

## Impact of Intervention Program on Nurse's Knowledge and Practice regarding Nursing Care of Pregnant Women with Antiphospholipid Syndrome.

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### Abstract

**Background:** Antiphospholipid syndrome (APS), is a complex autoimmune disorder, which associated with thromboembolic events and forms about 7%-25% of unexplained fetal complications and losses. Few research exists on prenatal nurses' knowledge of APS or its nursing management.

**Aim:** This study aimed to evaluate the effect of the intervention program on nurse's knowledge and practice regarding nursing care of pregnant women with Antiphospholipid Syndrome.

**Research design:** Quasi-experimental (pre-posttest) research design was used.

**Setting:** The study was conducted at obstetric departments at Shebin El-Kom teaching hospital, Menoufia University hospital and two Maternal and Child Health Centers (Kebly & Bahary) at Shebin El-Kom-Menoufia Governorate, Egypt.

**Subjects and methods:** Purposive sample of 52 staff nurses who had worked in the study settings from March to September 2015

**Results:** The study has revealed that statistically significant improvement in nurses' knowledge and practice related to nursing care of pregnant women with antiphospholipid antibodies syndrome were noticed at the post and follow-up test.

**Conclusion:** The nurses who were subjected to intervention program about nursing care of APS had satisfactory knowledge and adequate practice regarding APS post intervention than pre intervention.

**Recommendations:** Integrate ante natal evidence based educational program for pregnant women about antiphospholipid syndrome implemented by maternity nurses at MCH centers. Further research studies to determine specific educational needs of nurses regarding APS at different health care settings

**Keywords:** Intervention program, Nurse's knowledge, practice, pregnant women, Antiphospholipid Antibodies Syndrome.

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### I. Introduction:

Pregnancy itself is safe to the mother and the child. Pregnant women with antiphospholipid syndrome (APS) are viewed as high-risk obstetric patients, medical and nursing care are organized as a basic care <sup>(1)</sup>.

Antiphospholipid antibody syndrome (commonly called antiphospholipid syndrome or APS) is an autoimmune disease. Those with APS make unusual proteins called antiphospholipid autoantibodies in the blood. This makes blood stream flow dishonorably, can lead to dangerous clotting in arteries and veins (thrombosis), severe preeclampsia problems for a developing fetus as pregnancy miscarriage, stillbirth, preterm delivery <sup>(2)</sup>. Antiphospholipid disorder ordinarily influences women five times more than men. It is generally influencing young women, and commonly diagnosed between the ages of 30 and 40 years. Like most immune system issue, APS has a hereditary segment, in spite of the fact that there is not a direct transmission from parent to offspring <sup>(3)</sup>.

Pregnant women with antiphospholipid antibody syndrome may not display clinical manifestations, also health professionals may not familiar with antiphospholipid syndrome (APS), so it's vital to the nurse to be acquainted with APS and its presentation to provide early diagnosis, treatment and significant improvement in pregnancy outcomes <sup>(4)</sup>. Research on nurses' knowledge of APS and its nursing management is constrained. No research has evaluated nurses' knowledge of APS or its nursing management. This is concerning since the qualitative study by Mathew, Cesario & Symes (2008) showed that significant number of the women reported their diagnosis was postponed due to their healthcare providers' lack of knowledge regarding APS. In fact, a considerable number of the women blamed their providers for their subsequent fetal loss because of a postponement in their diagnosis and treatment <sup>(5)</sup>.

Nurses play an integral role in the assessment and care of all patients. Instructive endeavors to increase awareness of APS and its nursing management can possibly enhance pregnancy outcomes and decrease postpartum risk in women with APS. Maternity health nurses who understand the complications of APS and its manifestations may be better able to rapidly recognize physical findings that could alarm them to the likelihood of an embolic event or obstetrical complication <sup>(6)</sup>.

Nurses need to have a decent comprehension of the disease to provide patients with appropriate support and advice about how to maintain wellbeing. Nurse practitioners are essential to the early finding of APS, as well as to appropriate consultation and referral. The nursing and medical care should be concerned with monitoring maternal and fetal well-being includes serial ultrasounds and biophysical profiles starting at 20 weeks' gestation to assess fetal growth<sup>(7)</sup>.

