ORIGINAL ARTICLE

Predictors of quality utilization of antenatal care services in Naypyidaw, Myanmar

Wai Mon Soe,[1] Jiraporn Chompikul[2] and Aroonsri Mongkolchati[2]

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

Corresponding Author: *Jiraporn Chompikul* ***Email:*** *jiraporn.chm@mahidol.ac.th*
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Abstract

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Information regarding on quality utilization of ANC and associated factors in Myanmar is very limited. Therefore, this cross-sectional study was conducted to identify factors associated with quality (early and regular) utilization of ANC among women living in Naypyidaw Region, Myanmar. Multistage cluster sampling was used to randomly select 375 women aged 18-49 years who had at least one child in previous six months. They were interviewed face to face with structured questionnaire in May 2015. Chi-square test and multiple logistic regression were used to examine factors associated with quality utilization of ANC

The results showed 57.1% of women utilized early and regular antenatal care which indicated that they visited antenatal care services during the first 12 weeks and at least 4 times. Only 57.4% utilized early antenatal care during the first 12 weeks of pregnancy and majority (86.4%) utilized antenatal care services at least 4 times. Quality utilization of antenatal care significantly associated withwomen's age, education, household size, place of residence, household income, number of pregnancy, number of children, cultural belief, knowledge, attitude, availability and accessibility, mode of delivery, place of delivery and women's autonomy. Women' autonomy and knowledge remained significant after adjusting for women's age and education, place of residence and household income. Women with no autonomy were nearly 3 times (Adj OR 2.52, 95% CI 1.45-4.40)more likely to not utilize ANC early and regularly.

Health education programs about quality utilization of antenatal care should be targeted to women with low education, low income and living in rural areas. Implementations of policies focus on quality utilization of antenatal care and enhancing women's autonomy need to be promoted.

Keywords: quality utilization of antenatal care services, knowledge, Myanmar

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ตัวทำนายของการใช้บริการฝากครรภ์อย่างมีคุณภาพในเนปิดอร์ ประเทศพม่า

เวย์ มน โซ[1] จิราพร ชมพิกุล[2] อรุณศรี มงคลชาติ[2]

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

บทคัดย่อ

เวย์ มน โซ จิราพร ชมพิกุล และอรุณศรี มงคลชาติ
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ข้อมูลของงานวิจัยที่เกี่ยวกับการใช้บริการฝากครรภ์อย่างมีคุณภาพและปัจจัยที่เกี่ยวข้องยังมีน้อยมาก ดังนั้นจึงได้ทำการวิจัยครั้งนี้ซึ่งเป็นการศึกษาแบบภาคตัดขวางเพื่อสำรวจปัจจัยที่มีความสัมพันธ์กับการใช้บริการฝากครรภ์อย่างมีคุณภาพ (เริ่มใช้บริการเร็ว และสม่ำเสมอ) ในผู้หญิงที่อาศัยอยู่ในเนปิดอร์ ประเทศพม่า โดยใช้แผนการสุ่มตัวอย่างแบบแบ่งกลุ่มหลายขั้นตอนในการสุ่มเลือกผู้หญิงอายุ 18-49 ปีซึ่งมีบุตรอย่างน้อย 1 คนในช่วง 6 เดือนที่ผ่านมา จำนวน 375 คน ทำการเก็บข้อมูลด้วยวิธีการสัมภาษณ์ด้วยแบบสอบถามแบบมีเค้าโครงในเดือนพฤษภาคม พศ. 2558 วิเคราะห์ข้อมูลโดยใช้การทดสอบไคกำลังสองและการถดถอยลอจิสติคเพื่อค้นหาปัจจัยที่มีความสัมพันธ์กับการใช้บริการฝากครรภ์อย่างมีคุณภาพ

