

## Postnatal Evidence Based Nursing Practice: Effect of an Educational Guideline on Internship Student's Knowledge and Skills

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### Abstract

**Background:** Postpartum period is a serious period that needs special health care for both mother and baby. The study aimed to evaluate the effect of the educational guideline program on internship nursing students' knowledge and skills regarding postnatal evidence-based-nursing-practice in the postnatal unit. **Design:** Quasi-experimental (pre and post-test) design. **Setting:** The study was conducted at the postnatal unit affiliated to the obstetric department in maternity hospital in port-Said city. **Sample:** A convenient sample of 84 internship students. **Tools of data collection:** four tools were used to collect the necessary data: (1) Interview questionnaire for students' characteristics; (2) An observational checklist; (3) Reeda scale; (4) Visual analog scale. **Results:** There was a highly statistically significant difference between the total score of knowledge, and practice among internship students pre and post-test ( $p < 0.001$ ). **Conclusion:** A statistical improvement in students' knowledge and practice after implementation of the educational program intervention. **Recommendation:** Developing continuous educational programs and workshops should be planned regularly for the internship nursing students receiving training in postnatal unit to enhance their skills regarding Evidence-Based-Nursing-Practice.

**Keywords:** Enhancement, Postnatal, Evidence-Based-Nursing-Practices, Guideline, Internship Students.

### Introduction

The postnatal period is an important time needed to increase health care for both mother and baby. It starts immediately after delivery of the baby, the birth of placenta and the membranes then continues for 6 weeks (Ricci & Kyle, 2009). Also it's a critical time transitional a woman from birth to the return of the uterus and other organs to pre-pregnant state (Leifer, 2018). An arbitrary time frame divides into the immediate postpartum; first 24 hours, early postpartum; first week, and late postpartum; second to the sixth week (Frag & Hassan, 2019, Karttunen et al., 2020).

During the postnatal period, serious complications will be developed; if not diagnosed promptly and treated effectively can lead to an increase the incidence of morbidity and death to both mother and neonate (Ministry of health and population, 2014). About two-thirds of maternal deaths around the world occur during the postpartum period. So, the

world health organization recommended that concentrated health care during the first immediately 6 hours after delivery, then 6 days, 6 weeks and 6 months post-delivery is necessary to ensure women's physical and mental health and well-being (Ronsmans & Graham, 2016).

During this period a mother's risk of postpartum hemorrhages, hence immediately and frequently assessment a blood pressure and vital signs every 15 minutes along with a determination of fundal height and amount of lochia are recommended by the nurse (ACOG, 2018). So that it is recommended that the nurse should be continued bedside the mothers' attendance during this two-hour period for caring of both mother and baby (after the critical elements are met); she should have no other responsibilities. To promote safe care, new mothers and their babies require frequent assessment and careful monitoring during the first two-hours after birth as per-national

standards and guidelines (ACOG, 2020, Kathleen, 2015).

Evidence-based-clinical-practice guidelines are the process made by nurses to take the clinical decisions using the best available research evidence, clinical expertise, and patient preferences (Hassan, 2020). It depends on the use of research findings, other operational and evaluation data, the consensus of recognized experts, and affirmed experiences to substantiate clinical practice (Fernandez, 2012). Also, specific practice recommendations are derived from a methodologically rigorous review of the best evidence on a specific topic and grouped. Moreover, guideline success depends on continuous updating and implementation by healthcare providers (Hassan 2019, Shokry & Saleh, 2019).

Evidence-Based-Practice (EBP) enables nursing care guides to be more effective and efficient, more individualized, and to increase effects of the clinical judgment. Implementing educational practice guidelines has been designed for nursing students to improve EBP attitudes, skills, and knowledge (Hassan, 2020). So, infusion of the knowledge and skills related to evidence-based-practice through an educational guideline is required to promote high-quality mothers' care and improve clinical practice. Evidence-Based-Practice contributes to the widening of critical thinking among nursing students through the combination of best evidence, patient values, and preferences and clinical experience (El-Edessy et al., 2014).

