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Women's Knowledge regarding Postpartum Warning Signs

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Abstract

Aim of the study: The aim of the study was to assess women's knowledge regarding postpartum warning signs. **Subjects and Methods:** This was a descriptive study which was conducted among (350) postpartum women attending the inpatient units in Ain Shams maternity university hospital. From of December 2017 to May 2018. Data collection tools were a 'Structured Interviewing questionnaire and A Likert scale. **Result:** The present study showed that nearly half of all postpartum women recognize postpartum warning signs. The majority of postpartum women had incorrect knowledge regarding importance of detecting postpartum warning signs. Furthermore it was concluded that, very poor knowledge of postpartum women associated with socio demographic characteristics and obstetrical& delivery history such as age, family income level, Residence and women's educational level, also Primipara women and had current complication. In addition to, there was no significant relationship between women's knowledge regarding postpartum warning signs and their age and marital status, while there is highly statistical significance difference between women's level of knowledge and their residence, family income level, women job and women's educational level. **Conclusion:** The present study findings revealed that the majority of women had incorrect knowledge regarding the following postpartum warning signs; Excess uterine bleeding (Lochia), perineal pain, breast pain, Offensive odor and abnormal vital signs (especially high blood pressure). Moreover, Women's educational level, Residence, family income level, being multiparous and place of delivery found to be significantly associated with women's knowledge of postpartum warning signs. **Recommendations:** Activating the role of maternity and community health nurse in branches of obstetrics and postnatal follow up clinics to enhance postpartum women knowledge regarding postpartum warning signs.

Key words: postpartum period, warning signs, Knowledge.

Introduction

Most child bearing women have healthy babies and recover from the physiological adaptation to pregnancy without difficulty just like everything else in life. Women's body faces significant changes in the weeks and months following child birth. It is a time considered transitional cycle filled with many changes and wide range emotion and the new mother experience a great sense of accomplishment. However, the new women can develop postpartum conditions that place her at risk. Lack of awareness and education regarding these risk condition considered life threating to the new mother **(Kyle, T. & Ricci, S., 2017).**

The postpartum period is a critical

transition time for women as the body undergoes major changes affecting significantly the physical and mental health which need women to adjust physically and psychologically ***(UNICEF, 2015*).**

The nurse plays an essential role in promoting and improving postpartum outcomes, not only as a health care provider but also as an administrator, manager, educator, research and counselor. Nurse will need to have the appropriate knowledge and skills to determine when to be proactive with regard to undertaking specific observations where these might be required. Therefore, the nurse must be able to identify signs of morbidity that require further investigations and discuss the future management of these with the women. Nurses will never know the quality of care they offer until if it is being assessed through patient satisfaction. But also for providing vast teaching to women after delivery and before they discharged from the hospital based on bio-psychosocial needs further provide anticipatory assistance and counseling **(Abd el-Razek, 2013).**

Globally, greater than 358,000 women die each year from postpartum warning signs that neglected a lot leading to postpartum complications. Only 1% of the maternal death occurs in high income countries. A woman's life time risk of dying from complications in child birth or pregnancy is an average of 1 in 120 in developing countries as compared to 1 in 44,300 in developed countries. United Nations Millennium Development Goals stated that every year, at least half a million women and girls needlessly die as a result of complications during pregnancy, childbirth or the 6 weeks following delivery. Almost all (99%) of these deaths occur in developing countries **(WHO, 2014).**

Approximately 80% of maternal deaths worldwide are caused by direct postpartum complications such as hemorrhage (72.6%), infection (10.7), and Abortion outcomes (7.9). Indirect causes such as malaria, diabetes, hepatitis, anemia and other cardiovascular disorders which are aggravated by pregnancy can also lead to maternal death***(WHO, 2014).***

Warning signs are not the actual postpartum complications but symptoms that are easily identified by the mother herself and nonclinical personnel. These warning signs include severe vaginal bleeding, severe headache, severe abdominal pain, convulsions, foul-smelling vaginal discharge, and fever ***(Gedefa, A & Mulaw, Z., 2016).*** If women and their families can recognize the obstetric warning signs and promptly seek health care services, significant amount of maternal morbidity and mortality could be prevented. Therefore, increasing women's perception regarding postpartum warning signs through improving their knowledge about them would lead to improving their attitude to early detection of problems and reduce the delay in deciding to seek obstetric care (**Hailu and Berhe, 2014**). Thus, one of the key strategies for reducing maternal mortality is assess knowledge of postpartum warning signs. **(Gedefa, A‹ & Mulaw, Z., 2016).**