ผลการวิจัยพบว่าร้อยละ 57.1 ของผู้ญิงใช้บริการฝากครรภ์อย่างมีคุณภาพซึ่งหมายถึงเริ่มใช้บริการเร็ว (ภายใน 12 อาทิตย์ที่ตั้งครรภ์) และสม่ำเสมอ (ใช้บริการอย่างน้อย 4 ครั้ง) ร้อยละ 57.4 ของผู้หญิงใช้เริ่มใช้บริการฝากครรภ์เร็วภายใน 12 อาทิตย์ที่ตั้งครรภ์ และส่วนใหญ่ (ร้อยละ 86.4) ใช้บริการฝากครรภ์อย่างน้อย 4 ครั้ง การทดสอบด้วยไคกำลังสองพบว่าปัจจัยที่มีความสัมพันธ์กับการใช้บริการฝากครรภ์อย่างมีคุณภาพของผู้หญิงอย่างมีนัยสำคัญทางสถิติได้แก่อายุของผู้หญิง การศึกษา ขนาดของครอบครัว สถานที่อยู่อาศัย รายได้ของครอบครัว จำนวนครั้งของการตั้งครรภ์ จำนวนบุตร ความเชื่อทางวัฒนธรรม ความรู้ ทัศนคติ ความพร้อมใช้งานและการเข้าถึงบริการ วิธีการคลอดบุตร สถานที่คลอด และความมีอิสรภาพในการตัดสินใจของผู้หญิง

เมื่อวิเคราะห์ข้อมูลด้วยการถดถอยลอจิสติกพหุคูณพบว่าปัจจัยที่ยังคงมีความสัมพันธ์กับการใช้บริการฝากครรภ์อย่างมีคุณภาพได้แก่ความมีอิสรภาพในการตัดสินใจของผู้หญิงและความรู้ ทั้งนี้ได้ปรับอิทธิพลของอายุ การศึกษา สถานที่อยู่อาศัย รายได้ของครอบครัว พบว่าผู้หญิงที่ไม่มีอิสรภาพในการตัดสินใจมีแนวโน้มที่ไม่ใช้บริการฝากครรภ์อย่างเร็วและสม่ำเสมอเกือบ 3 เท่า (Adj OR = 2.52, 95% CI = 1.45-4.40) ของผู้หญิงที่มีอิสรภาพในการตัดสินใจ

ข้อเสนอแนะจากผลการวิจัยนี้ ควรส่งเสริมโครงการให้ความรู้เกี่ยวกับการใช้บริการฝากครรภ์อย่างเร็วและสม่ำเสมอในกลุ่มหญิงที่มีการศึกษาน้อย รายได้น้อย อาศัยในชนบท การดำเนินการของนโยบายควรมุ่งเน้นไปที่การใช้บริการฝากครรภ์อย่างเร็วและสม่ำเสมอและควรเสริมสร้างให้ผู้หญิงมีอิสรภาพในการตัดสินใจและดำเนินการเพื่อสุขภาพของตัวเอง

คำสำคัญ: การใช้บริการฝากครรภ์อย่างมีคุณภาพ ความรู้ ประเทศพม่า

Introduction

Despite many years of public health interventions, pregnancy related complications continues to be a leading cause of death among women with reproductive age especially in developing countries[1]. In the Southeast Asia region, annually 36,000 women died from pregnancy and childbirth. Some of the countries remain high of maternal mortality rate. Myanmar is one of the four countries with high MMR (over 300 deaths per 100,000live births) in Southeast Asia region[2].

The causes of maternal death are related to maternal care utilization during pregnancy, childbirth and postnatal periods. Antenatal is the key intervention in reducing maternal morbidity and mortality. Regular antenatal care is important for identifying risks of adverse pregnancy outcome. It also forms a good relationship between pregnant women and health providers[3]. Antenatal is the corner stone for the health care of women and their unborn children. It serves as an important entry point into maternal health care system. It also plays a major role in reducing maternal mortality rate by care by facilitating women to deliver with skilled birth attendant or a health facility[4]. Early antenatal registration and regular antenatal follow up provide opportunities to women for better understanding of health information about ANC and early detection of risk factors of prenancy[5].