Nursing program refers to the provision of planned learning methods for nurses that enables them to expand their knowledge and influence their care behavior. There is evidence in the literatures the positive effects of nursing programs on nurses, knowledge, practice regarding care to women with APS syndrome <sup>(8)</sup>.

### **Significance of the study**

Researches have shown that from 7% to 25% of unexplained fetal losses can be attributed to APS antibodies. This makes APS one of the leading causes of unexplained fetal loss. In addition, antiphospholipid antibodies are associated with 16% to 38% of fetal or embryonic deaths, 15% to 30% of fetal growth restriction, and 18% of preeclampsia in all pregnancies <sup>(9)</sup>.

Researches on nurses' knowledge of APS and its nursing management is limited. Despite its clinical implications and prevalence, APS remains relatively unknown among health care professionals <sup>(2)</sup>. Prenatal nurses often care for pregnant women with APS who require treatment, education, and support. The prevalence of APS antibodies and their associated adverse pregnancy outcomes, necessitates that nurses should be aware of APS, its risks, associated complications, medical treatment, and nursing management. Without this knowledge, nurses may fail to prevent pregnancy complications, so the current study was conducted to improve nurses knowledge and practice regarding APS <sup>(2)</sup>.

## **II. Aim of the study**

This study aimed to:

- Evaluate the effect of the intervention program on nurse's knowledge and practice regarding nursing care of pregnant women with antiphospholipid syndrome.

## **III. Hypothesis of the study**

The following research hypotheses were formulated to achieve the aim of the study:

H1-The Nurses who will be subjected to intervention program about nursing care of APS will have satisfactory level of knowledge regarding APS in the post intervention than pre intervention.

H2-The Nurses who will be subjected to intervention program about nursing care of APS will have adequate practice regarding APS post intervention than pre intervention

## **IV. Subjects and Methods**

### **Research design**

Quasi-experimental research design (pre-posttest) was used in the study.

### **Setting**

The study was conducted at obstetric departments at Shebin El-Kom teaching hospital , Menoufia University hospital and two Maternal and Child Health Centers (Kebly & Bahary) at Shebin El-Kom-Menoufia Governorate, Egypt

### **Sampling**

Purposive sample of 52 Maternity staff nurses who had worked in the above study settings from March 2015 to September 2015

### **Sample size**

All maternity nurses working at above selected settings were included in the study

### **Tools:**

#### **I-A Structured interview questionnaire:**

It was developed by the researchers and used to collect the necessary data about the nurses knowledge about antiphospholipid Syndrome.

#### **It entailed two parts:**

**The first part:** Socio demographic characteristics about nurses such as age, education, occupation, ,years of experience and residence.

**The second part:** Concerned with questions about nurses' knowledge regarding antiphospholipid syndrome (pre-posttest).

**Knowledge scoring System:** Subjects responses were measured by giving a score of (1) for the correct answer and (zero) for the wrong answer. For each area of knowledge, the scores of the items were summed-up and the total was divided by the number of the items, giving a mean score for each part. These scores were converted into a percentage score. Knowledge was considered satisfactory if the percent score was 60% or more and unsatisfactory if less than 60%<sup>(10)</sup>.

### **Validity and Reliability**

Validity of the tool was determined by experts (two professor at obstetric department, Faculty of Medicine, Menoufia university and two professor at Maternal and Neonatal Health Nursing Department, Faculty of Nursing, Menoufia University) who reviewed the tool and judged it to measure what it intended to measure (face validity). Experts were also asked to judge the items for their adequacy (content validity). Reliability was assessed by applying the tool to 5 nurses twice with an interval. The 5 nurses were excluded from the main sample.

### **Tool II. Observation checklist**

It was developed by the researchers and used to assess nurses' practice ( nursing care) regarding pregnant women with antiphospholipid syndrome answered by done or not done. It was adopted from guidelines on the investigation and management of antiphospholipid syndrome by British Committee for Standards in Haematology and adopted also from Nursing Crib, (2012)<sup>(11,12)</sup>. Diagnosis of antiphospholipid syndrome was done by obstetricians working in the selected settings.