Nurses play an important role in supporting women during postpartum period; they provide physical, emotional, informational and confidence support **and** also need to be aware of the normal physiologic and psychological changes that take place in women's bodies and minds in order to provide comprehensive care during this period in addition to patient and family members **(Ibrahim, A., & Hassan, M., 2017).**

The desired outcome is that the mother feels confident about taking care of herself and be prepared to resume her normal role in the community. To achieve this, the nurse guide the new mother through the predictable physiologic, emotional, and social changes that occur after pregnancy and help women to developing coping strategies. Also, the nurse has a role in providing knowledge about postpartum warning signs that lead to improving attitude regarding postpartum warning signs among women.

(Gedefa, A., & Mulaw, Z., 2016).

Aim of the Study

This study aims to assess Women's Knowledge regarding Warning Signs of Postpartum Period.

Research question

- Are women having knowledge about warning signs of postpartum period?

1- **Subject and Methods**

The methodology followed for achieving this aim was elaborated under the following four main topics namely:

I. Technical design

II. Administrative design

III. Operational design

IV. Statistical design

I- Study technical design

The technical design used for the study involved the following items; research design, setting of the study, Subjects of the study and tools for data collection.

Research design:

Descriptive design was used.

Setting:

The study was conducted in postpartum inpatient Units at Ain shams University Maternity Hospital. It is consists of three floors. Each floor consists of two units, each unit consists of three rooms, and each room contains four beds for four admitted cases.

Subjects:

Sampling:

Convenient sample.

The subject of this study were selected according to the following criteria

*Multipara & Primipara women.

*Women are immediately after birth and last about six weeks postpartum.

Size:

The above mentioned study setting received 350 postpartum women during the six months of data collection period that represent (15%) of total Women admitted into Postpartum Units at Ain Shams Maternity University Hospital at Academic Year 2016 (5250 mothers).

Sample technique:

For data collection all available postpartum women attending inpatient postpartum units at Ain shams maternity university hospital. The sample was collected in the predetermined duration that was six months

Tools of data collection:

It was designed by the researcher based on review of literature considering the aim of the study and the data needed to be collected.

A) An interview questionnaire includes 3 parts:

- **First part**:

Stressed on demographic data that covered women age, address, education level, occupation, marital status and family income level. (**Ibrahim, A., &Hassan, M., 2017).**

- **Second part:**

Stressed on Obstetrical & Family history taken (gravidity, parity, duration of current pregnancy, previous history of postpartum complication, mode of delivery…etc. **(Ibrahim, A., &Hassan, M., 2017).**

Third part:

Stressed on assess Women knowledge related to Warning Signs of Postpartum Period. Also, they will be asked about their Sources of Knowledge. (**Ibrahim, A., & Hassan, M., 2017)**

The scoring system regarding womens knowledge was as follows:

- Women knowledge about postpartum period (6 items)

- Physiolgical changes during postpartum period (4 items)

- Changes in the vital data (4 items)

- Complicaions occuring in the postpartum period (7 items)

- Infection during postpartum period (7 items)

Correct answers will be scored "2", while incorrect answers will be scored "1". The questionnaire consists of 28 items.

Item scores will be added for each participant and total score will be obtained, the total score will be divided by maximum score (28)*100 to obtain percent score.

Ethical Consideration:

The ethical research considerations in this study include the following

- The research approval was obtained from Scientific Research Ethical committee in Faculty of Nursing at Ain Shams University before starting the study.

- The researcher clarified the objective and aim of the study to the participants included in the study.

- The researcher assures maintaining anonymity and confidentiality of the subject data.

- A verbal consent was obtained from participants after explaining the purpose of study.

- No harmful methodology was used with participants.

- Each participants had right to withdraw from the study at any time.

- Human rights were used.

- Data was confidential and using coding system form data

Administrative design:

An official approval was obtained from the director of the study setting as approval for data collection to conduct study.

Operational design:

The operational design includes preparatory phase, Pilot study and field work.

Preparatory phase:

It includes reviewing current and past, local and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection. The developed tools were examined by (3) Gynecological and maternity professors to test their reliability to the study. Researcher made needed modification on tools of data

collection after their revising by experts.

Pilot Study

A pilot study was carried out on (35 mothers) that represent 10% of total sample size the study setting .The pilot study was aimed to test clarity, arrangement of the items, applicability of the data collection tools and time consuming to fill in the tools. After analyzing the results of the pilot study the items were been rearranged and tools modifications were done based on the findings of the pilot study. Some items were excluded, rephrased and then the final form was developed.

