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Original Article

Knowledge about Preeclampsia among Women of Reproductive Age Attending Al-Beyda Medical Center

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ABSTRACT

Aims*. The objective of the present study was to assess the knowledge of preeclampsia and it is dangerous signs and maternal and fetal complications, among women of reproductive age attending Albeyda Medical Center.* ***Method.*** *A descriptive cross sectional study was performed at Albeyda Medical Center in the east region in Libya. Data was collected by distributing a questionnaire on women at reproductive age attended gynecological and obstetric department from 15 January until 15 December 2021.* ***Results.*** *About 299 participants agreed to answer the questionnaire. Preeclampsia was unknown by more than half of the participants (54.90 percent). More than half (53.5%) of participant had no local name of pre-eclampsia in the area, and just 3.7% of people knew the name. According to the results, excessive salt consumption was the major cause of high blood pressure during pregnancy and follow by stress (23.4% and 12.4% respectively). Headache, dizziness, odema, and convulsion were the most well-known signs danger of preeclampsia according to those who responded, and they account for 73.3%, 69.6%, 66.9% and 61.9% respectively. Regarding the maternal complications of preeclampsia, maternal death and cesarean section were the most known and frequent maternal complication, while fetal complications, Prematurity, IUGR the occurrence of fetal death in utero were the best known and account for 43.1% and 21.7% respectively. To prevent preeclampsia, about 37.1%, 13.4% believed that reducing salt consumption taking low dose of aspirin would reduce the incidence of preeclampsia respectively.* ***Conclusion.*** *Knowledge of preeclampsia, its significant signs, and maternal and fetal complications among pregnant women in the study area is low. Lack of formal education and not attending four or more antenatal care visits were associated with poor knowledge of preeclampsia. Education of pregnant women on the signs and risks of this disease must be carried out systematically by health workers during antinatal care.*

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INTRODUCTION

Preeclampsia (PE) is defined as a multisystem disorder characterized by high blood pressure (HBP); systolic blood pressure (SBP) ≥140mmHg and/or diastolic blood pressure (DBP) ≥90mmHg) and proteinuria (>0.3g/24 h) that occurs after 20 weeks of gestation and can be present as late as 7 weeks postpartum [1]. If it is severe enough to affect brain function, causing seizures or coma, it is called eclampsia [2]. PE is a major cause of maternal and greatest impact on perinatal morbidity and mortality worldwide, particularly in developing countries [3]. It is one of the most common complications of pregnancy and continues being a leading cause of death (70000 to 80000/year) and maternal morbidity worldwide [4-6]. It is responsible for high rates of morbidity and mortality, particularly in Africa [7]. Moreover, PE remains one of the leading causes of maternal mortality and morbidity, complicating an estimated 2–8% of pregnancies worldwide and up to 10% in developing countries [8]. The exact prevalence of morbidity and mortality related to PE is not reported in the developing countries [4,5].

Women with PE present with diverse signs and symptoms associated with multiple organ systems. Headaches, visual disturbances, abnormal kidney function, severe hypertension, chest pain, pulmonary oedema and low oxygen saturation, nausea and abnormal liver function are among the common outcomes of the multi-organ system dysfunction in PE [9]. PE can progress to eclampsia and cause adverse fetal outcomes such as preterm birth, small-for gestational- age babies,

