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The Prevalence of Postpartum Contraception Use among Teenage Mothers at Vajira Hospital, Thailand

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ABSTRACT

OBJECTIVES: To determine the prevalence of postpartum contraception use among teenage mothers and to identify the factors influencing both postpartum contraception use and loss to postpartum follow-up at the Faculty of Medicine Vajira Hospital in Thailand.

METHODS: Four hundred and seventy-five participants were randomly selected from 1,060 Thai teenage pregnant that gave birth at the Faculty of Medicine Vajira Hospital between 1 January 2017 and 31 December 2020 and were scheduled postpartum visits. The clinical factors associated with postpartum contraception use and loss to postpartum follow-up were studied using multiple logistic regression analysis.

RESULTS: A total of 451 participants remained after excluding criteria. Of these, 212 participants did not follow-up on their postpartum visits, leaving the limitation to summarize the true prevalence of postpartum contraception use of the total population. However, of the 232 participants who visited postpartum follow-ups, the prevalence of contraceptive use was 95.8%. Married status was the only factor associated with higher postpartum contraceptive use (odds ratio (OR) 12.81 [3.38-48.64]). Age 18 years and older (OR_{adj}1.71 [1.16-2.53]), absence of previous contraceptive use (OR_{adj}1.91 [1.29-2.80]), and total antenatal care visits fewer than 8 (OR_{adj} 1.61 [1.07-2.42]) were significantly related with loss to postpartum follow-ups.

CONCLUSION: The prevalence of contraceptive use was high among teenage mothers who had follow-up postpartum visits. However, this population also had a high loss rate of postpartum visits. Interventions and close monitoring should be considered to evaluated further for effective adolescent reproductive services.

KEYWORDS: contraception use, determinants, postpartum, teenage mother, Thailand

INTRODUCTION

Teenage pregnancy has been a public concern globally, which not only affects health systems but is also associated with adverse socioeconomic and psychological consequences, including social stigma, leading to emotional distress, depression, and limited educational and career opportunities[1-4]. Approximately 21 million girls aged 15-19 years in developing regions become pregnant every year, and about 12 million of them give birth[5,6]. Globally, the adolescent birth rate (ABR) has decreased from 64.5 births per 1,000 women (15-19 years) in 2000 to 41.3 births per 1,000 women in 2023[7]. Unfortunately,

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these rates are inconsistent in different regions, with the sharpest decline in Southern Asia and slower declines in the Latin American and Caribbean (LAC) and Sub-Saharan Africa (SSA) regions, and still show the highest incidence at 99.4 and 52.1 births per 1,000 women among SSA and LAC areas, respectively, in 2022[7]. While the estimated global ABR has declined, the actual number of childbirths to adolescents remains high, with the most significant number of estimated births to 15-19-year-olds in 2021 in SSA (6,114,000), while far fewer births occurred in Central Asia (68,000)[7]. In Thailand, the ABR is highest among young mothers aged 15-19 years, especially those aged 18-19, which is in the legal range of marriage. The number of births to adolescents has increased steadily from 2004 and reached the highest peak in 2011, then decreased from 2011 to 2022, from 1.8 births per 1,000 adolescents (15-19 years) in 2012 to 0.8 births per 1,000 women in 2022. Over the period between 2015 and 2022, repeat birth rates among 10 to 19 year-old declined from 12.4 to 7.5%[8].

In Thailand, the antenatal and postpartum care practices are based on the clinical practice guidelines of the Royal Thai College of Obstetricians and Gynecologists [9,10], which generally follow the recommendations of the world expert panels, such as the World Health Organization[9,11] and the American College of Obstetricians and Gynecologists[9,12]. A postpartum visit, which is typically scheduled between 4 and 6 weeks after delivery in Thailand, is therefore essential for these girls to educate them and to promote healthy postpartum behaviors[9]. Despite recognizing its importance, nursing mothers often disregard postpartum visits. Data have suggested that the rates of postpartum visits vary substantially, ranging from 29 to 90%[9].

According to the information above, pregnancy in adolescents leads to various complications for both young mothers and their children. These include preterm birth, low birth weight, developmental and behavioral issues in adolescents, and the requirement for continuous care[13,14].

