

Factors Influencing Provision of Pre-Eclampsia Screening Services: Empirical Evidence from Kenya

JanepherNamarome Masai

Department of Nursing, School of Pure, Applied and Health Sciences, Maasai Mara University

Abstract

Purpose: This study sought to identify factors influencing the provision of pre-eclampsia screening services in Kenya

Design/methodology: This study adopted cross-sectional study design involving a mixed method approach using both quantitative and qualitative techniques. The study was undertaken in Bungoma County Referral Hospital, western region of Kenya. Stratified random sampling procedure was used to select 282 pregnant mothers attending ANC services at the Maternal Child Health department.

Findings: The study established that that showed an increased risk of preeclampsia among pregnant women aged between 21-25 years. It was further established that 47.5% of the respondents had primary level education. The level of education increases the incidences of preeclampsia screening as pregnant women. The study revealed that majority (56.4%) of the pregnant women had informal source of income in form of self-employment. The study did not find consistent associations between employment/work conditions with hypertensive disorders during pregnancy. In addition, the study established that health care providers had limited knowledge regarding the management and screening of preeclampsia. Lack or non-functional equipment and increased workload were reported as factors hindering provision of effective pre-eclampsia screening services

Research limitations/implications: This study is conducted within the context of one referral hospital. The generalization in the study is low. Researchers are encouraged to explore further

Policy implications: There is need to formulate policies toward women empowerment through education. The healthcare facilities have to be provided and equipped so that they can have the capacity to manage the complications due to preeclampsia with severe features and eclampsia

Originality/value: Despite replete studies that have examined the relationship between attendance and academic performance, few studies have been done in Kenya. The findings of this study will therefore add to the growing body of empirical literature on the factors influencing provision of pre-eclampsia screening services.

Paper type Research paper

Keywords: Pre-eclampsia, Eclampsia, Screening Services, Hypertensive disorders

Date of Submission: 01-12-2020

Date of acceptance: 15-12-2020

I. Introduction

Hypertensive disorders in pregnancy which include chronic hypertension; gestational hypertension; pre-eclampsia with or without severe features; eclampsia and chronic hypertension with superimposed pre-eclampsia are among the leading causes of maternal and neonatal morbidity and mortality worldwide, particularly in developing countries (Hollier et al., 2019). In particular, preeclampsia and eclampsia contribute to the death of a pregnant woman every three minutes globally (Myers & Baker, 2002). It accounts for approximately 14% of all maternal deaths worldwide (World Health Organization, 2020). Women with pre-eclampsia usually develop raised blood pressure and proteinuria, but the condition is also associated with abnormalities of the coagulation system, disturbed liver function, renal failure and cerebral ischemia (Hollier et al., 2019). It complicates an estimated 2–8% of pregnancies. Preeclampsia refers to a syndrome characterized by the new onset of hypertension and proteinuria after 20 weeks gestation in a previously normotensive woman. Eclampsia refers to the development of grand mal seizures in a woman with gestational hypertension or preeclampsia (Sibai, 2005).

Eclampsia, the occurrence of one or more convulsions superimposed on the syndrome of pre-eclampsia, occurs less frequently, complicating between 1 in 100–1700 pregnancies in the developing world and about 1 in 2000 pregnancies in Europe and other developed countries (Peck Palmer & Das, 2020). This variation reflects the differences in health-seeking behaviors, quality of obstetric care, and the proportion of pregnancies attended to by skilled birth attendants. Furthermore, the high incidence of eclampsia in the

developing countries when compared with developed countries are attributable to delay in seeking health care, inadequate antenatal care, and challenges in detection and prevention of preeclampsia (Okeudo, Ojiji, Ezem, & Dike, 2012). Eclampsia is often a serious and life-threatening condition. Compared to pre-eclampsia it carries a much higher risk of death and serious morbidity for the woman and her baby (Thaddeus & Maine, 1994). This constitutes a significant reproductive health issue and indicates the poor performance status of the health-care system. The World Health Organization (WHO) estimates the incidence of pre-eclampsia in developing countries seven times higher (2.8% of live births) compared to more developed countries (0.4%)

