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ORIGINAL ARTICLE

Factors associated with time to start antenatal care within 12 weeks gestational age among mothers in Mahasarakham province, Thailand

Prapant Soontornprakasit[1], Aroonsri Mongkolchati[2] and Jiraporn Chompikul[2]

[1] *M.P.H.M., ASEAN Institute for Health Development, Mahidol University, Thailand Wapipathum Hospital, Mahasarakham Province, Thailand*
[2] *Ph.D., ASEAN Institute for Health Development, Mahidol University, Thailand*

Corresponding author: *Aroonsri Mongkolchati* ***Email:*** *aroonsri.mon@mahidol.ac.th*
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Abstract

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Time to start antenatal care (ANC) within 12 weeks gestational age (GA) was important to reduce maternal mortality. This study aimed to determine factors associated with time to start antenatal care within 12 weeks GA among postpartum women in Mahasarakham province. A cross-sectional descriptive study was conducted among 537 postpartum women delivered in all hospitals of Mahasarakham Province, Thailand by using stratified sampling with proportion to size method. The self-administered questionnaires were used for this survey. Data were collected during June 1 to December 15, 2014 by using stratified sampling with proportional to size method. All cases of postpartum women who delivered in Mahasarakham province were included, except minority ethnic and illiteracy postpartum women.

This study found that 99.6% postpartum women took at least 1 time to use services at ANC. 50.4% started ANC within 12 weeks GA and 18.6% were teenage (age<19 years) pregnancies. Only 6.6% had awareness of right time to start ANC within 12 weeks GA. After adjusted for confounding factors, the study found that teenage pregnancy was 2.39 times risk of delay ANC compare to adult pregnancy (Adj OR=2.39, 95% CI= 1.32-4.34) and women with universal health coverage insurance was 1.66 times (Adj OR=1.66, 95% CI =1.11-2.49) risk of delay ANC compare to the non-UC group.

This study indicated that the first time to start ANC within 12 weeks GA should be greater publicized and wider campaigned among women of reproductive age especially the teenage group. Moreover, the reasons that the teenage and universal health coverage group delay ANC utilization should be investigated more using a qualitative research.

Keywords: time to start ANC, 12 weeks gestational age, antenatal care, teenage pregnancy

วารสารสาธารณสุขและการพัฒนา
ปีที่ 14 ฉบับที่ 1 มกราคม-เมษายน 2559

ปัจจัยที่มีผลต่อระยะเวลาในการเริ่มฝากครรภ์ภายในช่วงอายุครรภ์ 12 สัปดาห์แรกของมารดา ในจังหวัดมหาสารคาม ประเทศไทย

ประพันธ์ สุนทรปกาสิต[1] อรุณศรี มงคลชาติ[2] และจิราพร ชมพิกุล[2]

[1] *M.P.H.M. สถาบันพัฒนาสุขภาพอาเซียน มหาวิทยาลัยมหิดล ประเทศไทย*
โรงพยาบาลวาปีปทุม จังหวัดมหาสารคาม ประเทศไทย
[2] *Ph.D. สถาบันพัฒนาสุขภาพอาเซียน มหาวิทยาลัยมหิดล ประเทศไทย*

