

Effect of the educational sessions on woman with Pregnancy Induced hypertension regarding the Importance of the Antenatal Care

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Abstract

Background Pregnancy induced hypertension (PIH) is one of the major causes of maternal and perinatal mortality and morbidity. Although early detection of pregnancy induced hypertension is essential, knowledge on care and prevention of complications is utmost to prevent life threatening complications in the mother and child. importance knowledge of antenatal women regarding Pregnancy induced hypertension. Aim of study: Evaluate effect of the educational sessions on woman with Pregnancy Induced hypertension regarding the Importance the Antenatal Care Design: A quasi experimental research design was be used in this study. Setting: The study was be conducted at obstetrics and gynecological department in Aswan- University Hospital, Egypt. Sample Purposive sample was being for this study (100 pregnant). Tool 1 demographic characteristics, the health history. Tool 2 : Pregnant women's knowledge regarding pregnancy induced hypertension, antenatal care. And obstacles regarding performing antenatal care. Results: Majority of pregnant women have good total knowledge regarding pregnancy induced hypertension post educational session phases have poor total knowledge regarding pregnancy induced hypertension while more than pre educational sessions phase. Conclusion: the findings of the study showed that the knowledge about pregnancy induced hypertension was poor among pregnant women before educational sessions. That need to increase public awareness and knowledge about the disease. Studies pregnant women were introduced a good participation in study and aim of the study were achieved and were reflected a good improvement in the total level of knowledge after educational sessions .Recommendation: Improving the knowledge of pregnant women about pregnancy induced hypertension by health education sessions and instruction booklets throughout the wards of the hospital . encourage earlier booking visit in the first 12 weeks of pregnancy. the government should encourage health education on causes and prevention of the pregnancy induced hypertension and its complications.

Keywords: *antenatal care, awareness, pregnancy induced hypertension.*

INTRODUCTION

Hypertension during pregnancy is defined as a systolic blood pressure more than or equal to 140 mmHg and/or a diastolic blood pressure more than or equal to 90mmHg and the diagnosis generally requires Two separate measurements. Hypertension disorders of pregnancy are classified into four categories: chronic/pre-existing hypertension, gestational hypertension that appears after 20 weeks' gestation and normalizes after pregnancy, preeclampsia–eclampsia, and chronic hypertension with superimposed preeclampsia–eclampsia that develops signs and symptoms of preeclampsia or eclampsia after 20 weeks' gestation (American College of Obstetricians and Gynecologists, 2019)

Preeclampsia as the presence of new-onset hypertension and proteinuria or other end-organ damage occurring after 20 weeks of gestation. PE is a multisystem syndrome that is primarily defined by the development of new onset hypertension, persistent systolic blood pressure [SBP] of 140 mm Hg or higher or diastolic blood pressure [DBP] of 90 mm Hg or higher after 20 weeks' gestation in a woman with previously normal blood pressure (Brown et al.,2018)

Eclampsia refers pregnancy or the postpartum period, eclampsia is described as the development of convulsions and/or an inexplicable coma that occurs without a known cause. It is one of the most important factors contributing to high maternal mortality and morbidity, as well as high perinatal mortality. Eclampsia is estimated to be the cause of 12 percent of all maternal deaths worldwide, according to the World Health Organization. (Yashovardhini & Neelima, 2022)

The risk factors for pregnancy induced hypertension including primiparity, advanced maternal age, multiple pregnancy, assisted reproduction technique (ART), obesity,

gestational diabetes mellitus, thrombocytopenia, previous or family history of pregnancy induced hypertension , and complications associated with placental dysfunction such as small for gestation age, placental abruption, or stillbirth Preexisting medical problems such as chronic hypertension and diabetes mellitus . Based on individual relevant factors, is race specific and genetic variant, diet habits, ethnicity, and geography.(Mala, et al., 2020)

The major complications include eclampsia, abruption placenta (AP), intrauterine growth retardation (IUGR), low birth weight (LBW) babies, fetal distress, and neonatal deaths. If a normally planted placenta separates from the uterus after 20 weeks of pregnancy with either visible or hidden bleeding painful bleeding per-vaginum may be associated with a tense tender abdomen due to concealed blood. Worldwide occurrence of premature separation of the placenta is seen in nearly 1% of all pregnancies. (Khan ,et al.,2022) .

Antenatal care played an important role in diagnosing, curing, and preventing the hypertensive disorders of pregnancies. Frequent follow-up, assessment of blood pressure, and the search for proteinuria form the cornerstone of antenatal screening of all pregnant women for PIH and her fetus which can prevent maternal and fetal mortality and morbidity (Mekie et al., 2021).

Pregnant woman should have at least four antenatal care (ANC) visits (the first ANC visit occurs before12 week of pregnancy, the second around 26 weeks, the third around 32 weeks ,and the fourth between36 and 38 week of gestation) over the course of pregnancy, with bloo pressure measurement and proteinuria measurement assessed during each visit. However, some women do not attend ANC regularly or the diagnostic tools needed for these assessments are not readily available. This can lead to difficulties or delays in the

detection of complications, including preeclampsia, eclampsia. (WHO, 2020)

Utilization of antenatal care is influenced by a range of factors such as individual level (socio-economic and reproductive characteristics), household level or interpersonal level (women's autonomy, husband attitude and support, family income) and health service level (distance, accessibility and availability) (Tekelab et al., 2019).

Nurses can assist in identifying risk factors and risk groups for preeclampsia by taking a personal history as well as a complete medical and family history from pregnant women during the first visit. Nurses also play an important role in educating pregnant women about the dangers of preeclampsia, which can manifest as headache, nausea, vomiting, epigastric pain, dizziness, visual disturbances, dyspnea, and edema in the face and hands during the second trimester of pregnancy and during the postpartum period. Fluid imbalance and edema may cause a drop in blood pressure and an increase in body weight. (Radi & Faris,2019)

Significance of study:

Hypertensive disorders during pregnancy (including preeclampsia) can have serious health consequences, such as acute morbidity, long-term disability, and the death of mothers and newborns. they are among the leading causes of maternal death accounting for approximately 29,000 maternal deaths per year. According to the Global Burden of Disease, the largest reductions were observed in causes of death related to maternal hemorrhages (70% reduction), sepsis and other maternal infections (45%), and abortion and miscarriages (33%), but relatively little progress was observed in deaths due to hypertensive disorders of pregnancy (18%). (Gomes , et al ., 2022)