According to review data from Ghana in 2008, overall contraceptive prevalence among teens was 18.3% and the study found the likelihood of contraceptive use among female adolescents increased significantly with the increase in level of education, working, known ovulation cycle, married or living together, and those that visited a health facility[15]. In the United States, among teens with a recent live birth in 2013, 82.8% reported postpartum contraceptive utilization, with the most effective, moderately effective, and least effective methods reported as 26.9, 40.2, and 15.7%, respectively[16]. In Eastern Uganda, a cross-sectional study in 2020 reported that 61.5% of the respondents were using contraceptives, and more than three-fourths of the respondents opted for short-term methods of contraception[17]. In the adjusted analyses, intention to resume school and the utilization of maternal child health services such as postnatal care services were significantly associated with the utilization of postpartum contraception[17]. In a cross-sectional study from Faridabad in 2023, educational status played a pivotal role in the awareness, acceptance, and usage of contraception[18]. Similarly, socioeconomic status also correlated with postpartum contraceptive acceptance with 42.3% of contraception users belonging to lower socioeconomic status compared to 88.6% in the non-users group[18]. Among the contraception users, 70% had four or more antenatal visits compared to 7.9% of the non-users[18]. According to data from the Faculty of Medicine at Vajira Hospital in Bangkok, Thailand, 86.2% of the follow-up group were using contraceptives. The most commonly chosen contraceptive method was long-acting reversible contraception (LARC) (46.3%) and Depot Medroxyprogesterone Acetate (DMPA) (26.4 %). Only 13.7% did not use any contraceptive method. However, in this study, there was no review of the factors associated with postpartum contraception use[9].

Therefore, knowing the prevalence of contraception use in teenage mothers and the factors influencing both postpartum contraception use and loss to postpartum follow-ups in this

group are important for promoting contraception use in teenage mothers and for reducing the risk of health problems in mothers and children.

METHODS

A cross-sectional study was designed to determine the prevalence of postpartum contraception use among teenage mothers aged 10 to 19 visiting the Faculty of Medicine Vajira Hospital. The secondary outcome was to identify the relevant factors influencing postpartum contraception use among teenage mothers and the factors associated with loss to follow-up on the postpartum family planning appointment at the Faculty of Medicine Vajira Hospital. The study population, based on the formula for estimating an infinite population proportion, adjusted from the prevalence of adolescents using any methods of contraception during the postpartum period, according to Haider et al., 2018[19,20], resulting at 378. Regarding to incomplete data (non-response rate)[21], the study population was adjusted with an additional 20%, giving the final sample number of 473. All Thai teenage pregnancies, aged between 10 years and 19 years, 11 months and 29 days at the time of delivery, who gave viable birth at the Faculty of Medicine Vajira Hospital between 1 January 2017 and 31 December 2020 and had been scheduled for postpartum follow-up were enrolled, with a total number of 1,060 participants. The data were simply randomly selected for a total of 475 cases using the Microsoft Excel program. Six-week postpartum follow-up was the standard care for every woman gave birth at Vajira Hospital. There was no routine offer of LARC prior to discharge from the hospital during our study period due to the limitation of Medicaid insurance. Young mothers with conditions limit contraceptive use during the 6-week postpartum follow-up such as severe postpartum complications, postpartum hemorrhages, admission to the intensive care unit (ICU), medical conditions or contraindications to contraceptives such as blood clot disorders, anaphylaxis, uncontrollable hypertension, undiagnosed abnormal vaginal bleeding, endometrial cancer, or missing medical records were excluded.