In Myanmar, according to the data of public health statistical report in 2012, percentage of pregnant mothers with ANC 4 times or more in any period of gestation for union was 66.9% and pregnant mothers with early registration around 12 weeks of gestation was 16.7%. Myanmar has been adopted the WHO antenatal care model as a standard model for utilization of antenatal care therefore quality utilization of antenatal care is regarded as early registration before 12 weeks of pregnancy together with 4 or more regular ANC visits. Although attendance in ANC is encouraging, most women seek ANC less than 4 times or they sought late initiation of ANC[6]. In Myanmar, antenatal care initiative began in 2009 with five years strategic plans for reproductive health to reduce maternal mortality ratio to 1.45 per 1,000 live birth and to reach antenatal coverage at least once to 80% for the whole country by the year 2015. However, the utilization of antenatal care is still low in Myanmar[7].

Many studies showed that antenatal care services utilization was associated with social, economic, cultural and geographical factors[8,9]. Much less is known about the importance of quality utilization of antenatal care and how the self decision making power of women plays a vital role for quality utilization of antenatal care services. Decision making power of women is one of the essential factors which have associated with maternal health care service utilization. Women's autonomy can likely to increase the chance of making right choices in utilizing health service[10]. Scanty of research that focused on association between women's autonomy and quality utilization of antenatal care services especially in South East Asia region[11]. This study aimed to identify the role of women's autonomy and other factors associated with quality utilization of antenatal care services among Myanmar women and it will help to enhance strategies in maternal health care and fulfill the knowledge gap in the country.

Methods

A cross-sectional study was conducted in 5 townships of Naypyidaw Region in Myanmar. Community based data collection was performed in May 2015 with face to face interview using structured questionnaire in Myanmar.

The study was carried out on reproductive age women (18-49 years) who had at least one child within previous six months. Informed consent was obtained from each participant before commencement of interview process. The sample size was estimated using a confidence interval of 95%, an acceptance error of 5%, and the antenatal care coverage of 66.9% in the region of Naypyidaw. Thus, the required sample size was at least 375. Multi-stage cluster sampling was used to select the sample. The Naypyidaw composed of 8 townships. Every township has one or more health centers. Firstly, five townships were purposively selected from 8 townships because there were large number of population. Secondly, simple random sampling method was conducted to select the 5 villages from each selected township. From a health center of each village, the list of women who had at least one child will obtained. Lastly, a systematic random sampling was used to select 15 cases from each village and conduct the face to face interview at their household. The interviewers counterchecked the frequency and timing of ANC with maternal and child health record book.

The questionnaire was divided into seven parts based on conceptual framework. Socio-demographic included age, education, occupation, household size, place of residence, household income, number of pregnancy, number of children, cultural belief, intention to pregnancy and social support.

Knowledge part consisted of information concerning about women's knowledge on antenatal care. The total score of 9 was calculated from 9 items. In each item, the respondents were given one point for correct answer and zero point for incorrect or do not know answer. The total score was categorized into three categories: poor: if the score was <60% of the total score, moderate if the score between 60% to 80% and good if the score was >80%.In the attitude part, 10 questions were asked to assess the attitude of respondents towards antenatal care. The score for each statement was 5,4,3,2 and 1 corresponding to strongly agree, agree, no opinion, disagree, and strongly disagree respectively. The score was reversed for negative statements.The total score of the attitude part was categorized into two groups: positive attitude if the total score> 75^{th} percentile and negative attitude if the total score ≤ 75^{th} percentile.