Field Work:

After an approval was taken from the manager of the mentioned study setting, the researcher attended the study setting for 3 days per week from 9:00am to 2:00pm for 6 months from december2017 to May 2018, At the beginning of interview the researcher started by explaining the purpose of the study briefly to post-partum women, and then the oral consent of the women will obtain.

_The interview will conducted individually for each participant to collect the required data.

_Tools of data collection will be taking approximately 20-30 minutes to complete.

Statistical design

Data were analyzed using Statistical Program for Social Science (SPSS) version 20.0.Quantitative data were expressed as mean ±standard deviation (SD). Qualitative data were expressed as frequency and percentage.

The following tests were done:

- Chi-square (X^2) test of significance was used in order to compare proportions between two qualitative parameters.

Significance of the results:

P-value<0.05 was considered significant.

- P-value<0.001 was considered as highly significant.
- P-value>0.05 was considered insignificant.

Results:

Table 1: Number and percentage distribution of studied women's according to their socio-demographic characteristics (N=350).

Socio-Demographic data	No.	%
Age (years)		
<20	24	6.9
20-	177	50.6
30-	121	34.6
>40-	28	8.0
Mean±SD	30.48±4.35	
Women's educational level		
Illiteracy	54	15.4
Primary education	43	12.3
Secondary education	122	34.9
University education	131	37.4
Residence		
Rural	94	26.9
Urban	256	73.1
Marital status		
Married	298	85.1
Divorced	37	10.6
Widowed	15	4.3
Family income level		
Enough	145	41.4
Barely enough	117	33.4
Not enough	88	25.2
Women's Job		
Work	180	51.4
Housewife	170	48.6

Table 1: point out 50.6% of their women's age ranged between 20 up to 29 years with mean age for women 30.48-+4.35. As Regard, women's educational level 37.4% of the studied women had university education , concerning place of Residence 73.1% of studied women's from urban area .As Regard women's marital status 85.1% of studied of studied women's were married . In additions to 41.14% of studied women's had enough family income .More over 51.4% of studied women's were worked.

Table 2: Number and percentage distribution of studied women's in the postpartum period according to obstetric and delivery history. (N=350).

Items:	No.	%
Gravida		
1	113	32.3
2-4	225	64.3
>4	12	3.4
Para		
1	119	34.0
2-4	219	62.6
>4	12	3.4
Antenatal follow up on current pregnancies.		
Yes	333	95.1
No	17	4.9
Place of follow up.		
Governmental Hospital	150	42.9
Private Clinic	200	57.1
First time at follow up.		
First trimester	249	71.1
Second trimester	66	18.9
Third trimester	35	10.0
Mode of current delivery.		
Normal	128	36.6
Normal+ Episiotomy	113	32.3
Cesarean section	109	31.1
Pregnancy outcome :		
Preterm	232	66.3
Post term	97	27.7
Still birth	21	6.0
Have complications in current postpartum period.		
Yes	250	71.4
No	100	28.6
Types of complications.		
Bleeding	110	31.4
Eclampsia	70	20.0
Venous thrombophlebitis	33	9.4
Infection	99	28.3
Postpartum blue	38	10.9
@Number not exclusive		

Table 2: indicated that 64.3% of studied women's had pregnancy from two to four times, As regard parity 62.6% of studied women's had delivery from two to four times , Moreover 95.1% of studied women's had Antenatal follow up on current pregnancy ,As regard place of follow up 57.1% of studied women's followed in private clinic ,Moreover 71.1% of studied women's started follow up at first trimester , As regard Mode of delivery and pregnancy outcome 36.6%,66.3% of studied women's had normal vaginal delivery and preterm baby respectively , concerning postpartum complication 71.4% had postpartum complications ,As regard types of postpartum complications 31.4%, 28.3%, 20.0% of studied women's had bleeding ،infection and eclampsia Respectively .

Table 3: Number and percentage distribution of studied women's according to their knowledge regarding postpartum warning signs (N=350).