Aim of the study:

This study of the aimed to the evaluated effect of educational sessions on woman with pregnancy induced hypertension regarding the importance of the antenatal care This aim was be achieved through the following objectives:

- 1) Assess pregnant women's knowledge regarding pregnancy induced hypertension
- 2) Assess pregnant women's knowledge regarding antenatal with pregnancy induced hypertension
- 3) Design educational sessions about antenatal care for women with pregnancy induced hypertension
- 4) Apply educational sessions about antenatal care for women with pregnancy induced hypertension

Research hypothesis:

After implementation of the study women with Pregnancy induced hypertension regarding the importance the antenatal care knowledge improvement after educational sessions

Subjects and Methods

Research design

A quasi experimental research design was used in this study. Quasi-experimental research design is an empirical study used to estimate the causal impact of an intervention on its target population without random assignment. Quasi-experimental research shares similarities with the traditional experimental design or randomized controlled trial, but it specifically lacks the element of random assignment to treatment or control. Quasi-experimental designs typically allow the researcher to control the assignment to the treatment condition, but using some criterion other than random assignment (Scott, et al., 2020).

Setting

The study was conducted at obstetrics and gynecology department in Aswan- university hospital. This hospital is providing outpatient and inpatient obstetrical and gynecological services. This hospital was chosen because it is the main educational hospital at Aswan governorate, Egypt, where most pregnant women deliver and receive healthcare services and it is the referral hospital for all cities in Aswan.

Sampling

Type of the sample:

Purposive sample was utilized in the current study.

➤ Sample size:

The sample size was (100) that included all pregnant women that was attended at setting started from the 1st of June till the end of August 2022, 3days\week, from 9 am to 8 pm till the study number was complete.

Inclusion criteria:

- Women 1st diagnosed with pregnancy induced hypertension

Tools for data collection are:

Two types of tools were used for data collection:

Tool. 1: Interview questionnaires developed by the researcher after reviewing the related current and previous literature it was written simple arabic language (AL Ebrahimy , et. al, 2019). to collect data about the subjects including two parts

Part 1: Demographic questionnaire used to collect personal characteristics such as (age, occupation, educational level, and residence). (AL Ebrahimy , et. al,2019)

Part 2: The health history of pregnant women sheet. This tool was adapted from

(AL Ebrahimy , et. al, 2019). and modify by researcher to assess obstetric (current gestational age , number pregnancies, abortions ,complications occur during pregnancy, time of delivery month, place of birth, outcome of delivery, complications occur after childbirth and types of breast feeding) medical history of preeclampsia, diabetes, hypertension, kidney disease, respiratory failure and heart failure) (AL Ebrahimy , et. al,2019)

Tool 2: Pregnant women`s knowledge assessment questionnaire. This tool developed by the researcher after reviewing the relevant literature it was prepared in simple arabic language it composed of three parts as follows:

Part 1: Pregnant women`s knowledge assessment sheet to assess pregnant women`s knowledge regarding pregnancy induced hypertension. This tool were adaped from (Zohora, Aktar, & Hossain, 2022) and modify by a researcher after reviewing the relevant literature it was prepared in simple arabic language this part was included data as (definition of PIH , causes , signs and symptoms, risk factors, and complication). (Zohora, Aktar & Hossain, 2022).

There were eight questions for the assessment of knowledge on pregnancy induced hypertension. The (Yes) answer was given a score point of one and the (No) answer was given a score of zero. Pre and posttest was done.

Scoring system:-

Satisfactory: if the pregnant women answered the knowledge questions above or equal to the mean score (4-8 total scores) (≥ 60 scores).

Unsatisfactory: if the pregnant women answered the knowledge questions below the mean score (0-4 total scores) (< 60 scores)

Part 2: Pregnant women knowledge assessment sheet to assess antenatal care with pregnancy induced hypertension This tool was adapted from . (Tamang ,et al.,2021) and modify by a researcher after reviewing the relevant literature it was prepared in simple arabic language this part included data as (Neglecting pregnancy antenatal care effect on the diagnosis of PIH, regularly follow up on pregnancy, pregnant women know medications that were taken without the doctor's prescription, Medications that were prescribed by the doctor taken regularly, Types of food that cause hypertension, importance of the antenatal care , PIH affect the growth of the fetus, Follow-up blood pressure measurements for women with PIH, Complaining of symptoms and noticed of foot swelling).(Tamang ,et al.,2021)

There were ten questions for the assessment of antenatal care with on pregnancy induced hypertension, the (Yes) answer was given a score point of one and the (No) answer was given a score of zero. Pre and posttest was done.

Scoring system:-

Satisfactory: if the pregnant women answered the knowledge questions above or equal to the mean score (5-10 total score) ($\geq 60\%$).

Unsatisfactory: if the pregnant women answered the knowledge questions below the mean score (0-5total score) ($< 60\%$).

Part 3: obstacles assessment sheet. This tool was adapted from (Avoka, McArthur, & Banke , 2022) and adapted by a researcher after reviewing the relevant literature it was prepared in simple arabic language assessment sheet to obstacles assessment sheet regarding performing antenatal this part included (the distance, financial ability, personal reasons (women`s hesitation in dealing male or female doctor), unconvinced of the importance of antenatal care , Delay in

diagnosis pregnancy, Customs and Traditions) (Avoka, McArthur & Banke , 2022)

There were six questions for the assessment of obstacles assessment sheet regarding performing antenatal care, the (Yes) answer was given a score point of one and the (No) answer was given a score of zero. Pre and posttest was done.

Scoring system:-

Satisfactory: if the pregnant women answered the knowledge questions above or equal to the mean score (3-6 total score) ($\geq 60\%$).

Unsatisfactory: if the pregnant women answered the knowledge questions below the mean score (0-3 total score) ($< 60\%$).

Content validity of Tools:

Tools validity test was done through three expertise`s of member of Faculty nursing - at Helwan University who reviewed the tools for clarity, relevance, comprehensiveness and applicability

Content reliability of Tools:-

Reliability of Tools was measured for testing the internal consistency by using Cronbach Alpha coefficient test which revealed that each of the two tools consisted of relatively homogenous items as indicated high reliability of tool. The internal consistency of the knowledge was 0.768, while obstacles were 0.712 .