placental abruption, perinatal death and increase the risk of cardiovascular and cerebrovascular diseases and venous thromboembolism later in life [10-12]. Furthermore, women who suffer from PE are predisposed to mental health issues such shame, guilt, feelings of failure, loss of control, personal in adequacy and postpartum depression [13]. Other negative effects of PE include prematurity, increased operative delivery, hemolysis-elevated liver enzymes-low platelet count (HELLP) Syndrome, fetal morbidity and mortality, renal failure and convulsion [14]. Adequate knowledge about a disorder contributes greatly to its prevention, control and management. Reports indicate that patients' knowledge about a disease has significant benefits on compliance to treatment and helps to abate complications associated with the disease [15]. Previous studies in the US and a few countries in Africa indicate that the knowledge of PE among women is generally low [16-19]. Studies conducted in different parts of the world indicated that there is a significant gap among pregnant women related to knowledge, attitude, and perception towards PE [7, 20, 21]. Another study established that this gab among knowledge regarding PE have directly or indirectly influence health seeking-behavior leading to increased maternal mortality and morbidity [16]. Meanwhile, study in Australia revealed that 77 % of women did not know about PE before diagnosis. Even among women who were diagnosed with PE, half of them did not understand the seriousness of PE [20]. The study was conducted in Al-Wahda hospital / Derna revealed that PE developed in 18.3% of the 344 healthy primigravida, where both (aspirin and calcium) supplementations were associated with a reduction PE [22]. Correspondingly, a study was conducted in the USA found that 72% of eclampsia cases were preventable by patient education [23]. Another study was performed in Australia found that women with intellectual disabilities had higher odds of developing PE [24]. On other hand ,a study by Owolabi et al. in Nigeria also reported that women with PE were more likely to be illiterate [25]. Understanding the level of knowledge and attitude of women about PE is essential to undertake appropriate measures [20, 26]. The majority of deaths related to PE could be averted by evidence-based, effective, and timely interventions by increasing women's knowledge and changing attitudes towards PE [27, 28]. The objective of the present study was aimed to assess the knowledge of preeclampsia and it is dangerous signs and maternal and fetal complications, among women of reproductive age attending Al-Beyda medical center.

METHODS

Subjects information and data collection

This was a descriptive cross sectional study performed at the Al-Beyda's medical center in the east region in Libya. Data was collected by using questionnaire distributed on participant at reproductive age attended gynecological and obstetric department in this center from 15 January until 15 December 2021 to assess knowledge of participants regarding their information about preclampsia, in addition their knowledge regarding dangers signs and maternal and fetal complications of preeclampsia. The total cases of this study was 299.

Statistical Analysis

Data analysis was performed using Microsoft excel including frequency and percentage for all variables. The data were interoperated in tables; the numerical data were presented as number and percentage. To find the significant difference between the observed variable studied, Chi –Square test was used, P value was taken as level of significance at <0.05. Statistical analysis was carried out in Minitab software (version17).

RESULTS

During the study period, 299 out of 350 participants agreed to answer a questionnaire. Regarding to the socio-demographic characteristics, about 48.2% of our participants were worker in tertiary sector, approximately 26.8% in secondary sector, and housewife or unemployed women represent about 11% without non significant defrence. Approximately 82.6% of the participants were married, 47.5% of our cases were not pregnant, while pregnant women were just about 36.5% (Table 1)

As illustrated in Table (2), PE was unknown by more than half of our cases (54.9%). More than half (53.5%) of participant had no local name PE in the area, and just 3.7% of people recognise it. Only 32.4% of cases knew that preeclampsia was a specific complication and pathology induced by pregnancy. According to the result excessive, salt consumption as a major cause of high blood pressur during pregnancy and follow by stress and account 23.4% and 12.4% respectively. While primigravid, advanced maternal age, and history of PE on prior pregnancy account about 11%, 10.7 and 10% respectively as causes of high blood pressure during pregnancy.

Unfortunately, about 16.7% of participant haven't information regarding the causes of high blood pressure during pregnancy (Table 2). Of the patients who gave the responses, headache, dizziness, odema, and convulsion were the most well-known signs danger of PE according to those who responded, and they account for 73.3%, 69.6%, 66.9% and 61.9% respectively. While Other dangerous indicators such as diminished feeling of fetal movement, vaginal bleeding, vision disturbance, and epigastric pain were not considered by the majority of patients who gave responses as signs of danger of preeclampsia to mother and fetus (Table 3).

