Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 6, Issue 2, pp: (994-1001), Month: May - August 2019, Available at: www.noveltyjournals.com

Postpartum Long Acting Reversible Contraceptive use following prenatal Family Planning counseling

Amany A. Ahmed, PhD[1]., Samar K. Hafez, PhD[2]. , Isis E. Gohar, PhD[3].

Department of Obstetrics and Gynecological Nursing, Faculty of Nursing, Sohag University[1], Alexandria University[2,3] Egypt.

Abstract: **In developing countries like Egypt, unintended pregnancies frequently occur during the first year postpartum.**

Aim: of study was to assess the impact of contraceptive counseling during antenatal visits on postpartum long acting reversible contraceptive use. Setting: This study was conducted in antenatal units that are affiliated to Assiut General and Iman Hospitals in Assiut governorate. Sample: 300 pregnant women with history of previous delivery attending ANC units were eligible for inclusion in the current study sample during the period of study. These women were randomly categorized into two groups; study group (n=150) who received contraceptive counseling and control group (n=150) who received routine antenatal counseling Tools: Two tools were used. Tool (I): baseline data structured interview schedules and Tool (II): Follow up interview schedule Results: (68.5%) of women in the present study were between 21 and 30 years of age, had intermediate education (66.7%), were housewives(78.5%), lived in urban areas (56.6%), had history of delivery by caesarian section(53%), and interviewed in the third trimester of the current pregnancy (82.4%). There was significant (p<0.0001) greater rate of postpartum long acting reversible contraceptive use in study group (63%) than in control group (27%). Univariate analysis in study group showed that women of older age (p=0.0011), caesarian section as a method of previous deliveries (p=0.023), and contraceptive counseling during third trimester of the current pregnancy (p=0.0009) were associated with significantly higher contraceptive use. Multi-variate analysis showed that third trimester counseling (p<0.0001; HR: 0.072, 95%CI of HR: 0.019-0.27) and CS as mode of previous deliveries (p<0.0001; HR: 6.88, 95%CI of HR: 2.39-19.79) were independent factors to predict higher use of long acting reversible contraceptive in postpartum period.

Conclusions: Contraceptive counseling conducted during antenatal visits, especially during the third trimester of pregnancy, resulted in increased use of LARC in the postpartum period

Keywords: **Counseling, Contraceptive use, Antenatal Care.**

1. INTRODUCTION

The interval between pregnancies less than 12 months carries a risk of preterm labor and neonatal death [Smith et al., 2003]. In developing countries like Egypt, unintended pregnancies frequently occur during the first year postpartum [Jackson et al., 2003]. An interval of at least 2 years between pregnancies is recommended by the World Health Organization (WHO), in order to decrease the maternal and fetal adverse outcomes [WHO, 2006]. Unfortunately, the majority of women in the reproductive age especially in the postpartum period have little or no knowledge of family planning. Counseling is basis for providing scientific knowledge of contraceptive methods and eliminating false beliefs regarding side effects [Kaewkiattikun, 2017] to increase interpregnancy interval. According to a survey from New York

City [Zabata et al., 2015], and a follow-up surveys conducted by the Italian National Institute of Health study [Lauria et al., 2014], it was found that prenatal or postpartum counseling resulted in increased postpartum use of contraceptive method. Another systematic review revealed that counseling program during prenatal care resulted in increased family planning use [Sonalkar et al., 2014]. Therefore, prenatal contraception counseling is essential in enhancing family planning results [Hernandez et al., 2012 and Lee et al., 2011]. A Cochrane review concluded that, 50% of the assessed studies after delivery resulted in smaller number of unintended conceptions or more use of contraceptive methods [Lopez et al., 2010]. Furthermore, many reported studies recommended integration of family planning counseling for all programs directed to women during the first year postpartum [Lauria et al., 2014]. Nevertheless in 2010, 146 million married women worldwide in reproductive age group had an unmet need for family planning [Alkema et al., 2013]. It was found also that, about three fourths of women have an unmet need for family planning in PPP [Ross and Winfrey, 2001], most commonly due to lack of FP resources or because of cultural or religious reasons, or because some women were afraid or ignorant of the contraceptive methods. These results are a clear indication of lack of knowledge and information on contraception. [Lauria, 2014].

2. MATERIALS AND METHOD

Aim of the study:

This study aimed to evaluate the impact of prenatal family planning counseling on postpartum long acting reversible contraceptive use.

Hypothesis:

Women who received prenatal family planning counseling will use postpartum long acting reversible contraceptive more than those women who received routine prenatal counseling.

Design:

A quasi experimental research design was utilized in this study.

Settings:

The study was conducted at antenatal care (ANC) units affiliated to Assiut General and Iman Hospitals, Assiut governorate.