บทคัดย่อ

ประพันธ์ สุนทรปกาสิต อรุณศรี มงคลชาติ และจิราพร ชมพิกุล ปัจจัยที่มีผลต่อระยะเวลาในการเริ่มฝากครรภ์ภายในช่วงอายุครรภ์ 12 สัปดาห์แรกของมารดา ในจังหวัดมหาสารคาม ประเทศไทย
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ระยะเวลาในการเริ่มฝากครรภ์ภายในช่วงอายุครรภ์ 12 สัปดาห์แรกของมารดาเป็นสิ่งที่สำคัญที่จะช่วยลดอัตราการตายของมารดา การศึกษาครั้งนี้ มีวัตถุประสงค์เพื่อศึกษาถึงปัจจัยที่มีผลต่อระยะเวลาในการเริ่มฝากครรภ์ของมารดาที่อายุครรภ์ 12 สัปดาห์ โดยได้ทำการศึกษาในหญิงหลังคลอดที่จังหวัดมหาสารคาม ประเทศไทย การศึกษาครั้งนี้เป็นการศึกษาแบบภาพตัดขวาง มีผู้เข้าร่วมวิจัยมีทั้งสิ้นจำนวน 537 คน โดยทำการสุ่มตัวอย่างแบบชั้นภูมิ โดยเป็นสัดส่วนตามจำนวนของประชากรในพื้นที่เป้าหมาย ได้ทำการเก็บข้อมูลในระหว่างวันที่ 1 มิถุนายน 2557 ถึงวันที่ 15 ธันวาคม 2557 กลุ่มตัวอย่างตอบแบบสอบถามด้วยตนเอง มารดาคลอดทุกคนในจังหวัดมหาสารคามจะถูกคัดเลือกเข้าร่วมเป็นกลุ่มตัวอย่าง ยกเว้นมารดาตั้งครรภ์ที่ไม่สามารถสื่อสารหรือกลุ่มมารดาที่ไม่ใช่สัญชาติไทย

การศึกษาครั้งนี้พบว่า มารดาที่เป็นกลุ่มเป้าหมายมาฝากครรภ์ อย่างน้อย 1 ครั้ง มีจำนวนร้อยละ 99.6 และมีจำนวนร้อยละ 50.4 เริ่มฝากครรภ์ในช่วงอายุครรภ์ 12 สัปดาห์ ร้อยละ 18.6 เป็นมารดาตั้งครรภ์ในช่วงอายุยังเป็นวัยรุ่น (อายุน้อยกว่า 20 ปี) ความตระหนักถึงการฝากครรภ์ภายในช่วงอายุครรภ์ 12 สัปดาห์แรก พบว่ามีเพียงร้อยละ 6.6 หลังจากการวิเคราะห์การถดถอยลอจิสติกพหุคูณ โดยได้มีการปรับด้วยอิทธิพลของปัจจัยกวนแล้วพบว่า การตั้งครรภ์ในวัยรุ่นมีความเสี่ยงสูงมากกว่ามารดาในกลุ่มผู้ใหญ่ ถึง 2.39 เท่า (Adj. OR=2.39, 95% CI= 1.32-4.34) และพบว่า มารดาที่ได้รับสิทธิ์หลักประกันสุขภาพถ้วนหน้า มีแนวโน้มสูงถึง 1.66 เท่าที่จะฝากครรภ์ช้า เมื่อเทียบกับกลุ่มที่ไม่ได้รับสิทธิ์หลักประกันสุขภาพถ้วนหน้า (Adj. OR=1.66, 95% CI =1.11-2.49) การศึกษาครั้งนี่บ่งชี้ว่า ระยะเวลาในการเริ่มฝากครรภ์ภายในช่วง 12 สัปดาห์แรกของการตั้งครรภ์ ควรจะได้รับการประชาสัมพันธ์ และเห็นควรส่งเสริมให้เกิดการรณรงค์นี้ในกลุ่มหญิงวัยเจริญพันธุ์ โดยเฉพาะหญิงวัยรุ่น นอกจากนั้นกลุ่มมารดาที่ได้รับบัตรประกันสุขภาพตามสิทธิหลักประกันสุขภาพควรได้รับความรู้เกี่ยวกับการฝากครรภ์ในระยะเวลาที่เหมาะสม แต่อย่างไรก็ตามในการวิจัยเชิงคุณภาพครั้งต่อไปกลุ่มเสี่ยงที่สำคัญ ทั้งมารดาวัยรุ่นและกลุ่มมารดาที่ได้รับสิทธิหลักประกันสุขภาพถ้วนหน้าควรได้ทำการศึกษาถึงสาเหตุที่แท้จริงของการมาฝากครรภ์ช้าต่อไป