In Kenya, the incidence of preeclampsia is about 0.3% while the prevalence is 6.1%. Similarly, in Ethiopia, the prevalence of preeclampsia is about 5%. In Nigeria, the prevalence of preeclampsia ranges between 2 and 16.7% (Logan, Njoroge, Nyabola, & Mweu, 2020; Osungbade & Ige, 2011). The standards for diagnosis set in Kenya for preeclampsia are defined by the Ministry of Public Health and Sanitation (2011) as hypertension of more than 140/90 proteinuria of more than 0.3g/l and edema of the face, hands and legs. A study by Muchiri (2015) found that practices as regard to preeclampsia diagnosis was not aligned to the prescribed national guidelines which leads to poor assessment and diagnosis of patients with preeclampsia. Extant studies (Goldenberg et al., 2015; Osungbade & Ige, 2011) have investigated the underlining causes of preeclampsia in different settings. The findings of these studies have reported a range of risk factors, although results were inconclusive due to variations among populations and ethno-geographic groups. Moreover, most of the evidence reported about risk factors of preeclampsia and eclampsia were from developed countries. Nevertheless, a full account of the risk factors of preeclampsia/eclampsia has not been well established in the Kenyan population. Hence, (2012). Hence, this study seeks to identify the factors influencing the provision of pre-eclampsia screening services among pregnant women in Kenya.

II. Materials And Methods

Study design, setting and participants

This study adopted cross-sectional study design involving a mixed method approach using both quantitative and qualitative techniques. The study was undertaken in Bungoma County Referral Hospital, western region of Kenya. Stratified random sampling procedure was used to select 282 pregnant mothers attending ANC services at the Maternal Child Health department. The participants were categorized in to strata based on their clinic visits. The antenatal clients were classified in to either first, second, third and fourth antenatal visits. Thereafter, antenatal clients in each stratum were picked using simple random sampling method. Semi-structured questionnaire and checklist were used to collect data for this study. Ethical clearance was obtained from Institutional Research and Ethics Committee (IREC), Moi University and permission from Bungoma County Hospital administration. Informed consent was obtained from the sampled participants before enrollment into the study. The researcher, being assisted by identified and trained research assistants embarked on data collection from the enrolled participants.

Eligibility Criteria

Inclusion criteria for antenatal clients

To participate in the study the client should:

- i. Have a confirmed pregnancy.
- ii. Be willing to participate in the study by giving an informed consent
- iii. Should have valid and duly filled ANC booklet
- iv. Should be of a sound mind.

Exclusion criteria for antenatal clients

- i. Expectant women coming for more than the four recommended ANC visit
- ii. Expectant clients too sick to participate in the study
- iii. Those who decline to give consent

Inclusion criteria for midwives

- i. The midwives should be currently working in the MCH/FP department.
- ii. The midwives should be willing to participate in the study by consenting

Exclusion criteria for midwives

- i. Skilled birth attendant on internship.

Data was extracted from the identified clients' antenatal booklets and keyed into the checklists. Semi-structured questionnaire was administered to the skilled birth attendant, after which the completed tools were collected back by the research assistants. The extracted data was cleaned, checked for accuracy, consistency, entered using Statistical Package for Social Sciences (V.20). Descriptive statistics (frequency and percentage) and measures of central tendency (mean, standard deviations, median) are reported.

III. Results

Socio-demographic characteristics

The demographic information of the respondents was important because it painted a clear understand of the nature of the respondents who were taking part in the research study. The demographic information included age group, level of education, marital status and sources of income. The findings revealed that (34.37%) of the respondents attending antenatal clinic were aged between 21-25 years; followed by those aged 26-30 years (26.1%), those below 20 years and between 31-35 years were 24.29% and 10.08% respectively. The least represented age group was above 41 years at 1.55% as shown in figure 1

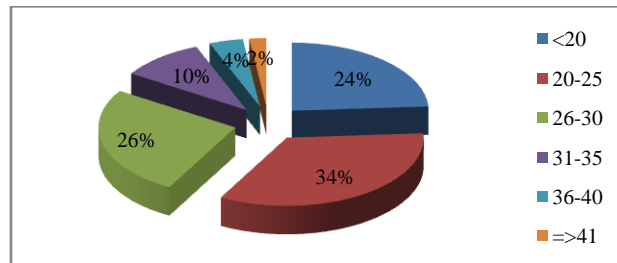


Figure 1: Participant Distribution by age-group

Majority of the participants (97.21%) had a minimum of primary school education with only 2.79% not attending any formal educational institution as shown in figure 2.

