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Impact of an Educational Program about Pregnancy Induced Hypertension for Maternity Nurses on their performance and Pregnancy Outcomes for Mothers and Neonates

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Abstract

Background: *Pregnancy induced hypertension (PIH) is connected with unfriendly results on neonatal, maternal dismalness and mortality. it is a standout amongst the most widely recognized reasons of both maternal and neonatal dismalness, influencing around 5 – 10 % of pregnant ladies* ***Objective****: This study aimed to evaluate the effect of educational program about pregnancy induced hypertension on performance of maternity nurse's and Pregnancy outcomes for mother and neonates*

Methodology: *The study design was quasi-experimental. This study was done in the inpatient (obstetric and gynecological division) at three legislative healing facilities situated in Port Said city. Questioner surveys were utilized to catch demographic information, obstetric history and maternal and fetal confusions. observation checklist for nurses performance. The subjects of the study includes 2groups as the followings: convenience sample of 30 nurses who work in Port Said Hospitals and all inpatient women diagnosed with PIH who attended during the period of the program conduction (20 women).*

Results: *The outcomes uncovered that there was a change in the medical attendants' abilities in giving nursing consideration to a patient with pregnancy-induced hypertension patients. Additionally, a factually noteworthy change for both to the moms and newborn outcomes receiving educational program implementation.*

Conclusion: *Educational program for nurses working in maternity unit showed great impact on their performance with mothers suffering from PIH. With the perspective of the impact of the educational program on maternal and fetal and newborn health conditions . It was particularly obvious in the lower of blood pressure, proteinuria, and prenatal and postnatal complications. Similarly, neonatal outcomes were statistically significant improvement in the mothers group receiving nursing care after nursing educational program implementation as regards newborn measurements, and prenatal and postnatal complications.*

Recommendations: *Future research regarding study factors affecting women with PIH self care practices, further studies related to mothers health problems that have an impact on neonate health, their growth and development should be investigated.*

Keywords: *impact, educational program, pregnancy induced hypertension, neonates*

I. Introduction

The continuum of care and management has turned into an energizing call to diminish the yearly toll of a large portion of a million maternal neonates, 4 million neonatal deaths, and 6 million neonates mortality. The continuum for maternal, infant, and youngster wellbeing more often than not alludes to congruity of individual care.[1] the maintenance of continuous management is important all through the lifecycle (pre-adulthood, pregnancy, labor, the postnatal period, and youth). Hypertensive issue are the most widely recognized therapeutic intricacy in pregnancy, called pregnancy induced hypertension (PIH) is characterized as BP ≥ 140/90 mmHg, taken after a time of lay on two events or ≥160/110 mmHg on one event in a formerly normotensive lady. [2] Hypertensive issue are the most well-known restorative entanglement in pregnancy, influencing roughly 5–10 % of all maternities. Notwithstanding progresses in obstetric prescription, it remains the second most elevated reason for maternal mortality overall [3], and also a noteworthy reason for bleakness for the mother and neonate . It is connected with unexpected labor, intra-uterine development impediment (IUGR), abruptio placenta, and intrauterine passing, and additionally maternal bleakness and mortality. [4,5] Hypertension can exist before (as incessant hypertension) or create once more in pregnancy inside two very much characterized issue: pre-eclampsia and gestational hypertension. Pre-eclampsia can regularly create superimposed on built up gestational or endless hypertension. Examination of a few national databases

recording maternal results exhibits that sub-standard consideration in parts of acknowledgment and brief circulatory strain control can prompt decimating outcomes, both for mothers and neonates.[6,7]

Incidence of hypertensive disease associated with pregnancy varies widely in epidemiological studies due to variations in definitions, and the differences in data collection. Pregnancy induced hypertension continues to be important in the United States. In recent studies, these conditions were to be the second leading causes of maternal death . It is estimated 10 % of all pregnancies are muddled by hypertension around the world, with pre-eclampsia and eclampsia being the real reasons for maternal and pre-birth dreariness and mortality. [8] It is additionally evaluated that pregnancy-instigated hypertension (PIH), one of the hypertensive issue of pregnancy, influences around 5 – 8 % of all pregnant ladies around the world. The prevalence is increase as many as 20 to 40% of pregnancies in women with chronic hypertension. [3] In Egypt pregnancy induced hypertension is considered a major cause of maternal death, associated with 14.9% of direct obstetric death and 22% of all maternal deaths. [9] women with multi gravida , and order births following PIH have a higher risk of stillbirth than first-order births, particularly among Blacks.[10]

It is evaluated that 9.1 % of maternal passing in Africa are because of the hypertensive issue of pregnancy. [9] The Zimbabwe Maternal and Perinatal mortality study observed PIH be among the main five reasons for maternal mortality and the third most noteworthy purpose behind referral in labor, neonatal reasons for under five mortality which involve preterm birth difficulties, birth asphyxia and neonatal sepsis add to 29 % of the passings. 39 % of neonatal passing are brought on by preterm birth complications. [11]

