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Antenatal Care Practice and Pregnancy Outcome at Sikuati Area , Kudat, Sabah

Tin Tin Aye[1*], Datuk Yusolf Ibrahim[1], Daw Khin Saw Naing[1], Than Myint[1], Muhammad Hj Jical[2]

[1] Department of Community and Family Medicine, Universiti Malaysia Sabah

[2] Area Health Office,Kudat,Ministry of Health, Sabah.

[*]Corresponding author's email: dr.tintaye@gmail.com, Tel no : +601123079261

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ABSTRACT

Antenatal (AN) care is vital for all pregnant women and for reduction of maternal mortality and morbidity. AN care knowledge and specific AN care practices are some of the crucial components of what determines effective AN care. In developing nations, the health of pregnant women can be even more sensitive to these factors. Objectives of this study was to assess the antenatal (AN) care practice and pregnancy outcome of ever-married women aged 18 to 49 years old having at least one pregnancy experience ,residing in kampongs of Sikuati area, Kudat between March to December 2015. Cross–sectional descriptive study ,non-probability convenient sampling method was used and 150 eligible participants were interviewed through face to face by trained interviewers using a semi- structured questionnaire and their knowledge of AN care, their AN care practices and outcomes and complications of their pregnancies were recorded. 99% of all the women received AN care, and 64% of the women received essential AN care practice (AN visit of minimum 4 times). The study revealed that overall knowledge amongst the women with good knowledge was 48% and low knowledge was 52%. Despite this, it was found that low knowledge of AN care was associated with essential AN care practice. Additionally, AN care practices, assessed through timing of first AN care visit and frequency of visits, was not significantly associated with pregnancy complications. Despite these results, outcomes were good and all complications were properly and successfully addressed. This may reflect the effectiveness of current programs in place promoting importance of AN care and delivery practices. Maintenance of current programs with targeted interventions to address low knowledge level and the low level of compliance with essential AN care completed are recommended.

Keywords: knowledge, antenatal care, AN care practice

INTRODUCTION

In developing countries, mothers and children make up approximately 60% of the population and are the most vulnerable group. Maternal and Child health care services provided both in urban and rural settings are crucial components of the national health plan of all nations. In Malaysia, the Maternal Mortality Ratio (MMR) was recorded in 1990 to be 40 per 100,000 live births. According to the 2012 Maternal Mortality Review in Malaysia by (Hematran, 2012), the MMR was 28/100,000 live births in 2010. The Antenatal Coverage (ANC) for 2010 was 98% of all pregnant women. Utilization of antenatal care services increased from six visits in 1980 and to 12 visits in 2010)[1]. Reduction of Maternal Mortality Ratio relies on many factors; one crucial component is the improvement of antenatal care through increasing awareness of the advantages of antenatal care and encouraging utilization of available services. Hence, it is the high time to assess antenatal care related knowledge, practice and the outcome of pregnancy among ever-married women in Sabah, Malaysia.

MATERIALS AND METHODS

This was a cross sectional analytical survey conducted between March 2015 to December 2015 at three kampongs (kg Barambangon, kg Kitobu and and kg Rampai) in the Sikuati area, Kudat, Sabah. Sample size was calculated using WHO sample size determination method, getting the sample size of 150 at 5% level of significance and margin of error at 7%. Non-probability convenient sampling method was used. Studied population were all women aged between 18 to 49 years old who had at least one pregnancy experience within the past five years . Data collection was conducted through face to face interviews by trained interviewers using a semi- structured questionnaire. The questionnaire was developed in English and was translated to Bahasa Melayu. For reliability, pre-tests were conducted in kampong Korina and modifications were made before data collection. . Consent was taken from the participants and confidentiality of the survey was assured. Data entry, data clean up and analyses were conducted using SPSS version 22 software. X^2 testing and appropriate statistical tests were used. Inclusion criteria was ever married women aged 18 to 49 years having at least one pregnancy experience within five years and gave consent to participate in the study.Exclusion criteria was all ever married women who had no pregnancy experience within 5 years , who were unwilling to participate in this study and all women who were having their first pregnancy (Gravida 1).