Pilot study: The pilot study was done on 10% (10 pregnant women of the sample to examine the clarity of questions and time needed to complete the study tools. Pregnant women included in the pilot study were included in main the study

Ethical considerations:

- An official permission to conduct the proposed study were obtained from the

Scientific Research Ethics Committee. Participation in the study is voluntary and subjects was given complete full information about the study and their role before signing the oral consent. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where was not be accessed by any other party without taking permission of the participants. Ethics, values, culture and beliefs was respected.

Field work

- Approval to carry out this study was obtained from the Dean of the Faculty of nursing and the directors University Hospital – Aswan University
- After official approval was obtained to for conduct of the study. The data collect started from the 1st of June till the end of August 2022, 3days\week, from 9 am to 8 pm till the study number was complete.

Preparatory Phase:

It included reviewing of the current and relevant related literature and theoretical knowledge of the various related aspects using textbooks, articles, and periodical magazines in order to develop the data collection tools at the obstetric and gynecological department, pregnant women with pregnancy induced hypertension and obstacles among those pregnant women

Assessment phase

- The researcher visited at obstetric and gynecological department in Aswan-university hospital
- The researcher was introduced herself explain the aim of the study to the pregnant women, the researcher was applied questionnaires about raising awareness women with pregnancy induced hypertension regarding the importance of the antenatal care

- The assessment tools was distributed to the women fill it out some women can't reading & write explain tools and check answer then the completed tools were collected and checked for completion.

- A structured questionnaires containing information on demographic data and awareness on pregnancy induced hypertension were used for assessment.

Implementation phase

- The educational sessions were conducted in the room at obstetrics and gynecological department in Aswan-university hospital. The room were conditioned, quiet, had adequate lighting, well ventilated and furnished and had spacing for the place Implementing educational sessions

- The researcher used the second tool as pre education tool to assess part 1: Pregnant women's knowledge regarding pregnancy induced hypertension that included data as (definition of PIH, causes, signs and symptoms, beginning of PIH, Pregnant women recover from PIH, risk of PIH, risk factors, and complication).

Part 2:- Pregnant women's knowledge regarding antenatal care this part included data as (Neglecting pregnancy antenatal care effect on the diagnosis of PIH, regularly follow up on pregnancy, pregnant women know medications that were taken without the doctor's prescription, Medications that were prescribed by the doctor taken regularly, types of food that cause hypertension, importance of the antenatal care , PIH affect the growth of the fetus, follow-up blood pressure measurements for women with PIH, complaining of symptoms and noticed of foot swelling).

Then, - the researcher used the part 3 : as pre education tool about obstacles regarding performing antenatal this part included data as ((the distance, financial ability, personal

reasons (women`s hesitation in dealing male or female doctor), unconvinced of the importance of antenatal care , Delay in diagnosis pregnancy, Customs and Traditions)

- Immediately after assessment phase after finishing reviewing medical, the educational session aims were explained to women. (Average 7 women per session).

The first educational session covered: pregnant women`s knowledge regarding pregnancy induced hypertension (definition of PIH , causes , signs and symptoms , beginning of PIH, Pregnant women recover from PIH, risk of PIH , risk factors, and complication).

The second educational session covered: knowledge about the effect of neglecting pregnancy antenatal care on the diagnosis of PIH, regularly follow up on pregnancy, pregnant women medications that were taken without the doctor`s prescription, medications that were prescribed by the doctor taken regularly, types of food that cause hypertension, importance of the antenatal care , PIH affect the growth of the fetus, follow-up blood pressure measurements for women with PIH, complaining of symptoms and noticed of foot swelling

The third educational session covered: obstacles assessment sheet regarding performing antenatal this part included data as ((the distance, financial ability, personal reasons (women`s hesitation in dealing male or female doctor), unconvinced of the importance of antenatal care , Delay in diagnosis pregnancy, Customs and Traditions)

The researcher had pregnant women`s knowledge and enhances the correct intervention) using educational booklet During and after the educational sessions the researcher encouraged active participation of the pregnant woman through asking questions and receiving feedback. Each pregnant woman received a copy of the educational booklet. The time taken to complete this phase was

about 40- 45minutes for explanation and about10 minutes allowed for the pregnant women for asking any question or clarification related to the session. - At the end of session each pregnant woman was given handout brochure in a graph way including all information about PIH and antenatal care that was given in the session. - The researcher gave two sessions /day, three days per week for teaching; each session took about 30- 45 minutes.

Evaluation Phase: -

The last phase of proposed health education phases and follow up for ethical consideration . A line of contact was established between the researcher and subjects for feedback, monitoring, and provision of needed consultation and help.

Result

Part I: Demographic characteristics of the studied pregnant women with pregnancy induced hypertension.

Table (1): Distribution of demographic characteristics of studied pregnant women with pregnancy induced hypertension (n=100).

Demographic characteristics		No.	%
Age (years)	<20	5	5.0
	20 - <30	32	32.0
	30 – < 40	60	60.0
	>40	3	3.0
	Mean \pm SD		
Occupation	Work	18	18.0
	Housewife	82	82.0
Educational level	Can't reading & write	13	13.0
	Basic education	16	16.0

	Secondary school	59	59.0
	University / institute	12	12.0
Residence	Rural	66	66.0
	Urban	34	34.0

82% of the studied pregnant women are house wife, also more than half 59% of the studied pregnant women have secondary level education and 66% of the studied pregnant women live in rural area.

Table (1) shows that 60% of the studied pregnant women had age 30 – < 40 years,

Figure (1): Distribution of studied pregnant women regarding family history disease (n=100)