Pre-eclampsia can influence the vessels conveying blood to the placenta. When this happens the embryo gets less oxygen and sustenance, bringing about infant morbidities, for example, moderate development, low birth weight, pre-development or stillbirth, respiratory trouble disorder, ventilatory backing. Pre-eclampsia likewise expands the danger of the placenta isolating from the inward mass of the uterus before conveyance (abruption). This can bring about wild draining and be life-undermining for both mother and child, expanded cesarean conveyances , acute renal brokenness, Another confusion is Eclampsia (Pre-eclampsia in addition to seizures) that happens when Pre-eclampsia is uncontrolled.[12]

National Institute for Health and Clinical Excellence(NICE)2011 have underscored on the way that early pre-birth care, distinguishing proof of pregnant ladies at danger for preeclampsia, and also acknowledgment and reporting of physical cautioning signs, are vital parts in the streamlining of maternal and prenatal outcome .in this regard, nurse's role is very essential. Moreover, nurses can do much in the advocacy role. Measurements should be done to improve public education and to access antenatal care. Counseling, referral to community resources, mobilization of support system, and providing component of care .The nurse's role as educator is important in informing the women about her condition and responsibilities preeclampsia management, whether at home or hospital. [13]

At the point when Pre-eclampsia is diagnosed in its initial stages, bed rest is generally exhorted for the mother and her BP ought to be observed nearly. Be that as it may, if the infection advances, the specialist would left without a decision however to incite work or convey by Cesarean, paying little respect to whether the infant has developed to full term or not. The blood pressure would then come back to ordinary inside 2-3 days. [14,15]

Prevention of diseases is a key concept to nursing where barriers sometime present in prenatal care, The role of nurse is very important to assess the condition of mother, identify deviation from normal and intervene accordingly, and provide care. Pediatric nurses at last are essentially more successful in identifying anomalies during the neonatal check. This has suggestions both for future workforce arranging and current strategies for therapeutic preparing. [16] After effects of the study will be utilized to illuminate reproductive wellbeing programming in port Said, future nursing administration of pregnancy induced hypertension and also territories for further examination.

Aim of the study

This study aimed to evaluate the impact of pregnancy induced hypertension educational program on maternity nurses' performance, maternal and neonatal complications.

II. Methodology

1-Study Design: A quasi-experimental design was utilized to lead this study.

2-Study Setting: This study was completed in the in-patient (obstetric and gynecological department) at three governmental hospitals located in Port Said city as.

2.1. Port said general hospital is the largest public hospital affiliated by ministry of the wide range of maternity services; it has three rooms and ten beds. Also, contain fifty six physicians, eleven nurses and three workers.

2.2. Port fouad hospital at private and inpatient (obstetric and gynecological department) has 4 rooms each room has 4 beds, private ward consist of 4 rooms. The services are running by 15 physicians, ten nurses and two workers.

3.3. El-tadamon hospital at private and inpatient (obstetric and gynecological department) it has ten rooms at thirty three beds. The services are running by four physicians, nine nurses and three work aids.

3-Target population: Two different target populations were recruited in this study; the first was the on job nurses in obstetric and gynecological departments, who were undergone to the educational program. The second was the inpatient pregnancy induced hypertension pregnant women attending the obstetric and gynecological departments at above hospitals during the period of the training program.

4-Sample size: Two different samples were determined; the first was nurses and the second was the PIH pregnant women. **Nurses group:** A total of thirty convenient nurses working in obstetric and gynecological departments at the previous mentioned setting were recruited. **The PIH pregnant women group**: A total of forty inpatient women diagnosed with PIH who attended the previous mentioned setting during the period of the program conduction.

5- Tools for information gathering:

The tools were composed by the specialist researcher after reviewing of available review of literature as well as similar researches. The tools were designed to covers the aims and test the study hypothesis ;

5.1. For women:-

Structured interviewing questionnaire for mother. This tool designed mainly to collect information's related to socio-demographic data as mother's name, address, age, education, occupation and husband "occupation, Obstetric history such as: gravid, parity, birth interval, history of present pregnancy, and the present and previous obstetrical risk factors and physical examination such as :level of blood pressure ,level of edema and protein urea ,patient's weight , present complications which may happen such as bleeding or epigastric pain ,types of delivery and Apgar score in 1minutes and 5 minutes.

5.2.For nurses: Structured Interviewing questionnaire for the nurses: This tool designed mainly to collect data related to socio-demographic data such as: Nurse's name, age, education, years of experience, attended in training program before, expectations from training program and best educational tool for nurses.

5.3. This tool designed mainly to collect data related to the nurse's performance, It applied to every nurse before and after the program and also for the follow up of the program. It included the nursing care for women with mild and severs preeclampsia and eclampsia during labor and post partum.

5.4.Program Handout: The handout was prepared for nurses and included information about pregnancy induced hypertension to improve their knowledge. It also covered the definition, etiology, physiology, path physiology, signs and symptoms, complications of the mothers and fetus, high risk group and diagnosis and nursing management of PIH.

Scoring System: Performance: The things "not done" and "done" were scored "0" and "1", individually. For every part, the scores of the things were summed-up and the aggregate separated by the quantity of the things, giving a mean score for the part. These scores were changed over into a percent score, and means and standard deviations were figured. The execution was viewed as satisfactory if the percent score was 60% or more, and insufficient if under 60%.

5.5.Operational design: The study was carried out through the following six phases:- Phase I (Preparation): The researcher, after the extensive review of the literature, has prepared the tools for data collection , questionnaire, and observational checklist .After the tools have been designed, they were tested through: -

5.6.Validity and reliability of the Tools.