Regarding the maternal complications of PE, maternal death and cesarean section were the most known and frequent maternal complication, but about 40% of participants were unaware and didn't know that it was fatal. Concerning fetal complications, prematurity, Intrauterine growth restriction (IUGR). the occurrence of fetal death in utero were the best known and account for 43.1% and 21.7% respectively. However, 23.1% of participants didn't know fetal complications of PE (Table 3).

To prevent PE, about 37.1% believed that reducing salt consumption would reduce the incidence of PE, and only 13.4% of participants thought that taking low dose of aspirin would reduce the incidence of pre-eclampsia. While nutritional supplement with vitamins and mineral, and hyporotic diet account for only 4% and 5.7% respectively (Table 4).

Table 1. Epidemiological characteristics of patients

Characteristic		Number	Percentage (%)	Chi –Square	P. Value
Occupation	Housewife	33	11	0.002	0.9
	Primary sector	42	14		
	Secondary sector	80	26.8		
	Tertiary sector	144	48.2		
Pregnancy	Not pregnant	142	47.5	0.008	0.9
	Pregnant	109	36.5		
	Postpartum	48	16		
Family status	Single	30	10	34.02	0.00
	Married	247	82.6		
	Divorced	22	37.4		

Table 2. Information on PE.

Variable		Number	Percentage (%)	Chi –Square	P. Value
Knowledge of PE (Have you heard of PE?)	Yes	97	32.4	0.007	**0.9**
	No	202	67.6		
Local name for PE	Alibiminina	96	32.1	0.26	**0.9**
	PE	11	3.7		
	Tension	9	3		
	High blood pressure	23	7.7		
	No answer	160	53.5		
Is PE a pathology induced by pregnancy?	Yes	97	32.4	0.007	**0.9**
	No	202	67.6		
Cause of hypertension during pregnancy	Stress	37	12.4	0.34	**0.9**
	Salt intake	70	23.4		
	Multiparity	10	3.4		
	Advanced maternal age	32	10.7		
	Primgravida	33	11		

	Heredity	10	3.4		
	Malnutrion	12	4		
	Abnormal placentation	5	1.7		
	Overweight	2	1		
	High blood pressure	5	1.7		
	History of PE on prior pregnancy	30	10		
	Alcohol	3	1		
	No answer	50	16.7		

Table 3. Danger signs of PE and complications for maternal & Fetal

Danger sign of pre-eclampsia				
	Yes. Number (%)	No. Number (%)	Chi –Square	**P. Value**
Headache	219 (73.3)	80 (26.8)	0.002	**0.9**
Dizziness	208 (69.6)	91(30.4)	0.007	**0.9**
Nausea and vomiting	113 (37.8)	186(62.2)	0.001	**0.9**
Epigastric pain	95 (31.8)	204 (68.2)	2.31	**0.1**
Diminution of perception of fetal movement	121(40.5)	178(59.5)	0.007	**0.9**
Uterine contraction	113(37.8)	186(62.2)	0.001	**0.9**
Vaginal bleeding	103 (34.4)	196 (65.6)	0.007	**0.9**
Edema	200(66.9)	99 (33.1)	0.000	**0.9**
Convulsion	185(61.9)	114(38.1)	0.001	**0.9**
Neck pain	46(15.4)	253(84.6)	0.009	**0.9**
Vision disorder	78(26)	221(74)	0.000	**0.9**
Sweating	36 (12)	263 (88)	0.000	**0.9**
weakness	22(7.7)	276 (92.3)	0.01	**0.9**
Maternal complications of PE				
	Number	Percentage (%)	Chi –Square	**P. Value**
Chronic asthenia	1	0.33	0.08	**0.9**
Stroke	7	2.34		
Heart disease	3	1%		
Cesarean section	65	21.7		
Convulsion	42	14		
Maternal death	114	38.1		
Eclampsia	9	3		
Preterm labor	30	10		
Postpartum hemorrhage	5	1.7		
Chronic hypertension	4	1.34		
Kidney dysfunction	4	1.34		
No answer	15	5		
Fetal complications of PE				
	Number	Percentage (%)	Chi –Square	**P. Value**
IUFD	65	21.7	2.33	**0.6**
Prematurity, IUGR	129	43.1		