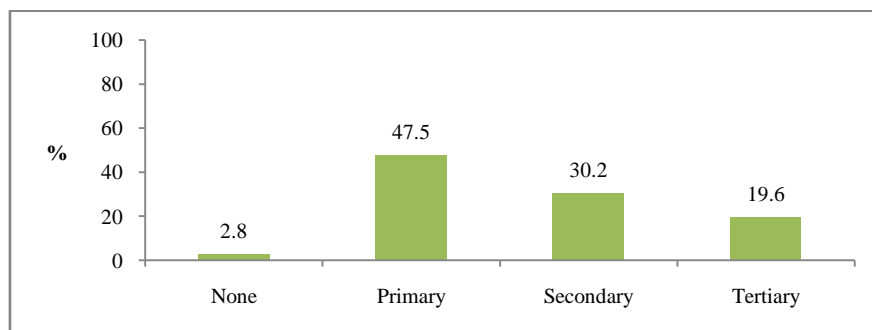


Figure 2: Level of Education

Over 90% of the participants were married (Figure 3) while only 56.4% had a source of income as informal (Figure 4).

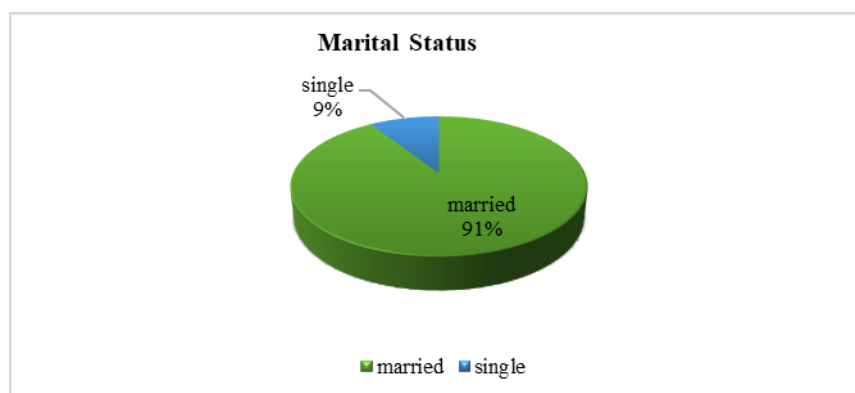


Figure 3: Marital Status

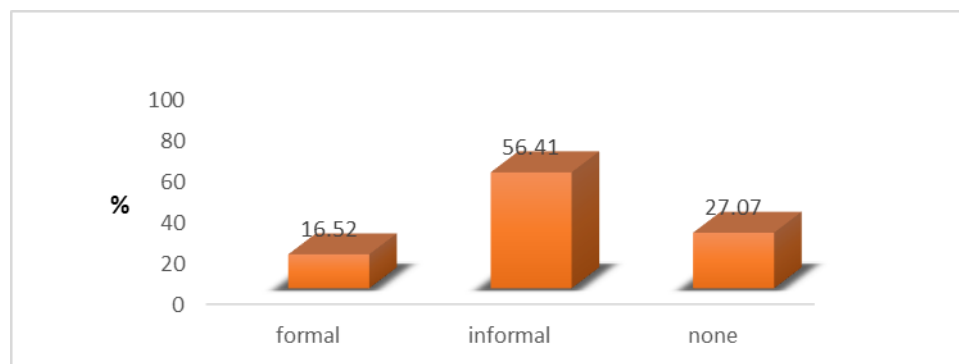


Figure 4: Source of income

Factors Influencing Provision of Pre-Eclampsia Screening Services

The study sought to identify factors influencing the provision of preeclampsia screening services in Kenya.

Age

Clients were screened for their ages. Examining the relationship between age and preeclampsia revealed that a majority (34%) of the clients were aged between 21-25 years while those aged less than 20 years (24%) and over 40 years were 1.5%.

Education

The study findings revealed that 47.5% had primary level education, 30% had secondary education, 19.6% had tertiary education while a paltry 2.8% had no formal education. The level of education has been shown to increase the incidences of preeclampsia screening as pregnant women will be more capable of recognizing the changes in their bodies and the signs and symptoms of preeclampsia. They would also be able to follow through with their routine blood pressure readings so as to notify the doctor whether there was a change in their blood pressure reading. A pregnant woman's education level enables her to detect the physiological changes and challenges throughout a pregnancy increases the woman's awareness of arising problems at an early point in time, thus, allowing for quick and effective medical intervention and increases the chance of therapeutic success considerably.

Employment/Work Environment

The study revealed that majority (56.4%) of the pregnant women had informal source of income in form of self-employment while those with formal employment were 16.5%. This study did not find consistent associations between formal employment with hypertensive disorders during pregnancy. These results suggest that there is no effect of employment risk factors on the occurrence of hypertensive disorders during pregnancy.