Keywords: เวลาที่เริ่มฝากครรภ์ ช่วง 12 สัปดาห์แรกของการตั้งครรภ์ การฝากครรภ์ การตั้งครรภ์ในมารดาวัยรุ่น

Introduction

Maternal mortality is still a problem of the world, WHO (World Health Organization) reported that estimated 358,000 maternal deaths occurred worldwide in 2008. Among developing regions, sub-Saharan Africa had the highest maternal mortality ratio (MMR) at 640 maternal deaths per 100, 000 live births[1,2]. Meanwhile MMR in developed countries were only 14 per 100,000 live births[2]. The reduction of maternal deaths is a high priority for the international community, especially in view of the increased attention on the Millennium Development Goals (MDG5)[3]. The WHO reported that hemorrhage and hypertensive disorders are major contributors to maternal deaths in developing countries[4].

Previous studies[5] had clearly demonstrated about antennal care (ANC) preventing health problems for both mother and child, but many antenatal interventions were unnecessary or of unproven benefit and too expensive[5]. The WHO recommended new model of ANC for developing countries which more simple, cheaper and without unnecessary intervention[5]. It reduced number of ANC visits of low risk pregnancy from more than 12 times in standard model to only 4 times in the new WHO model with the same outcomes[6]. Furthermore, ANC was more likely to be effective if it was initiated early in pregnancy[7]. Women who started ANC in the last trimester were more likely to have babies with health problems. Women who received no ANC were more likely to have low birth weight babies, and these babies were at greater risk of dying[8]. Early ANC was important for early detection and treatment of adverse pregnancy related outcomes[9,10]. Many studies[11,12] indicated that in developing countries most women started entry to ANC lately contrast with findings in most developed countries. There were studies reported late ANC at 15% in the general population of UK11 and 26.9 % in USA[12]. The previous studies in South Western Nigeria reported prevalence of late ANC of 86% and 82.6%[13,14]. Furthermore in South-east Asia, the study in Lao reported late ANC of 60.1%[15] and in Vietnam reported of 59%[16].

In Thailand, in 2011 one report showed that national late ANC was 57.1%, national MMR was 11.4 per 100, 000 live births[17]. In addition, late ANC was 67.3%, MMR was 32.76 per 100, 000 live births in Mahasarakham province while the national target was < 40 % of late ANC and < 18 per 100, 000 live births in MMR[17,18]. Even though, this situation may not reflex the maternal and child health problem in the national level, however, it showed the severe problem in Mahasarskham province. There were many studies[19-29] related to the factors associate with late ANC. These factors included age, marital status, parity of gestation, ethnic minority, religion, low income, education of pregnant woman and husband, perception about antenatal care, perception about contraception, easy access to ANC services, family and friends support. Similarly, unwanted pregnancy, awareness of pregnancy[29], and irregular family planning[30-31] also aroused late antenatal care. There was limitation of studies related to the association between factors and time to start ANC within 12 weeks of the gestational age (GA) in Thailand, especially in Mahasarakham province which overall results were not near the national target. Therefore, this study aimed to investigate factors affecting time to start ANC within 12 weeks of the GA. The benefit of this study would be promotion on an increasing rate of

early starting the ANC visits and improvement the ANC system in Mahasarakham province which will reduce MMR in the future.

Methods

The study populations were women in postpartum wards of all 11 hospitals in Mahasarakham province. The data from Saiyairak Hospital Report in 2011showed that mothers delivered in all hospitals were 6,125 cases and the mothers who started ANC within 12 weeks GA (gestational age) were 2,007 cases (32.8%). The sample size was estimated using 95% of confidence interval, an acceptable error of 4%, and a proportion of maternal delays in utilizing ANC in 2011 of 67%. The sample size was increased by 10% to allow for any incomplete data occurring during the data collection, the required sample size was 537 respondents.