Women's knowledge about the postpartum warning signs	Correct		Incorrect	
	No.	%	No.	%
1-All Warning signs during the postpartum period:	177	50.6%	173	49.4%
2 –Importance of detecting warning signs during postpartum period.	84	24.0%	266	76.0%
3- Method of identifying (detecting) warning signs of postpartum period.	244	69.7%	106	30.3%
4- Women knowledge regarding warning signs				
A – Uterus				
- Sub-involution	180	51.4%	170	48.6%
- Uterine discharges	152	43.4%	198	56.6%
* Amount	105	30.0%	245	70.0%
* Color	133	38.0%	217	62.0%
* Odor	127	36.3%	223	63.7%
B- Vagina & perineum				
- Pain	119	34.0%	231	66.0%
- Edema	142	40.6%	208	59.4%
- Discharge	132	37.7%	218	62.3%
C-Breasts				
-Pain	117	33.4%	233	66.6%
-Redness	133	38.0%	217	62.0%
-Abscess	139	39.7%	211	60.3%
D- Urinary tract infections	131	37.4%	219	62.6%
E- Deep venous thrombosis (DVT)	83	23.7%	267	76.3%
F- Vital signs				
- Temperature	97	27.7%	253	72.3%
- Pulse	143	40.9%	207	59.1%
- Blood pressure	165	47.1%	185	52.9%
- Breathing	44	12.6%	306	87.4%
Total knowledge score	145	41.4%	205	58.6%

Table 3: reveals that 50.6%, 69.7% of studied women's had correct knowledge about all postpartum warning signs and methods of identifying postpartum warning signs respectively. While 76.0% of studied women's had incorrect knowledge about importance for identifying postpartum warning signs. As regard women's knowledge regarding different warning signs (56.6%, 66.0%, 66.6%, and 76.3%) of studied women's have incorrect knowledge about uterine discharge, perineal pain, breast pain and DVT. concerning Women's knowledge regarding urinary tract and Vital signs 62.6%, 72.3% of studied women's had incorrect knowledge about urinary tract infection and increasing temperature as warning signs.

Table 4: Relation between total knowledge level and their socio-demographic characteristics among the studied women's regarding postpartum warning signs (n=350).

Socio-Demographic Data	Total knowledge				Chi-square test	
	Correct (N=145)		Incorrect (N=205)			
	No.	%	No.	%	x2	p-value
Age (years)						
<20	13	9.0	11	5.4	5.224	0.156
20-	69	47.6	108	52.7		
30-	47	32.4	74	36.1		
≥40-	16	11.0	12	5.9		
Women's educational level						
Illiteracy	13	9.0	41	20.0	78.445	<0.001**
Primary education	15	10.3	28	13.7		
Secondary education	24	16.6	98	47.8		
University education	93	64.1	38	18.5		
Residence						
Rural	13	9.0	81	39.5	38.801	<0.001**
Urban	132	91.0	124	60.5		
Marital status						
Married	118	81.4	180	87.8	3.339	0.188
Divorced	18	12.4	19	9.3		
Widowed	9	6.2	6	2.9		
Family income level						
Enough	89	61.4	56	27.3	42.628	<0.001**
Barely enough	29	20.0	59	28.8		
Not enough	27	18.6	90	43.9		
Women Job						
Worker	104	71.7	76	37.1	39.447	<0.001**
Housewife	41	28.3	129	62.9		

Table 4: shows there was no statistical significance difference between women's knowledge regarding postpartum warning signs and their age and marital status, while there was highly statistical significance difference between women's level of knowledge and their residence, family income level, women job and women's educational level.

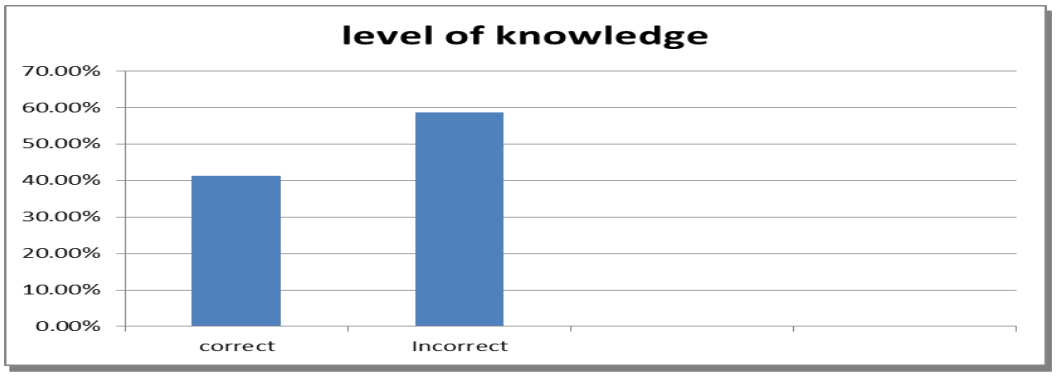

Figure 1: Percentage distributions of studied women's according to their total level of knowledge regarding postpartum warning signs.