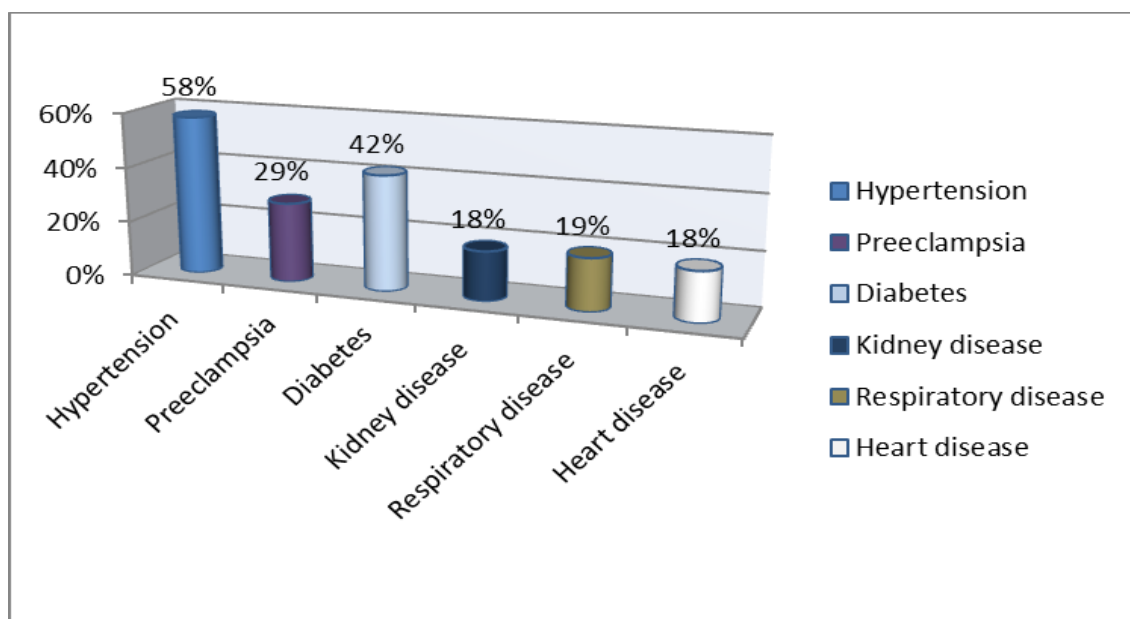


Figure (1) shows that more than half 58% of the studied pregnant women have family history regarding hypertension and more than (42%) of the studied pregnant women have family history regarding diabetes.

Table (2): Distribution of the studied pregnant women knowledge regarding risk factors and complication of pregnancy induced hypertension through pre and post educational sessions (n=100)

Items	Pre				Post				X ²	P-Value	
	Yes		No		Yes		No				
	No.	%	No.	%	No.	%	No.	%			
Pregnant women recover from pregnancy induced hypertension										12.65	<.001**
After birth	25	25.0	75	75.0	66	66.0	34	34.0			
Few weeks after birth	29	29.0	71	71.0	78	78.0	22	22.0			
Chronic diseases	9	9.0	91	91.0	75	75.0	25	25.0			
The risk of pregnancy induced hypertension										.893	<.001**
On the mother	84	84.0	16	16.0	66	66.0	34	34.0			
on the fetus	67	67.0	33	33.0	78	78.0	22	22.0			

on both	66	66.0	34	34.0	75	75.0	25	25.0		
Risk factors for pregnancy induced hypertension									.6152	<.001**
Age	36	36.0	64	64.0	76	76.0	24	24.0		
First pregnancy	27	27.0	73	73.0	84	84.0	16	16.0		
Chronic hypertension	28	28.0	72	72.0	85	85.0	15	15.0		
Heart disease	7	7.0	93	93.0	90	90.0	10	10.0		
Poor financial status	23	23.0	77	77.0	95	95.0	5	5.0		
Obesity	19	19.0	81	81.0	83	83.0	17	17.0		
Chronic diseases	10	10.0	90	90.0	86	86.0	14	14.0		
Complications of pregnancy induced hypertension									2.937	<.001**
Premature birth	51	51.0	49	49.0	68	68.0	34	34.0		
Preeclampsia	58	58.0	42	42.0	78	78.0	22	22.0		
Other organ damage (kidney & brain)	22	22.0	78	78.0	88	88.0	12	12.0		
Cardiovascular disease	10	10.0	90	90.0	85	85.0	15	15.0		
Fetal growth defect	25	25.0	75	75.0	94	94.0	6	6.0		
Placental abruption	12	12.0	88	88.0	97	97.0	3	3.0		

Note: can select more than one response

(*) Statistically significant at $p < 0.05$.

(**) highly statistically significant at $p < 0.01$

Table (2) reveals that there is statistical significance difference between pre and post session regarding studied women knowledge about risk factor and complications of pregnancy induced hypertension. Also, less than 12 % of studied women answer that placental abruption is one of the complication pregnancy induced hypertension that improved at post educational session evaluation to most 97% of them

Table (3): Distribution of studied total knowledge of the pregnant women regarding pregnancy induced hypertension through pre and post educational sessions (n=100).

Items	Pre				Post			
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory	
	No	%	no	%	No	%	No	%
Definition of pregnancy induced hypertension	40	40.0	60	60.0	73	73.0	27	27.0
Pregnancy induced hypertension begin	30	30.0	70	70.0	70	70.0	30	30.0
Pregnant women recover from Pregnancy induced hypertension	29	29.0	71	71.0	75	75.0	25	25.0

The risk of pregnancy induced hypertension	60	60.0	40	40.0	79	79.0	21	21.0
Causes of pregnancy induced hypertension	9	9.0	91	91.0	78	78.0	22	22.0
Risk factor for pregnancy induced hypertension	33	33.0	67	67.0	87	87.0	13	13.0
Signs of pregnancy induced hypertension	45	45.0	55	55.0	90	90.0	10	10.0
Complications of pregnancy induced hypertension	42	42.0	58	58.0	83	83.0	17	17.0

Table (3) demonstrates that minority 9% of studied women have satisfactory level of knowledge regarding causes of pregnancy induced hypertension at pre sessions phase and improve to be most 78% of them at post session phases. while 40% of them have

unsatisfactory level of knowledge regarding the risk of pregnancy induced hypertension at pre sessions phases and decreased to about 21% of them at post educational sessions phase

Figure (2): Distribution of the studied pregnant women regarding sources of knowledge about pregnancy induced hypertension (n=100).

