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# Effect of Clinical Practice Guidelines on The performance of Nurses Caring for Women with Eclampsia and Pre Eclampsia

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***Abstract:*** **Hypertensive disorders of pregnancy (PIH) is an important cause of severe morbidity, long term disability and death among both mothers and their babies. The aim of this study is to assess the effect of clinical practice guidelines on the performance of nurses caring for women with eclampsia and pre eclampsia. Methods, Research design: Quasi - Experimental design (Pre and posttest). The study sample consisted of 160 nurses who worked in Obestetric and Gynecology department at Menoufia University Hospital and Shebin El Koom Teaching Hospital in the period from August 2018 till January 2019. The tools of this study were structured interviewing questionnaire which included socio-demographic data, an Observational checklist for evaluating nurses' application of clinical practice guidelines. The validity of the tool was ascertained by a group of jurors experts who reviewed the tool for content validity. The reliability of the tool was assessed through testing their internal consistency. The main findings, There was a highly statistical significant difference between pre, post and follow up intervention regarding nurses' practice for clinical practice guidelines of preeclampsia and eclampsia. Conclusion, it's important to improve nurses' practice regarding the clinical practice guidelines of preeclampsia and eclampsia. Recommendation, Continuous educational program to improve nurses' practice regarding care of preeclampsia and eclampsia.**

***Keywords:*** **Preeclampsia, Eclampsia, Nurses'practice, Clinical practice guidelines.**

## 1. INTRODUCTION

Hypertensive disorders of pregnancy affect about 10% of all pregnant women around the world. In Africa and Asia, nearly one tenth of all maternal deaths are associated with hypertensive disorders of pregnancy as pre-eclampsia and eclampsia (Duley, 2009; Steegers, von Dadelszen, Duvekot, Pijnenborg, 2010).

Preeclampsia is a disorder that occurs only during pregnancy and the postpartum period. It is a rapidly progressive condition characterized by high blood pressure and the presence of albumin in the urine. Swelling, sudden weight gain, headaches and changes in vision are important symptoms; however, some women with rapidly advancing disease report few symptoms. preeclampsia occurs after20 weeks gestation (in the late 2nd or 3rd trimesters or middle to late pregnancy), though it can occur earlier (Preeclampsia foundation, 2011).

Eclampsia, which is considered a complication of severe preeclampsia, is commonly defined as new onset of grand mal seizure activity and/or unexplained coma during pregnancy or postpartum in a woman with signs or symptoms of preeclampsia (Warrington, 2015). Eclampsia affects about 1 in every 200 women with preeclampsia (Macon and Leonard,

2015). It typically occurs during or after the 20th week of gestation or in the postpartum period. About 80% of eclamptic seizures occurring intrapartum or within the first 48 hours following delivery. Rare cases have been reported before 20 weeks' gestation or as late as 23 days' postpartum (Michael, 2015).

Nursing management of pre eclampsia is Monitor for and promote the resolution of complications such as: Monitor vital signs and FHR. Minimize external stimuli. promote rest and relaxation. Measure and record urine output, protein level, and specific gravity. Assess for edema of face, arms, hands, legs, ankles, and feet. Also assess for pulmonary edema. Weigh the client daily. Assess deep tendon reflexes every 4 hours. Assess for placental separation, headache and visual disturbance, epigastric pain, and altered level of consciousness (Antipuesto, 2010).

Provide treatment as prescribed that mild preeclampsia treatment consists of bed rest in left lateral recumbent position, balanced diet with moderate to high protein and low to moderate sodium, and administration of magnesium sulfate. Severe preeclampsia treatment consists of complete bed rest, balanced diet with high protein and low to moderate sodium, administration of sulfate, fluid and electrolyte replacements. Also administration of sedative hypertensives such as diazepam or phenobarbital or an anticonvulsant such as phenytoin are necessary (Nordqvist, 2015).

Clinical practice guidelines are those guidelines that contain systematically developed statements including recommendations intended to optimize patient care and assist physicians and/or other health care practitioners and patients to make decisions about appropriate health care for specific clinical circumstances (Burgers, Grol, Klazinga and Zaat, 2013).

**Significance of the study:**

Preeclampsia and other hypertensive disorders of pregnancy remain a leading cause of maternal and infant illness and death. Globally, by conservative estimates, these disorders are responsible for 76,000 maternal and 500,000 infant deaths every year. In the United States, preeclampsia affects one in every 12 pregnancies, and its incidence has increased by 25 percent during the past two decades (Preeclampsia Foundation, 2014).