**Scoring System:** The items observed to be done were scored "1" and the items not done were scored "0". For each area, the scores of the items were summed-up and the total was divided by the number of the items, giving a mean score for each part. These scores were converted into a percentage score. The practice was considered adequate if the percentage score was 60% or more and inadequate if less than 60%. (Hafez F et al, 2016)

### **Validity and Reliability**

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### **Pilot Study**

It was conducted to test feasibility and applicability of the tools and maneuver of interventions, it was also used to estimate the time needed to collect the data. It was conducted on a sample of 10% of total sample (5 nurses). They were excluded from the main sample. The results of piloting were used to finalize the tools and schedule the field work time needed. Some changes were made to the data collection tools according to the opinion of professors and the findings of piloting.

### **Study Maneuver**

#### **I. Assessment phase:**

Nurses were identified from previously mentioned settings. Field work was done 2 days per week to collect the data from 5 nurses daily. They were approached individually, and the purpose and procedures of the study were explained to them. All nurses informed that they have to attend educational session that lasts from 40 to 50 minutes. Only those who gave an oral informed consent were recruited in the sample.

#### **II. Educational phase:**

**Interviewing:** an individualized interview was carried out for each subject in the study. The aim of the study was explained to the nurses in a simple way. Then the researchers started data collection about socio demographic characteristics; collect data about nurses knowledge regarding APS (pretest). Data collection lasted about 15 minutes. After pre test, the researchers presented educational session about APS, maternity nurses were divided to 10 groups each group involved about 5 nurses. The researchers taught each group of nurses in a classroom setting. Information and instructions regarding antiphospholipid syndrome was given using guided booklets.

**Outline of guided booklet:**

- Definition of antiphospholipid syndrome
- Signs and symptoms of antiphospholipid syndrome during pregnancy
- Investigations required for pregnant women with antiphospholipid syndrome
- Obstetric complications for pregnant women with antiphospholipid syndrome
- Nursing care for pregnant women with antiphospholipid syndrome

**By the end of educational session, maternity nurses will be able to:**

**Knowledge and understanding:**

- Define antiphospholipid syndrome
- Identify signs and symptoms of antiphospholipid syndrome during pregnancy
- List Investigations required for pregnant women with antiphospholipid syndrome
- Explain obstetric complications for pregnant women with antiphospholipid syndrome

**Intellectual skills:**

- Design nursing plan of care to pregnant women with Antiphospholipid Syndrome

**Professional and practical skills:**

- Implement nursing care to pregnant women with Antiphospholipid Syndrome

**General and transferable skills:**

- Communicate effectively with other maternity nurses to give education about proper nursing management to pregnant women with antiphospholipid syndrome

**Evaluation phase:** The researchers evaluated nurses knowledge regarding antiphospholipid syndrome after educational intervention using Posttest. The researchers also evaluated nursing practice regarding antiphospholipid syndrome using observation checklist. The researchers assessed knowledge again after 3 months of data collection using follow up test.

**Ethical considerations**

A necessary approval from settings where data will be collected was taken after issuing an official letter from the dean of Faculty of Nursing, Menoufia University. An informed consent to participate in the current study was taken after the purpose of the study was clearly explained to each nurse. Confidentiality of obtained personal data, as well as respect of participants' privacy was totally ensured. A summary of the intervention was explained to each nurse before volunteering to participate in the study and nurses were informed that they can withdraw from the study at any time. No invasive procedure was required.

**Statistical analysis:**

The data collected were tabulated and analyzed by using SPSS (statistical package for social sciences) statistical package version 20 on IBM compatible computer. Qualitative data were expressed as number and percentage (No & %) and analyzed by applying chi-square test.