Congenital heart disease	3	1		
Neonatal convulsion	3	1		
Neonatal hyperthermia	21	7		
Abortion, fetal malformation	9	3		
No answer	69	23.1		

Table 4: Prevention of preclampsia

	Number	**Percentage (%)**	**Chi – Square**	**P. Value**
Low-sodium diet	111	37.1	0.09	**0.9**
Hypoproteic diet	17	5.7		
Nutrtional supplement with vit C, D, E or Calcium	12	4		
Low dose aspirin	40	13.4		
Regular antenatal care	25	8.4		
Medical follow-up	21	7		
Taking of pomegranate juice	7	2.3		
Rest and Eviction of fatigue	17	5.7		
Go to the hospital	16	5.4		
No answer	33	11		

DISCUSSION

The present study found that patients didn't aware about PE, its signs of danger, and seriousness and significance of the condition. This was consistent with researches done in Nigeria and Pakistan [29, 30]. There is still a scarcity of information about this specific pregnancy disease. In this study, the lack of education during prenatal visits is evident. PE name was given to "alibiminina" in the community and account about 32.1%, and this is not specific to PE. Although any hypertension accompanied by edema is referred as "alibiminina". On other hand, participants have confused between PE, tension, and high blood pressure. Moreover, more than half of participants don't know local name of PE. This result was consistent with findings from other study in Madagascar that found about 32.4% of participant know that PE as a pathology specific induced by pregnancy [31].

In most developing nations, women and society believed that high blood pressure during pregnancy is caused by the stresses of everyday life [7]. In the current study, about 12.4% and 23.4% cases reported that stress, salt intake were considered to be the leading cause of PE respectively. This result is similar to studies in India and Pakistan concluded that dietary deficiency stress was the most common factor, as stated by patients [28, 32]. Limited number of participants believed that PE was due to other risk factor such as primgravida, advanced maternal age and history of PE on prior pregnancy (11%, 10.7%, 10%, respectively). In contrast, our results was not agreed to findings reported by previous studies conducted in Egypt, Nigeria [33,34]. Another study was in disagreement with the current results that greater severity of pre-eclampsia in a previous pregnancy was associated with an increased risk of pre-eclampsia in a subsequent pregnancy [35]. In addition, another study, was also in disagremment to our results, shows that one of the most important risk factors for poor maternal outcomes in PE patients was advanced maternal age [36].

Participants, in the present study, did not know that PE was a pregnancy-related condition, as heredity, being overweight, and abnormal placentation may be the causes of PE. Other risk factors, such as the history of hypertension, multiparty, malnutrition, and alcohol, are not known by patients and that were in contrast with a study conducted in Uganda In contrast, a study conducted in Uganda [37]. Another study was not in line with our results, conducted in Ethiopia, reported that the occurrence of PE was significantly associated with malnutrition, alcohol, and multiparty [38].

Headache, dizziness, eodema, and convulsion were most dangerous considered signs of severity knowledgeable by women. This is identical to another study conducted in Mozambique [26]. Regarding to result eodema, and convulsion were familiar by participants. According to study by Sibai, indicated that swelling in a woman's face and hands but seizures or convulsion consider serious signs in PE patient and is cause for immediate concern that indicate to eclampsia and other study found that patient knew that convulsion is major sign dangerous of PE [7]. On the other hand, patients

were not known another serious signs such as epigastric pain, vaginal bleeding, diminution of perception of fetal movement and visual disturbances. Sibai, et al indicated to abdominal pain, especially in the upper right area of the belly, nausea and vomiting, temporary blindness is dangerous sign of eclampsia [39]. Another finding study conversely to our finding reported that diminution of perception of fetal movement alarm signal of fetal movement [40].