Unfortunately, there is no nursing specialist caring for women with pre eclampsia and eclampsia and also there is no special units in Menoufia governorate caring for these women. The researcher selected this study to evaluate the effect of clinical practice guidelines on the performance of nurses caring for women with eclampsia and pre eclampsia

**Aim of the Study:**

The aim of the current study is to Evaluate the effect of clinical practice guidelines on the performance of nurses caring for women with eclampsia and pre eclampsia.

**Research Hypotheses:**

1. The nurses who will receive clinical practice guidelines for caring of pre eclampsia will have high score clinical practice on performance than pretest.

2. The nurses who will receive clinical practice guidelines for caring of eclampsia will have high score clinical practice on performance than pretest

## 2. METHODS

**Research design:**

A quasi-experimental design (Pre and post test).

**Setting:**

The present study was conducted at Obstetrics and Gynecological department of Menoufia University Hospital and Shebin El-Koom Teaching Hospital. These settings were selected because of the high flow rate of pre eclampsia and Eclampsia cases who attended from different surrounding cities and villages which are near to Shebin Elkoom city. The university and teaching hospital provide free services to public clients and care for women during pregnancy and labor, as well as for infertility and gynecological problems, in addition to family planning services.

**Sampling:**

A purposive sample of all nurses working at Obstetrics and Gynecological ward and operating rooms (160 nurses). The total sample size (160) nurses were took from the above mentioned Hospitals (85 nurses was selected from Menoufia University Hospital and 75 nurses from Shebin El-Kom Teaching Hospital.)

**Instruments:**

**Instrument one:** A specialized designed self-structured questionnaire was developed based on the review of currently related literature and used by the researcher to collect the necessary data about the study subjects. It comprised Socio-demographic characteristics including: name, age, level of education, residence, phone number, occupation, years of experience and training courses attended.

**Instrument two:** Observational checklist for evaluating nurses' application of clinical practice guidelines: It was used to evaluate the nurses' application of clinical practice guidelines regarding management pre eclampsia and eclampsia and also used for follow up after 3 months. This was scored as follows: A score of one was given for each done the application of clinical practice guidelines , zero for each not done the application of clinical practice guidelines.

**Validity and reliability**

For validity purposes, the researchers conducted an extensive literature review and developed the questionnaire from the previously used instruments and reviewing pertinent studies. Instruments were designed by the researchers and validated by three experts (two lecturer in Maternal and Newborn Health Nursing and one expert has doctorate degree in Obstetric Medicine) for content accuracy and internal validity. Test-retest reliability was used to estimate reliability.

**Administrative Approvals:**

An official letter was taken from Dean, Faculty of nursing, Menoufia University and directed to Directors of the study settings. An official permission was obtained to carry out the study from the directors of the above mentioned settings. Also, the approval of the Ethical Committee of the Faculty of Nursing, Monoufia University was obtained.

**Pilot study**

A pilot study conducted to test the feasibility, applicability and understandability of the tools. It was conducted on 10%of the total sample (16 nurses) according to the selection criteria. All women participated in the pilot study excluded from the study sample to assure the stability of the results and make the necessary modifications.

**Ethical Consideration:**

An approval of the committee of the research committee in the faculty of nursing, Menoufia University was obtained on 22/12/2015. Approaches to ensuring ethics were considered in the study regarding confidentiality and informed consent. Confidentiality was achieved by the use of closed sheets with the names of the participants replaced by numbers. All participating nurses were informed that the information they provided during the study would be kept confidential and used only for statistical purpose and after finishing the study, the findings would be presented as a group data with no personal participant's information remained.

**Study field work:**

The current study was carried out on four phases:

**1) Preparatory phase:**

An extensive review related to the study area was done including electronic dissertations, available books, articles and periodicals. A review of literature to formulate knowledge base relevant to the study area was also done. A written permission from the institutional authority of the two hospitals was obtained before conducting the study. The researcher was constructed and prepared of the different data collection instruments, in addition to seeking managerial arrangement to carry out the study.

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**2) Data collection phase:**

The data were collected over a period of 6 months from beginning of August 2018 to end of January 2019. During the initial contact (1st session), the researcher greeted the nurses, introduced herself and explained the purpose of the research in order to obtain their acceptance and recruited in this research as well as to gain their cooperation. After taking verbal agreement from the nurses. they were given the instrument 1 to fulfill the data related to socio-demographic characteristics; their general knowledge about clinical practice guidelines of preeclampsia and eclampsia. This session consumed about 2hour.

