents (30%) reported that they knew the signs and symptoms of pre-eclampsia.

Figure 10: Shows respondents screened for preeclampsia during current pregnancy (N=64)

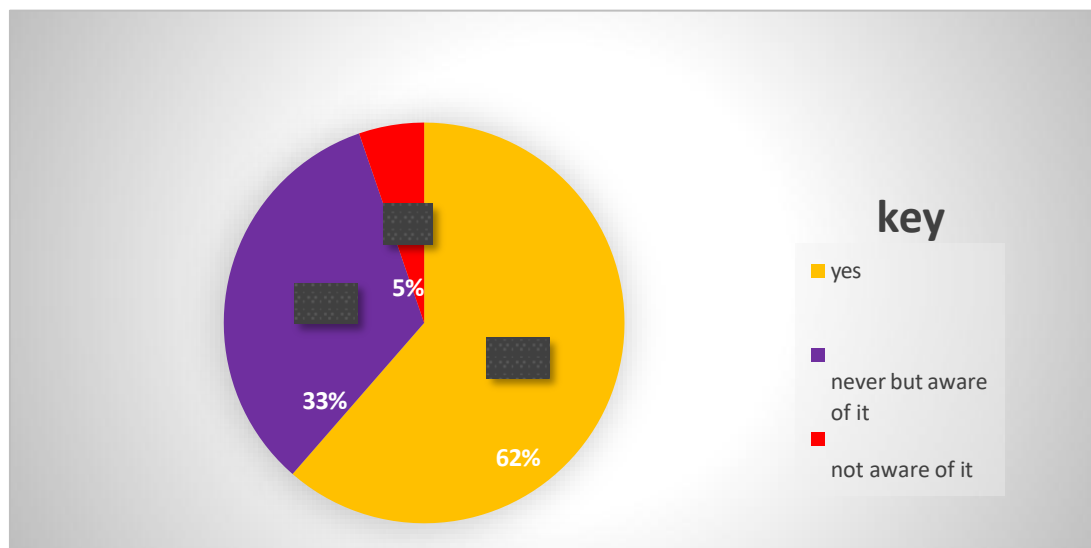


Figure 10 shows that the majority 62% respondents were screened for preeclampsia during the current pregnancy, whereas a minority 5% respondents were not aware of it.

Discussion of results.

Obstetric factors contributing to Preeclampsia among Pregnant women

The study showed that more than half of the respondents 52% attended antenatal care occasionally, whereas a minority 17% attended antenatal care rarely. This implies

that pregnant women who didn't attend antenatal care were at risk due to late diagnosis of preeclampsia. This was in alignment with the study by Onwudiegwu et al. (2017, who found that women who attended fewer than four antenatal care visits were at significantly higher risk of severe preeclampsia.

The study showed that most of the pregnant mothers were satisfied 47% with antenatal services at Kisugu Health Center III, whereas a minority were very dissatisfied 2% with the services. This means that pregnant women who were not satisfied with the services didn't come to the health center. Based on the study, the majority (70%) of the respondents didn't know the signs and symptoms of pre-eclampsia, while the minority of the respondents (30%) reported that they knew the signs and symptoms of pre-eclampsia. This implies that pregnant women who didn't know the signs of preeclampsia were at risk since they would mistake the signs and symptoms for other conditions. This was in agreement with a study conducted by Berhe et al. (2018 in Ethiopia, which found that 65% of pregnant women had little to no knowledge of preeclampsia symptoms, leading to delayed presentation at healthcare facilities.

The study showed that the majority, 62% respondents, were screened for preeclampsia during the current pregnancy, whereas a minority, 5% respondents, were not aware of it. This means that those who were not screened were at risk of late diagnosis of preeclampsia.

Conclusion.

The established obstetric factors were: attendance of antenatal care visits, presence of fetal anomalies, type of pregnancy, and screening for preeclampsia.

Recommendation.

The Ministry of Health should conduct integrated ANC targeted screening of preeclampsia, UTI, and febrile illnesses in pregnant women at high risk, such as those with a family history of preeclampsia.

Acknowledgement

I thank the Almighty Allah for my life, his abundant provision, protection, knowledge, and Wisdom, and surrounding me with people, opportunities, and resources that have made my academic journey fruitful and fulfilling. I am humbled by His countless blessings He gave unto me, especially during my studies. I also thank my friends and family for the support, both emotional and practical, especially during challenging times. I am truly grateful for the moments they have sacrificed to allow time and space needed to focus on my work.

I also thank Kampala School of Health Sciences for providing a nurturing and inspiring environment that has been pivotal in my personal and academic growth.

I would also like to thank my supervisor, Mr. Mubangizi Prosper, who was tirelessly correcting me and encouraging me throughout this study. I will always uphold your contributions to my heart.

List of abbreviations.

ANC: Antenatal clinic.
AOR: Adjusted Odds Ratio.
APS: Antiphospholipid Syndrome
BMI: Body Mass Index
C/S: Caesarean Section.
CKD: Chronic Kidney Disease
DM: Diabetes Mellitus
MOH: Ministry of Health
MUAC: upper arm circumference OR -Odds Ratio
PCOS: Polycystic Ovary Syndrome
PIH: Pregnancy-Induced Hypertension
SVD: Spontaneous Vertex Delivery
UDHS: Uganda Demographic Health Survey
UTI: Urinary Tract Infection
WHO: World Health Organization

Source of funding.

There is no source of funding.

Conflict of interest.

No conflict of interest declared.

Availability of data.

Data used in this study are available upon request from the corresponding author.

Authors contribution

AW designed the study, conducted data collection, cleaned and analyzed data, drafted the manuscript, and PM supervised all stages of the study from conceptualization of the topic to manuscript writing.

Ethical approval.

Participation in the study shall be voluntary, informed consent will be obtained before data collection, all identifiable information, such as participants' names, shall not be collected, only codes will be used, and maximum confidentiality of information gathered will be assured to all participants throughout the study process.

Informed consent.

A consent form was filled out by the respondents after explaining the purpose of the study to them. The respondents were assured of confidentiality as no names would appear on the questionnaire. No participant was

forced to participate in the study, and all the study materials used during the interviews were safely kept under lock and key, only accessible by the researcher.

Author's biography.

Abudallah Walusimbi is a student of a diploma in clinical medicine and community health at Kampala School of Health Sciences.

Prosper Mubangizi is a research supervisor at Kampala School of Health Sciences.

References.

1. Kiondo et al. (2017). Risk factors for pre-eclampsia.
2. Mou et al. (2021). The incidence of pre-Eclampsia in developing countries is approximately seven times higher than in developed countries
3. Nakimuli et al. (2020). Maternal health care systems.
4. Uganda Ministry of Health (2022). Preeclampsia is the second leading cause of maternal death.
5. Awor et al. (2023). The study revealed that severe pre-Eclampsia is one of the main causes of maternal morbidity and mortality in Ugandan hospitals.
6. kartika et al. (2021). The incidence of pre-Eclampsia in developing countries is approximately seven times higher than in developed countries.