The demographic, clinical data, and the outcomes of postpartum contraception use and follow-up postpartum visits were reviewed from the outpatient department's electronic medical records. If the data were incomplete, information was sought from the inpatient department charts. If no data were found from either source, the participant was excluded from the research. The selected study variables included age, education, occupation, underlying disease, sexually transmitted infection, insurance, marital status, previous contraception use, substance use, parity, gestational age (GA) at the first antenatal care (ANC), number of ANC visits, and GA at delivery. All of the data were analyzed using IBM SPSS statistics for Windows, version 28.0 Armonk, NY, USA: IBM Corp., and were statistically significant at the level of 0.05. The prevalence of postpartum contraceptive use in teenage mothers was reported with frequency and percentage. Analysis of the factors associated with postpartum contraceptive services among the teenage mothers and the factors associated with non-attendance at family planning services were Crude analysis, Chi-squared test or Fisher's Exact test based on data suitability and multivariate logistic regression reported with odds ratio and a 95% confidence interval. Ethical approval was obtained from the Vajira Hospital Navamindradhiraj University Research Ethic Committee (COA 029/2565).

RESULTS

Of the 475 Thai pregnant teenage that gave birth during the study period, 24 were excluded due to severe postpartum complications such as postpartum hemorrhages (n = 8), admission to the ICU (n = 1), termination of pregnancy due to fetal abnormalities (n = 7), and incomplete or missing data collection (n = 8), leaving a total of 451 participants (figure 1). The majority of the women were in the age group 18 to 19, had Medicaid insurance, attained junior high school, were unemployed, and married, as shown in Table 1.

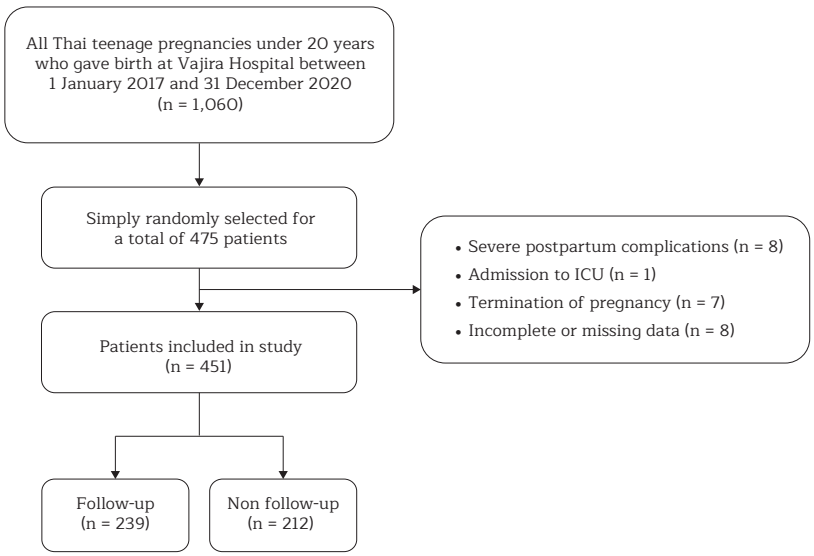

Figure 1 Flow chart of the study population

Table 1 Associated factors of loss to postpartum follow-up at Vajira Hospital (n = 451)

Variable	total n (%)	Follow-up (n = 239) n (%)	Non follow-up (n = 212) n (%)	Univariable analysis		Multivariable analysis		P-value
				OR	95% CI	OR_{adj}	95% CI	
Age (years)								
18-19	248 (55)	120 (50.2)	128 (60.4)	1.51	1.04-2.21	1.71	1.16-2.53	0.03*
10-17	203 (45)	119 (49.8)	84 (39.6)	1.00	Reference	1	Reference	
Education								
Elementary school or less	123 (27.3)	57 (23.8)	66 (31.1)	1.44	0.88-2.37	1.47	0.86-2.52	0.22
Junior high school	200 (44.3)	111 (46.4)	89 (42.0)	1.00	0.64-1.56	1.03	0.64-1.66	
Senior high school or more	128 (28.4)	71 (29.7)	57 (26.9)	1.00	Reference	1.00	Reference	
Occupation								
Employed	135 (29.9)	68 (28.5)	67 (31.6)	1.00	Reference	1.00	Reference	
Unemployed	316 (70.1)	171 (71.5)	145 (68.4)	0.86	0.58-1.29	0.92	0.60-1.41	0.47
Underlying disease								
Yes	230 (51)	122 (51.0)	108 (0.9)	1.00	Reference	1.00	Reference	
No	221 (49)	117 (49.0)	104 (49.1)	1.00	0.69-1.44	1.08	0.73-1.58	0.99
Sexually transmitted infection								
Yes	49 (10.9)	22 (9.2)	28 (12.8)	1.00	Reference	1.00	Reference	
No	402 (89.1)	217 (90.8)	184 (87.2)	0.69	0.38-1.25	0.64	0.35-1.18	0.22
Insurance								
Private	17 (3.8)	5 (2.1)	12 (5.7)	2.81	0.97-8.11	2.57	0.86-7.67	0.056
Medicaid	434 (96.2)	234 (97.9)	200 (94.3)	1.00	Reference	1.00	Reference	
Marital status								
Single/separated	65 (14.4)	30 (12.6)	35 (16.5)	1.38	0.81-2.33	1.19	0.68-2.07	0.23
Married	386 (85.6)	209 (87.4)	177 (83.5)	1.00	Reference	1.00	Reference	
Previous contraception use								
Yes	257 (57)	155 (64.9)	102 (48.1)	1.00	Reference	1.00	Reference	
No	194 (43)	84 (35.1)	110 (51.9)	1.99	1.36-2.91	1.91	1.29-2.80	< 0.001*