Discussion

The aim of the present study was to assess Women's Knowledge regarding Warning Signs of Postpartum Period.

Concerning general characteristics of the study subjects, the mean ± SD age was 30.48 ± 4.35 and also nearly two-thirds of women were from urban area; as well as one third of women with university education; while more than half of them were working and more than one third of them had enough family income (table 1).

Those finding came in accordance with ***Ibrahim, A., &Hassan, M., (2017)*** who assessed knowledge and practice of 200 pregnant women regarding danger signs of obstetric complication in 4 antenatal clinic (M.C.H centers) in Tanta city and reported that nearly half of the women had age between 24 to less than 30 years old. More than half of them were from urban areas, each one-third had either secondary diploma or university education but difference in occupation, slightly more than three quarter of them were housewives. This may be due to difference in sample size.

Regarding ante-natal follow up, the result of the current study revealed that, nearly three quarter of women reported that they sought initial antenatal follow up at first trimester, while one-fifth and few of them in the second and third trimesters respectively. Meanwhile, the previous study was in agreement with ***Ibrahim, A., &Hassan, M., (2017)*** who showed a pattern of early antenatal follow up, as more than three-quarter of the women reported that they had sought initial antennal visit at first trimester (table 2).

Meanwhile, this finding was on contrary with ***Mutiso, S., & Kinuthia, J., 2009*** who showed the pattern of Ante-natal follow up and reported that only less than one quarter of the women in both studies had followed antenatal care during the first trimester of pregnancy. In addition to the Ethiopian demographic, one third of the women had first antenatal follow up in the first trimester. Moreover, Tanzania demographic and health survey ***(TDHS, 2010).*** They reported that the majority of the women booked for antenatal care in the second trimester.

The discrepancy between previous study finding and the findings of the current study may be attributed to difference in the setting and sample size. Moreover, this could be justified by more than half of the studied sample were pregnant two to four times before. In addition, more than one-third of women were pregnant for the first time (Table 2).

Concerning knowledge of studied women about current history of postpartum complications, the present study revealed that postpartum hemorrhage (PPH), infection and postpartum eclampsia were the most frequent complications during postpartum period that represent nearly one third, more than one fourth and one fifth of the women respectively. The previous study finding was supported with **Ibrahim*, A., & Hassan, M., (2017)*** who assessed women's knowledge and practice regarding danger signs of obstetric complications and reported that postpartum hemorrhage, puerperal infection and postpartum eclampsia were the most frequent obstetric complications during puerperium.

The result of the current study revealed that, nearly half of women had incorrect knowledge about postpartum warning signs for women: The previous study finding was in the same line with ***Mohamed, D., (2017)*** who assessed knowledge of women regarding Primipara mother's self-care during postpartum period and reported that half of mothers had incorrect knowledge about postpartum maternal danger signs.

Also, the previous study finding was supported with Adam (2015) who assessed knowledge and practice of (150) mothers regarding self-care during postpartum in

postnatal ward in National Ribat University hospital and revealed that nearly three fourth of mothers had incorrect knowledge about postpartum maternal danger signs. In addition to the previous study finding was in agreement with ***Hailu, D., &Berhe, H., 2014*** who assessed Knowledge about Obstetric Danger signs among Pregnant Women and stated that the mothers' knowledge about postpartum danger signs was low. The difference could be justified by absence of previous experience.

Concerning knowledge of studied women regarding postpartum warning signs regard vaginal bleeding and infections, the present study revealed that vaginal bleeding was the most commonly known warning signs that may occur during postpartum period followed by high-grade fever and reported that nearly more than two third of the women had incorrect knowledge about vaginal bleeding and fever respectively.

The previous study findings was supported by **Ibrahim, A.,& Hassan, M., (2017)** who assessed knowledge and practice of women regarding danger signs of obstetric complication and reported that nearly one third and more than one third of the women had been exposed to postpartum hemorrhage and infection before in previous postpartum period respectively.

In relation to site of infection, the present study finding revealed that two third of studied women had incorrect knowledge about episiotomy pain. These findings were in agreement with ***Mohamed ,D., (2017),*** who studied the effect of Self-Perinatal Care Instruction or Episiotomy Pain of postpartum women conducted on (80) postpartum at El-Minia General hospital. The result showed that the instructed guideline had a significant effect on studied women by decreasing in the level of perineal pain at 4, 24, 48 hrs. And seven days postpartum.