An internship year begins at the fifth year of the bachelor of nursing program under the supervision of staff from the faculty of nursing (Ghada & Huda, 2016, Hassan et al., 2017). The internship year aims at providing students with the nursing knowledge and skills and the experience necessary to qualify them as highly competent nursing specialists. The period of training in obstetrics and gynecology is two months (Lamadah & El nagger, 2018). Community and maternity nurses play an essential role in educating the mothers, promoting and improving postpartum health outcomes. They need to have the appropriate knowledge and skills regarding an evidence-based-nursing-practice (Frag & Hassan, 2019, Mckinney, 2018).

### **Significant of the study:**

The postpartum period is critical in woman's life in which some risks increase morbidity and mortality rates for both mothers and their babies. Post-partum hemorrhage (PPH) is the most common cause of maternal deaths worldwide & could be prevented with early recognition and more appropriate and adequate management (United Nations millennium development goals report). Each year, PPH is diagnosed in 14 million women 140.000 die and 1.6 million will become anemic (Abedzadeh-Kalahroudi, 2015). In Egypt, more than one-quarter of all maternal deaths occur after delivery and one-third of those cases the baby also dies (NMMS., 2015).

There is scanty information regarding nursing skills knowledge, and practice as well as the barriers they perceive in its implementation. A guideline for nurses is to be accountable for their actions to their patients and their peers (Rojjan et al., 2017). So that, this study would be an attempt to Internship Students to increase their competencies in implementing evidence-based-nursing-practice guidelines at the postnatal unit.

### **Aim of the Study**

This study was conducted to evaluate the effect of an educational guideline program on internship nursing student's knowledge and skills regarding postnatal evidence-based-nursing-practices.

### **Research hypotheses**

The internship nursing student's knowledge and skills postnatal would be affected positively after implementation of an educational guideline regarding Evidence-based-nursing-practices compared to pre-implementation.

### **Subjects and methods**

Subjects and methods discussed under the following four main designs: I. Technical. II. Operational. III. Administrative. IV. Statistical.

**I- Technical Design:** The technical design included the research design, setting, sample, and tools of data collection

**Research Design:** A quasi-experimental study design was used (pre & post) test.

**Setting:** The study was conducted at postnatal unit of the obstetrics and gynecology

department at Port-Said maternity hospital.

**Sample type:** A convenient sample of a total 84 internship students was included in the study.

**Sample size and technique:** All internship students (84 in the academic year 2020-2021) who were trained in the postnatal unit at Port-Said Maternity Hospital, were divided into 4 groups each group involved 21 internship nurses students.

**Tools of data collection:** four tools were used to collect the necessary data

**Tool I: Structured interviewing schedule:** It consisted of two parts:

**Part 1:** Assess the personal characteristics data of internship students. It consisted of 6 questions (Name, Gender, Age, Residence, Height, and Attendance of training program)

**Part 2:** Knowledge assessment sheet was used to assess the following:

- i. Internship student's knowledge regarding information about the postpartum period.
- ii. Knowledge assessment related postnatal care and management (hemorrhage, Episiotomy care)
- iii. Reported practices regarding steps of patient problem intervention comparison and outcome (PICO), elements of Evidence Based Nursing Practices (EBNP) (Funk et al., 1991b).

**The scoring system Score:** Score for the correct answer (3), Score for the incomplete answers (2) and Score for don't know (1). The total scores: Poor <50%, Average 50%-70 % and Good 70%-100%

**Tool II:** An Observational checklist would be used to assess the internship student's skills regarding for postnatal evidence-based-nursing-practices (15 steps uterine massage and 6 steps about the care of episiotomy).

**The scoring system:** 3 points scored if done correctly, 2 points scored if done incorrectly and 1 point scored if not done. The total scores: Unsatisfactory (Poor<50%), Fairly Satisfactory (Accepted or fair 50%-70%) and Satisfactory (Good >70%-100%).

**Tool III:** Assessment of the episiotomy healing. **REEDA Scale** used to assess healing of the episiotomy scar. It assesses the inflammatory process and tissue healing in the wound. It included five items such as hyperemia, edema, ecchymosis, discharge, cooptation of the wound edges (redness, edema, ecchymosis, discharge, approximation). Each parameter described a higher score indicated a greater level of tissue trauma (worst) healing.