Sample:

At prevalence (p) of unmet need for contraception in Assiut governorate of 24.5% [Braghi et al, 2013], confidence level of 95% (z=1.96), and 5% precision (d), the calculated minimum sample size was 284 women, according to the following formula: n=z 2xp(1-p)/d2. This was increased to 300 women to account for an expected lost follow up. Therefore, 300 pregnant women with history of previous delivery attending ANC units were eligible for inclusion in the current study sample during the period of study. These women were randomly categorized into two groups; study group (n=150) and control group (n=150).

Tools

Two tools were used to collect the necessary data.

Tool (I): baseline data structured interview schedules this tool was developed and used by the researchers to collect the following data**.**

1. Socio-demographic data including: age, education, occupation, residence, and socioeconomic status. Assessment of socioeconomic status (SES): According to Kuppuswamy's SES scale [Thakkar, and Rawat, 2015 and Guru, 2015], the SES of the women's families were calculated based on family income (12 scores), education (7 scores) and occupation (10 scores). The changes of income due inflation are related to Customer Price Index for Industrial Workers (CPI-IW) which was 100 in 2001 and 2.54 in 2015. The income scale of Egypt in 2015 was calculated by multiplication of income scale of 2001 by 2.54 in Indian Rupees and then transferred to Egyptian Pound. The SES classes were then determined as high (26-29 scores), intermediate (11-25 scores) and low (≤10scores).

2. Reproductive data such as: mode of previous deliveries and duration of current pregnancy.
3. Family planning history: knowledge about contraceptive methods, previous used method, its type and duration of use.

Tool (II): Follow up interview schedule

This tool was developed and used by the researchers to collect data about used contraceptive method after delivery.

The study was conducted according to the following steps:

1. Approvals:

- An Official letter from the Faculty of Nursing, Sohag University was directed to the responsible authorities of the previous mentioned settings to take their permission to collect the data after explaining the purpose of the study

2. Development of the tools:

-Tools were developed by the researchers after extensive review of recent and relevant literature.

3. Validity and reliability:

-Tools were revised by 5experts in the fields of obstetric nursing for their content validity. The tools were designed in its final format and reliability was assured by Cronbach's alpha 0.70.

4. Pilot study:

- A pilot study was carried out on (30) pregnant women who were excluded from the selected subjects to ascertain relevance, clarity and the applicability of tool (I) and to detect any problem peculiar to the statements as sequence and clarity that might interfere with the process of data collection. After conducting the pilot study, the tool was relevant and ready to use.

5. Collection of data:

- Data collection was conducted during the period from December 2017 to December 2018.

6. Field of work

The study was conducted through the following phases:

Assessment phase:

- Each woman from both control and study groups was interviewed individually and privately to get consent to participate in the study.
- Baseline data were identified for both groups using tool I during their antenatal visits.

Implementation phase:

- Study group received structured information and family planning counseling regarding use of postpartum long acting reversible contraceptive such as Intrauterine device and hormonal implant contraception during their antenatal visit while the control group left to receive the routine antenatal counseling.
- The researchers followed GATHER technique for counseling for women in the study group. GATHER technique is a client-centered and personalized counseling process and includes 6 steps as follows

- **G**reet each woman in a friendly, polite, warm and respectful way to create a good relationship between researcher counselor and pregnant woman;
- **A**sk the woman about her reproductive family planning needs;
- **T**ell the woman about all the contraceptives methods available to her;
- **H**elp the woman make the decision that is best for her after delivery;
- **E**xplain how to use the approved birth control method;
- **R**eturn visits or follow-up to discuss woman's concerns.

- Contraceptive information and counseling session entailed postpartum contraceptive methods, effectiveness, advantages, disadvantages, risks, adverse effects and proper contraceptive method, especially LARC (intrauterine devices and / or hormonal implants).
- After counseling session, pregnant women were free to choose any contraceptive method as desired and suitable to be used after delivery and how to access it through different maternity health services available in Assuit governorate.

Evaluation phase:

- It is a longitudinal phase done at the 8th week post partum for both the study and control groups.
- Evaluation of used method of contraception was done using tool (II)
- Comparisons and statistical relations were done to identify the effect of prenatal Family Planning counseling on postpartum long acting reversible contraceptive between both groups. (4 women in the study group and 17 in the control group were missed in this phase. A total 146women in the study group and 133 in the control group were analyzed).

7. Ethical considerations: This study was approved by local ethical committee of Sohag Faculty of Nursing, Egypt. An oral consent was obtained from each woman in the study after discussing the purpose of study. Confidentiality was ensured.