**V. Results**

**Table (1):** Socio-demographic characteristics and years of experience of the studied nurses (No=52).

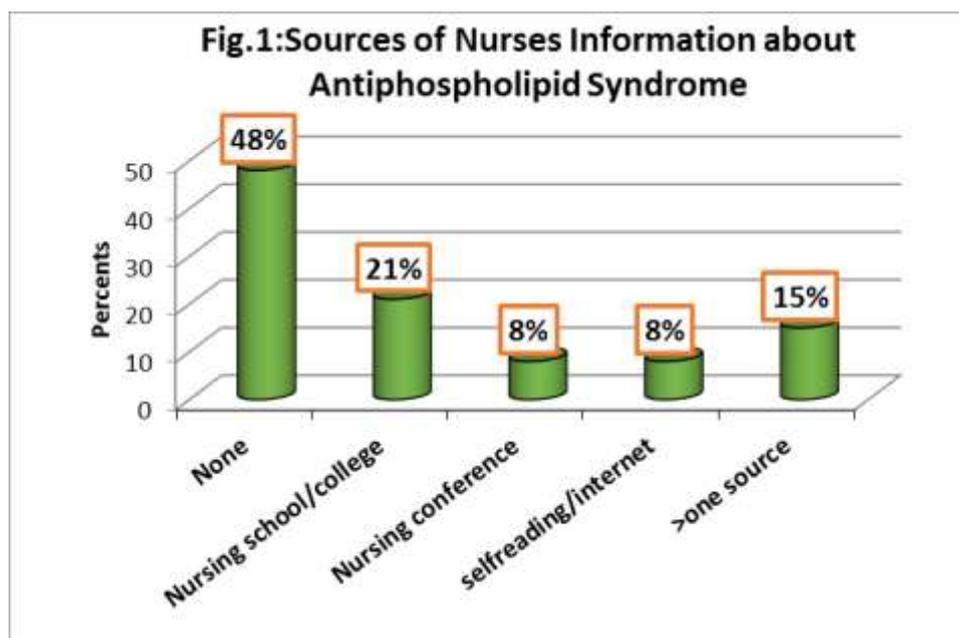
Socio-demographic Characteristics	No N=52	%
<b>Age groups</b>		
<=20 years	13	25.0
21-30 years	24	46.2
31-40 years	15	28.8
<b>Education</b>		
Nursing secondary school	22	42.3
Technical institute of nursing	16	30.8
Bachelor degree in nursing	14	26.9
<b>Experience years</b>		
<= 5years	31	59.6
6-15 years	16	30.8
16 - 25 years	5	9.6

**Table( 1)** showed that, about 46% of the nurses in the studied group aged between 21- 30 years, and about 42% of them had a secondary school. While about 59% of them had experience of five years or less.

**Table (2) :**Level of nurse's knowledge about nursing care of pregnant women with Antiphospholipid Syndrome ( pre , post & follow up intervention program) (N=52) .

Knowledge aspects	Pre intervention program		Post intervention program		Follow up intervention program.		Test of sig.	P-value
	Un satisfactory Knowledge NO. (%)	Satisfactory knowledge NO. (%)	Un satisfactory Knowledge NO. (%)	Satisfactory knowledge NO. (%)	Un satisfactory Knowledge NO. (%)	Satisfactory knowledge NO. (%)		
Definition	46 88.5%	6 11.5%	9 17.3%	43 82.7%	15(28.8%)	37 71.2%	$\chi^2=38.3$	0.000 HS
Physical findings	42 80.8%	10 19.2%	6 11.5%	46 88.5%	11(21.2%)	41 78.8%	$\chi^2=40.3$	0.000 HS
Obstetric complications	38 73.1%	14 26.9%	4 7.7%	48 92.3%	7 (13.5%)	45 86.5%	$\chi^2= 44.4$	0.000 HS
Nursing care	41 78.8%	11 21.2%	5 9.6%	47 90.4%	8(15.4%)	44 84.6%	$\chi^2=47.4$	0.000 HS
Total knowledge	40 76.9%	12 23.1%	4 7.7%	48 92.3%	5(9.6%)	47 90.4%	$\chi^2=55.9$	0.000 HS

**Table (2)** describes the level of nurses knowledge (pre, post and follow up) regarding to nursing care of pregnant women with antiphospholipid syndrome throughout the intervention program. Post and follow up educational program assessment revealed a highly significant improvement ( $p<0.000$ ) in the different aspects of knowledge. Regarding satisfactory knowledge the responses of the nurses ranged from 82.7% for definition to 92.3% for both obstetric complications and total knowledge in post program, while in the follow up the responses ranged from 71.2% for definition and 90.4% for total knowledge.



**Fig.1** showed that approximately nearly half of nurses had no sources of information about APS, while 21% of the nurses had the information from nursing school or college.