The instruments were created by the scientists taking into account survey of related writing and comparative studies apparatuses. They were presented to face and substance acceptance by a board of specialists in the obstetrics and gynecology field from nursing and restorative control. The dependability of the apparatuses was evaluated through measuring their inner consistency utilizing Cronbach's alpha coefficient technique. This eliminate was conveyed in a time of two months.

5.7. Pilot study, which was done on 10 % from attendants .The fundamental motivation behind the pilot study were to test the clarity , achievability of the instruments and whether it was justifiable, and to decide the time expected to fill the apparatus .the device was given to members to fill it and gathered by scientist . The ideal opportunity for the fulfillment of the survey sheet was gone from 1-1.30 hour.

Following this pilot study, the process of data collection and implementation of educational program consumed 10 months from June 2014 to March 2015 . The data were collected according to the following phases: Phase II (baseline assessment). During this phase, the data was collected from the two groups of the study sample (mothers) and nurses using the tools designed in the previous phase .The data collected at this stage were considered as pre-program database information .Phase III (Program development): an educational program for the nurses was designed based on the baseline data collection in phase II. The program was aiming to improve the knowledge and practice of nurse's toward pregnancy induced hypertension. In designing the program, different and suitable teaching methods were considered. Phase IV (Program Implementation): Implementation of an educational program for study nurses was carried out during that phase. The program was

conducted through lectures, group discussions, role-playing, and demonstrations. Also, audio-visual materials, such as Data show and video, were used, in addition to program handouts.

Participants were divided into six groups, two group for each hospital, since it is difficult to have all of them together at the same time. Each group was composed of 5 nurses. The program was implemented six times to cover the six groups. The program lasted for a period of 6 weeks: one week for each group to cover the theoretical parts and practical parts. The duration of each was six days. Each day included two session, each of which one and half hour long. At the beginning of each session, it was suitable to start with a brief revision of what was given before. This was followed by statement of the objectives of the present session. The program covered the theoretical and practical part of pregnancy induced hypertension as: Define pregnancy induced hypertension (pre-eclampsia and eclampsia), incidence of PIH, predisposing factors of PIH., path physiology of pre eclampsia and eclampsia, signs and symptoms of PIH. Classify the types of hypertension in pregnancy, diagnostic investigation for patient with PIH., complications of PIH. Management of patient with pre eclampsia and eclampsia and nursing care plan for PIH patient. At the end of this phase, knowledge and skills for PIH were assessed using the same study tools. The data collected at this stage were considered as post- program database information for nurses. Implementation of the theoretical part each session took one and half hour including period of answering the questions and discussing the lecture with the nurses. Sessions started at 10.30 a.m, the best time for nurses as they were busy with patients from 8-10 a.m. according to the program time schedule for theoretical part. Implementation of the practical part :The clinical part included six sessions each one took one and half hour to demonstration and re-demonstration of each procedure by the nurses. The investigator checks each nurse took the patient from admission until delivery to apply the procedure and nursing care. The practical part covered all procedure related to signs and symptoms of preeclampsia like measure blood pressure , early detection of edema, assess proteinuria and also measure intake and out put and measure patient weight and assess deep tendon reflex. Also, the abdominal palpation to detect, weeks gestation age , fetal position and account fetal heart rate for early detection of fetal distress. The program time schedule for practical part was applied At the end of this phase, practice for pregnancy induced hypertension were assessed using observation checklist. Phase V (follow-up evaluation): Three months after phase IV, the researcher evaluated the effect of the educational program on nurse's knowledge and practice about pregnancy induced hypertension and experimental group (mothers). Using the same tools previously used in pre and post test assessment.

5.7.Ethical consideration: An official authorization was gotten from the chiefs of the particular clinic through authority formal letters from the senior member of the workforce of nursing Port said University. Members were consoled about the strict secrecy of any got data. The points of this study were disclosed to the executives and medical caretakers and ladies (subjects) of Port Said healing centers to take their consent to direct this study. Likewise, the study was disclosed to the study subjects.

5.8. Statistical analysis: Data passage and measurable investigation were done utilizing SPSS 14.0 factual programming bundle. Information were introduced utilizing graphic measurements as a part of the type of frequencies and rates for subjective variables, and means and standard deviations for quantitative variables. Quantitative persistent information were thought about the non-parametric Mann-Whitney and Kruskal-Wallis tests were for examinations between two gatherings and more than two gatherings, individually as typical appropriation of the information couldn't be accepted. All out variables were thought about utilizing chi-square test. At whatever point the normal qualities in one or a greater amount of the cells in a 2x2 tables was under 5, Fisher definite test was utilized. In bigger than 2x2 cross-tables, no test could be connected at whatever point the normal worth in 10% or a greater amount of the cells was under 5. Pearson connection investigation was utilized for evaluation of the between connections among quantitative variables, and Spearman rank relationship for positioned ones. To evaluate the relationship between scores of , aptitudes and practice as needy elements, from one viewpoint, and different quantitative variables, as free elements, then again, numerous stepwise in reverse relapse investigation was utilized, and examination of change for the full relapse models were finished. Measurable criticalness was considered at p-value <0.05.