RESULTS

A total of 150 eligible women participated in this study . Majority (48.0%) were between 25 and 34 years old . Mean age was 33.04 years with a SD of 7.52 years while the range was 19-49. Almost all

of the women (98%) were married. Rungus made up the majority of study population (68%), followed by Bajau (18%) and others. Majority (64.67%) were housewives, while 20% were government employee and only one (0.67) % was a rubber taper. Out of the husbands, 36% worked as government employees (including retirees), 24% were farmers and 13% of husbands were unemployed, which places extra social and economic burdens on their families. (87.33%) were nuclear families. Household income per month ranged from RM300 to 7000, with 46.67% earning RM 601-1200 ,while 16.67 % had income below RM600. The mean income was RM 1421. Majority of respondents attained lower secondary (25.3%) and upper secondary (24%) respectively while 14% were non formal education. The main transportation to access health facilities during pregnancy were mainly by car (98.67%). The average time it takes to reach the nearest health center was about 14 minutes by car and mean distance to the health center was about 5.48 kilo meter.

Knowledge of Antenatal Care Seeking Behaviors

More than half (54%) of respondents stated that their primary source of AN information was mainly received from health personnel (63%), followed by relatives (28%). Almost all of the respondents knew that AN care could be accessed at hospitals and health centers while only 28% knew that it was also available at maternity homes. All respondents agreed that hospitals were the safest delivery place, and doctor should deliver the baby.ANcare was needed for safe delivery and to prevent complications.

Knowledge of Antenatal Care

Table 1 showed responses to the questions on knowledge regarding antenatal care. There were 15 questions testing knowledge. All of the respondents could only state the definition and the correct duration of pregnancy. 94% knew the time of first AN visit .Approximately 35.3 % knew the correct frequency of AN visits (at least 4 times) and 48.6% knew more than 5 times. WHO recommended minimum ante-natal care should be 4 visits which would be described as essential AN care practice in this study. Only 23% knew that ATT must be received twice while 56% knew the correct time for resting hours during day time. In contrast, 85% knew the correct duration of exclusive breast feeding (6 months). However, 22.67% did not know the correct time schedule for subsequent visits. Only 6.67% knew AN visits correctly for 36 weeks onwards, while 12.67% knew for the second trimester and 58% knew the correct frequency of visits for the first trimester. About 59% knew the correct birth spacing interval . Moreover, 96.5% responded that an ultrasound examination was safe for fetus and 92% knew the correct color coding in pregnancy.

Table 1: Description of Knowledge of AN care by respondents

Knowledge on AN care		Responses	
		Number	Percentage
1	***Definition of AN Care***	150	100.00
2	***Full term delivery is 9 months***	150	100.00
3	***First visit of AN care should be started from***		
	As soon as known of being pregnant	80	53.33
	Within initial three months	61	40.67
	Three to six months	9	6.00
4	***Minimum requirement for frequency of AN visit must be***		
	1 to 3 times	11	7.33
	At least 4 times	53	35.33
	More than 5 times	73	48.67
	Don't know	13	8.67
5	***Receiving ATT during pregnancy***		
	One time	115	76.67
	Two times	35	23.33
6	***Resting hours a day time by pregnant mother***		
	<1 hour	42	28.00
	1-2 hours	42	28.00
	2-3 hours	45	30.00
	>3 hours	21	14.00
7	***Duration of Exclusive breast feeding***		
	Less than 6 months	2	1.33
	6 months	128	85.33
	7- 12 months	18	12.00
	2 years	2	1.33
8	***Time schedule for AN care subsequent visits***		
	Once/month during 1st trimester	87	58.00
	twice/month during 2nd trimester	19	12.67
	Once/week from 36 week on wards till delivery	10	6.67
	Don't know	34	22.67
9	***Birth Spacing interval time***		
	<1 year	5	3.33