Table 1 Associated factors of loss to postpartum follow-up at Vajira Hospital (n = 451) (continued)

Variable	total n (%)	Follow-up (n = 239) n (%)	Non follow-up (n = 212) n (%)	Univariable analysis		Multivariable analysis		P-value
				OR	95% CI	OR_{adj}	95% CI	
Substance use								
Yes	35 (7.8)	20 (8.4)	15 (7.1)	0.83	0.42-1.67	0.83	0.41-1.72	0.61
No	416 (92.2)	219 (91.6)	106 (92.9)	1.00	Reference	1.00	Reference	
Parity								
Multiparity	96 (21.3)	46 (19.2)	50 (23.6)	1.31	0.82-2.03	1.00	0.62-1.62	0.30
Primiparity	355 (78.7)	193 (80.8)	162 (76.4)	1.00	Reference	1.00	Reference	
GA at 1st ANC (week) mean (SD)	19.9 (9.52)							
> 12, including absence of ANC history	347 (76.9)	175 (73.2)	172 (81.1)	1.57	1.01-2.46	0.75	0.46-1.23	0.057
≤ 12	104 (23.1)	64 (26.8)	40 (18.9)	1.00	Reference	1.00	Reference	
Number of ANC visit (time) mean (SD)	7.6 (3.9)							
< 8	220 (48.8)	101 (42.3)	119 (56.1)	1.75	1.20-2.54	1.61	1.07-2.42	0.003*
≥ 8	231 (51.2)	138 (57.7)	93 (43.9)	1.00	Reference	1.00	Reference	
GA at delivery (week) mean (SD)	37.9 (2.5)							
< 37	55 (12.2)	24 (10.0)	31 (14.6)	1.53	0.87-2.71	1.48	0.80-2.74	0.138
≥ 37	396 (87.8)	215 (90.0)	181 (85.4)	1.00	Reference	1.00	Reference	

Abbreviations: ANC, antenatal care; CI, confidence interval; GA, gestational age; n, number; OR, odds ratio; SD, standard deviation
Data are presented as number (%).
P-value corresponds to [t]Independent samples t-test, [m]Mann-Whitney U test, [c]Chi-square test or [f]Fisher's Exact test.
* Significant at p-value < 0.05

According to the study, the prevalence of postpartum contraception accounted for 50.8% of the total participants and accounted for 95.8% among the postpartum follow-up group. There was a total of 239 follow-ups to the postpartum visits (52.9%), while the rest did not follow-up. Of the young mothers who visited postpartum, 229 used some kind of contraceptive method. Of these, 201 (84.1%) and 28 (11.7%) had received contraception within and later than 6 weeks, respectively. The majority of young mothers who followed-up on postpartum visits chose implants as contraceptive methods, followed by DMPA, which covered 80% of participants in this group. Only 10 women did not use any contraceptive method (table 2). Marital status was the only factor associated with higher postpartum contraceptive use as shown in Table 3.