**Table(3):** Nurse's practice regarding to nursing care of pregnant women with Antiphospholipid Syndrome (N=52) .

Quality of practice	Pre intervention program		Post intervention program		Test of sig.	P-value
	In adequate practice NO. (%)	Adequate practice NO. (%)	In adequate practice NO. (%)	Adequate practice NO. (%)		
	49 94.2%	3 5.8%	6 11.5%	46 88.5%	$\chi^2=70.6$	0.000 HS

**Table (3)** presents significant improvement in the quality of nurses practice related to nursing care of pregnant women with antiphospholipid syndrome, about 88.5% of nurses reported adequate practice in post-intervention compared with 5.8% in pre-intervention ( $P=0.000$  high significant).

**Table( 4):** Post intervention total knowledge score and total score of quality of practice (No=52)

Knowledge level post intervention	Quality of practice post intervention				Total NO. %	P-value	OR(95%CI)
	Inadequate practice NO. %	Adequate practice NO. %					
Unsatisfactory knowledge about APS	3 75%	1 25%	4 100%		*P=0.000 HS	45(3.5-574.7)	
Satisfactory knowledge about APS	3 6.3%	45 93.7%	48 100%				
<b>Total</b>	6 11.5%	46 88.5%	52 100%				

\*Fisher exact test

**Table (4)** shows, that 25% of nurses who showed post intervention unsatisfactory knowledge about APS regarding adequate practice, while nurses who showed post intervention satisfactory knowledge about APS were had adequate practice in 93.7%, and the difference was high significant statistically (P=0.000). Nurses who showed unsatisfactory knowledge post intervention were 45 times more likely to inadequate practice than nurses who showed satisfactory knowledge (OR(95%CI) = 45 (3.5-574.7)).

**Table(5) :** Relationship between educational level of nurses and knowledge level post intervention (N=52)

Level of Education	Knowledge level post Intervention			P- value
	Unsatisfactory knowledge	Satisfactory knowledge	Total	
Nursing secondary school	3 13.6%	19 86.3%	22 100.0%	LR*=0.81, P=0.66 NS
Technical institute of nursing	1 6.2%	15 93.8%	16 100.0%	
Bachelor degree in nursing	0 0%	14 100%	14 100.0%	
<b>Total</b>	4 7.7%	48 92.3%	52 100.0%	

LR= Likelihood Ratio, NS = Not significant

**Table (5)** demonstrated that, all nurses with Bachelor degree had satisfactory knowledge after intervention. In addition, 93.8% of nurses graduated from technical institute of nursing had satisfactory knowledge after intervention, while the lowest percentage was among nurses of nursing secondary school (86.3%). However, the difference was not statistically significant (P=0.66).

**Table (6) :** Educational level and quality of practice post intervention (N=52)

Level of Education	Nursing care of cases diagnosed with APL		Total	P -value
	Adequate practice	Inadequate practice		
Nursing secondary school	18 81.8%	4 18.2%	22 100.0%	LR=7.2,P=0.02 Sig.
Technical institute of nursing	15 93.8%	1 6.2%	16 100.0%	
Bachelor degree in nursing	13 92.8%	1 7.2%	14 100.0%	
<b>Total</b>	46 88.5%	6 11.5%	52 100.0%	

**Table (6)** highlighted that there was statistically significant improvement in nursing care for the pregnant women diagnosed with APS. The highest percentage of adequate practice was among nurses with bachelor degree in nursing and nurses graduated from technical institute of nursing (92.8% & 93.8% respectively). The lowest percentage was among nurses graduated from secondary nursing school (81.8%)

**Table(7) :** Years of experience , level of knowledge and quality of practice post intervention (N=52)

	Nursing years of Experience						P- value	
	<= 5years		6-15 years		16 - 25 years			Total
<b>Knowledge level post intervention</b>								
Un satisfactory knowledge	3	9.7%	0	0%	1	20%	4 7.7%	LR=3.5 p=0.17 NS
Satisfactory knowledge	28	90.3%	16	100%	4	80%	48 92.3%	
<b>Quality of practice post intervention</b>								
Adequate practice	29	93.5%	12	75%	5	100%	46 88.5%	LR=4.3, P=0.11 NS
Inadequate practice	2	6.5%	4	25%	0	0%	6 11.5%	
<b>Total</b>	<b>31</b>	<b>100%</b>	<b>16</b>	<b>100%</b>	<b>5</b>	<b>100%</b>	<b>52 100%</b>	

**Table (7)** declares that, all nurses which had 16-25 years of experiences had a dequate practice regarding care to pregnant women diagnosed with APS in post practice compared with the nurses with <= 5 years (93.5%). The same table also showed that 80% of nurses which had 16-25 years of experiences had satisfactory level of knowledge regarding to care of the pregnant women diagnosed with APS, However, the difference was not statistically significant.