	1-2 years	53	35.33
	at least 2 year	59	39.33
	2-3 years	31	20.67
	3-5 years	1	0.67
	>5 years	1	0.67
10	***High Risk to Pregnancy (Multiple responses)***		
	Diabetes mellitus	146	97.33
	Giving birth 5 and more	110	73.33
	Height < 153 cm	54	36.00
	History of miscarriage	119	79.33
	High Blood pressure	143	95.33
	Preeclampsia/eclampsia	86	57.33
11	***Warning signs during pregnancy (Multiple responses)***		
	Vaginal bleeding	133	88.67
	Fits, severe pain before term	140	93.33
	loss of consciousness	115	76.67
	Headache & blur vision	103	68.67
12	***Do diabetic women have higher risk of having big babies?***		
	Yes	122	81.33
13	***Can high blood pressure affect the fetus growth?***		
	Yes	149	99.33
14	***Is ultrasound scan safe for the fetus?***		
	Yes	144	96.00
15	***Color coding for pregnancy (White, Red, Yellow and Green)***		
	All correct	139	92.67
	Did not mention all	11	7.33

More than one third of the respondents (70 % to 97%) knew all the high risks to pregnancy except for short stature (36%) while 57% knew preeclampsia/eclampsia. When tested on their knowledge of the warning signs during pregnancy, 68% to 93% of respondents recognized vaginal bleeding, fits, and loss of consciousness and blurred vision. 81% of respondents knew that diabetic women have higher risk of having larger babies and all the women knew that hypertension could give side effect to foetus growth.

Scoring Knowledge Level

Each correct answer earned one mark while an incorrect answer earned none. For multiple answers, each correctly chosen answer earned one mark. The knowledge score of the respondents ranged between 12 and 23 with the mean of 18.28, SD 2.49 and a median of 18. The knowledge score was further divided into two levels, using the mean knowledge score as the cutoff point. 48% (72) scored in the "good knowledge" category while the rest (52%) scored in the "poor knowledge" category (Figure 1).

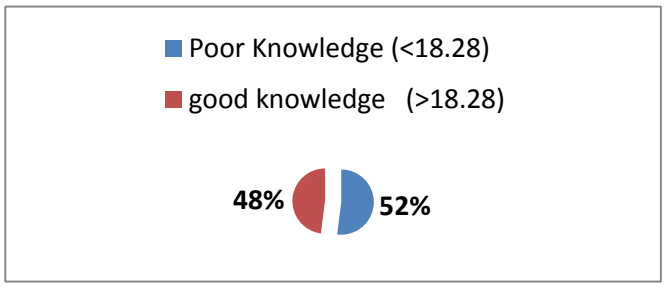

Figure 1: Knowledge score of respondents

Antenatal Practice of Study Respondents

Table 2 mentioned that 99.33% (149) of respondent received AN care. 64% were encouraged to get AN care by health care providers, nurses took care of 64% while 23.33% sought care from doctors. Only one respondent took care by herself . 86% received AN care at a health clinic. About 29% started AN care at one month, 33% at two months, and 36% at three months . Only 3(1.97) % received late AN care. Regarding frequency of AN care, 64% (96) said they made four and more than 4 visits for AN care. Timing and frequency of AN care is particularly important as they will be used to measure if AN care was given on time and to determine if AN care was completed.