Concerning warning signs of breast during postpartum period, the current study finding showed that two third and less than two-third of studied women had incorrect knowledge about breast pain and redness as recognized warning signs during postpartum period for mothers. These findings are in the same line with ***El-Ashmawy, H.,& Ahmed, A., (2017)*** who assessed the effect of health teaching on postpartum minor discomfort and reported that three quarter of the studied women informed about improvement in the breast engorgement after conducting a health teaching session; on the other hand, one fifth informed about getting worse.

In relation to Offensive odor discharge, the present study finding revealed that nearly two third, nearly three-quarter of the studied women had foul-smelling vaginal discharge followed by higher grade fever respectively and mentioned that a warning sign during postpartum period, the previous study finding is similar to ***Mulatu, T., & Bililign, N., (2016)*** who reported that continuous primary nursing care increase satisfaction with nursing care and reduced postpartum problems for hospitalized women and showed lower occurrence of postpartum urinary tract infections.

While, the previous study finding is in agreement with ***El-Ashmawy, H.,& Ahmed, A., (2017)***who assessed effect of health teaching about postpartum minor discomfort and reported that more than three quarters of the subjects showed increased knowledge about urinary tract infection after conducting a health teaching session while 13.8% of the subjects informed getting worse.

Concerning postpartum DVT, the result of the current study indicated that more than three-quarter of studied women had incorrect knowledge about the causes of DVT and importance of early ambulation after birth. The previous study finding was in the same line with ***Mohammed, D., (2017)*** who assessed knowledge of Primipara women's self-care practice during postpartum period and reported that nearly three fourth of mothers had incorrect knowledge about the practiced

exercise after birth. Also, the previous study finding was in the same line with ***Fadal, E.A., (2009)*** who investigated (170) women about self-care during postpartum period in the postnatal unit in El-Mansoura University hospital and reported that more than three fourth of studied women had incorrect knowledge about postpartum exercise and importance of early ambulation after child birth. This is due to lack of knowledge about importance of ambulation as early as possible to prevent occurrence of DVT.

Meanwhile, the previous study finding was in agreement with ***Adam, L.A., (2015)*** who assessed knowledge and practice of 150 mothers regarding self-care during postpartum period in postnatal ward in National Ribat University hospital and showed that the majority of mothers had incorrect knowledge about postpartum exercise especially early ambulation after birth.

On the other hand, the pervious study finding was on contrary with ***Darling, B.,& Brazil, A.B., (2014)*** who assessed knowledge and attitude of 100 postnatal mothers regarding self-care after childbirth in selected maternity centers in Madurai and explored that about three fourth of mothers had adequate knowledge about postpartum exercise.

Regarding postpartum vital signs, the result of the current study finding revealed that nearly half of the studied women had incorrect knowledge about importance of measurement of vital signs especially blood pressure as high or low blood pressure consider a warning sign during postpartum period. The previous study finding was in agreement with ***Ibrahim, A., & Hassan, M., 2017)*** who assessed knowledge and practice of 200 women regarding danger signs of obstetric complications in 4 anti-natal clinics in Tanta City and reported that very few women recognized high or low blood pressure, convulsion, severe headache and depression are obstetric danger signs that may occur during postpartum period.

Meanwhile, the previous study finding was supported by ***Pembe, A., & Urassa, D., (2009)*** who indicated that high blood pressure, severe headache and loss of consciousness were known by very few subjects as danger signs during postpartum period. Also, the previous study finding was supported by ***Hailu, D., &Berhe, H., (2014)*** who assessed knowledge about obstetric danger signs among pregnant women and stated that the mother's knowledge about postpartum danger signs was low concerning severe headache, loss of consciousness, and convulsion as danger signs during postpartum period.

Concerning overall knowledge of studied women regarding warning signs during postpartum period, the result of current study finding showed that half of the studied women had incorrect knowledge about all postpartum warning signs. The previous study finding was supported by ***Ibrahim, A.,& Hassan, M., (2017)*** who assessed knowledge and practice of 200 women regarding danger signs of obstetric complications and stated that about two-third of the women had poor knowledge regarding obstetric danger signs. Also, the previous study finding was in agreement with ***Hailu, D., &Berhe, H., (2014)*** who reported that large proportion of women were unaware of obstetric danger signs.