**The Scoring system:** Score (0) indicated healing, mild healing (1), moderate healing (2), and worst healing (3).

**Tool IV:** pain assessment; **Visual Analog Scale (VAS)**

Pain analogue scale as mentioned in (Ibrahim et al., 2017) as a simple to use 0-10 Numeric Pain Rating Scale: It adopted from McCaffery and Pasero (Caffery & Pasero, 1999). The tool is a horizontal line divided by number with equal distance.

**The Scoring system:** the score zero (0) indicated no pain and the top score (10) indicated the worst possible pain would be used to measure the intensity of postnatal episiotomy pain. It applied as both a numeric pain rating scale from zero to ten, as well as a categorical scale: (no pain = 0), (mild pain = 1-2), (moderate pain = 3-4), (severe pain = 5-6), (very severe pain = 7-8), and (worst pain = 9-10). Each degree of pain elaborated with a picture for the associated facial expressions

**Tools Validity:** The tools were submitted to a panel of three medical and nursing experts in the field of community, obstetrics and gynecology to test the content validity, the modification was carried out according to the panel judgment on clarity of sentences and the appropriateness of content.

**Tools reliability:** The tool questionnaire was modified related to the clarity of sentences and appropriateness of contents. Reliability of tools were done by Cronbach's alpha, the internal consistency of knowledge was 81.8% and practice was 69.2%

**II- Operational design:** The operational design of this study entailed two-phase; the pilot study and the field-work.

**Pilot study:**

A pilot study was conducted of 10 % of the sample to test the research feasibility, clarity,

and objectivity of the tools as well as to estimate the time needed for data collection.

**Field work:**

Before conducting the study, official permission was obtained from the dean of Port-Said faculty of nursing contained the title and objective of the study. It was directed to the manager of maternity hospital & supervisor of internship students to obtain the official agreement to conduct the study. Three days per week specified for data collection until the study sample completed. Data collection was carried out through three phases: (pretest evaluation, implementation phase of educational practical guideline and posttest evaluation). This could be applied by the following:

- ❖ Assess internship student's Knowledge and skills related to postpartum care and management (hemorrhage, Episiotomy care) (pre-test).
- ❖ Designing an educational guideline program for internship students regarding postnatal evidence-based-nursing practices based on the results of pre-test & student's needs.
- ❖ Evaluating the effect of the educational guideline program on internship students' knowledge and skills regarding postnatal evidence-based-nursing-practices (post-test) by using the same tools (formats) of pre-test.

**The first week:**

-The researcher interviews all the internship students in the faculty class & clarified the aim of the study.

-The researcher distributed the personal characteristics questionnaire to all students to fulfill this tool for pretest of theoretical part in the first day and second day.

-The researcher divided students into four groups, each group 21 students for the practical part of the pretest.

**The second week: (educational practical guideline)**

The researcher explained the theoretical part.

**- The first day in the second week:**

**The first session:** the researcher gave the students a clarified handout including the general and specific objectives by using Arabic

language to suit all levels of education. Then the researcher started by introducing the theoretical part of the handout and provided students with knowledge about evidence-base-nursing-practice (definition, benefits, barriers.....etc)

**The second session:** started by feedback about the previous session and introduction of the objectives of the new session. Then researcher provided students with knowledge about sources of searching evidence-based-nursing-practice. At the end of the session the researcher gave students the opportunity to ask questions and provided period of discussion.

**- The second day in the second week:**

**The third session:** started by feedback about the previous session and introduction of the objectives of the new session. Then researcher provided students with knowledge about postpartum period (definition, mechanism of stoppage bleeding, complications, and care).

**The fourth session:** Introduction of the objectives of the new session then researcher provided students with knowledge about episiotomy (definition, types, complication)

**- The third day in the second week:**

**The fifth session:** introduction of the objectives of the new session; then researcher provided students with knowledge about evidence-based in postpartum hemorrhage and episiotomy relieving pain. The researcher divided students into four groups, each group applied the uterine massage and episiotomy care by using the Tool II (observational checklist), Tool III (REEDA scale), and Tool IV (visual analogue scale).

**The sixth session (practical sessions):**

Implementation of the practical part of the handout for all cases of postpartum period and included certain procedures as uterine massage.

**- The fourth day in the second week:**

**The seventh session:** started by feedback and redemonstration of the previous session and introduction of the objectives of the new session then the researcher demonstrated the procedure of episiotomy care.