Stratified sampling with proportional to size was used to select respondents (Table 1). A self-administered structured questionnaire composed of [21] variables which were derived from previous studies review based on Andersen's Behavioral Model of Health Services Utilization, was used and was reviewed by 3 the experts before pretesting, in addition the data from maternal and child health handbooks that composed of 1st ANC GA, 1st ANC date, last menstruation period (LMP) and history of previous delivery was also extracted and used for this study.

The research assistants were well trained to collect the data. The dependent variable was assigned as time to start ANC within 12 weeks GA. It referred to gestational age at the first visit of ANC within 12 weeks that was recorded in the maternal and child health handbook. It was defined as early (within 12 weeks GA) and late ANC (>12 weeks GA) calculated from LMP (1st day of last menstrual period) and the day of 1st visit ANC record. Univariate analysis was used to describe the data using mean, standard deviation, minimum, maximum, number and percentage. Chi-square tests and multiple logistic regression were used to examine the associations between the factors and time to start ANC. The level of significance was set at 0.05. Formal approvals of data collection were obtained from the Ethics Committee of Mahasarakham Provincial Health Office. Data were collected during June 1-December 15, 2014. Chi-square tests used to examine an association between each independent variable and time to start an ANC visit. Finally, multiple logistic regression was employed to identify significant predictors.

Table 1 Number of respondents selected proportional to the size of the total number of delivery cases from 11 hospitals

Hospitals	Delivery cases in 2011	Number of respondents
Mahasarakham	3,428	300
Kaedam	73	7
Kantarawichai	158	14
Nadoon	151	13
Nacherk	272	24
Borabue	755	66
Payakhaphumpisai	71	6
Kosumpisai	514	45
Chiangyuen	256	22
Wapipathum	384	34
Yangseesurat	63	6
Total	**6,125**	**537**

Results

518 respondents participated in the study. The average of the ANC visits was 8.6 times, 99.6% of respondents visited at least 1 one time, 98.6 % visited at least 4 times, 93.5% accessed to ANC at least 5 times. Half of them started ANC within 12 weeks GA (Table 2). The mean age was 25.3 years old; most of them were young adults (20-29 years old) and it found teenage pregnancy 18.6%. Most of them were married (90.5%). Half were multigravida pregnancies (56.6%), high educated (55%), and working (58.9%). Most of them (76.4%) lived in rural area and hold universal coverage (UC) health insurances (66%). Majority of them recognized their pregnancies early (75.9%), had awareness of birth control (68.8%), but did not have awareness of ANC starting time (93.4%) and had a plan for their pregnancies (88.2%) as shown in Table 3.

Table 4 shows the associations between each factors and time to start ANC within 12 weeks. There were statistically significant associations of age, education, occupation, health insurance, pregnancy recognition, awareness of birth control, pregnancy planning, husband age, husband education and advisor to ANC with time to start ANC within 12 weeks GA (p-value < 0.05).

In Table 5, teenage pregnancy was 2.39 times (Adj. OR=2.39, 95% CI= 1.32-4.34) more likely to start ANC late than adults when adjusted for the other factors. Women having universal health coverage (UC) insurance was 1.66 times higher than those with non UC insurance (Adj. OR=1.66, 95% CI= 1.11-2.49) were significantly associated with time to start ANC within 12 weeks GA.