III. Results

Table (1) : demonstrates the nurses' socio-demographic and occupation qualities. As respect age, half of the studied subjects (half) were in the age bunch going between 20 to under 30 years, while those matured 50 or more constituted 6.7% of the subjects. Concerning their instructive level most of the of the nurses (86.7%) had nursing recognition and did not have Certificate of specialization (93.3%). Concerning background in nursing, the mean years of involvement in nursing of the attendants were around 10.8±9.3.Table (2): shows the satisfactory of nursing care performance for pregnant women suffering from preeclampsia throughout the study phases. It shows a statistically significant improvement between adequate performance of nursing care for pregnant women suffering from preeclampsia throughout the study phases except read the mother record, insert indwelling catheter as prescribed, administer the prescribed medication and collect samples and sent to lab. All nurses did not perform this care in different timings of the study.

Table (3): shows the nursing care during labor and postpartum for pregnant women suffering from preeclampsia throughout the study phases. It shows a statistical significant improvement between the adequate performance of nursing care for pregnant women throughout the study phases, except in the assessment and care of newborn. All nurses did not perform this care in different timings of the study.

Table (4) demonstrates the Socio-demographic attributes of the control and study bunches. Regarding age about the highest percent (60.0%) of the study subjects in the control group had their age from 30 years to more than 40 years. While more than two thirds (70%) of the subjects in the study group had age below 30 years. However , there was statistically significantly different between the both group (P< 0.037).

Regarding the level of education, about the half of mothers in the both groups had Diploma levels of education. And more than half of the study mothers were house wife, the family income 50.0% had 2000 EP and more the mothers in the control group, while about 50.0% had less than 2000EP, Regarding the number of family members the highest percent of the study mothers (60.0%0) in the control group had less than 4 number of family members compared to 90% of the study group there were no statistically significantly difference between both groups regarding the level of education, job status, monthly family income and numbers of family members.

Table (5) The characteristics of the obstetric history of the control and study mothers. The number of pregnancies in the two groups control and study, with about half of the mothers' primgravida.50% of the mothers nullipara related to the number of delivery. there was no measurably huge distinction between the two gatherings in regards to quantities of pregnancy and conveyance.

As regards the duration of the current pregnancy, the mean score of subjects of the control group before applying the program 32.9±3.6, compared to 36.5±1.3 of the study group after applying for the program. However, the mean score of the duration of the current pregnancy was statistically significant differences between the two groups.

Table 6 shows the results of examination of the control and study groups of mothers. As regards the blood pressure the mean score 154.1±7.1 of systolic blood pressure (mmHg) of the mothers in the control group, compared with 148.3±7.2 of the mothers in the study group. Was statistically significantly different between the two groups (P<0.015).

As regards the degrees of edema the half of mothers in the control group had +2 degree of edema, compared with 70.0% of the mothers in the study group. There was not statistically significantly different between the two groups. According to the abdominal examination, the mean score of the duration of pregnancy to the mothers in the control group 32.9±3.6, compared with 36.5±1.3 to the mothers in the study group. Was statistically significantly different between the two groups (P<0.001). Regarding the fetal heart beats 60.0% the heart beats of fetus in the control group from 160 to more than 190 beats / min, while , more than half 55.0% the heart beats of fetus in the study group from 130 to less than 160 beats / min, There was a statistically significantly difference between the two groups (P<0.014). According to the current complication, the highest percent 75.0% of the mothers in the control group suffering from complication, the half of them complains from hemorrhage. Compared with 30.0% of the mothers in the study group suffering from complication there was statistically significantly different between the two groups (P<0.0001). According to post partum complication, the highest percent 70.0% of the mothers in the control group are suffering from complication more than two third of them complains from vaginal hemorrhage. Compared with 25.0% of the mothers in the study group suffering from complication. There was statistically significantly different between the two groups (P<0.0001).

Table 7 shows the characteristics of the newborn baby of the control and study groups of mothers. A statistically significant babies are lives were observed among mothers in the study group (100.0%), compared to mothers in the control group (95.5%), as seen in the table. The higher percentages of newborn of mothers in the control group were suffering from respiratory distress (68.2%), compared to (27.3%) newborn of mothers in the study group. Meanwhile, higher percentages (68.2%) preterm baby of mothers in the control group, Compared to (13.6%) preterm baby of mothers in the study group.

As regards the Apgar score 45.5%, 72.7% at the first and fifth minute the score from 7 to 10, respectively, for the newborn of mothers in the study group, compared to 18.2%, 36.4% at the first and fifth minute the score from 7 to 10, respectively, for the newborn of mothers in the control group, there was statistically significantly different between the two groups (P<0.0001).

Table (1): Distribution of the nurses as per their Socio-demographic qualities (n=30).

Socio-demographic characteristics	**No.**	**%**
Age (years)		
Less than 20	3	10.0
20-	15	50.0
30-	5	16.7
40-	5	16.7
More than 50	2	6.7
Range	18-55	
Mean±SD	30.6±10.3	
Educational level		
Nursing diploma	26	86.7
Technical of nursing	2	6.7
Faculty of nursing	2	6.7
Certificate of specialization		
Yes	28	93.3
No	2	6.7
Duration of experience		
Less than 10	17	56.7
10-	5	16.7
20-	6	20.0
More than 30	2	6.7
Range	1-31	
Mean±SD	10.8±9.3	

Table (2): Nurses' performance for pregnant women suffering from preeclampsia throughout the study phases.