**The eighth session:** started by feedback and re-demonstration of the previous session then the researcher demonstrated the procedure of evidence-based-nursing-practice in episiotomy and postpartum as cold compresses for episiotomy and suckling breast for stopping

bleeding postpartum.

**-The fifth day in the second week:**

**The ninth session:** started by feedback and re-demonstration of the previous session and introduction of the objectives of the new session, then the researcher demonstrated the procedure of application searching on the internet for the application of PICO.

**The tenth sessions:** Included feedback and re-demonstration of the previous procedure.

**The third week: Evaluation phase (posttest)**

The first and second days posttest for the theoretical part, then the students was divided into four groups on four days for testing the practical procedures and each group was tested procedures about massage of the uterus, episiotomy care). In the first two months in hospital, the researcher observed students for application of uterine massage and episiotomy care on postpartum women & stressed on the deficit and needs of students through re-demonstration. In the following two month for other groups in hospital.

**Administrative Design:** An official permission was obtained from the director of Maternity Hospital to conduct the study. Then, the researcher explained the tools and tests the content validity of the tools.

**Ethical consideration:** All internship students were informed that participation in this study is voluntary, they could withdraw at any time during the study without giving reasons, and that their withdrawal will not affecting the care they were receiving and the relationship with the researcher.

**Statistical Design:** Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 20.0) was used. Descriptive statistics were applied (e.g., mean, standard deviation, frequency, and percentages). Tests of significance (chi-square) were applied to test the study hypothesis. Correlation coefficient was calculated between knowledge and attitude scores. A statistically significant difference was considered at  $p \leq 0.05$ .

## Results:

**Table (1)** shows the personal characteristics of the internship students. It was found that more than half of students (54.76%) were aged from 20-25years, with the mean age and standard deviation  $21.57 \pm 2.6$  years. As far as students' resistance, more than three-quarters of them (78.57%) lived in rural area. The majority of them (86.90%) did not attend evidence-based training programs, previously.

**Table (2)** displays that there was a statistically significant difference post-implementing educational guidelines in relation to studied internship nurse's knowledge regarding information about the postpartum period, postpartum management of Episiotomy care, and their knowledge about evidence-based knowledge about hemorrhage and Episiotomy care after the application of the program ( $p < 0.05$ ).

**Table (3)** Reveals significant differences between satisfaction internship students' evidence-based-practical topics regarding uterine message and episiotomy care as internship students satisfied more than three-quarter (80.95%) in post-test training program compared to 5.9% in pretest training program. There was a highly Positive relation between increases level of students' knowledge with increased their total practice level in post-test.

**Table (4)** illustrates that there was a highly statistically significant improvement in post-test related to studied sample's mean scores of different knowledge topics regarding evidence-based postpartum care, P value  $< 0.001$ .

**Table (1): Frequency and Percentage Distribution of Personal characteristics of the studied subjects (n= 84).**

Personal characteristics	Frequency	Percentage
<b>Age (years)</b>		
< 21	38	45.24
21 - 25	46	54.76
<b>Mean ± SD</b>	<b>21.5 ± 2.6</b>	
<b>Residence</b>		
Urban	18	21.43
Rural	66	78.57
<b>Height (cm)</b>		
< 155 cm	21	17.14
156 – 165 cm	46	48.57
> 165 cm	17	2.86
<b>Mean ± SD</b>	<b>160.3 ± 6.4</b>	
<b>Gender</b>		
Male	25	29.76
Female	59	70.24
<b>Previous evidence based training</b>		
Yes	11	13.09
No	73	86.90

**Table (2): Frequency and Percentage Distribution of the studied subjects knowledge about Postnatal pre and post educational guideline implementation (n=84)**

Items	Pretest			Post test			Chi-Square	P value
	Good No (%)	Average No (%)	Poor No (%)	Good No (%)	Average No (%)	Poor No (%)		
knowledge about Postpartum period	0 (0.0)	11 (13.1)	73 (86.9)	81 (96.4)	3 (3.6)	0 (0.0)	20.64	0.002*
Postpartum management (hemorrhage , Episiotomy care)	0 (0.0)	4 (4.8)	80 (95.2)	79 (94.0)	5 (6.0)	0 (0.0)	14.55	0.016*
Evidence based knowledge about hemorrhage and Episiotomy care	1 (1.19)	5 (6.0)	78 (94.0)	79 (94.0)	5 (6.0)	0 (0.0)	11.00	0.027*