Table 2 Percentage of respondents by utilization of ANC

Variables	Number	Percent
Early or late	518	
Early (≤ 12 wks gestation)	261	50.4
Late (> 12 wks gestation)	257	49.6
Number of ANC visits	494	
0	2	0.4
1	5	1.0
4	25	5.1
≥ 5	462	93.5

Table 3 Percentage of respondents by socio-demographic factors and study factors

Variables	Number	Percent
Age group	518	
Teenage (<20 years)	96	18.6
Adult (≥20 years)	422	81.4
Marital status	518	
Married	469	90.5
Single	49	9.5
Gravidity	518	
Primigravida	224	43.4
Multigravida	294	56.6
Education levels	518	
Upper secondary and above (high)	285	55.0
Lower secondary and below (low)	233	45.0
Occupation	518	
Working	305	58.9
No working	213	41.1
Place of resident	518	
Urban	122	23.6
Rural	396	76.4
Health insurance groups	518	
Non UC	176	34.0
UC	342	66.0
Pregnancy recognition	518	
≤12 wks	393	75.9
>12 wks	125	24.1
Awareness of birth control	439	
Yes	302	68.8
No	137	31.2
Pregnancy planning	518	
Planned	457	88.2
Unplanned	61	11.8
Awareness of ANC starting time	518	
Yes	34	6.6
No	494	93.4

Table 3 Percentage of respondents by socio-demographic factors and study factors (cont.)

Variables	Number	Percent
Family type	430	
Nuclear family	240	55.8
Extended family	190	44.2
Husband age	480	
< 20 years	33	6.9
≥ 20 years	447	83.1
Husband education	511	
Upper secondary and above	281	55.0
Lower secondary and below	230	45.0
Husband occupation	511	
Working	466	91.2
No working	45	8.8
Advisor to ANC	518	
Husband	242	46.7
Parents	164	31.7
None	112	21.6
Opinion on nearby health service unit	517	
Good	491	95.0
Bad	26	5.0
Nearby health service utilization	516	
Yes	430	83.3
No	86	16.7
Disability symptoms	518	
Yes	7	1.4
No	511	98.6
History of abortion	518	
Yes	74	14.3
No	444	85.7
History of abnormal delivery	518	
Yes	42	8.1
No	476	91.9

Table 4 Association between independent variables and time to start an ANC visit

Variables	Time to start ANC				P-value
	n	Late %	Early %	Crude OR (95% CI)	
Age group					
Teen age	96	75.0	25.0	3.84(2.33-6.34)	**< 0.001****
Adult	422	43.8	56.2	1	
Marital status					
Single	49	59.2	40.8	1.53 (0.84-2.79)	0.161
Married	469	48.6	51.4	1	
Gravidity group					
Primigravida	224	52.7	47.3	1.24(0.88-1.76)	0.224
Multigravida	294	47.3	52.7	1	
Education levels					
Low	233	57.9	42.1	1.84(1.30-2.61)	**0.001****
High	285	42.8	57.2	1	
Occupation					
No working	213	59.2	40.8	1.92(1.35-2.74)	**< 0.001****
Working	305	43.0	57.0	1	
Place of resident					
Rural	396	47.5	52.5	0.69(0.46-1.05)	0.080
Urban	122	56.6	43.4	1	
Health insurance					
UC	342	56.7	43.3	2.35(1.61-3.42)	**< 0.001****
Non-UC	176	35.8	64.2	1	
Pregnancy recognition					
>12 wks.	125	96.8	3.2	57.16(20.67-158.13)	**< 0.001****
≤12 wks	393	34.6	65.4	1	
Awareness of birth control					
No	168	56.5	43.5	1.51(1.04-2.19)	**0.029***
Yes	350	46.3	53.7	1	
Pregnancy planning					
Unplanned	61	65.6	34.4	2.11(1.20-3.69)	**0.009****
Planned	457	47.5	52.5	1	
Awareness of ANC starting time					
No	484	49.4	50.6	0.87(0.43-1.84)	0.688
Yes	34	52.9	47.1	1	
Family type					
Nuclear family	240	45.4	54.6	0.86(0.59-1.26)	0.433
Extended family	190	48.9	51.1	1	
Husband age					
Teen age	49	84.8	15.2	6.55 (2.49-17.28)	**< .001**
Adult	469	46.1	53.9	1	
Husband education level					
Low	285	54.3	45.7	1.46(1.03-2.08)	**0.033***
High	233	44.8	55.2	1	
Husband occupation					
No working	45	60.9	39.1	1.68(0.91-3.12)	0.100
Working	466	48.1	51.9	1	

Table 4 Association between independent variables and time to start an ANC visit (cont.)