**3) Implementation phase**:

During the second session a booklet containing total clinical practice guidelines of pre eclampsia and eclampsia was given to the nurses to facilitate explanation of practice they needed. The researcher explained the clinical practice guidelines regarding management of pre eclampsia and eclampsia to nurses .

At the end of the sessions, each nurse was given booklet, and trained how to deal with patients have pre eclampsia or eclampsia.

**4) Evaluation phase:**

In this phase, all nurses recruited in the study were evaluated for the level of performance in caring for women with pre eclampsia and eclampsia using clinical practice guidelines.

**During the third session:**

A posttest was done after giving booklet to assess the effect of clinical practice guidelines on nurse's knowledge and performance in caring for women with pre eclampsia and eclampsia.

**During the fourth session:**

A second posttest was done three months later to assess the effect of clinical practice guidelines on nurse's knowledge and performance in caring for women with preeclampsia and eclampsia.

**Statistical Analysis:**

**Data analysis**

Data was coded and transformed into specially designed form to be suitable for computer entry process. Data was entered and analyzed by using SPSS (Statistical Package for Social Science) statistical package version 22. Graphics were done using Excel program. Quantitative data were expressed as mean & standard deviation (X ±SD) and analyzed by applying paired t-test for comparison of the same group on pre and posttest and Anova test for comparison of the same group on pre, posttest and follow-up test. Qualitative data were expressed as number and percentage (No & %).It was and analyzed by using chi-square test ($X^2$) for 2X2 table, For comparison between the quantitative data at interval for the different groups, Kruskal Wallis Test was used and for two different groups, Mann-Whitney U Test was used. Pearson correlation was used for explaining relationship between normally distributed quantitative variable. The level of significance was set at $\leq 0.05$.

## 3. RESULTS

**Table (1): Socio - demographic Characteristics of the Study Nurses**

| Variables | The study participants (No.=160) | % |
|---|---|---|
| Marital status:<br>- Single<br>- Married | <br>60<br>100 | <br>37.5%<br>62.5% |
| Educational level:<br>- Secondary School Nursing<br>- Technical Institute of Nursing<br>- Faculty of Nursing | <br>70<br>20<br>70 | <br>43.8%<br>12.5%<br>43.8% |

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| | | |
|---|---|---|
| Years of Experience:<br>- 1- < 5 years<br>- 5-11 years<br>- More than 11 years | <br>82<br>30<br>48 | <br>51.3%<br>18.8%<br>30.0% |
| Working department:<br>- Obstetric and gynecological department<br>- Obstetric and gynecological theater room | <br>88<br><br>72 | <br>55.0%<br>45.0% |
| Attendance of training courses of preeclampsia:<br>- Yes<br>- No | <br><br>14<br>146 | <br><br>8.8%<br>91.3% |
| Did you deal with preeclampsia:<br>- Yes<br>- No | <br>106<br>54 | <br>66.3%<br>33.8% |

**Table (1):** shows the socio-demographic characteristics of the study nurses. It shows that 62.5% of the study nurses were married. Nearly 43.8% of the study nurses had bachelor degree in nursing and secondary school nursing. About 55% of the study nurses worked in the theater room of obstetrics and gynecology. Where as the majority of them (91.3%) did not attend the training courses about care of preeclampsia and eclampsia. Regarding dealing with preeclampsia (66.3%) of the study nurses dealt with cases had preeclampsia and eclampsia.

**Table (2): performance of the study nurses about Clinical Practice Guidelines regarding diagnosing Preeclampsia and Eclampsia (pre intervention, post intervention and follow up) (N=160).**