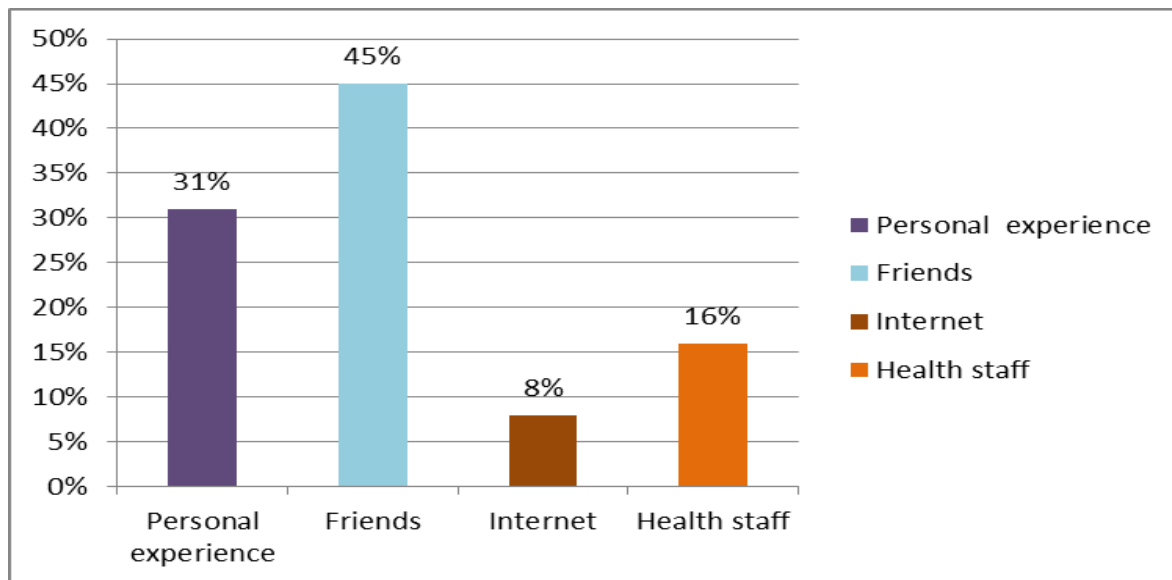


Figure (2) shows that less than half 45% of the studied pregnant women have their knowledge from friends, while minority 8% of the studied pregnant women have their knowledge from internet.

Figure (3): Distribution of studied pregnant women total knowledge level regarding antenatal care (n=100)

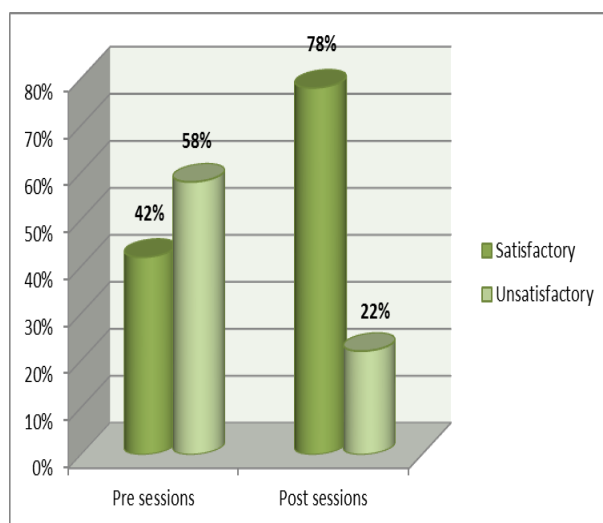


Figure (3): demonstrates that more than 42% of studied pregnant women have satisfactory total knowledge regarding antenatal care at pre educational sessions phase, while majority 78% of studied pregnant women have satisfactory knowledge level at post educational sessions phase.

Part V: Obstacles regarding performing antenatal care

Table (3): Distribution of studied pregnant women obstacles regarding performing antenatal care (n=100).

Obstacles	Yes		No	
	No	%	No	%
Far the distance	83	83.0	17	17.0
Lack of financial ability	64	64.0	36	36.0
Personal reasons (not providing a female tor)	84	84.0	16	16.0
Unconvinced of the importance of continuing pregnancy	87	87.0	13	13.0
Delay in diagnosis pregnancy	67	67.0	33	33.0
Customs and traditions	97	97.0	3	3.0

(*) Statistically significant at $p < 0.05$.

(**) highly statistically significant at $p < 0.01$

Table (3) displays that there is statistical significance difference between pre and post educational session regarding studied pregnant women knowledge about antenatal care. Also, less than one fifth 13 % of studied pregnant women answer those follow-up

blood pressure measurements for women with pregnancy induced hypertension every two hours that improved at post educational session evaluation to most 90% of studied pregnant women .

Table (4): Relation between demographic characteristics of studied pregnant women and their knowledge regarding antenatal care (n=100)

Obstacles	Yes		No	
	No	%	No	%
Far the distance	83	83.0	17	17.0
Lack of financial ability	64	64.0	36	36.0
Personal reasons (not providing a female for)	84	84.0	16	16.0
Unconvinced of the importance of continuing pregnancy	87	87.0	13	13.0
Delay in diagnosis pregnancy	67	67.0	33	33.0
Customs and traditions	97	97.0	3	3.0

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Table (4) displays that there is statistical significance difference between pre and post educational session regarding studied pregnant women knowledge about antenatal care. Also, less than one fifth 13 % of studied pregnant women answer those follow-up

blood pressure measurements for women with pregnancy induced hypertension every two hours that improved at post educational session evaluation to most 90% of studied pregnant women .

Table (5): Relation between demographic characteristics of studied pregnant women and their knowledge regarding antenatal care (n=100)

Demographic characteristics		Pre				post				X ²	P-value ²
		Satisfactory (n=42)		Unsatisfactory (n=58)		Satisfactory (n=78)		Unsatisfactory (n=22)			
		No.	%	No.	%	No.	%	No.	%		
Age (years)	<20	2	4.8	3	5.2	5	6.4	0	0.0	.947	.657
	20 - <30	15	35.7	17	29.3	22	28.2	10	45.5		
	30 – < 40	24	57.1	36	62.1	50	64.1	10	45.5		
	>40	1	2.3	2	3.4	1	1.2	2	9.1		
Occupation	Work	10	23.8	8	13.8	10	12.8	8	36.4	.824	.012*
	Housewife	32	76.2	50	86.2	68	87.2	14	63.6		
Educational level	Can't reading & write	10	23.8	3	5.2	13	16.7	0	0.0	6.171	.015*
	Basic education	6	14.2	8	13.8	6	7.7	8	36.3		
	Secondary school	16	38.1	43	74.1	55	70.5	4	18.2		
	University institute	10	23.8	2	3.4	2	2.6	10	45.5		
Residence	Rural	40	95.2	26	44.8	44	56.4	20	90.9	12.725	.467
	Urban	2	4.8	32	55.2	32	41.1	2	9.1		

X21 between pre Session X22 between post Sessions (*) Statistically significant at $p < 0.05$.

Table (5) shows that there is statistically significant difference between total knowledge regarding antenatal care of studied pregnant women's and their occupation and education. On other hand that there is no statistically significant difference between total knowledge

of studied pregnant women and their age and residence

Part VII: Correlations between the studied pregnant women total knowledge regarding pregnancy induced hypertension and antenatal care through educational session's phases.