Maternal mortality is the most feared complication for patients. The similar finding has been reached in Asian and African studies [7, 28]. According to study finding cesarean section were know by participants and account for 21.7% and they considered that caesarean section is one of the major complication of PE. A similar finding indicated that severe pre-eclampsia remote from term is related to a high rate of caesarean section , that, according to a study carried out in developing countries, an elective caesarean section contributed to a better perinatal outcome than vaginal delivery [41].

Prematurity, intrauterine growth retardation (IUGR) and intrauterine fetal death (IUFD) are most feared fetal complications in patients of PE. This finding was agreement with other studies [10-12]. Prenatal monitoring should be improved in order to detect serious illness and help mitigate complications from the leading cause of maternal and fetal mortality and morbidity, such as PE.

For prevention, participants believe that a diet low in salt for some would diminish high blood pressure. Proteinuria could be also reduced in some patients by following hypoproteic diet This is identical to a study conducted in Nigeria and Madagascar [7, 31]. Some of patient suggest that low dose of aspirin prevent the occurrence of preeclampsia in the future. This is agreement with study was conducted in AL-Wahda hospital Derna, found that Both (aspirin and calcium) supplementations were associated with a decrease pre-eclampsia) [22]. Some of clients believed that nutritional supplement with vit C, D, E, Calcium might reduce occurrence of PE. In contrast, according to the World Health Organization, resting at home, limiting dietary salt intake, and taking vitamin D, vitamin C, and vitamin E supplements are not ways to prevent PE [6]. On other hand, findings of a study done by Schoenaker and his colleagues indicated that women with a low dietary calcium intake were more likely to be diagnosed with gestational hypertension [42].

CONCLUSION

PE is a condition that affects both the mother and the fetus and is one of the most common causes of maternal morbidity and even death. This study sheds light on women's knowledge of PE and its complications. Knowledge of PE, its significant signs, and maternal and fetal complications among pregnant women in the study area was low. Lack of formal education and not attending four or more antenatal care visits were associated with poor knowledge of PE. Education of pregnant women on the signs and risks of this disease must be carried out systematically by health workers during Antenatal care (ANC). This requires a better knowledge of all health actors. In addition to Education can be through contextual health education at the ANC, media channels, or through national education programmers. Health care providers should provide nutritional counseling, including avoiding alcohol, reducing salt intake, and excessive protein diet to pregnant women during their antenatal care visits. These interventions would reduce the complications of PE.

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Disclaimer
The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest
There are no financial, personal, or professional conflicts of interest to declare.

REFERENCES

1. Aronow WS. Hypertensive disorders in pregnancy. Annals of translational medicine. 2017;5(12):266. doi: 10.21037/atm.2017.03.104.
2. Goldenberg RL, Culhane JF, Iams JD, Romero R. Epidemiology and causes of preterm birth. The lancet. 2008;371(9606):75-84.
3. Sibai BM. Prevention of preeclampsia: a big disappointment. American journal of obstetrics and gynecology. 1998;179(5):1275-8.