Nursing care performance of pre-eclampsia	Time						Chi-Square test (X^2)	P value
	Pre (n=30)		Post (n=30)		FU (n=30)			
	No	%	No	%	No	%		
Greeting the mother.	23	76.7	26	86.7	26	86.7	Fisher	^{FE}P=1.0
Read the mother record.	30	100.0	30	100.0	30	100.0	-NA-	-NA-
Place the mother in the on bed in her side.	15	50.0	15	50.0	15	50.0	-NA-	-NA-
Assist doctor during local physical examination	22	73.3	30	100.0	25	83.3	7.94	0.005*
Monitor Vital signs as prescribed	27	90.0	30	100.0	30	100.0	Fisher	^{FE}P=0.237
Assess degree of edema.	0	0.0	30	100.0	18	60.0	60.0	(0.0001)*
Start IV infusion as prescribed	30	100.0	30	100.0	30	100.0	-NA-	-NA-
Monitor IV fluid closely.	2	6.7	21	70.0	21	70.0	25.45	(0.0001)*
Perform urine analysis for protein as prescribed	22	73.3	30	100.0	25	83.3	7.94	0.005*
Insert indwelling catheter as prescribed	30	100.0	30	100.0	30	100.0	-NA-	-NA-
Measure and Record fluid intake and output.	13	43.3	30	100.0	20	66.7	23.72	(0.0001)*
Measure woman weight daily.	0	0.0	30	100.0	18	60.0	60.0	(0.0001)*
Administer the prescribed medication	30	100.0	30	100.0	30	100.0	-NA-	-NA-
Report woman's response to therapy.	1	3.3	23	76.7	21	70.0	33.61	(0.0001)*
Assess deep tendon reflexes every shift.	0	0.0	27	90.0	21	70.0	49.09	(0.0001)*
Not left the woman to go toilet alone.	0	0.0	13	43.3	13	43.3	16.6	(0.0001)*
Collect samples and sent to lab	30	100.0	30	100.0	30	100.0	-NA-	-NA-
Observe signs of immediate seizure	3	10.0	24	80.0	24	80.0	29.7	(0.0001)*
Monitor any dangerous signs	7	23.3	30	100.0	17	56.7	37.3	(0.0001)*
Monitoring uterine and fetal status as prescribed	28	93.3	30	100.0	27	90.0	Fisher	^{FE}P=0.492 *
Explain any procedures to the woman	13	43.3	21	70.0	15	50.0	4.34	(0.037)*
Assess signs of labor.	18	60.0	30	100.0	20	66.7	15.0	(0.0001)*
Perform a nursing care plan using nursing process.	0	0.0	8	26.7	4	13.3	Fisher	^{FE}P=0.005 *

Table (3);Nursing care during labor and postpartum period for pregnant women suffering from preeclampsia throughout the study phases.

Nursing Care Performance during Labor and Postpartum	Time						Chi-Square test	P value
	Pre (n=30)		Post (n=30)		FU (n=30)			
	No	%	No	%	No	%		
Monitor the blood pressure	22	73.3	30	100.0	29	96.7	Fisher	^{FE}P=0.005*
Check for edema	0	0.0	29	96.7	23	76.7	56.13	(0.0001)*
Detect protein urea levels	1	3.3	21	70.0	21	70.0	28.71	(0.0001)*
Prepare equipment and intravenous lines	28	93.3	30	100.0	30	100.0	Fisher	^{FE}P=0.492*
Label bottles	19	63.3	21	70.0	21	70.0	0.3	(0.584)*
During labor								
Note signs of progress labor	22	73.3	28	93.3	28	93.3	4.32	(0.038)*
Put wedge under right buttock in lithotomy position or C.S.	6	20.0	23	76.7	23	76.7	19.29	(0.0001)*
Administer O2 during labor to the patient	19	63.3	26	86.7	26	86.7	3.35	(0.007)*
Assessment and care of Newborn.	0	0.0	0	0.0	0	0.0	-NA-	-NA-
Postpartum								
Observe the amount of vaginal bleeding	23	76.7	28	93.3	28	93.3	Fisher	^{FE}P=0.146
Palpate the uterus and massaged when needed	13	43.3	22	73.3	20	66.7	5.55	(0.018)*
Check B.P. and pulse every 4 hour for 48 hours	22	73.3	28	93.3	26	86.7	3.32	(0.028)*
Instruct the woman to report headache or visual disturbances	28	93.3	30	100.0	30	100.0	Fisher	^{FE}P=0.492*
Record intake and out put for 48 hours	29	96.7	30	100.0	30	100.0	Fisher	^{FE}P=1.0

X^2: Chi-Square test ^{FE}P: Fisher's Exact test *significant at P≤0.05 -NA-: Not applicable

Table (4): Socio-demographic qualities of the control and study groups of mothers.