Meanwhile, the previous study finding was in contrary with ***Rashed , W.A.,& Essa, R.M., (2010)*** who stated that only one-quarter of their subjects had poor knowledge of obstetric danger signs and also ***Timilsina*****, S.,& Dhakal, R., (2015):** who explored the knowledge regarding postnatal care among 196 postnatal mothers to find out the association of level of knowledge on postnatal care among postnatal mothers with their demographic variables and illustrated that the majority of women had correct knowledge about postpartum danger signs.

The result of the present study revealed that there was a highly statistical significant association between women's educational level

and their knowledge regarding postpartum warning signs. This may be due to women with educational background had correct knowledge than women with limited educational background. The previous study finding was in agreement with ***Timilsina* S.,& Dhakal, R., (2015):** who reported that the knowledge regarding postnatal care among 196 postnatal mothers to illustrated to association of level of knowledge on postnatal care among postnatal mothers with their selected demographic variables in postnatal and gynecological ward of western regional hospital and reported that there was a significant association between level of mother's knowledge regarding postpartum self-care and education.

While, the previous study finding was in congruent with ***Pembe , A., & Urassa, D.,(2009)*** who reported that education was the important contributing factor to increase knowledge about postpartum danger signs, moreover, ***Raoof, Al.,& Al-Hadithi, T., (2011)*** supported this view and revealed that generally educated clients attending primary care centers were more likely to recall danger signs than non-educated clients.

The result of the current study showed that there was no significant association between women's age and knowledge regarding postpartum warning signs; this result may be due to that knowledge is gained from doctors/ relatives. The previous study finding was parallel to ***Ibrahim, A., & Hassan, M., (2017)*** who assessed knowledge and practice of 200 pregnant women regarding danger signs about obstetric complications in postnatal medical centers in Tanta city and found that no statistically significant association was observed between mother knowledge regarding postpartum danger signs and age.

Meanwhile, the previous study finding was on contrary with ***Lalitha, H., (2016)*** who assessed knowledge of 50 Primipara mothers regarding self-care measures in postnatal unit in a selected maternity hospital and found that a statistically significant association was observed between mothers' knowledge regarding postpartum self-care measures and their age.

The result of the current study revealed that there was highly statistically significant association between women's job and knowledge regarding postpartum warning signs. This result may be due to that working women have better opportunity to share experience with others than housewives. The previous study finding was supported with ***Ibrahim, A., & Hassan, M., (2017)*** who explored the knowledge and practice of 200 pregnant women regarding danger signs of obstetric complication and found that there was a significant association between mothers' knowledge regarding danger signs and their occupation.

The result of the current study illustrated that, there was a highly statistically significant association between residence and knowledge regarding postpartum warning signs. The previous study finding was parallel to ***Hailu, D., & Berhe, H., (2014)*** who reported that urban residence was found to have a significant association with mentioning at least two danger signs during postpartum period.

Meanwhile, the previous study finding was disagreed with ***Ibrahim, A., & Hassan, M., (2017)*** who assessed knowledge and practice of 200 pregnant women regarding danger signs of obstetric complications and indicated that there was no statistically significance between residence and knowledge of postpartum danger signs. This may be due to that about half of women from rural areas and their source of knowledge are limited than urban areas.

The result of the current study revealed that there was positive correlation between women's knowledge and attitude regarding postpartum warning signs. The previous study finding was in congruent with ***Mohammed, D.,***

(2017) who assessed women's self-care practice during postpartum period and reported that there was no correlation between mothers' knowledge and attitude regarding self-practice during postpartum period.

Conclusion

In the bright of the study findings, it was concluded that the majority of women had incorrect knowledge regarding the following postpartum warning signs; Excess uterine discharge (Lochia), perineal pain, breast pain, offensive odor discharge and abnormal vital signs. Moreover, Women's educational level, Residence, family income level, being multiparous and place of delivery found to be significantly associated with women's knowledge of postpartum warning signs. The current study finding showed that there was highly statistical significance difference between women's level of knowledge and their residence, family income level, women job and women's educational level.

Recommendations:

In the light of the result findings, the researcher suggestions were:

1. Increasing women's knowledge awareness related to physiological and psychological changes and warning signs during Post natal to control this discomfort is recommended.

2. Health educational package on postpartum warning signs should be given on discharge and should written in clear, simplified and comprehensive explanation about methods of identifying warning signs supported by drawing pamphlets especially for illiterate one.

- **Further studies are needed in this field:**

To assess postpartum women practice regarding warning signs.