Table 2: Frequency and percentage distribution of AN care practice

AN Care Practice		Responses	
		Number	Percentage
1	***Received AN care during Pregnancy***		
	Yes	149	99.33
2	***Source of Encouragement to get AN care***		
	Mother	40	26.67
	Health care personnel	96	64.00
	Elderly relative	10	6.67
	Friends	2	1.33
	Husband	1	0.67
	No One	1	0.67
3	***Source of AN care***		
	Doctor	35	23.33
	Nurse	97	64.67

		Medical assistant	12	8.00
		Mid wife	5	3.33
		Other (Self)	1	0.67
4	***Places of AN services***			
		Public hospital	19	12.67
		Health clinic	129	86.00
		Clinic desa	1	0.67
		No getting service	1	0.67
5	***Gestational age of starting AN care***			
		1st Month	43	28.67
		2nd Month	49	32.67
		3rd Month	54	36.00
		4th Month	1	0.67
		6th Month	2	1.33
		No getting services	1	0.67
6	***Frequency of AN visit during last pregnancy***			
		Less than 4 times	53	35.33
		4 or more than 4 times	96	64. 00
		Did not get care	1	0.67
7 (a)	***Were you told the time interval for the next visit?***			
		Yes	146	97.33
7 (b)	***Were you taught about exclusive breast feeding?***			
		Yes	147	98.00
7 (c)	***Were you informed about family planning (birth spacing)?***			
		Yes	148	98.67
7 (d)	***Did the health care provider inform about nutritious foods?***			
		Yes	149	99.33
7 (e)	***Do you get the same services in subsequent visits?***			
		Yes	97	64.67
		No	39	26.00
		Don't Know	14	9.33
8	***Having Planning for delivery***			
		Yes	140	93.33
		No	10	6.67
9	***Risk Behavior practices***			
		Tobacco	6	4.00
		Alcohol	3	2.00
		Heavy work	5	3.33
10	***Person who didn't receive any AN care services***			
		Yes	1	0.67
	10 (a)	Reason	Unaffordable	

Nearly all respondents were informed about the time interval for subsequent visits, exclusive breast feeding, family planning, and nutritious food. About 93.33% had planned for next pregnancy.One mother who did not get AN care cited unaffordability as her reason. Out of 150 mothers only(3) respondents did special practices during AN period .(1) respondent avoided eating pine apple and drinking alcohol,(1) pray all the time and the other one drank traditional juice to get safe delivery.

AN services received during pregnancy

More than 90% of respondents received all the AN care services ,except 82%, 88% and 70% answered that they had screened for HIV , blood glucose and VDRL tests respectively .

Outcome of Pregnancy of Study Respondents

95% (143) of respondents had normal vaginal delivery, one was instrumental delivery, and six were LSCS delivery. 52% were delivered by doctors, 47% by health personal. Majority (76.67%) were hospital deliveries while 23.33% delivered at health center. About 92 % had no maternal and infant complication, but (3) mothers reported post-partum haemorrhage ,(2) suffered sepsis, one case each of high blood sugar and high blood pressure. One infant suffered acute respiratory tract infection ,three infants were immature babies and one infant had heart problem.

Association between Knowledge Score and Education

Figure 2 showed that there was statistically significant association between education level and knowledge score on AN care. (p = 0.02).

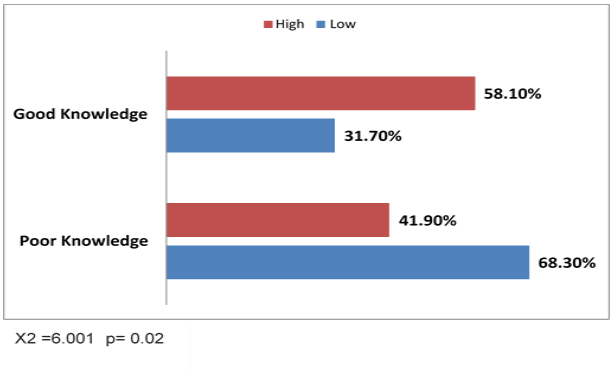

Figure 2 : Association between education and knowledge on Antenatal care

Association between income and knowledge of Respondents

A significant association between income and knowledge (p=0.01) was found in figure 3. As income increased, good knowledge score also increased (Figure 3).