Table (6): Correlation between the studied pregnant women's knowledge regarding pregnancy induced hypertension and antenatal care through educational sessions phases (n=100).

Studied variables	Pre		Post	
	Total knowledge regarding pregnancy induced hypertension		Total knowledge regarding antenatal care	
	R	P	R	P
Total knowledge regarding pregnancy induced hypertension	-	--	.892	.045**
Total knowledge regarding antenatal care	1.245	.0267*	---	---

(*) Statistically significant at $p < 0.05$.

(**) highly statistically significant at $p < 0.01$

Table (6) illustrates that there is high statistically significant positive correlation between total knowledge regarding pregnancy induced hypertension and total knowledge regarding antenatal care at post educational sessions phases. Also that there is statistically significant positive correlation between total knowledge regarding pregnancy induced hypertension and total knowledge regarding antenatal care at pre educational sessions phases

Discussion

Pregnancy-induced hypertension (PIH) is a major public health concern around the world. It is one of the most common pregnancy problems, which is linked to maternal and neonatal morbidity and mortality. Gestational hypertension is another term for Pregnancy-induced hypertension. It is a pregnancy-related conditioning which hypertension develops at or after 20 weeks of pregnancy, marked by hypertension and proteinuria, as well as edema. It is diagnosed when a woman's blood pressure increases above 140/90mmHg. (Ahmed , et al., 2022).

Regarding the demographic characteristics of the studied pregnant women with pregnancy induced hypertension the study finding showed that less than two thirds of the studied pregnant women had age 30 – < 40 years, most of the studied pregnant women were house wife, also more than half of the studied pregnant women have secondary school and two thirds of he studied pregnant women live in rural area. In the researcher point of view most of studied pregnant women were house wife and secondary education because of studied pregnant women live in rural area.

These results were agreement with those Elbana, Abd Elhady & Mohammed. (2022) who carried out their study about “Self-Care Management Program Utilization among Antenatal Mothers with Pregnancy-Induced

Hypertension” showed that the study sample age was above 30 years and more than half of educated to the secondary level. Additionally, about two thirds of studied women were from rural area. Moreover, more than two thirds of the studied sample not employed.

In the same line these findings supported by Ahmed, et al., (2022), who carried out their study about “Impact of Self-Care Guidelines on Women's Awareness and Identification of Early Signs and Symptoms of Preeclampsia” and reported that was above 30 years and more than half of educated to the secondary level. Additionally, about two thirds of studied women were from rural area. Moreover, more than two thirds of the studied sample not employed.

Also, these results were in same line with those of (Abd-Elhussien & Khudair,2019). In a study about “Self-care management of pregnancy induced hypertension for pregnant women attending primary health care centers in Kirkuk City, found that most pregnant women were between the ages of 30 and 34.

Also, Sharma, et al. (2019) which study about “Status and determinants of birth preparedness and complication readiness in a rural block of Haryana” showed that the upper most percentage of women was completed secondary level of education and were from rural area and majority of them were unemployed

On other hand, these results were different from those of Fadare, et al. (2019) repcborting the study conducted about “Pregnant Women's Knowledge and Attitudes towards Pregnancy-Induced Hypertension Management “in Southwest Nigeria that most women’s age were between 21 and 30 and according to their educational qualification distribution pattern most of the participants had a tertiary education. The majority of those who took part were self-employed. Moreover, Salim.,(2019) reporting the study conducted

about “Women's Knowledge of Gestational Hypertension and Self-care Measures among Primigravid Women” proved that majority of the sample had high school education.

Also, the study results disagree with Jena & Mohapatra, (2019) who conducted their study about “A retrospective study of socio-demographic factors in pregnancy-induced hypertension in a tertiary care hospital in eastern India” reported that majority of cases were in age group of 21- 25 years.

Also, this result is not consistent with Belay & Wudad, (2019) who conducted a study about "Prevalence and associated factors of preeclampsia among pregnant women attending antenatal care at Mettu Karl referral hospital, Ethiopia: cross sectional study ". They found that more than half of pregnant women living in the urban areas.

The results of the conducted study showed that more than half of studied pregnant women have family history regarding hypertension and more than two fifths of the studied pregnant women have family history regarding diabetes. In the researcher point of view due to studied pregnant women live in rural area and not concern about importance of check up every year and due to family less education so not know information's about signs and symptoms of diabetes and hypertension.

These results are in agreement with those of Vestgaard, et al. (2022) reporting the study conducted about “The impact of anti-hypertensive treatment on fetal growth and hemodynamics in pregnant women with pre-existing diabetes” An explorative study showed that more of studied pregnant women have family history regarding hypertension and more of the studied pregnant women have family history regarding diabetes

As same as Fikadu, et al. (2020) who conducted a study entitled “Family history of chronic illness, preterm gestational age and

smoking exposure before pregnancy increases the probability of preeclampsia” in Omo district in southern Ethiopia showed that more of studied pregnant women have family history regarding hypertension and more of the studied pregnant women have family history regarding diabetes.

On other hand, these results were disagree from those of Atinga & Baku (2019) who conducted a study entitled “Determinants of antenatal care quality in Ghana” informed that more of studied pregnant women have family history regarding heart disease and more of the studied pregnant women have family history regarding preeclampsia. As same as Johansson, et al., (2020) reporting in the study conducted about “Family history and risk of pregnancy-associated breast cancer” informed that more of studied pregnant women have family history regarding cancer disease.

Gudeta & Regassa (2019) reported in the study conducted about “Pregnancy Induced Hypertension and Associated Factors among Women Attending Delivery Service” informed that more of studied pregnant women have family history regarding asthma and more of the studied pregnant women have family history regarding kidney diseases.

According knowledge of the pregnant women regarding risk factor and complication of pregnancy induced hypertension through pre and post educational sessions, the present study reveals that there is statistical significance difference between pre and post session regarding studied women knowledge about risk factor and complications of pregnancy induced hypertension. Also less than one fifth of studied pregnant women answer that Placental abruption is one of the complications of pregnancy induced hypertension that improved at post educational session evaluation to most of them. In the researcher point of view due to studied pregnant women not have enough information

about complications of pregnancy induced hypertension.

These results are in agreement with those Thapa, et al., (2021) who conducted a study entitled “Pregnancy Induced Hypertension among Pregnant Women Delivering” revealed that more studied women had knowledge about risk factor and complications of pregnancy induced Hypertension after program implementation.