The satisfaction of antenatal services was measured using five-point rating scales: very satisfied, satisfied, neutral, dissatisfied, very dissatisfied. The total score was categorized into two groups(high and low) using the score at the 75^{th} percentile as a cut-off point.The score above 75^{th} percentile was considered as high satisfaction and that at or below 75 was classified into the low satisfaction group.The questionnaire regarding women's autonomy measured in five parts: (1) decision making power on health care (2) decision making power on major household purchase (3) decision making power on minor household purchase (4) financial autonomy and (5) freedom of movement to go out. Responses for each of the questions were measured using five options:(1) respondent alone; (2) respondent and husband/partner; (3) respondent and other person; (4) husband/partner alone; (5) someone

else. Decision making done by women was regarded as having autonomy and the rest in other group with no autonomy.Then it wascategorized into two as: YES (score ≥ median and NO (score< median). Two categories were made for the analysis in this study.

The quality utilization of antenatal care services consisted of 2 questions whether the women took early antenatal care or not and number of visits at each trimester. It was expressed as percentage of women who took early and regular antenatal care. The number of visits at each trimester explained whether the women took early registration at first trimester and regular visits on antenatal care. The information was counterchecked with maternal and child health record book.

A pre-survey was carried out in order to test the questionnaire. Wordings in the questionnaire were modified as suggested by feedback from participants. Kuder-Richardson (KR20) of 0.519 was obtained for the reliability of the knowledge part and Cronbach's Alpha of 0.603 was obtained for the reliability of the attitude towards antenatal care services.The study was approved by the Institutional Review Board of Social Sciences; Mahidol University (MU-SSIRB No: 2015/130(B2)).

Descriptive statistics (frequency, percentage, mean, medium, standard deviation, minimum and maximum scores) were used to describe the sample. Pearson's Chi-square test was used to examine an association between each independent variable and quality utilization of antenatal care services. Finally, multiple logistic regression was used to determine significant predictors for quality utilization of antenatal care services.

Results

The respondents were divided into high risk age group (less than 20 years or more than 35 years) and normal age group (20-35 years). Majority were normal age women. About 28% attained primary schools, 58% finished secondary schools and 13.4% finished their education in a university.Housewives were 51%. 61.1% had 4-6 family members. More than half of the respondents lived in urban areas and only 10.7% lived together with their in-laws. About 46.4% had high income which is more than 100 USD per month. The percent of respondents who were 2 or more children was about 77%. Nearly almost all respondent had intention to their pregnancy at the time of being pregnant (Table 1). Women got social support from their husbands, 84.8 % indicated that husband accompany them to go to ANC services.

Table 1 Distribution of respondents by socio-demographic characteristics

Variables	Number	Percent
Age group (years)	57	15.2
High risk group (<20 &>35yrs)	318	84.8
Normal group (20-35 yrs)		
Mean=27.9, SD=5.64, Min=18, Max=43		
Women's education		
No Education	3	0.8
Primary	104	27.8
Secondary	217	58.0
University	50	13.4
Women's occupation		
None/Housewife	193	51.5
Labor	48	12.8
Farmer	47	12.5
Shopkeeper	35	9.3
Private employee	16	4.3
Government employee	36	9.6
Household size		
3	105	28.0
4-6	229	61.1
7 and above	41	10.9
Living with- in laws		
Yes	40	10.7
No	335	89.3
Places of residence		
Urban	258	68.8
Rural	117	31.2
Household income(US $/month)		
Low income (<100)	201	53.6
High income (≥100)	174	46.4
Median=100 QD=50 Min= 40 Max=750		
Number of pregnancy		
≤2	275	73.3
≥3	100	26.7
Number of children		
≤2	290	77.3
≥3	85	22.7
Intention to pregnancy		
Yes	332	88.5
No	43	11.5

Table 2 shows 55.7 % of respondents had autonomy in decision making about health care, major household purchase and daily household purchase,use of earnings and freedom of mobility to visit to family and relatives. 77.1% had good knowledge on antenatal care while 4.3% had poor knowledge on antenatal care. 38.1% of respondents had positive attitude towards antenatal care while 61.9 % had negative attitude. Over half of the women (56.8%) said that they had high availability to ANC services and accessibility and the remaining (43.2%) has low accessibility. About three quarter (77.1%) of respondents answered that they did not need to wait for a long time for antenatal care services. Only 29.3 % had high satisfaction on ANC services and 70.7% had low satisfaction. For underlying medical history, 1.3% had heart diseases and 2.7% had hypertension. The respondents had no diabetes mellitus and hyperthyroid. About 10.1% had abortion in last pregnancy and 23.2% had complications during last pregnancy. 90.4 % delivered normally while 9.6 %got caesarean section. With regard to place of delivery, 40.8% delivered at home and 51.5% delivered in government hospitals.