Service provider related factors

In this study, provision of preeclampsia screening services was influenced by provider and facility related factors. The main significant provider factor was years of experience where majority (54%) of the skilled birth attendants were likely to screen for preeclampsia. Majority (F-value 17.165, P-value 0.004) of the skilled birth attendants highlighted experience as positive factor to effective preeclampsia screening, agrees with old adage that old is gold and experience is the best teacher.

The study established that health care providers had limited knowledge regarding the management and screening of preeclampsia. This limited knowledge of health care providers is likely to play a significant role in the slow reduction in maternal morbidity and mortality due to pre-eclampsia

Facility related factors

Among the facility related factors were lack or non-functional equipment (BP machine (45%) and urine dipsticks) and increased workload (54%) were reported as factors hindering provision of effective pre-eclampsia screening services. The study establishes that although there were clients, the preeclampsia screening was not done effectively due to increased work load, lack of comprehensive checklist specific to each ANC visit.

IV. Discussion

The study corresponds with (Luoma et al., 2010; Say et al., 2014) that screening the age of a client assist in identifying risk factors since preeclampsia is prone to pregnant women aged 20 years and those above 35 years old. Similarly, the findings of this study are concurrent with that of Say et al. (2014) and Shamsi, Saleem, Nishter, and Ameen (2013) that showed an increased risk in a similar age group. A

study conducted in Iran has linked the obstetric danger of advanced maternal age to aging-mediated vascular damage (Kahnamouei-aghdam, Amani, & Hamidimoghaddam, 2015). This is because as a woman gets advanced age, she is more likely to develop heart/blood vessel related problems chiefly due to the steady failure of compliance of said vessels that are mainly linked with the ageing of uterine blood vessels and arterial firmness.

Early Studies have shown that women with relatively low levels of education had a higher risk of gestational hypertension than women with a high level (Davies & et al., 1970). According to, (UNESCO, 2013) a mother's education is crucial for her own health. Every day, almost 800 women die from preventable causes related to pregnancy and childbirth, including pre-eclampsia, bleeding, infections and unsafe abortion. Educated women are more likely to avoid these dangers, by adopting simple and low-cost practices to maintain hygiene, by reacting to symptoms, and by making sure a skilled attendant is present at birth.

Contrary to the findings of this study, past studies (Fujiwara et al., 2004; van der Beek, Meijman, Frings-Dresen, Kuiper, & Kuiper, 1995; Wigle et al., 2008) have established that Physically demanding work situations, such as prolonged standing and frequent lifting may increase catecholamine levels which may affect constriction/dilatation of blood vessels. High levels of catecholamines have been demonstrated in patients suffering from preeclampsia. Furthermore, increased catecholamine levels are hypothesized to decrease uterine blood flow and may therefore influence early placentation. The findings of this study are consistent with that of Kagema et al. (2011), whose study established that service providers scored very poorly with regards to the knowledge on management and screening of pre-eclampsia/eclampsia (25% overall).

V. Conclusion

The findings from this study show that pre-eclampsia screening services are offered to antenatal clients attending antenatal clinic. However, There is an urgent need to improve facilities and service provider competencies related to the management and screening of preeclampsia/eclampsia. In order to mitigate adverse outcomes associated with preeclampsia/eclampsia, it is critical for providers to recognize the importance of early screening

VI. Recommendation

A longitudinal study among pregnant women using a larger sample should be undertaken to establish factors influencing the provision of pre-eclampsia screening services in Kenya