8. Statistical analysis: Descriptive data including the proportions were used for baseline characteristics of women in both groups of the study. The use of contraceptive methods by women in both groups was examined and analyzed using chi-square test. Uni-variate analysis was used to analyze the potential factors that might affect LARC use in study group women. Multi-variate regression analysis was used to determine the independent factors that had impact on LARC use. The statistical analysis was done using personal computer using Graph Prism and SPSS (version 18) programs

3. RESULTS

More than two-thirds of women in both groups were between 21 and 30 years of age (n=191; 68.5%), had an intermediate education (n=186; 66.7%), were housewives (n=219; 78.5%), had low or intermediate SES (n=235; 84.2%), lived in urban areas (n=158; 56.6%), had history of delivery by CS (n= 148; 53%), and interviewed in the third trimester of the current pregnancy (n=230; 82.4%). There were no statistical significant differences in distribution of characteristics of women between study and control groups ($p>0.05$) table 1.

Regarding postpartum contraceptive use among women in both groups, there was statistically significant ($p<0.0001$) greater rate of LARC use in study group (63%) than in control group (27%), as shown in table 2.

According to table 3, Uni-variate regression analysis of factors that might affect contraceptive use showed that women of older age ($x^2=13.68$, $p=0.0011$), CS as a method of previous deliveries($x^2=5.15$, $p=0.023$), and contraceptive counseling at third trimester of the current pregnancy ($x^2=11.08$, $p=0.0009$) were associated with significantly higher LARC use. Other socio- demographic factors as educational level, occupation, SES, and residence did not significantly affect contraceptive use ($p>0.05$).

Multi-variate analysis (table 4) of women age, mode of previous deliveries, and timing of ANC contraceptive counseling using multiple logistic regression showed that third trimester counseling ($p<0.0001$; HR: 0.072, 95%CI of HR: 0.019-0.27) as well as CS as mode of deliveries ($p<0.0001$; HR: 6.88, 95%CI of HR: 2.39-19.79) were independent factors to predict higher use of LARC in postpartum period.

4. DISCUSSION

There is clear evidence that contraceptive counseling is essential to promote contraceptive use [Dehlendorf et al., 2014 and Lee et al., 2011], but the benefits depend on timing of counseling. Prenatal counseling rather than postpartum counseling theoretically provides the fundamentals for postpartum contraceptive uses as there is better chance to explore FP methods and discuss them with women. Although, PP contraceptive counseling during first 4–6 weeks in postpartum period is a common practice in most hospitals, it did not promote postpartum use of modern contraceptive methods [Vural et al., 2016]. Therefore; contraceptive counseling in the antenatal period may be beneficial to increase postpartum contraceptive use.

In the present study, it was found that contraceptive counseling in ANC visits resulted in statistically significant higher LARC use among women in study group when compared to those subjected to routine counseling in control group. Comparison with previous studies of ANC contraceptive counseling shows, this finding is in agreement with an Italian study [Lauria, 2014] where 73% of women intend to use contraception at 3 months postpartum and 65% choose an effective contraceptive method, (corresponding to the 89% of women who choose to use a method of any type). On the other hand, in contrast to our study and the Italian study, an African study conducted in Uganda [Ayiasi et al., 2015], showed that there was no difference in the control and study groups regarding postpartum contraceptive use. However, a high proportion of women in this African study had intended to use modern contraceptive methods although they were not using it. The reasons for this contradiction (between intension to use and actual use of contraceptive methods) may be lack of the health facility including contraceptives methods in most African countries. This unmet need for FP is confirmed by a review of Demographic and Health Surveys from 17 countries [Lopez et al., 2010].

A change in the use of the contraceptive methods is observed. While in our study the LARC methods commonly used by women in study group, are IUD (%), and hormonal implant (%), the reported studies revealed that the contraceptive methods most often cited are barrier (45-47%) and only 25-28% of women reported hormonal methods. This change may be due to the fact that contraceptive counseling in our study focused on the modern and effective methods of contraception and clarifying that short-acting contraception (condom, and pills) may be associated with unmet need for contraception which could be considered as a major cause of repeated pregnancy. [Kaewkiattikun, 2017]. Our result is consistent with the result ofa community-based cross-sectional study in South Ethiopia. They found that mothers who were counseled on LARC methods during the immediate postpartum period were greater users of LARC than those who were not counseled [Tamrie et al.,2015].

In the present study, both uni-variate and multi-variate regression analyses showed that contraceptive counseling is more effective for LARC use in women interviewed in third trimester of the current pregnancy than in those counseled in earlier gestational age. This could be explained on the ground that a long time could be elapsed between first or second trimester contraceptive counseling, and the postpartum period when most pregnant women are focused on preparing for childbirth and newborn care [Kaewkiattikun, 2017].