| Variables | The study nurses | | | | | | $X^2$ | P -value |
|---|---|---|---|---|---|---|---|---|
| | Pre | | Post | | Follow up | | | |
| | No. | % | No. | % | No. | % | | |
| Diagnosis of preeclampsia:<br>- Not done<br>- done | <br>70<br>90 | <br>43.8%<br>56.3% | <br>5<br>155 | <br>3.1%<br>96.9% | <br>11<br>149 | <br>6.9%<br>93.1% | <br>$\chi^2$1= 73.58<br>$\chi^2$2= 2.37 | <br>P1=.000<br>P2= 0.12 |
| Diagnosis of preeclampsia when patient had chronic hypertension:<br>- Not done<br>- done | <br>74<br>86 | <br>46.3%<br>53.8% | <br>5<br>155 | <br>3.1%<br>96.9% | <br>9<br>151 | <br>5.6%<br>94.4% | <br>$\chi^2$1=80.02<br>$\chi^2$2=1.20 | <br>P1 =.000<br>P2=0.27 |
| Diagnosis of sever preeclampsia when the following signs are present: headache, proteinuria, sever hypertension<br>- Not done<br>- done | <br>78<br>82 | <br>48.8%<br>51.3% | <br>5<br>155 | <br>3.1%<br>96.9% | <br>9<br>151 | <br>5.6%<br>94.4% | <br>$\chi^2$1= 86.69<br>$\chi^2$2= 1.20 | <br>P1=.000<br>P2=.27 |

$\chi^2$1& P1: comparison between pre intervention and post intervention.

$\chi^2$2& P2: comparison between post intervention and follow up.

**Table (2):** shows performance of the study nurses about Clinical Practice Guidelines regarding diagnosing preeclampsia and eclampsia (pre intervention, post intervention and follow up). It reflected that there was a highly statistical significant difference between pre and post intervention regarding their performance about the clinical practice guidelines of diagnosing preeclampsia and eclampsia, where ($p < 0.001$). Also, there was no statistical significant difference between post intervention and follow up, where (P value >0.05).

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**Figure (1):** Total score of Clinical Practice Guidelines Score toward Preeclampsia and Eclampsia among the Study Nurses (Pre Intervention, Post Intervention and follow up).

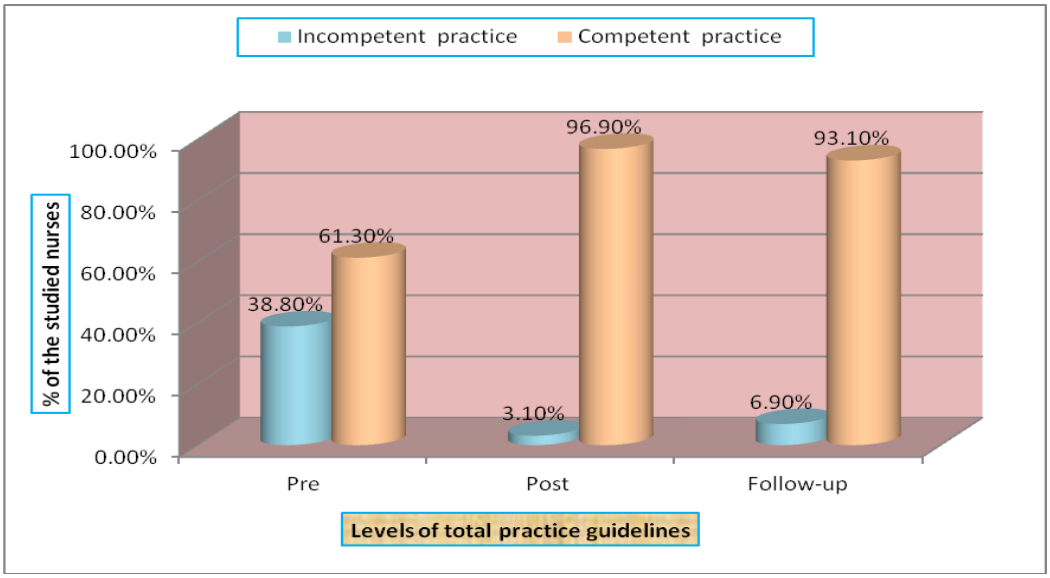


**Figure (1): Shows total score of clinical practice guidelines toward preeclampsia and eclampsia among the study nurses(pre intervention, post intervention and follow up). It illustrates that there was 96.9% of the study nurses had a competent practice during post intervention and 93.10% of the study nurses had a competent practice during the follow up phase.**

**Table (3): Total Mean Scores of the Total Clinical Practice toward Preeclampsia and Eclampsia among the Study Nurses (pre intervention, post intervention and follow up).**

| Practice score | Mean scores of practice among the study nurses' pre, post and follow up intervention | | | ANOVA test | p-value |
|---|---|---|---|---|---|
| | Pre | Post | Follow up | | |
| Total practice score<br>Mean ± SD | 59.87 ±11.4 | 69.63 ±5.6 | 69.19 ± 5.1 | 78.167 | <.001 |

**Table (3):** Shows the mean scores of total clinical practice toward preeclampsia and eclampsia among the study nurses (pre intervention, post intervention and follow up). It reveals that there was a highly statistical significant difference between pre intervention, post intervention and follow up regarding the nurses' total clinical practice toward preeclampsia and eclampsia, where (p value <0.001).