4. Firoz T, Sanghvi H, Merialdi M, von Dadelszen P. Pre-eclampsia in low and middle income countries. Best practice & research Clinical obstetrics & gynaecology. 2011;25(4):537-48.
5. Townsend R, O'Brien P, Khalil A. Current best practice in the management of hypertensive disorders in pregnancy. Integrated blood pressure control. 2016;9:79.
6. WHO U. UNFPA, The World Bank and the United Nations Population Division. 2014. Trends in Maternal Mortality: 1990 to 2013. ISBN 978 92 4 150722 6. World Health Organization, 2014.
7. Akeju DO, Vidler M, Oladapo OT, Sawchuck D, Qureshi R, von Dadelszen P, et al. Community perceptions of pre-eclampsia and eclampsia in Ogun State, Nigeria: a qualitative study. Reproductive health. 2016;13(1):17-26.
8. Nakimuli A, Chazara O, Byamugisha J, Elliott AM, Kaleebu P, Mirembe F, et al. Pregnancy, parturition and preeclampsia in women of African ancestry. American journal of obstetrics and gynecology. 2014;210(6):510-20. e1.
9. Portelli M, Baron B. Clinical Presentation of Preeclampsia and the Diagnostic Value of Proteins and Their Methylation Products as Biomarkers in Pregnant Women with Preeclampsia and Their Newborns. J Pregnancy. 2018 Jun 28;2018:2632637. doi: 10.1155/2018/2632637.
10. Murphy MS, Smith GN. Pre-eclampsia and cardiovascular disease risk assessment in women. American journal of perinatology. 2016;33(08):723-31.
11. Pauli JM, Repke JT. Preeclampsia: short-term and long-term implications. Obstetrics and Gynecology Clinics. 2015;42(2):299-313.
12. Tooher J, Thornton C, Makris A, Ogle R, Korda A, Hennessy A. All hypertensive disorders of pregnancy increase the risk of future cardiovascular disease. Hypertension. 2017;70(4):798-803.
13. Wallis AB, Tsigas EZ, Saftlas AF, Sibai BM. Prenatal education is an opportunity for improved outcomes in hypertensive disorders of pregnancy: results from an Internet-based survey. The Journal of Maternal-Fetal & Neonatal Medicine. 2013;26(16):1565-7.
14. Xu Tt, Zhou F, Deng Cy, Huang Gq, Li Jk, Wang Xd. Low-Dose aspirin for preventing preeclampsia and its complications: a meta-analysis. The Journal of Clinical Hypertension. 2015;17(7):567-73.
15. Howell D, Harth T, Brown J, Bennett C, Boyko S. Self-management education interventions for patients with cancer: a systematic review. Supportive Care in Cancer. 2017;25(4):1323-55.
16. Eze ED, Barasa A, Adams MD, Rabiu KM, Ezekiel I, Sulaiman SO, et al. Determination, knowledge and prevalence of pregnancy-induced hypertension/eclampsia among women of childbearing age at Same District Hospital in Tanzania. International Journal of Medicine and Medical Sciences. 2018;10(2):19-26.
17. Savage AR, Hoho L. Knowledge of pre-eclampsia in women living in Makole Ward, Dodoma, Tanzania. African health sciences. 2016;16(2):412-9.
18. Teng SP, Keng SL. Knowledge of preeclampsia among antenatal women in a tertiary referral teaching hospital. The Malaysian Journal of Nursing (MJN). 2016;7(2):8-13.
19. You WB, Wolf M, Bailey SC, Pandit AU, Waite KR, Sobel RM, et al. Factors associated with patient understanding of preeclampsia. Hypertension in pregnancy. 2012;31(3):341-9.
20. East C, Conway K, Pollock W, Frawley N, Brennecke S. Women's experiences of preeclampsia: Australian action on preeclampsia survey of women and their confidants. Journal of pregnancy. 2011; 375653. https://doi.org/10.1155/2011/375653
21. Ouasmani F, Engeltjes B, Haddou Rahou B, Belayachi O, Verhoeven C. Knowledge of hypertensive disorders in pregnancy of Moroccan women in Morocco and in the Netherlands: a qualitative interview study. BMC pregnancy and childbirth. 2018;18(1):1-11.
22. Ajroud S, Elzahaf RA, Younis M. The Rate of Pre-Eclampsia at Al-Wahda Hospital Derna, Libya: A Prospective Clinical Trial Study. Scholars International Journal of Obstetrics and Gynecology. 2018;1(4):86-9.
23. Ogunyemi D, Benae J-L, Ukatu C. Is eclampsia preventable? A case control review of consecutive cases from an urban underserved region. Southern medical journal. 2004;97(5):440-6.
24. McConnell D, Mayes R, Llewellyn G. Women with intellectual disability at risk of adverse pregnancy and birth outcomes. Journal of Intellectual Disability Research. 2008;52(6):529-35.
25. Owolabi A, Fatusi A, Kuti O, Adeyemi A, Faturoti S, Obiajuwa P. Maternal complications and perinatal outcomes in booked and unbooked Nigerian mothers. Singapore medical journal. 2008;49(7):526.