These results supported by Thakur& Dangal, (2020) who conducted a study entitled “Feto-maternal Outcome in Women with Pregnancy Induced Hypertension versus Normotensive Pregnancy” reported that there were deficit knowledge about risk factor and complications of pregnancy induced hypertension before implementing of the study and more satisfied knowledge after implementation. A same as these results agree with Mekie, et al., (2021) who study about “Knowledge and attitude of pregnant women towards preeclampsia and its associated factors in South Gondar Zone” revealed that study participants had positive attitudes towards the risk factors, the prevention, symptoms, and complications of preeclampsia.

On the other hand, these results disagree with Esposito, et al., (2020) who study about “Women’s Knowledge, Attitudes and Behavior about Maternal Risk Factors in Pregnancy” revealed that less pregnant women had knowledge about risk and complication of preeclampsia. Savage & Hoho, (2021) also reported in the study conducted about “Knowledge of pre-eclampsia in women living in Makole Ward, Dodoma, Tanzania” reported that less pregnant women had knowledge about risk and complication of preeclampsia. As same as Berhe, et al., (2020) reported in the study about “Awareness of pregnancy induced hypertension among pregnant women” that high proportion of pregnant women had poor awareness on pregnancy-induced hypertension.

Regarding studied pregnant women total knowledge about pregnancy induced Hypertension through pre and post educational sessions, the present study demonstrates that minority of studied women have satisfactory level of knowledge regarding causes of pregnancy induced hypertension at pre educational sessions phase and improve to be most of them at post educational session phases. While two fifths of them have unsatisfactory level of knowledge regarding the risk of pregnancy induced hypertension at pre educational sessions phases and decreased to about one fifth of them at post educational sessions phases.

These results matched with Dawod, Assea & Jawad (2020) who conducted a study entitled “Knowledge and Attitudes Mothers Attending primary health Center, Regarding Antenatal - and Post Neonatal Care” in Basra revealed that there were highest percentage of pregnant women who had a high knowledge score regarding PIH improved at the end of educational program and most of them showed a positive attitude .Moreover, the results of our research were also in the same harmony with Ibrahim, El Borgy & Mohammed (2020) who conducted a study entitled “Knowledge, attitude, and practices of pregnant women towards antenatal care in primary healthcare centers” in Benghazi, Libya reported that pregnant women knowledge score regarding PIH improved at the end of educational program.

These study findings accordance with by Zohora,Aktar, & Hossain, (2022) reported that majority of studied women have satisfactory level of knowledge regarding causes of pregnancy induced hypertension and agree with Sepehri,(2018) who conducted their study about “Knowledge of antenatal women regarding pregnancy induced hypertension” reported that majority of studied women have satisfactory level of knowledge regarding causes of pregnancy induced hypertension

after ending of education sessions . Additionally, these results agree with Elbana, Abd Elhady & Mohammed, (2022) reveals that there were a highly statistically significant difference between knowledge of pregnancy induced hypertension at before and after intervention.

On the opposite side, these results disagree with Al Ebrahimi, Al Jobori & Al Safi (2019) who conducted their study about “Knowledge about pregnancy induced hypertension among pregnant women attending gynecology and obstetrics teaching hospital” in Kerbala reported that minority of studied women had satisfactory level of knowledge regarding pregnancy induced hypertension. As same as, these results disagree with Fondjo et al., (2019) reported that minority of studied women had satisfactory level of knowledge regarding preeclampsia.

Regarding studied pregnant women sources of information about pregnancy induced hypertension, the present study shows that less than half of the studied pregnant women take their knowledge from friends, while minority of the studied pregnant women takes their knowledge from internet. In the researcher point of view due to studied pregnant women live in rural area and not know how to used internet.

These study finding agreed with by Al Ebrahimi, et al., (2019) reported that the main source of knowledge by the participants was from friends/relatives followed by health care providers, minority of the studied pregnant women takes their knowledge from media. In the same line with Eze, (2018) who reported that majority source of knowledge by the participants was from friends/relatives and minority of the studied pregnant women takes their knowledge from media.

These results disagree with Ahmad, et al., (2022) who conducted their study about “Impact of Self-Care Counseling on Quality of

Life in Pregnant Women with Gestational Hypertension” reported that the main source of knowledge by the participants was from internet followed by health care providers, minority of the studied pregnant women takes their knowledge from friends.

Concerning with studied knowledge of the pregnant women regarding antenatal care through pre and post educational sessions, the results displays that there is statistical significance difference between pre and post session regarding studied pregnant women knowledge about antenatal care. Also less than one fifth of studied pregnant women answer those follow-up blood pressure measurements for women with pregnancy induced hypertension every two hours that improved at post educational session evaluation to most of studied pregnant women. In the researcher point of view due to studied pregnant women live in rural area and Preeclampsia occurred due to less importance of antenatal care during pregnancy. Also, there is no follow –up of blood pressure during pregnancy

These results supported by Sitot & Workye (2022) who conducted a study entitled “Assessment of knowledge, attitude and practice towards ante natal exercise among pregnant women attending antenatal care” at Health centers of Mekelle, Tigray Region, Ethiopia, reported that knowledge regarding antenatal care improved after sessions regarding follow-up blood pressure measurements.

As same as, these results agree with Wassihun, Ayinalem & Beyene, (2022) reported in the study about “Knowledge of oral health during pregnancy and associated factors among pregnant mothers attending antenatal care” at South Omo Zone public hospitals, Southern Ethiopia, that majority of women receiving counseling on oral hygiene at antenatal care were some factors associated with good knowledge of oral health during pregnancy.

On the other side, these results discongruent with Aguirre, et al. (2018), who conducted a study entitled “Impact of a computer-based breastfeeding education program on breastfeeding self-efficacy and duration in rural Hispanic women” reported that they did not find a significant difference between intervention and control group at baseline or during antenatal care. As same as Kare, Gujo&Yote (2021) who conducted a study entitled “Quality of antenatal care and associated factors among pregnant women attending government hospitals” in Sidama Region, Southern Ethiopia, reported that antenatal care is not effective.

Regarding studied pregnant women obstacles about performing antenatal care, these present study results reveals that most of the studied pregnant women agree that customs and traditions, personal reasons (not providing a female doctor) and unconvinced being of the importance of continuing pregnancy are the obstacles for performing antenatal care. In the researcher point of view due to studied pregnant women live in rural area and pregnant women dealing according to customs and traditions of the rural area

These results consistent with the results of Agus, Horiuchi & Porter (2018) revealed that Women believed that because pregnancy was a normal life event, they did not need special consideration during pregnancy. By following their relative’s suggestions and trusting in God’s will, women thought they would have nothing to fear. These were the important beliefs for maintaining a healthy pregnancy.