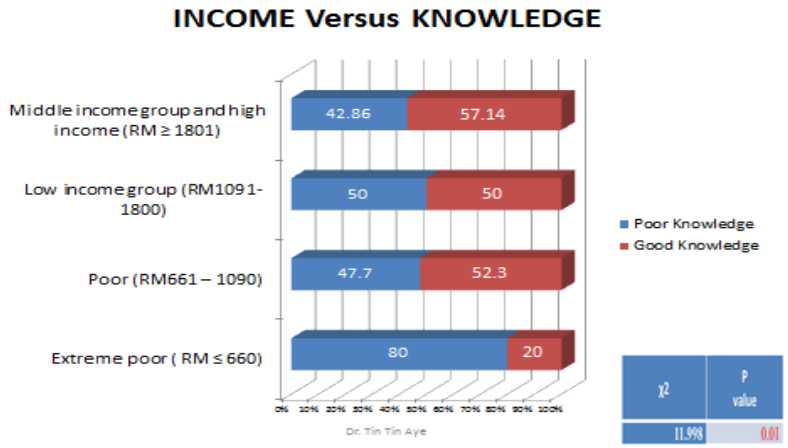

Figure 3 : Association between income and knowledge of Respondents

Association between essential AN care practice and pregnancy complication

There was no significant association between essential AN care practice and pregnancy complication .Higher percentage of women with no complication was found in women with four or more AN visits than women who were less than four AN visits (93.75% versus 88.63%) (Table 3).

Table 3: Association between essential AN care practice and pregnancy complication

Variables	**Complications in the Pregnancy**		
	Yes (n and %)	**No (n and %)**	**Significant test; P- Value**
Frequency of AN Care Visits (n=149)			
Less than four visits (n=53)	6 (11.32)	47(88.63)	X^2=1.1857 p=>0.05 NS
Four or more visits (n=96)	6 (6.26)	90(93.75)	

Association between AN Care knowledge and essential AN care practice .

Poor level of AN care knowledge was found to be associated with higher essential AN care completed rate (Table 4).

Table 4: Association between AN care knowledge and essential AN care practice

Knowledge Level	<4AN visits	%	4 or more AN care visits	%	X^2	P-Value
Poor	19	24.35	59	75.64	9.558	0.002
Good	35	48.61	37	51.38		
Total	54		96	100.00		

DISCUSSION

Knowledge of Antenatal Care Seeking Behavior

Lothian (2009) [2] stated every pregnant woman needs to know that the most important way to insure a healthy, safe birth is to choose a provider and place of birth that provide evidence-based maternity care and do not interfere in the natural, physiologic process of birth unless there is a compelling medical indication to do so. The women in this study were often well informed about the best provider and place of birth . 96% knew to receive AN care from hospitals, all knew that the safest place for delivery was the hospital and that doctors should attend the birth .

All of the respondents also knew pregnant women need vitamin supplements and nutritious food, which was similar to the findings from the study on Orang Asli women of Malaysia which reported that all 104 respondents claimed that they took vitamin supplements provided for them by the health clinic during their last pregnancies (Rosaliza, 2011) [3].

Knowledge of Antenatal Care

A majority of the women (94%) knew that the correct time to book the first AN care visit was as soon as pregnancy was known and within the first trimester as per the WHO recommendation [5,6.] However, that left 6% who did not know the correct time. UNICEF, the United Nations Population Fund (UNFPA) and WHO also recommend a minimum of four antenatal care visits during pregnancy (UNICEF, 2015)[4] and correct knowledge on AN care at least four times, which only 35.3% knew .

The study also revealed that knowledge about the actual schedule was lacking . 22.67% did not know time schedule for subsequent visits. Compared to knowing when and how many times one must receive AN care, considerably less women knew that anti-tetanus toxoid (ATT) must be received twice (23%). These findings reveal that there is a gap in the AN care knowledge on timing of care and ATTvaccination needed during pregnancy, although all knew that vitamin supplements and nutritious foods were needed.