Competing Interest

I declare that there is no competing interest

References

- [1]. Davies, A. M., & et al. (1970). Toxemia of pregnancy in Jerusalem. I. Epidemiological studies of a total community. *Israel Journal of Medical Sciences*, 6(2), 253-266. Retrieved from <https://www.cabdirect.org/cabdirect/abstract/19702703448>
- [2]. Fujiwara, K., Tsukishima, E., Kasai, S., Masuchi, A., Tsutsumi, A., Kawakami, N., . . . Kishi, R. (2004). Urinary catecholamines and salivary cortisol on workdays and days off in relation to job strain among female health care providers. *Scandinavian journal of work, environment & health*, 129-138.
- [3]. Goldenberg, R. L., Jones, B., Griffin, J. B., Rouse, D. J., Kamath-Rayne, B. D., Trivedi, N., & McClure, E. M. (2015). Reducing maternal mortality from preeclampsia and eclampsia in low-resource countries—what should work? *Acta obstetrica et gynecologica Scandinavica*, 94(2), 148-155.
- [4]. Hollier, L. M., Connolly, H., Turrentine, M., Hameed, A., Arendt, K. W., Cannon, O., . . . Haddock, A. (2019). Clinical Management Guidelines for Obstetrician–Gynecologists Pregnancy and Heart Disease.
- [5]. Kagema, F., Ricca, J., Rawlins, B., Rosen, H., Mukhwana, W., Lynam, P., & Kidula, N. (2011). Quality of care for prevention and management of common maternal and newborn complications: findings from a National Health Facility Survey in Kenya—services provided according to international standards. *Baltimore: Jhpiego*.
- [6]. Kahnamouei-aghdam, F., Amani, F., & Hamidimoghaddam, S. (2015). Prevalence of pre-eclampsia and eclampsia risk factors among pregnant women, 2011-2013. *Int J Adv Med*, 2(2), 128-132.
- [7]. Logan, G. G., Njoroge, P. K., Nyabola, L. O., & Mweu, M. M. (2020). Determinants of preeclampsia and eclampsia among women delivering in county hospitals in Nairobi, Kenya. *F1000Research*, 9(192), 192.
- [8]. Luoma, M., Doherty, J., Muchiri, S., Barasa, T., Hofler, K., Maniscalco, L., . . . Maundu, J. (2010). Kenya health system assessment 2010. *Bethesda, MD*.
- [9]. Muchiri, D. W. (2015). *Adherence to ministry of health guidelines in management of severe preeclampsia at Pumwani maternity Hospital, Nairobi, Kenya*. University of Nairobi,
- [10]. Myers, J. E., & Baker, P. N. (2002). Hypertensive diseases and eclampsia. *Current Opinion in Obstetrics and Gynecology*, 14(2), 119-125.
- [11]. Okeudo, C., Ojiyi, E., Ezem, B., & Dike, E. (2012). Preliminary outcome of the management of eclampsia at the Imo State University Teaching Hospital. *Port Harcourt Medical Journal*, 6(1), 23-29.
- [12]. Osungbade, K. O., & Ige, O. K. (2011). Public health perspectives of preeclampsia in developing countries: implication for health system strengthening. *Journal of pregnancy*, 2011.

Factors Influencing Provision of Pre-Eclampsia Screening Services: Empirical Evidence From Kenya

- [13]. Peck Palmer, O. M., & Das, S. (2020). Preeclampsia: New Decade, New Diagnostic Efforts. *The Journal of Applied Laboratory Medicine*.
- [14]. Say, L., Chou, D., Gemmill, A., Tunçalp, Ö., Moller, A.-B., Daniels, J., . . . Alkema, L. (2014). Global causes of maternal death: a WHO systematic analysis. *The Lancet Global Health*, 2(6), e323-e333.
- [15]. Shamsi, U., Saleem, S., Nishter, N., & Ameen, A. (2013). Epidemiology and risk factors of preeclampsia; an overview of observational studies. *Al Ameen J Med Sci*, 6(4), 292-300.
- [16]. Sibai, B. M. (2005). Diagnosis, prevention, and management of eclampsia. *Obstetrics & Gynecology*, 105(2), 402-410.
- [17]. Thaddeus, S., & Maine, D. (1994). Too far to walk: maternal mortality in context. *Social science & medicine*, 38(8), 1091-1110.
- [18]. UNESCO. (2013). Education Transforms Lives. In: UNESCO Paris.
- [19]. van der Beek, A. J., Meijman, T. F., Frings-Dresen, M., Kuiper, J. I., & Kuiper, S. (1995). Lorry drivers' work stress evaluated by catecholamines excreted in urine. *Occupational and environmental medicine*, 52(7), 464-469.
- [20]. Wigle, D. T., Arbuckle, T. E., Turner, M. C., Bérubé, A., Yang, Q., Liu, S., & Krewski, D. (2008). Epidemiologic evidence of relationships between reproductive and child health outcomes and environmental chemical contaminants. *Journal of Toxicology and Environmental Health, Part B*, 11(5-6), 373-517.
- [21]. WorldHealthOrganization. (2020). *WHO recommendations on drug treatment for non-severe hypertension in pregnancy*: World Health Organization.

JanepherNamarome Masai. "Factors Influencing Provision of Pre-Eclampsia Screening Services: Empirical Evidence from Kenya." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(6), 2020, pp. 20-25.