Variables	Time to start ANC				P-value
	n	Late %	Early %	Crude OR (95% CI)	
Adviser to ANC					
Husband	242	44.2	55.8	0.95(0.60-1.49)	0.816
Mother	164	60.4	39.6	1.82(1.12-2.96)	**0.016****
No	112	45.5	54.5	1	
Opinion on nearby health service unit					
Bad	26	38.5	61.5	0.62(0.28-1.40)	0.622
Good	491	50.1	49.9	1	
Nearby health service utilization					
No	86	53.5	46.5	1.20(0.78-1.92)	0.432
Yes	432	50.2	49.8	1	
History of abortion					
No	444	51.4	48.6	1.64(0.99-2.71)	0.054
Yes	74	39.2	60.8	1	
History of abnormal delivery					
No	476	50.0	50.0	1.21(0.64-2.28)	0.555
Yes	42	45.2	54.8	1	

*p-value <0.05, **p-value<0.001

Table 5 Adjusted odds ratios and 95% CI for Adj. OR for late utilization of ANC

Variables	Adj. OR	95% CI for Adj. OR		P-value
		Lower	Upper	
Age group				
Teenage	2.39	1.32	4.34	**0.004****
Non teenage	1			
Education levels				
Low	1.27	0.83	1.94	0.282
High	1			
Occupation				
No working	1.31	0.87	1.97	0.204
Working	1			
Health insurance				
UC	1.66	1.11	2.49	**0.013***
Non UC	1			
Awareness of birth control				
No	1.28	0.84	1.95	0.259
Yes	1			
Pregnancy planning				
Unplanned	1.24	0.63	2.43	0.534
Planned	1			
Husband age				
Teenage	2.84	0.97	8.33	0.057*
Non teenage	1			
Husband education				
Low	1.38	0.94	2.03	0.101
High	1			
Advisors to ANC				
Husband	0.80	0.49	1.31	0.380
Parents	1.05	0.58	1.76	0.986
None	1			
History of abortion				
No	1.42	0.83	2.42	0.198
Yes	1			

*p-value <0.05, **p-value<0.001

Discussion

The result showed that the prevalence of late ANC utilization among postpartum women was about 49.6%. This result was lower than late ANC utilization reporting 66.3% in previous report in 2011[17] and the another report in Thailand which found that 57.1% of late ANC in 2013[32]. Some studies reported that 72.8% of women received the first antenatal care visit lately in Bangladesh, 41.5% in Egypt and 92.9.1 % in Rwanda[29, 31-33]. In contrasted with USA, the percentage of mothers who received first-trimester antenatal care was 73.7%[34]. This might be indicated that more developed countries which had more modern implementation ANC program may influence an early ANC services.

A significant association between age and time to start ANC was detected in this study which indicated that teenage pregnancies were 2.39 more likely to start ANC lately than adults. This finding was consistent with a study in Australia, it found that teenagers were 2.99 times (95% CI= 2.76-3.23) more likely to lately attend ANC than those aged thirty years old[21]. Another significant association between health insurance and time to start ANC was found; pregnant women with UC-righted was more likely to start ANC lately than those with non-UC-righted. This was similar to a study in US[31] which showed that the insurance coverage was the greatest difference between early and late ANC in both black and white women. This might be possible that UC-righted postpartum women might be no working, no exact jobs and became to daily workers which had no permission to leave for utilizing ANC[35].

About marital status, this study showed that single mothers were 1.53 times more likely to start ANC lately than married ones (CI 0.84-2.79) but no statistically significant. A study in Tanzania[36] presented that there was no significant relation between marital status and timing of pregnant women's first ANC visit, but being the first pregnancy was strongly associated with an earlier first ANC visit[36]. Contrastingly, significant association between gravidity and time to start ANC were not detected in the present study.