The CS rate is increasing worldwide [Roberts et al., 2012], especially in developing countries. The multi- variate analysis in our study, confirmed that women who underwent CS as a method of previous delivery utilized LARC more than those delivered vaginally. This could be explained by the fact that, in low income countries, the need for women to breastfeed essential because of the limited financial resources to use infant feeding formulas. For these women to be able to space their families adequately, it is important that they are able to use a LARC method which does not interfere with breastfeeding or breast milk, is cost-effective, and the use of which does not conflict with, CS. The IUD comes fairly close to this concept, with a few reservations. LARC methods should be given immediately after delivery, and before the woman leaves the hospital because of the problems of regular follow up visits. On the other hand, the problems of the post- placental insertion of IUDs after vaginal births are well known, in particular, premature device expulsion. [Goldstuck and steyn,2013]

5. CONCLUSIONS

In the light of the present study results, it can be concluded that women who received prenatal family planning counseling especially during the third trimester of pregnancy resulted in increased use of LARC in the postpartum period more than those women who received routine prenatal counseling which support research hypothesis.

6. RECOMMENDATIONS

Further studies are required to compare the impact of antenatal versus the postpartum contraceptive counseling programs on the LARC use.

Declaration of Conflicting Interests: The authors received no financial or other support for the research reported in this manuscript with no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Novelty Journals

ISSN 2394-7330

International Journal of Novel Research in Healthcare and Nursing
Vol. 6, Issue 2, pp: (994-1001), Month: May - August 2019, Available at: www.noveltyjournals.com

Table [1]: Baseline characteristics of studied pregnant women (n= 279)

Characteristic	Study Group (n=146)		Control Group (n=133)		P. value
	N.	%	N.	%	
Age					
≤20	11	7.53	12	9.02	P= 0.51
21-30	97	66.4	94	70.7	
≥31	38	26.0	27	20.30	
Education					
Illiterate	31	21.23	28	21.05	P= 0.89
Intermediate	96	65.75	90	67.7	
University degree	19	13.0	15	11.3	
Occupation					
House wife (HW)	111	76.02	108	81.20	P= 0.29
Employed	36	24.65	25	18.8	
Residence					
Urban	81	55.5	77	57.9	P= 0.12
Rural	65	44.52	56-	42.10	
SES					
Low	58	39.72	37	27.81	P= 0.86
Intermediate	69	47.3	71	53.4	
High	21	14.4	25	18,8	
Gest. Age					
3rd trimester	118	80.82	112	84.21	P= 0.54
<3rd trimester	28	19.2	21	15.8	
Mode of delivery					
Vaginal	66	45.20	65	48.9	P= 0.46
C.S	80	54.8	68	51.12	

Table [2]: impact of contraceptive counseling on postpartum LARC use in both study and control groups

Postpartum LARC use	Study Group (n=146)		Control Group (n=133)		Significance
	N.	%	N.	%	
YES	92	63.01	36	27.06	
IUD	59	40.41	22	16.54	$X^2 = 36.22$
Implant	33	22.60	14	10.52	P < 0.0001**
Total	54	36.98	97	72.93	

Table [3]: Univariate analysis of factors that might affect LARC use in study group

Characteristic	Total N.	LARC use (n=92)		LARC non use (n=54)		Significance
		N.	%	N.	%	
Age						
≤20	11	2	18.9	9	81.8	$X^2 = 13.68$
21-30	97	60	61.85	37	38.14	P= 0.0011*
≥31	38	30	78.94	8	21.05	
Education						
Illiterate	31	18	58.06	13	41.93	$X^2 = 4.27$
Intermedia.	96	58	60.41	38	39.6	P= 0.12
Uni. degree	19	16	84.21	3	15.8	
Occupation						
House wife (HW)	111	71	63.96	40	36.03	$X^2 = 0.18$
Employed	36	21	58.33	14	38.9	P= 0.67

Residence						
Urban	81	49	60.5	32	39.50	$X^2 = 0.50$
Rural	65	43	66.15	22	33.84	P= 0.48
SES						
Low	58	36	62.06	22	37.93	$X^2 = 0.23$
Intermediate	69	42	60.9	27	39.13	P= 0.67
High	21	14	66.7	7	33.33	
Gest. Age						
3rd trimester	118	82	69.5	36	30.50	$X^2 = 11.08$
<3rd trimester	28	10	35.71	18	64.3	P= 0.0009*
Mode of delivery						
Vaginal	66	35	53.03	31	46.96	$X^2 = 5.15$
C.S	80	57	71.25	23	28.75	P= 0.023

Table [4]: Multi-variate analysis to determine independent factors that might affect LARC use in study group

Variables	P. value	HR	95% CI of HR	
			Lower	Upper
Age	0.12	2.29	0.801	6.59
Gestational age	< 0.0001**	0.072	0.019	0.270
Mode of delivery	< 0.0001**	6.88	2.39	19.79

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