**Table (4): Mean scores of total practice guidelines and knowledge about guidelines of the studied nurses on pre, post and follow-up intervention in relation to their level of education.**

| level of education | Nursing school | Technical institute | Bachelor of nursing | Kruskal Wallis Test | *p-value* |
|---|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | Mean ± SD | | |
| Total practice about guidelines<br>Pre<br>Post<br>Follow-up | <br>57.62 ± 5.8<br>66.50 ±3.5<br>68.90 ±7.5 | <br>50.00 ±6.2<br>69.44 ±6.5<br>69.40 ± 1.5 | <br>64.94 ±8.2<br>70.71 ±4.5<br>69.50 ± 1.8 | <br>14.54<br>9.67<br>6. 18 | <br>.000<br>.009<br>.059 |
| Total knowledge about guidelines<br>Pre<br>Post<br>Follow-up | <br>50.00 ±5.2<br>65.90 ±6.5<br>64.50 ±4.5 | <br>55.62 ± 6.8<br>67.44 ±4.5<br>66.40 ± 2.5 | <br>58.94 ±8.2<br>68.71 ±5.5<br>68.50 ± 3.4 | <br>14.54<br>7.67<br>8. 38 | <br>.000<br>.019<br>.009 |

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**Table (4):** Shows the mean scores of total knowledge and total practice of clinical practice guidelines of the study nurses in relation to their level of education (pre intervention, post intervention and follow up). It reveals that there was a highly statistical significant difference regarding total knowledge and total practice of clinical practice guidelines of the study nurses in relation to their level of education pre intervention, where ( P value <0.001). As the nurses who had faculty of nursing had increased the mean scores of total knowledge than those who had secondary school of nursing or technical institute of nursing. There was no statistical significant difference regarding total knowledge score in relation to their level of education post intervention, where ( P value >0.05).

There was a statistical significant difference regarding total practice guidelines in relation to their level of education post intervention, where (P value <0.05). There was no statistical significant difference regarding total practice guidelines in relation to their level of education follow up, where(P value >0.05)

**Table (5): Mean scores of total practice guidelines and knowledge about guidelines of the studied nurses on pre, post and follow-up intervention in relation to their working department.**

| working department | obstetric and gynecological ward | obestetric and gynecological operation room | Mann-whitney Test | *p-value* |
|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | | |
| Total practice about guidelines | | | | |
| Pre | 53.78 ±2.3 | 64.86 ±7.7 | -6.223- | .000 |
| Post | 67.77 ±7.8 | 71.14 ± 1.2 | -1.135- | .256 |
| Follow-up | 69.91 ±1.8 | 68.60 ±6.5 | -.103- | .918 |
| Total knowledge about guidelines | | | | |
| Pre | 48.56 ±3.3 | 54.25 ±5.6 | -7.323- | .000 |
| Post | 67.77 ±6.8 | 69.54 ± 2.2 | -0.189- | .163 |
| Follow-up | 65.91 ±1.8 | 68.60 ±6.5 | -.243- | .982 |

**Table (5):** Shows Mean scores of total practice guidelines and knowledge about guidelines of the studied nurses on pre, post and follow-up intervention in relation to their working department. It reveals that there was no statistical significant difference between pre intervention, post intervention and follow up regarding the nurses' knowledge and performance about clinical practice guidelines toward care of women with preeclampsia and eclampsia in relation to their working department, where ( P value >0.05). But there was a highly statistical significance difference regarding total practice guidelines in relation to their working department pre intervention, where (p value <0.001).