Table 2 Method of postpartum contraception use among teenage mothers (n = 239)

Method of contraception	n (%)
None	10 (4.2)
Implants	137 (57.3)
Intrauterine device	5 (2.1)
Depot Medroxyprogesterone Acetate	65 (27.2)
Oral contraception pills	18 (7.5)
Condom	4 (1.7)

Abbreviation: n, number

Table 3 Associated factors of contraception use at Vajira Hospital (n = 239)

Variable	Contraceptive use (n = 229) n (%)	No contraceptive use (n = 10) n (%)	Univariable analysis		P-value
			OR	95%CI	
Age (years)					
18-19	117 (51.1)	3 (30.0)	2.44	0.62–9.66	0.22
10-17	112 (48.9)	7 (70.0)	1.00	Reference	
Education					
Junior high school or less	107 (46.7)	4 (40.0)	0.97	0.17-5.48	0.78
Senior high school	67 (29.3)	4 (40.0)	0.61	0.11-3.46	
Elementary school or more	55 (24.0)	2 (20.0)	1.00	Reference	
Occupation					
Employed	67 (29.3)	1 (10.0)	3.72	0.46-29.96	0.29
Unemployed	162 (70.7)	9 (90.0)	1.00	Reference	
Underlying disease					
Yes	116 (50.7)	6 (60.0)	0.68	0.19-2.49	0.75
No	113 (49.3)	4 (40.0)	1.00	Reference	
Sexually transmitted infection					
Yes	21 (9.2)	1 (10.0)	1.45	0.80-2.63	> 0.99
No	208 (90.8)	9 (90.0)	1.00	Reference	
Insurance					
Medicaid	224 (97.8%)	10 (100.0%)	-	-	> 0.99
Private	5 (2.2%)	0 (0.0%)	1.00	Reference	
Marital status					
Married	205 (89.5)	4 (40.0)	12.81	3.38-48.64	< 0.001*
Single/separated	24 (10.5)	6 (60.0)	1.00	Reference	
Previous contraception use					
Yes	147 (64.2)	8 (80.0)	0.45	0.09-2.16	0.50
No	82 (35.8)	2 (20.0)	1.00	Reference	
Substance use					
Yes	19 (8.3)	1 (10.0)	1.00	Reference	
No	210 (91.7)	9 (90.0)	1.23	0.15-10.22	0.59
Parity					
Primiparity	183 (79.9)	10 (100.0)	-	-	0.12
Multiparity	46 (20.1)	0 (0.0)	1.00	Reference	
GA at 1st ANC (week)					
≤ 12	63 (27.5)	1 (10.0)	3.42	0.42-27.51	0.22
> 12, including absence of ANC history	166 (72.5)	9 (90.0)	1.00	Reference	
Number of ANC visit (time)					
< 8	94 (41.0)	7 (70.0)	1.00	Reference	
≥ 8	135 (59.0)	3 (30.0)	3.35	0.85-13.29	0.10
GA at delivery (week)					
< 37	22 (9.6)	2 (20.0)	1.00	Reference	
≥ 37	207 (90.4)	8 (80.0)	2.35	0.47-11.78	0.27

Abbreviations: ANC, antenatal care; CI, confidence interval; GA, gestational age; n, number; OR, odds ratio
Data are presented as number (%).
P-value corresponds to [t]Independent samples t-test, [m]Mann-Whitney U test, [c]Chi-square test or [f]Fisher's Exact test.
* Significant at p-value < 0.05

From Table 1, the results revealed that the associated factors with loss to postpartum follow-ups were age of 18 years and older, absence of previous contraceptive use, the first ANC later than 12 weeks or no ANC, and total ANC visits fewer than eight times. After adjusted confounder, age 18 years and older, absence of previous contraceptive use, and total ANC visits fewer than eight times were still significant associated factors.