### Discussion

This study aimed to evaluate the effect of the intervention program on nurse's knowledge and practice regarding nursing care of pregnant women with Antiphospholipid Syndrome

The current study revealed that there was a highly statistically significant improvement in nurses knowledge related to nursing care of pregnant women with antiphospholipid syndrome after the educational program. Similar study conducted by **Erkan et al., (2012)**<sup>(13)</sup> who illustrated that Perinatal nurses often care for pregnant women with APS who require treatment, education, and support, because of the prevalence of APS and their associated adverse pregnancy outcomes, it is imperative that nurses are aware of APS, its risks, associated complications, medical treatment, and nursing management. Without knowledge, nurses may fail to anticipate or overlook subtle changes indicating pregnancy complications. Likewise, nurses may not adequately educate their clients and their clients' families regarding prevention and management of APS complications.

The current study revealed that, only twenty one percent of the nurses had the information about APS from nursing school or college, while the majority of nurses had no sources of information. This finding in the same line with **Atterbury et al., (2012)**<sup>(14)</sup> who mentioned that, the nurses who were familiar with APS reported that their information about APS came from school.

According to the findings of the current study nearly half of the nurses had inadequate practice to pregnant women with Antiphospholipid Syndrome before intervention program. These results were supported by **Bulikova, (2012)**<sup>(3)</sup> who reported that, physicians and other health professionals as well as nurses often are unfamiliar with APS, There may be due to lack of knowledge about APS in the healthcare setting.

According to the findings of the current study there was improvement in the percentages of adequate practices related to nursing care of pregnant women with antiphospholipid syndrome after the intervention program. This result coincided with **Lopez-Pedrerera et al., (2012)**<sup>(15)</sup> who stressed that the training program for nurses personal as method for continuous updating and renewal of their knowledge and skills to maintain and improve competence. Similar study conducted by **Bulikova, (2012)**<sup>(3)</sup> who illustrated that pregnancy makes a significant demand with Antiphospholipid Syndrome therefore, it follows that women with Antiphospholipid Syndrome need specialist input and careful management pre-, peri-, and post-partum.

According to the findings of the current study, Nearly all nurse's in the study group had satisfactory knowledge related to APS about adequate practice in the post intervention. These results were supported by **Iwasawa et al., (2011)**<sup>(16)</sup> who said that, nurses play an integral role in the assessment and care of all patients. Educational efforts help to increase awareness of APS and its nursing management have the potential to improve pregnancy outcomes and minimize postpartum risk in women with APS. Maternal health nurses who understand the complications of APS and its manifestations may be better able to quickly identify historical/physical findings that could alert them to the possibility of an embolic event or obstetrical complications.

The current study revealed that there was a highly statistically significant improvement in knowledge and practice aspect of nurses related to nursing care of pregnant women with Antiphospholipid Syndrome during pregnancy after educational program. This result coincided with **Lopez-Pedrerera et al., (2012)**<sup>(15)</sup> & **Soh MC et al., (2013)**<sup>(17)</sup> who stressed that the training program is very important for the nurses as a method for continuous updating and renewal of their knowledge and skills to maintain and improve competence.

## VI. Conclusion

The nurses who were subjected to intervention program about nursing care of APS had satisfactory level of knowledge and adequate practice regarding APS post intervention than pre intervention.

## VII. Recommendation:

**In the light of the study findings, the following is recommended:**

- Integrate ante natal evidence based educational program for pregnant women about antiphospholipid syndrome implemented by maternity nurses at MCH centers .
- Further research studies to determine specific educational needs of the nurses regarding APS at different health care settings

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