**Table (6): Mean scores of practice guidelines and knowledge about guidelines of the studied nurses on pre, post and follow-up intervention in relation to their years of experience**

| years of experience | 1-5 years | 5-11 years | more than 11 years | Kruskal Wallis Test | *p-value* |
|---|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | Mean ± SD | | |
| Total practice about guidelines | | | | | |
| Pre | 51.97 ±9.8 | 62.73 ±5.3 | 71.58 ±0.82 | 114.33 | .000 |
| Post | 67.89 ±7.3 | 71.00 ±0.83 | 71.75 ±0.84 | 5.362 | 0.057 |
| Follow-up | 69.09 ±1.4 | 70.33 ±1.3 | 68.64 ±1.9 | 4.012 | 0.065 |
| Total knowledge about guidelines | | | | | |
| Pre | 50.00 ±5.2 | 52.62 ± 6.8 | 58.94 ±8.2 | 14.54 | .000 |
| Post | 66.90 ±6.5 | 67.44 ±4.5 | 67.71 ±5.5 | 4.67 | 0.069 |
| Follow-up | 64.50 ±4.5 | 66.40 ± 2.5 | 68.50 ± 3.4 | 8. 38 | 0.009 |

**Table (6):** shows the Mean scores of practice guidelines and knowledge about guidelines of the studied nurses on pre, post and follow-up intervention in relation to their years of experience. It reveals that there was a highly statistical significant difference between total knowledge and practice of clinical practice guidelines in relation to their years of experience pre intervention, where (p value <0.001). Also, there was no statistical significant difference of total knowledge score pre intervention, post intervention and follow up of total practice score in relation to their years of experience, where ( P value >0.05).

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**Table (7): Pearson Correlation between total knowledge, total practice and knowledge about guidelines**

| Items | Total knowledge score | |
|---|---|---|
| | *r* | *P -value* |
| Total practice guidelines score | 0.506 | .000 |
| Total knowledge about guidelines score | 0.469 | .000 |

**Table (7):** Shows positive correlation between total knowledge score and total practice guidelines score. This means that there was a highly statistical significance difference between total knowledge score and total practice guidelines score

## 4. DISCUSSION

Based on the findings of the present study; the discussion is presented in the following sequence: 1- General findings included socio-demographic characteristics, level of education and training courses attendance by the nurses. 2-Findings that are related to the study nurses' performance of clinical practice guidelines for preeclampsia and eclampsia. 3-Findings that are related to applying the clinical practice guidelines for preeclampsia and eclampsia among the study nurses after 3 months follow up.

The present study was carried out on a purposive sample of all nurses (160 nurses). The percentage of nursing school graduates was the same as Bachelor graduate nurses and was less than half of the study participants while the lowest percent (an eighth) had technical institute of nursing. This finding might be because of nurses' choice to their level of education. This result comes in contrast with the study of Chowdhury, Khatun, Mohammad, (2017) who had studied nurse's knowledge regarding management of eclampsia at selected private hospital in Bangladesh and stated that more than half of the study participants had bachelor in nursing and less than one third had diplome.

Concerning years of experience of the study nurses, more than half of the nurses experienced less than five years. This was come in agreement with the study findings of Siddig, (2017) who had studied Nurse's knowledge and Practice Regarding Care of Pre eclamptic Patient in Alribat Hospital Khartoum and found that more than half of the study nurses had less than 5 years of experience. This finding may be interpreted as the nurses were promoted to another high job.

Regarding attendance of the training courses, the present study showed that there was only an eighth of the study nurses attended training courses about preeclampsia and eclampsia which is in the same line with Mohamady and Elkheshen, (2017) who conducted a study at Helwan general hospital, Egypt about Efficacy of Self Instructional Guide on Knowledge and Practices Regarding Care of Pre-Eclampsia Women among Staff Nurses and stated that the majority of nurses not received training courses. This is rationalized to the lack of training courses related to preeclampsia and eclampsia.

This study showed that more than half of the study nurses dealt with the patients with preeclampsia and eclampsia which is in consistent with Mousa, Ali, and El Adawy, (2013) who studied Updating Nurses' knowledge about Preeclamptic Patients' Care by Using a Poster in Minia Maternal and Child University Hospital, Egypt who reported that the majority of nurses deal with preeclamptic patients. This is because the high flow rate of preeclampsia and eclampsia at these hospitals.

The present study findings revealed that there was statistical significant difference between the studied nurses regarding nurses diagnosis of preeclampsia and eclampsia in the post intervention and follow up than before which is in harmony with the study of El Bahy, Mohamed, Salam, and Nasr, (2013) who conducted a study at Port Said hospital, Egypt to investigate the Effect of Educational Program for Nurses about Pregnancy Induced Hypertension on their Knowledge in Port Said Hospitals and reported that there was statistical significant difference between the nurses about nurses diagnosis of pregnancy induced hypertension in the post intervention and follow up than before. This is interpreted to the good nurses' assessment of the patients post intervention than before.