DISCUSSION

Our study revealed that the prevalence of postpartum contraceptive use among teenage mothers that engaged in follow-up postpartum visits at the Faculty of Medicine Vajira Hospital were 95.8%. Unfortunately, our study showed a high rate of loss to follow-up postpartum visits at 47%, and therefore we could not identify the true contraceptive prevalence among this population, which was the first limitation in this study. Of those who used contraception, most were received within 6 weeks after giving birth, at the postpartum appointment as our obstetric guideline for postpartum visits, choosing implants and injections as the most common methods, retrospectively. However, the most effective techniques such as implants and intrauterine devices were selected by approximately 60%, which could be enhanced if the service provided LARC free of charge before discharge from the hospital.

The only significant associated factor from postpartum contraceptive use in the teenage mothers from the follow-up group was marital status, indicating that married young women had a higher rate of contraception than single mothers, with is similar to the data from Eastern Uganda[17]. Other factors were confined in the analysis of effects due to the small number of non-contraceptive participants, leading to our second limitation in the correlation analysis.

Interestingly, we found that the total number of repeat pregnancies during 2-year intervals was 45 (9.9%). Of these, 33 did not have follow-up postpartum visits. 90.4% (216 of 239) of those that had follow-up postpartum visits did not have a repeat pregnancy. According to the literature review, the significant predictors of rapid repeat pregnancy (RRP) were young age, low socioeconomic status, low education of teenage mothers, marriage, intended or desired first pregnancy, methods of contraception other than implants, depression, and a history of abortion[22,23]. In this study, the prevalence of RRP in teenage mothers was 9.9%, much lower than in previous study, which was over half[24], probably due to the high follow-up rate. However, factors associated with RRP were not revealed in this study.

Loss to postpartum follow-ups often occurs in teenage pregnancy. One possible reason is that these young girls do not have underlying medical conditions or chronic illnesses like their older counterparts, so they feel fine and are less motivated to seek follow-up care[9,25-27]. Another reason that could influence service utilization is the adolescent's hometown, which affects the distance and financial limitations under Medicaid conditions.

In a previous case-control study design in Thailand, the prevalence of loss to postpartum follow-ups at 6 weeks was 24.3%, which was lower than our research findings, probably due to the difference in the study design[9]. An inadequate number of antenatal visits was a predictive factor for loss to postpartum follow-ups, similar to our data[9]. Being single or of separated status and having a lower level of education were predictive factors for loss to postpartum follow-ups, akin to our data but not statistically significant. Similar factors such as private insurance, unemployment, missed prenatal visits, and late initiation of prenatal care were revealed as associated factors with failure to follow-up among teenage mothers in a study from San Francisco. However, these factors were not statistically significant in our study except for inadequate ANC visits[28]. Some significant factors such as age group and previous contraception use were not reported in previous studies. The COVID-19 pandemic in

2020 may also have impacted the delay or the avoidance of seeking medical care due to fear of transmission[29].

From this study, the factors associated with loss to postpartum follow-ups among teenage mothers revealed that the statistically significant factors from the multivariable analysis were older age (18-19 years old), history of non-contraception before pregnancy, and an inadequate number of antenatal visits, where the first two factors have not been reported in previous studies. This would help healthcare providers focus on high-risk adolescents with these characteristic features and closely monitor them with proactive management or provide other interventions to prevent loss of follow-up visits. As their loss to follow-ups reflects their poor self-care behavior, further prospective research is needed to evaluate whether applying intensive intervention programs would be helpful, such as using technology, including text messages and applications to remind them, and home visits or contraceptive counseling during the immediate postpartum period and before discharge from the hospital. Future studies are required to explore all possible reasons for nonattendance to postpartum follow-up visits among teenage mothers.

CONCLUSION

The prevalence of contraceptive use was high among the teenage mothers that had follow-up postpartum visits. However, this population also had a high loss rate of postpartum visits. Teenage mothers of an older age, with an absence of a history of contraception before pregnancy, and an inadequate number of antenatal visits were revealed as having a higher risk for postpartum loss follow-ups, and probably need close monitoring and interventions.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest in this research.

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DATA AVAILABILITY STATEMENT

The present review is based on the references cited. All of the data generated or analyzed during the present study are included in this published article and the citations herein. Further details, opinions, and interpretation are available from the corresponding author on reasonable request.

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