Personal characteristics	Control Group (n=20)		Study Group (n=20)		Significance
	No.	%	No.	%	
Age (years)					t=2.167
Less than 20	2	10.0	1	5.0	P=0.037*
20-	6	30.0	14	70.0	
30-<40	12	60.0	5	25.0	
Range	19-38		17-38		
Mean±SD	30.6±6.9		26.2±5.9		
Educational level					^{MC}P=0.784
Read and write	1	5.0	1	5.0	
Primary	4	20.0	2	10.0	
Preparatory	2	10.0	3	15.0	
Diploma	10	50.0	10	50.0	
University	3	15.0	4	20.0	
Employment					X^2=0.175
House wife	12	60.0	11	55.0	P=0.676
Employed	8	40.0	9	45.0	
Family monthly income (LE)					t=0.64
Less than 1000	2	10.0	2	10.0	P=0.526
1000-	8	40.0	10	50.0	
2000-<3000	10	50.0	8	40.0	
Range	750-2500		500-2500		
Mean±SD	1755.9±513.5		1647.8±537.6		

All are live in urban areas. t: t-test Z: Mann Whitney test

^{MC}P: Monte Carlo test X^2: Chi-Square test *significant at P≤0.05

Table (5): Obstetric history of the of the control and study groups of mothers.

Obstetric History	Control Group (n=20)		Study Group (n=20)		Test	P value
	No	%	No	%		
Number of pregnancies:					Z=1.213	0.225
1	10	50.0	10	50.0		
2-3	6	30.0	10	50.0		
4	4	20.0	0	0.0		
Range	1-4		1-3			
Mean±SD	2.2±1.3		1.6±0.7			
Number of deliveries:					Z=1.169	0.242
Prime	10	50.0	10	50.0		
1-2	6	30.0	10	50.0		
3	4	20.0	0	0.0		
Mean±SD	1.1±1.2		0.6±0.7			
Duration of current pregnancy (weeks): Mean±SD	32.9±3.6		36.5±1.3		t=3.94	0.001*

t: t-test Z: Mann Whitney test *significant at P≤0.05

Table (6): Results of examination of the control and study groups of mothers.

Results of Examination	Control Group (n=20)		Study Group (n=20)		Significance
Systolic blood pressure (mmHg)					t=2.561 P=0.015*
Range	140-160		140-150		
Mean±SD	154.1±7.1		148.3±7.2		
Diastolic blood pressure (mmHg)					t=1.665 P=0.104
Range	90-110		90-110		
Mean±SD	99.2±5.5		99.2±5.5		
General condition	No.	%	No.	%	
Degrees of edema					^{MC}P=0.064
+1	0	0.0	2	10.0	
+2	10	50.0	14	70.0	
+3	7	35.0	4	20.0	
+4	3	15.0	0	0.0	
Abdominal examination					
Duration of pregnancy (gestational weeks)					t=3.94 P=0.001*
Range	24-37		33-38		
Mean±SD	32.9±3.6		36.5±1.3		
Fetal heart beats (beats/min)	3	15.0	4		^{MC}P=0.014*
100-	5	25.0	11	20.0	
130-	12	60.0	5	55.0	
160-<190				25.0	
Current complications No	5	25.0	14	60.0	X^2=15.14 P<0.0001*
Yes #	15	75.0	6	30.0	
Intra uterine fetal growth retardation	8	40.0	1	5.0	
Eclampsia	2	10.0	0	0.0	
Hemorrhage	10	50.0	5	25.0	
No	5	25.0	14	60.0	
Postpartum complications					X^2=14.4 P=0.0001*
No	6	30.0	15	75.0	
Yes #	14	70.0	5	25.0	
Vaginal hemorrhage	9	64.4	3	60.0	
Convulsions	1	7.1	0	0.0	
Bleeding disorder	7	50.0	2	40.0	

t: t-test Z: Mann Whitney test ^{MC}P: Monte Carlo test *significant at P≤0.05

Table (7): Characteristics of the newborn baby of the control and study groups of mothers.

Characteristics of Newborn Baby	Control Group (n=20)		Study Group (n=20)		Significance
	No.	%	No.	%	
Fate of pregnancy					^{Y}P=0.1*
Live	21	95.5	22	100.0	
Stillbirth	1	4.5	0	0.0	
Respiratory distress					X^2=13.065
No	8	36.4	16	72.7	P<0.0001*
Yes	14	63.6	6	27.3	
Preterm labor					X^2=15.13
Pre-term	15	68.2	3	13.6	P<0.0001*
Full-term	7	31.8	19	86.4	
Apgar score at 1st minute					t=4.536
0-3	7	31.8	3	13.6	p<0.0001*
4-6	11	50.0	9	40.9	
7-10	4	18.2	10	45.5	
Range	2-7		3-8		
Mean±SD	4.1±1.2		5.9±1.4		
Apgar score at 5th minute					t=4.604
0-3	1	4.5	0	0.0	p<0.0001*
4-6	13	59.1	6	27.3	
7=10	8	36.4	16	72.7	
Range	0-9		5-10		
Mean±SD	5.6±1.9		7.9±1.4		
Need resuscitation	8	36.4	3	13.6	t=1.742 P=0.009
Need incubator	14	63.6	6	27.3	X^2=13.065 P<0.0001*

^ Number is more than that of mothers as 2 babies from each group had twins
X2: Chi-Square test t: t-test Z: Mann Whitney test
YP: Yates corrected Chi-Square test
*significant at P≤0.05