Also, Takaeb. (2020) revealed that in the study about “Exploration of Socio-Cultural Determinants of Maternal Mortality in Indonesia” that culture barriers consisting of perceptions related to pregnancy, delivery and death, perceptions related to family planning, practice related to pregnancy and delivery, Traditional Birth Attendant, gender inequity,

and perception related to midwife performance and health services.

On the opposite side, these results disagree with Konje, et al.,(2018) who conducted a study entitled “Missed opportunities in antenatal care for improving the health of pregnant women and newborns” in Geita district, Northwest Tanzania reported that access to effective ANC remains a challenge among women in Geita district. Notably, most women initiated ANC early initiation and guarantee care that could contribute to better pregnancy outcomes. Widyawati et al., (2019) also, reported in the study about “A qualitative study on barriers in the prevention of anaemia during pregnancy in public health centres” that husband and family involvement in antenatal care was constrained by the strength of cultural beliefs and lack of health information

Regarding to relation between demographic characteristics of studied pregnant women and their knowledge regarding antenatal care, the present study revealed that there is statistically significant difference between total knowledge regarding antenatal care of studied pregnant women and their occupation and education. On other hand that there is no statistically significant difference between total knowledge of studied pregnant women and their age and residence. In the researcher point of view due to studied pregnant women the higher educational level of the pregnant women was a significant factor in determining optimal antenatal care compared to pregnant women with lower educational. In addition, pregnant women with better educational status are capable of identifying danger signs and easily understand.

The current study finding was similar to Afaya, et al., (2020) who conducted a study entitled “Women's knowledge and its associated factors regarding optimum utilization of antenatal care” in rural Ghana revealed that majority of the women had good knowledge of antenatal care services. The

determinants of women having knowledge of antenatal care services and there is statistically significant difference between total knowledge regarding antenatal care of studied pregnant women's and their occupation and education.

Also, these finding congruent with Haruna, et al., (2019) who conducted a study entitled "Guided imagery for treating hypertension in pregnancy" found that there was a significant association between educational status, occupations, socio economic status and knowledge on pregnancy induced hypertension and antenatal care respectively. Similarly, Maputle, Khoza & Lebesse (2018) who conducted a study entitled "Knowledge towards Pregnancy-induced Hypertension among Pregnant Women" found that there was also a significant association between educational status, occupations, socio economic status and awareness about pregnancy induced hypertension respectively.

As same as, these finding supported by Fagbamigbe, Olaseinde & Setlhare, (2021) who conducted a study entitled "Sub-national analysis and determinants of numbers of antenatal care contacts" in Nigeria revealed that there were statistically significant difference between total knowledge regarding antenatal care of studied pregnant women and their occupation and education.

This finding corroborates findings elsewhere with Islam & Masud (2018) who conducted a study entitled "Determinants of frequency and contents of antenatal care visits" in Bangladesh that show a positive correlation between a spouse's level of education and the number of antenatal care contacts. A higher level of education among pregnant women and a higher level of education among their spouses may have a positive influence on joint decision making among couples regarding health-seeking during pregnancy.

On the other hand, these results disagree with Atuhaire & Mugisha (2020) who conducted a study entitled "Determinants of antenatal care visits and their impact on the choice of birthplace among mothers" in Uganda showed that there were statistically significant difference between total knowledge of studied pregnant women according to their age and residence. Also, Omo, et al., (2020) who conducted a study entitled "Maternal Mortality and Emergency Obstetric Care" in Benin City South-South Nigeria reported that there were statistically significant difference between total knowledge of studied pregnant women their age and residence.

As same as these current study was opposite to Al Ebrahmy et al., (2019) found that there was no significant association between the educational level and the Knowledge score also, there was no significant association between the economic status, occupation and residence area with knowledge score.

According to correlation between the studied pregnant women knowledge regarding pregnancy induced hypertension and antenatal care through educational sessions phases, the study results illustrates that there is high statistically significant positive correlation between total knowledge regarding pregnancy induced hypertension and total knowledge regarding antenatal care at post educational sessions phases. Also that there is statistically significant positive correlation between total knowledge regarding pregnancy induced hypertension and total knowledge regarding antenatal care at pre educational sessions phases. In the researcher point of view due to studied pregnant women were aware that regular antenatal care check-ups by health care providers can be used for early detection and prevention of pregnancy induced hypertension

These results were congruent with Agbeno, et al., (2022) who conducted a study

entitled “Knowledge of hypertensive disorders of pregnancy among pregnant women attending antenatal clinic at a tertiary hospital in Ghana” revealed that there were correlation between knowledge regarding hypertensive disorders and antenatal care, the present study revealed a highly positive association.

These results were agree with Tamma, et al., (2022) who conducted a study entitled “Maternal hypertensive mother’s knowledge, attitudes and misconceptions on hypertension in pregnancy” revealed that there were correlation between maternal mother’s knowledge regarding hypertension in pregnancy and antenatal care, the present study revealed a highly positive association.

These results discongruant with, Berhe, et al., (2020) reported that there were no correlation between the studied women knowledge and total antenatal care at post intervention and studied women had not satisfactory level of management regarding pregnancy induced hypertension post intervention compared with pre intervention phases.

Conclusion

The findings of the study showed that the knowledge about pregnancy induced hypertension was poor among pregnant women before educational sessions. That need to increase public awareness and knowledge about the disease. Studies pregnant women were introduced a good participation in study and aim of the study were achieved and were reflected a good improvement in the total level of knowledge after educational sessions, The results of the present study supported the research hypothesis.

Recommendation

1- Improving the knowledge of pregnant women about pregnancy induced hypertension by health education sessions and

instruction booklets throughout the wards of the hospital.

2- Encourage earlier booking visit in the first 12 weeks of pregnancy.

3- The government should encourage health education on causes and prevention of the pregnancy induced hypertension and its complications.

4- Pregnant women should take the antenatal care very seriously; pregnant women should be encouraged to deliver in the hospital.

Further recommendation

1-Encourage paramedical staff to involve continuing educational program in shape of workshops, training programs, conferences for improving nursing care about pregnancy induced hypertension to get better mothers and neonate's health.

2- The government should provide enough health facilities and health workers regarding pregnancy induced hypertension management

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