Most of the women in the study (56%) knew the correct resting hours during day time. The National Sleep Foundation (2015)[7] found out 51% of pregnant or recently pregnant women reported at least one

weekday nap; 60% reported at least one weekend nap. So, our findings concerning resting hours of the women of this study reflected the worldwide results.

Majority of the women knew which conditions imposed high risks during pregnancy and warning signs and risks that lead to complications.When compared to the Orang Asli women (Rosliza, 2011)[3], showed that the women in study area were better informed, as only half of the Orang Asli women were aware of the complications of diabetes and high blood pressure. The women in this study also fared better than rural Bangladeshi women from the Shirin study (2011)[8] as most of the Bangladeshi women were not aware of the various danger signs during pregnancy.

However, when looking at overall knowledge, 48% of the women of this study had good knowledge which was higher than recorded by Rosaliza and Muhamad (2011) [3,]where out of 104 women, 44.2 percent had good knowledge. These results showed that knowledge of specific details about timing, schedule and frequency of care was lacking, while knowledge about general AN care was widespread ,in-depth knowledge was lacking.

Practice on AN care

Only 3(1.97) % practiced late AN care. WHO recommend first AN visit should be within the first trimester . Frequency of AN visit less than 4 times was 35.33 % and 4 and more than 4 times were 64% . WHO stated that globally, the proportion of women receiving antenatal care at least once during pregnancy was 83% for the period 2007–2014. However, only 64% of pregnant women received the recommended minimum of four antenatal care visits or more, suggesting that large expansions in antenatal care coverage are still needed. (WHO, 2015)[5,6] . In this study respondents answered that more than 90% received all the services during pregnancy , only 82% answered screened for HIV,88% for blood glucose and 70% for VDRL tests. It might be due to recall bias or they did not know the types of blood test examined.

Association between knowledge and educational level

There was statistically significant association between education level and knowledge score on AN care, as education level increased, knowledge increased. According to Zhao, Kulane, Gao and Xu (2009)[9] ,education is the most powerful influence on the knowledge score of maternal health. China study revealed that women who had education of junior high school or higher had a better knowledge level than those who were less educated. Onasoga (2012)[10,11] stated that an educated woman is more aware of health problems; she knows more about the availability of health services and she uses this information more effectively than someone who is not educated. This significant association may reflect an issue with the ease of the information given.

Association between income and knowledge

As income increased good knowledge score also increased (p = 0.01). This study reflected the findings of studies done in Bangladesh, where there was a strong association between the income and AN care received by the respondents. (Kabir, R. 2013) [12]. As income is related to education, it makes sense that the association with knowledge exists.

Association between essential AN care practice and pregnancy complication

There was no significant association between frequency of antenatal visit and complication. The direct relationship between antenatal care practice and pregnancy outcomes cannot be elucidated. In this study due to small number of sample size of mothers with complications, no significant association between essential AN care practice and pregnancy complication was found.

Association between essential AN care practice and level of knowledge

It was found that women with poor knowledge had higher essential AN care completed rate (p=0.002). This may be explained by the practice towards maternal health by the community as a whole which has created a communal knowledge and expectation in which good delivery practice is highly existed. Another relevant factor may be the presence of and access to good health infra structure as reflected in the nearly 100% clinic or hospital births attended by qualified personnel and the average proximity of respondents to hospitals or health centers.

CONCLUSION

The study found that 64% of the respondents went for AN care at least four times and more ,and 48% had 'good knowledge'on AN care. The study found a significant association between poorer knowledge and having recieved complete AN care. Despite the low level of knowledge and the less than standard AN care practices, the pregnancy outcomes were good and there was no significant association with the pregnancy complications. The results highlight the strength of the current national maternal health program while AN care knowledge and practice reveals areas where improvements are needed.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

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