26. Boene H, Vidler M, Sacoor C, Nhama A, Nhacolo A, Bique C, et al. Community perceptions of pre-eclampsia and eclampsia in southern Mozambique. Reproductive health. 2016;13(1):27-37.
27. Sutan R, Hassan H, Shamsuddin K. Health information seeking behaviour among hypertensive disorder in pregnancy (HDP) high risks antenatal mothers. Womens Health Gynecol. 2016;2(7):2-6.
28. Vidler M, Charantimath U, Katageri G, Ramadurg U, Karadiguddi C, Sawchuck D, et al. Community perceptions of pre-eclampsia in rural Karnataka State, India: a qualitative study. Reproductive Health. 2016;13(1):45-53.
29. Asowa-Omorodion FI. Women's perceptions of the complications of pregnancy and childbirth in two Esan Communities, Edo state, Nigeria. Social science & medicine. 1997;44(12):1817-24.
30. Hasan I, Nisar N. Womens' perceptions regarding obstetric complications and care in a poor fishing community in Karachi. Journal of Pakistan Medical Association. 2002;52(4):148.
31. Romuald R, Ratsiatosika TA, Martial RA, Lantonirina RA, Ando-Miora R, Rakotovao AH. The women knowledge, attitude, and perceptions of pre-eclampsia and eclampsia in Madagascar. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2019;8(4):1233-40.
32. Khowaja AR, Qureshi RN, Sheikh S, Zaidi S, Salam R, Sawchuck D, et al. Community's perceptions of pre-eclampsia and eclampsia in Sindh Pakistan: a qualitative study. Reproductive health. 2016;13(1):39-44.
33. El-Moselhy EA, Khalifa HO, Amer SM, Mohammad KI, Abd El-Aal HM. Risk factors and impacts of pre-eclampsia: an epidemiological study among pregnant mothers in Cairo, Egypt. Journal of American Science. 2011;7(5):311-23.
34. Guerrier G, Oluyide B, Keramarou M, Grais RF. Factors associated with severe preeclampsia and eclampsia in Jahun, Nigeria. International journal of women's health. 2013;5:509.
35. Sibai BM, Gordon T, Thom E, Caritis SN, Klebanoff M, McNellis D, et al. Risk factors for preeclampsia in healthy nulliparous women: a prospective multicenter study. American journal of obstetrics and gynecology. 1995;172(2):642-8.
36. Tyas BD, Lestari P, Akbar MIA. Maternal perinatal outcomes related to advanced maternal age in preeclampsia pregnant women. Journal of Family & Reproductive Health. 2019;13(4):191.
37. Kiondo P, Wamuyu-Maina G, Bimenya GS, Tumwesigye NM, Wandabwa J, Okong P. Risk factors for pre-eclampsia in Mulago Hospital, Kampala, Uganda. Tropical Medicine & International Health. 2012;17(4):480-7.
38. Grum T, Seifu A, Abay M, Angesom T, Tsegay L. Determinants of pre-eclampsia/Eclampsia among women attending delivery Services in Selected Public Hospitals of Addis Ababa, Ethiopia: a case control study. BMC pregnancy and childbirth. 2017;17(1):1-7.
39. Sibai B, Gabbe S, Niebyl J, Simpson J. Hypertension. Obstetrics-Normal and problem pregnancies 5th ed ed: Philadelphia, Pa; 2007.
40. Sadovsky E, Polishuk WZ. Fetal movements in utero: nature, assessment, prognostic value, timing of delivery. Obstetrics and gynecology. 1977;50(1):49-55.
41. Mashiloane C, Moodley J. Induction or caesarean section for preterm pre-eclampsia? Journal of Obstetrics and Gynaecology. 2002;22(4):353-6.
42. Schoenaker DA, Soedamah-Muthu SS, Mishra GD. The association between dietary factors and gestational hypertension and pre-eclampsia: a systematic review and meta-analysis of observational studies. BMC medicine. 2014;12(1):1-18.