IV. Discussion

Nurses have an important and effective role in the prevention of complication of PIH, assistance in early detection and appropriate management of these disorders to minimize the adverse effects in both mother & infant through attending the antenatal clinic periodically during pregnancy. Furthermore, collaborative efforts from all members of the health team as well as appropriate self care practices of women with PIH is required. The nurse should be knowledgeable and highly skillful in providing nursing care according to women's needs and problems to save their lives. Therefore, this study was undertaken to provide nurses, as healthcare providers, with the skills necessary to provide care to the women with PIH.[15-18]

Regarding nurses' performance about nursing care for hypertensive pregnant w omen. The present study uncovered that dominant part of nurses had an unacceptable and lacking routine of the tend to pre-eclampsia before program implementation; while after the program most of them provide satisfactory nursing care for women with PIH. This is probably due to the fact that the most of nurses had deficit basic knowledge about nursing care for women with PIH. This may lead to the inability of the nurses to provide satisfactory nursing care. These results are in the same line with **Tawfek (2002)** who reported that the vast majority of nurses did not perform nursing management for women with hypertension disorder with pregnancy (HDP) before the training program.[19]

Novak 1999, mentioned that nursing care of mild preeclampsia in hospital includes the following: Check and record vital signs (pulse, temperature, and respiration), history taken, documents risk factors and any symptoms outlined before blood pressure, and the women's weight gain should be obtained, looks for evidence of generalized edema or pitting edema. Ask woman about warning signs and symptoms. Perform urine analysis for protein as prescribed (using dipstick test). Assist doctor during physical examination and during monitoring of fetal heart rate (FHR) and refer hypertensive women to perform their laboratory studied and other investigation as order [20].

There are several Individual factors such as age, parity, education and socio-economic factors. It was found that women with lower financial elements, past preeclampsia, Also, the primgravida and nullipara ladies, are connected with high predominance of PIH. A forthcoming study led by **Bener and Saleh** uncovered that heftiness expanded the chances of creating PIH by 10 times. [21] While in our study we didn't research the components connected with PIH the ascent in weight among ladies could clarify the high pervasiveness. Different studies have likewise demonstrated that corpulence is a danger component for PIH. Subsequently if such ladies were to end up pregnant, they would be at higher danger of creating PIH. [22,23]

According to the study findings, the highest percent (60.0%) of the study subjects in the control group had their age from 30 years to more than 40 years. While about (70.0%)of the subjects in the study group had their age below 30 years, with mean ages of 30.6 and 26.2 respectively. This finding is in agreement with those of the previous studies by **Lamminpaa et al 2012** who stated that maternal age important factors and clearly for preeclampsia. Preeclampsia is very common in very young women who had poor antenatal care, with an important contribution from social class. Also, it is common in the first pregnancy (in primipara it was 13.5% compared with 7.1% in multipara) and women over the age of 30 years because of associated multiparty and differences in social class. This is supported by the finding of the present study as, about half of the studied women in both groups were primgravida and nullipara.[24] In our study, past history of PIH was connected with expanded danger of PIH in the present pregnancy. As indicated by Cande et al, the event of PIH in one pregnancy is a solid indicator of the repeat in the following pregnancy and intermittent hypertensive issue is connected with considerably higher dangers of unfavorable perinatal outcomes.[25]The mean point of this study was to test the hypothesis that women with pregnancy induced hypertension who receive nursing care after applying nursing program will have better maternal and fetal outcome during pregnancy and after delivery, compared to women with the same diagnosis who receive nursing care before applying nursing program. Accordingly, both mothers and their fetuses were assessed during pregnancy and postnatal period.

Regarding the results of examination of the mothers in study and control groups. A statistically significant improvement in blood pressure monitoring was found among mothers study group compared to those in control group ($P<0.015$). For the mothers in post program group, the main systolic and diastolic blood pressure are decreased. in this respect, Magee (2008).[26] discovered a statistically significant connection between compliance with medication and the diastolic blood pressure reading. Those who had good compliance with medication had lower diastolic blood pressure than patient with poor compliance.On the same line and in agreement with the present study finding, **Abalo 2007**[27] have reported that preeclampsia mothers who were treated at the hospital, and monitored by frequent medical and nursing care, showed more improvement in the level of blood pressure and fetal outcome. Similar results were reported by Magee 2008.[25] The author has attributed these results to mothers compliance with the health instructions which given by the nurses throughout the nursing intervention.The presence of edema is common in normal pregnancy, but generalized edema is a sign of preeclampsia. Pregnant women could be taught to recognize generalized edema as a sign needing rapid referral to a center where blood pressure and proteinuria can be measured, and treatment arranged. The present study results showed a slight decrease in the proportion of women in the study group suffering from edema (20.0%) had +3 degree of edema compared with more than one third (35.0%) of mothers in the control group. A different finding was reported by El-Said (1993) The degree of edema did not show more improvement in the nursing intervention group mothers, as no differences were noted between the edema assessments.[28]

Urinalysis to detect proteinuria is also recommended in women with pregnancy induced hypertension, as this is an important prognostic factor. A very small percentage of women who develop preeclampsia may show proteinuria before the rise in blood pressure.[29] In the present study, improvement of the main score 2.2 ± 0.5 of proteinuria was observed for the mothers in the study group, compared with 3.0 ± 0.7 to the mothers in the control group. There was a statistically significant different between the two groups ($P<0.0001$). This result is in agreement with **Conrad 2009**[30] who found a decrease in proteinuria among women in the nursing intervention group, whereas proteinuria had increased markedly among women in the control group.