Regarding the clinical practice guidelines towards preeclampsia which increased among the studied nurses in the post intervention and follow up phase than before. This is interpreted to the effective program given to nurses. This come in agreement with Farrag, Ibrahim and Abd Elati who studied the impact of an educational program about pregnancy

induced hypertension for maternity nurses on their performance and pregnancy outcomes for mothers and neonates at Portsaid University, Egypt (2016). Who reported that there was statistical significant difference among the studied nurses in the post intervention and follow up phase than before regarding care of patients with pregnancy induced hypertension.

Concerning the clinical practice guidelines of the study nurses regarding care of eclampsia, there was a highly statistical significant difference between the studied nurses in pre and posttest. This come in harmony with the study of Saber and Emam (2018) who studied the effect of nursing program on improving nurses' knowledge and skills regarding care of eclamptic women at Beni – Suef, Egypt, who stated that the nurses' care about eclampsia improved in posttest than before. This is interpreted to interest of nurses to apply the clinical practice guidelines about eclampsia.

Regarding the clinical practice guidelines towards preeclampsia and eclampsia after delivery which increased among the studied nurses in the post intervention and follow up phase than before. This is interpreted to the effective program given to nurses. This come in agreement with Farrag, Ibrahim and Abd Elati who studied the impact of an educational program about pregnancy induced hypertension for maternity nurses on their performance and pregnancy outcomes for mothers and neonates at Portsaid University, Egypt (2016). Who reported that there was statistical significant difference among the studied nurses in the post intervention and follow up phase than before regarding care of patients with pregnancy induced hypertension after delivery.

In relation to level of education, the present study findings revealed that the mean score of total knowledge and practice of the studied nurses who had bachelor in nursing increased than nurses who had nursing school. This is interpreted that the more the nurses are educated the more their level promoted. This comes in constant with the study of Elmenshawy, khidr and Hassan (2016) who investigate evidence based nursing practice in preeclmpsia among pregnant women at Mansoura University, Egypt and reported that the mean of knowledge increase with nurses who had bachelor than who had nursing school.

In relation to years of experience, the present study findings revealed that the mean score of total knowledge and practice guidelines of the studied nurses increased in relation to their years of experience. This is in constant with the study of Abd Alhafez, Ahmed and Mohamed (2018) who study the effect of international need teaching program for maternity nurses on improving their knowledge about preeclampsia management at Assuit university hospital and El Eman general hospital, Assuit, Egypt. And also was supported by El Bahy, Mohamed, Salam and Nasr (2013) who study the effect of educational program for nurses about pregnancy induced hypertension on their knowledge in Port Said hospitals. Both studies indicated that there was a significance association between nurses' level of knowledge and years of experience. This result because that nurses who work for long time had more skills and updated faster than others.

This study finding revealed that when the level of the knowledge increased the practice's level increased also. This is in harmony with the study of Mohamady and Elkheshen, (2017) who conducted a study at Helwan general hospital, Egypt about Efficacy of Self Instructional Guide on Knowledge and Practices Regarding Care of Pre-Eclampsia Women among Staff Nurses and reported that the practice of knowledge improved in relation to their knowledge. This is interpreted to that the more the nurses are aware of the intervention the more they apply it.

## 5. CONCLUSION

According to the finding of the present study, it can be concluded that there was a highly statistical significant difference after intervention than before regarding nurses' performance about clinical practice guidelines of preeclampsia and eclampsia. This supported the study hypotheses.

In addition, the quality of care for pregnant women during pregnancy, including a sound of knowledge base, the present study concluded that it is important to improve nurses' knowledge and practice regarding the clinical practice guidelines for preeclampsia and eclampsia.

## 6. RECOMMENDATIONS

Based on the findings of the present study, the following recommendations are suggested:

1. Continuous educational program to improve nurses' knowledge and practice regarding care of preeclampsia and eclampsia.

2. Provide clinical practice guidelines for nurses to avoid more complications during pregnancy to improve maternal and fetus outcomes.

3. Further recommendations:

- Prepare special unit for preeclamptic and eclamptic women with its trained nurses.

4. Future studies:

To assess nurses knowledge and practice regarding clinical practice guidelines for preeclampsia and eclampsia at other settings and on a large sample.

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