With regard to education,in this study, the authors did not detected significant association with time to start ANC, which showed contradiction to a study in South western Nigeria[14] and Lao PDR[37] that showed significant association between education level and first time ANC visits. In addition, a study in Nigeria found that working mothers were more likely to start early ANC visits than those without working[38]. This might be because an uncomfortable to access the health services in proper time or no money for traveling to get ANC services among unemployed mothers. However, there was not significant association in this study. Studies in Ghanaian women and Vietnam found that urban residency was more likely to start ANC early than rural residency[16,39]. But this study did not show significant association of them (Crude OR=1.46, 95% CI 1.01-2.12). This might be possible that the accessibility and quality of health services between rural and urban area were not far different in Mahasarakham province. Every sub-district had a sub-district hospital and some sub-districts had more than one hospital. People could utilize any nearby health service easily. Furthermore about specialist doctors, there were obstetricians not only in urban but also in some rural areas. The data in this

study also showed that almost respondents believed in quality of nearby health service units (95%) and utilized them (83.3%) too. However, no significant association with time to start ANC was found.

With regard to pregnancy recognition, a study in Tanzania presented that women's late recognition of pregnancy was associated with late ANC utilazation[36]. This study also found the significant association (OR= 57.16, 95% CI 20.67-158.13) but in the full model of multiple logistic regression, this variable did not include due to small sample size.

Regarding awareness of birth control, this study did not find significant association with time to start ANC in the multiple logistic regression. A study in UK also established that contraceptive failure delayed access to ANC[22].

A study in Zambia found that women who fell pregnant unintentionally were more likely to start ANC lately[40]. It believed that planned pregnancies were more cared for by pregnant women and their family than unplanned pregnancies; this made them early utilizing ANC. The husbands of postpartum women were more likely to support them to start ANC early. Their husbands' age, education level and occupation also seemed to be non-significantly associated with time to start ANC visits, liked a study in Nigeria[14]. Almost of teenage husbands were partners of teenage respondents so they consisted of many factors such as teenage, low education, and no working. With regard to advisors to ANC, this study presented that husbands of the postpartum women had role to be good advisors than parents but not significant. On the other hand, study in Tanzania found that not being supported by the husband or partner were identified as factors associated with a later antenatal care[36].

Experiences in previous gravidity may have effects in decision to start ANC in this pregnancy. Study in Australia presented that last caesarean deliveries were more likely to seek ANC early due to more concerned about the risk of their pregnancy complications[21]. In this study, abnormal deliveries in previous gravidities were not significantly associated with time to start ANC, which was consistent with a study in Nigeria[14]. Otherwise aborted pregnancies in previous gravidities were significantly associated with time to start ANC but finally it showed statistically non-significant association after estimating by multiple logistic regressions, this might be the effect of confounding.

The strength of this study is the first time exploring on the time to start ANC within 12 weeks GA in Thailand but the sample size might be limited in some variables such as the number of the teenage pregnancy. Regarding to the generalization to the national level may be limited, to scale up for the sample size for the next study was also recommended. To promote early ANC utilization among teenage pregnancy group, the next research should be explored more on the reasons why they were late to get ANC services after 12 weeks GA as same as non UC-health insurance pregnancy mother, hence qualitative study is also recommended.

Conclusion and recommendation

Early ANC utilization is important for reducing MMR. This study found that teenage pregnancies and UC-righted mother were major predictors of time of start ANC within 12 weeks GA. Teenage pregnancy

was one of the most serious problem in Thailand. Thus all stakeholders should be approached and integrated to fight this problem together. The right time to start ANC among pregnancy women should be greater publicized and wider campaigned. The cut-off point between early and lately ANC should be changed from 12 weeks GA to 3 months for obviousness to general people.

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