Contrasted with the proposals by the World Health Organization (WHO), the cesarean area conveyance rate of 95.0%, 90.0% of the moms in the pre and post program, individually is over the suggested cut off. WHO suggests cesarean area rates between 5 % and 10 % and rates of 15 % are considered to accomplish more damage than great. Writing recommends that cesarean segment rates higher than the proposed 15 % upper edge are connected with expanded dismalness and mortality for both moms and infants. [31] A populace based review associate study led in Zhejiang area in China in 1995-2000 shows the significance of utilization of cesarean section during delivery among ladies with PIH. It was found that moderate and serious PIH early created amid pregnancy could build the danger of perinatal mortality while the cesarean could diminish the dangers in ladies with PIH. [4]Women pass on as a consequence of entanglements during and taking after pregnancy and labor. The majorities of these confusions create during pregnancy and most are preventable or treatable. Different complications may exist before pregnancy yet are compounded during pregnancy, particularly if not oversaw as a component of the lady's consideration. The significant complications as serious dying (for the most part seeping after labor, hypertension during pregnancy (pre-eclampsia and eclampsia) intricacies from labor that record for about 75% of every single maternal death. Most maternal mortality is preventable, as the human services answers for forestall inconveniences are well known. Severe hemorrhage after birth can kill healthy mothers within hours in the event that she is unattended. Infusing oxytocin instantly after labor adequately lessens the danger of bleeding [32,33]

Regarding the current maternal complications, the highest percent 75.0% of the mothers in the control group suffering from complication, half of them complain from hemorrhage. Compared with 30.0% of the

mothers in the study group are suffering from complication. There was a statistically significantly different between the two groups (P<0.0001). A similar finding was reported by El-Said (1993). Who found that the majority of the study sample in the control group suffering from bleeding during pregnancy. However, 40% of the mothers in the intervention group suffering from bleeding during pregnancy.[28]fetal outcome in the present study was statistically significant difference between women in the two study groups regarding their fetal outcome. No case of stillbirth infants was reported among women in the study group, while; only one case of stillbirth infant was reported among women in the control group. Moreover, 6 cases of respiratory distress among women in the study group, Compared to 14 cases in the control group. As regards premature infants and low birth weight. 3 cases were reported among women in the study group, compared to 15 cases in the control group. However, as regards infants growth at birth, all growth measurements for infants of pregnancy induced hypertensive women in the study group were statistically significantly better than those of infants of mothers in the control group (P<0.0001).

In concurrence with the previous discoveries of the present study, A study by **Rahman et al** uncovered that pregnancy induced hypertension was a free hazard element for low birth weight. Results from our study demonstrate that PIH was connected with delivering a low birth weight child. Considering that low birth weight is a vast major determinant of morbidity, mortality, and inability in outset and adolescence and additionally long term effect on wellbeing results in adulthood, the expanded danger because of PIH is a reason for concern. The expenses of low birth weight on the wellbeing delivery framework have likewise been archived [34] consequently avoiding and/or treating PIH turns into a need as one of the methods for decreasing the danger of low birth weight and the related results.

Tachiwenyika et al. likewise found that PIH was connected with an expanded danger of perinatal mortality. [35] Despite what might be expected, **Hauth et al.** found in their study that fetal and neonatal mortality was comparative in mothers with hypertension and those without. Be that as it may, chose maternally and infant morbidities, for example, expanded cesarean deliveries , abruptio placenta, and acute renal failure, respiratory disorder, ventilatory backing, and fetal growth development limitation were altogether more prominent in women with hypertension. [36]

All mothers need access to antenatal consideration during pregnancy, talented consideration during labor and supportive care in the weeks after labor. Maternal wellbeing and infant wellbeing are firmly connected. Around 2.6 million are stillborn. It is especially essential that all births are gone to by talented wellbeing experts, as opportune administration and treatment can have the effect amongst life and passing for both the mother and the infant

Limitations of the Study:

It was hard to gather every one of the attendants together in the meantime to go to the session of the program because of working circumstances. This was overcome by actualizing the project for attendants at a proper time for the nurses.

V. Conclusion

Taking into account the after effects of the present study, it can be concluded that:

Instructive educational program for nurses working in maternity unit showed a great impact on their performance with mothers suffering from PIH. With the perspective of the impact of the educational program on maternal and fetal and newborn health conditions, The study revealed statistically significant improvement to the mothers receiving nursing care after nursing educational program implementation, . It was particularly obvious in the lower of blood pressure, proteinuria, and prenatal and postnatal complications. Similarly, the fetal outcome was a statistically significant improvement in the mother's group receiving nursing care after nursing educational program implementation as regards newborn measurements, and prenatal and postnatal complications.

VI. Recommendations

- Encourage nurses to attend continuing education in the form of workshops, conferences, training programs and review update nursing care related to PIH to get better mothers and neonate's health.
- Standardized protocols for treatment of emergency obstetric including PIH should be developed for legal protection of nurses during their clinical practices.
- Establish library with recent scientific books and periodicals in the Arabic language.
- Future research regarding study factors affecting women with PIH self- care practices.
- Further studies related to mother's health problems that have an impact on neonate health; their growth and development should be investigated.

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