References

Adam, L.A. (2015): Assessment of knowledge and practice of mothers regarding self- care during puerperium, Ribat University p 22.

Abd El-Razek, A. (2013): Enhancement of mother's self-care practices for reliving minor discomfort during postpartum period, The Arab journal of the social sciences, Philadelphia.

Anaam Ibrahim El-Nagar, Manal Hassan Ahmed, Ghada Abd El-Salam Belal (2017). Knowledge and Practices of Pregnant Women Regarding Danger Signs of Obstetric Complications; IOSR Journal of Nursing a nd Health Science (IOSR-JNHS e-ISSN: 2320–1959.p-ISSN: 2320–1940 Volume 6, Issue 1 Ver. VI (Jan. - Feb. 2017), PP 30-41 www.iosrjournals.org

Darling, B. & Brazil, A.B. (2014): Knowledge and attitude of post natal mothers regarding self-care after childbirth in selected maternity centers Journal of science (2014): Vol 4 /issue 1/ 40-44.

Doaa Mohammed Hassan., (2017): Primipara women's self-care practice during postpartum period, Maternity and Gynecological Nursing.

Fadel, E.A. (2009): Self - care of women during postpartum period, thesis Submitted for partial fulfillment of the Requirement of Master Science in Nursing Degree in Maternity and Neonatal Health, p3536.

Gedefa, A &Mulaw, Z., (2016): Knowledge about Warning Signs of Obstetric Complications and Associated Factors among Postnatal Mothers of Mechekel District Health Centers, East Gojjam Zone, Scientific

a,https://WWW.ncbi.nlm.nih. goarticles/PMC 4916279/v/PMC.

Hailu, D., & Berhe, H., (2014): Knowledge about obstetric warning signs and associated factors among mothers in Tsegedie District, Tigray Region: community based cross-sectional study. PLoS ONE, 9 (2) doi: 10.1371/journal.pone.0083459.e83459.

Heba -Talla El-Ashmawy Shabaan, Yousria Ahmed El-Sayed, Gehan Ghonemy., (2017): Effect of health teaching on postpartum minor discomfort, Journal of Basic and Applied Sciences, www.elsevier.com/locate/bjbas

Kyle, T. & Ricci, S., (2017): Maternity and pediatric Nursing, 2nd Ed, Philadelphia, Baltimore, New York, p 430-450.

Lalitha, H. (2016): A study to assess the knowledge on self-care during post natal period among Primipara mothers in a selected maternity hospital, International Journal of Applied Research, 2(4): 711-712.

Murray, S. & McKinney, E. (2014): Foundations of maternal- newborn and women's health nursing, postpartum physiologic adaptations, 6thed. St. Louis: Elsevier (17)328.

Mutiso, S., Qureshiz, and Kinuthia, J., 2009: Birth preparedness among antenatal clients, East African Medical Journal, 85(6) 275-283

Pembe A, Urassa D, Carlstadt A, Landmark G, Nystroms L, Darj ,E ., (2009): Rural Tanzanian Women's awareness of danger signs of obstetric complications. BMC Pregnancy & Childbirth. Available from: http://www.biomedcentral.com/1471-2393/9/12

Raoof, A., & Al-Hadithi, T., (2011): Antenatal care in Erbil City-Iraq: Assessment of information, education and communication strategy, Duhok Medical Journal, 5(1): 31-40.

Rashad, W. A., & Essa, R.M., (2010): Women's awareness of danger signs of obstetrics complications," Journal of American Science, vol. 6, article 11.

Tesfahun Mulatu and Nigus Bililign., (2017): Knowledge of obstetric danger signs and associated factors among reproductive age, BMC Pregnancy and Child birth, vol (17), PMC5576340.

Timilsina, S., Dhakal, R., et al. (2015): Saudi Journal of Medical and Pharmaceutical, SMEP, 1 (4)87-92.

UNICEF (2015): Trends in Maternal Mortality 1990 to 2015: Estimates by WHO, UNICEF, World Bank, UNFPA and United Nations Population Division. Geneva: World Health Organization.

WHO (2015): Strategies toward ending preventable maternal mortality (EPMM) World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland ISBN 978 92 4 150848.

World Health Organizations (2015): Postpartum care, Lippincott Williams & Wilkins, Philadelphia, p101.

WHO (2014): WHO recommendations on postnatal care of the mother and newborn. Department of maternal, Newborn, Child and Adolescent health, Geneva 27, Switzerland, Available at: http://www.who.int/maternalchild adolescent/en