A statistical significant difference ( $P \leq 0.05$ )

**Table (3): Frequency and Percentage Distribution of the studied subjects skills regarding postnatal evidence based nursing pre and post educational practical guideline implementation (n=84)**

Items	Pretest		Post test		Chi- square	P value
	No	%	No	%		
Unsatisfactory	59	70.2	6	7.14	97.33	0.000**
Fairly Satisfactory	20	23.8	10	11.90		
Satisfactory	5	5.9	68	80.95		

A highly statistical significant difference ( $P \leq 0.001$ )

**Table (4):** Distribution of the studied subjects knowledge mean scores of regarding postnatal evidence based practices pre and post educational practical guideline implementation (n=84).

Knowledge related variables	Pretest	Post test	P value
	Mean ± SD	Mean ± SD	
• Postpartum hemorrhage knowledge	15.4899 ± 3.79251	20.9495 ± 2.18148	<0.001**
• Postpartum management	5.2283 ± 2.03230	11.0101 ± 1.85787	<0.001**
• Episiotomy knowledge	2.3212 ± 2.97307	8.5606 ± 2.31610	<0.001**
• Evidence based knowledge	8.4293 ± 5.44679	18.2828 ± 2.86601	<0.001**
• Postpartum hemorrhage evidence based	2353 ± 0.72228	5.7020 ± 0.85324	<0.001**
• Episiotomy evidence based	0808 ± 0.38173	5.6263 ± 0.89653	<0.001**
• Total knowledge score	33.8788 ± 10.72809	68.1313 ± 8.18212	<0.001**

### Discussion:

The internship program is needed for a Bachelor of Science in nursing to accomplish the fulfillment of the baccalaureate degree. The internship year is considered a time of transition from undergraduate nursing students to the beginning level registered nurses. During this year nurse interns should acquire the values, attitudes, and goals fundamental to the nursing profession (**Black & Howks, 2005**).

A significant part of nursing education, as well as maternity nursing, depends on clinical training that is considered the central and basic part of professional training. So, it is indispensable to be precisely assessed by using an effective and efficient assessment tools to improve its quality (**Stevens, 2013**).

Based on the present study findings as regard characteristics of the internship students, it was found that more than half of nurses were aged from 20-25 years with a mean age of  $21.57 \pm 2.6$  years. As far as students' residence more than three-quarters of them lived in rural areas. In agreement with findings, the study of **Abdurrahman and Omar (2018)** who mentioned that the mean age of internship nursing students was  $22.7 \pm 0.49$  years, and the majority of them (89.3%) were living in urban areas.

In the same line; **Ramadan et al., (2019)** revealed that the mean age of nurse interns was  $22.8 \pm 0.96$ . The highest percentages of them were female, single, and living in rural areas (72.5%, 88.8%, & 67.5% respectively), the majority was female and the minority was male.

Additionally, the results of the current study were going in line with a study in the Faculty of Nursing, Zagazig University by **Ibhraim (2019)** who found that almost all student nurses were female. On the other hand, the findings of the present study are in disagreement with the study of **Idon et al., (2015)** who found that the highest percentages of the nurse students were male.

In the present study, it was found a highly statistically significant difference post-test educational evidence-based-practical guideline program implementing related to the studied students' knowledge regarding postpartum period (definition of PPHG, causes, types & complication of postpartum hemorrhage, ...etc.) as showed in table 2. In the same respect, various studies revealed that nurses had little knowledge of evidence-based-practice, especially about research evaluation, research methods, and statistics (**Adamsen et al., 2003, Fernandez et al., 2012, Idon et al., 2015, Janet & Kathleen, 2017, Melnyk et al., 2004,**). However, even nurses with substantial knowledge about evaluating research evidence found themselves were powerless and with limited authority to introduce changes in their workplaces (**Hutchinson & Johnston, 2014**).

Some researchers claimed that this derives from nurses' insufficient exposure to discussions on clinical and nursing topics (**Karttunen, 2020, Lamadah, 2014**). Additionally, this result is supported by **Abdelrahman and Omar (2018)** who mentioned that the basic nursing care for postpartum hemorrhage which was reported in the learning guide. There is a statistically significant difference between pre and post-

training of the internship nursing students. Also findings of the present study are in agreement with finding of **Mahboubeh and Moloud Fakhri (2011)** study who found that the mean score of pre-test and post-test general skills were showed significant differences between both groups. The differentiation between the present studies and others may refer to the variation in the sample size, type, and the places of conducting the studies.

Furthermore, the current study, demonstrated that there was a highly statistically significant difference after implementation of educational program related to studied students' knowledge about postpartum hemorrhage management (frequency of uterine massage during first 2 hours, three preventive measures for postpartum hemorrhage, nursing & surgical management of postpartum hemorrhage etc..... The results of the current study are in congruence with the results of the systematic review of **Melnyk & Fineout-Overholt (2006)** and **Morris & Hancock (2013)** who found that such programs were beneficial process as they involved multidimensional teaching strategies. Similarly, **Melnyk & Fineout-Overholt (2002)** showed that practical collaborative learning using journal articles was successful in improving nursing students' research abilities. Additionally, the use of computer-based media in the present study was shown to be superior to other teaching methods in EBN (**Cooke et al., 2004**).

The present study revealed that total level of student practice regarding the evidence-based-practices of postpartum care during pre-test intervention was unsatisfactory among less than three quarter of them. It may be due to they did not have the enthusiasm to gain more skills about EBP, so continuing education programs can successfully influence nursing practice. In line with this, a German study revealed that although nurses confirmed the value of research for their own practice, there was a lack of fundamental requirements to identify and implement relevant research findings as for example the use of recent scientific evidence (**Nguyen, 2008**).

Additionally, it may due to a lack of

students' knowledge which is reflected on their practice. This result is supported by a study conducted in Britain. It showed that students who attend a university program reported improvement in their critical evaluation ability in relation to research, enhanced search skills, ability to use and apply study findings and discuss research with others (**El-Edessy et al., 2014**). Studies emphasized the importance of educating nurses in research and in critical reading of professional journals. Additional research pointed to the importance of organizational support (**Estabrooks, 1999, Veeramah, 2004**).

Results of the current study revealed significant differences between satisfactory level of the studied studies regarding evidence-based-practical skills regarding uterine message and episiotomy care post-test training program compared to (5.9%) in pretest training program. There was a highly positive relation between increased level of students' knowledge with increasing their total practice level in post-test. These findings are in the same line with **Kim et al., (2019)** who conducted study entitled "Effects of an evidence-based practice education program using multifaceted interventions: a quasi-experimental study with undergraduate nursing students and concluded that the EBP education program was effective in improving the knowledge, skills, attitudes, competencies, and future use of EBP among nursing students.

Evidence-based-practice increases patient care quality, reduces healthcare costs, and provides an assessment for nurses to integrate the best evidence. Nurses understand that EBP improves the quality of patient outcomes while controlling the cost of healthcare (**Readiness of U.S. nurses for evidence based practice. (2005), Michele, 2013**).

Finally, these findings showed that there was a highly positive relationship between increased levels of internship students' knowledge with increasing their total practice level in post-test. This is related to positive effect of the educational program as students were interested and satisfied during the learning sessions also, effective communication between

the researcher and students enhances the process of learning. This result is in agreement with **El sabagh and Zaiton (2013)** who illustrated that the improvement in the nursing practice related to uterine massage to see if it's well contracted or not for identifying the signs of PPH.

### Conclusions

Implementing of the educational guidelines program regarding postnatal evidence-based-practice among internship nursing students had statistically significant and a positive effect on their knowledge, skills regarding postpartum hemorrhage knowledge, postpartum management, and episiotomy knowledge. So the aim of the study was achieved and the research hypotheses was accepted and supported.

### Recommendations

Continuous training educational programs and workshops should be planned on a regular basis for nursing interns to receiving training in the obstetric and gynecological units about obstetric skills for enhancing their knowledge and practice and this program should be made on free days so they don't interfere with nurse clinical work schedule to achieve high quality of care.

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