Table 2 Distribution of respondents by knowledge, attitude, antenatal care services, and reproductive health history

Variables	Number	Percent
Women's autonomy		
Decision making about health care		
Autonomy	209	55.7
No autonomy	166	44.3
Knowledge levels		
Good	289	77.1
Moderate	70	18.6
Poor	16	4.3
Mean =5.30 , SD=1.40, Min =1 , Max =9		
Attitude levels		
Positive	143	38.1
Negative	232	61.9
Mean=38, SD=4.11, Min=28,Max=80		
Availability and accessibility levels		
High accessibility	213	56.8
Low accessibility	162	43.2
Waiting Time		
Short	289	77.1
Long	86	22.9
Satisfaction of services		
High	110	29.3
Low	265	70.7
Underlying medical history		
Yes	15	4.0
No	360	96.0
Complication during last pregnancy		
Yes	87	23.2
No	288	76.8
History of last delivery		
Mode of Delivery		
Normal	339	90.4
Caesarean section	36	9.6
Place of delivery		
Home	153	40.8
Government sector	193	51.5
Non government sector	10	2.7
Private	19	5.1

Table 3 shows that 99.5 % got antenatal care service at least once during their last pregnancy. However, 57.4% had early registration during the first 12 weeks and 86.4% regularly visited antenatal care which is more than or equal 4 times. Finally, the percentage of quality utilization of antenatal care which defined as women who had early registration at first 12 weeks and regular antenatal care visits more than or equal 4 times was 57.1%.

Table 3 Distribution of respondents by ANC utilization during the last pregnancy

Variables	Number	Percent
Getting ANC during last pregnancy		
Yes	372	99.5
No	2	0.5
Early ANC within 1st 12 week		
Yes	210	57.4
No	156	42.6
ANC number		
Regular(≥4 times)	317	86.4
Irregular (<4 times)	50	13.6
Qualityutilization of ANC		
Yes	209	57.1
No	157	42.9

Table 4 shows significant association of quality utilization of antenatal care services with the independent variables. Among them, age, education, household size, place of residence, household income, number of pregnancy, number of children, cultural belief , knowledge on ANC, attitude towards ANC, availability and accessibility,history of last delivery, place of delivery and women's autonomy were associated with quality utilization of antenatal care.

This study failed to detect significant association between women's occupation, living with in-laws, intention to pregnancy, social support, waiting time, satisfaction of ANC services, underlying medical history and complication during last pregnancy with-quality utilization of antenatal care services.

Table 4 The association between independent variables and quality utilization of antenatal care services

Variables	Quality utilization of ANC				
	n	No %	Yes %	Crude OR (95% CI)	P-value
Age group (years)					0.002
High risk group(<20&>35)	55	61.8	38.2	2.48(1.37-4.46)	0.003
Normal group (20-35)	311	39.5	60.5	1	
Women's education					<0.001
≤ Primary	101	82.2	17.8	12.06(6.78-21.47)	<0.001
Secondary and above	264	27.7	72.3	1	
Household size					0.048
<3	326	41.1	58.9	0.52(0.27-1.00)	0.051
≥3	40	57.5	42.5	1	
Place of residence					<0.001
Rural	115	49.3	65.7	3.86(2.43-6.16)	<0.001
Urban	251	32.7	67.3	1	
Household income (USD/month)					<0.001
Low income(<100)	193	53.9	46.1	2.65(1.72-4.06)	<0.001
High income(≥100)	173	30.6	69.4	1	
Number of pregnancy					0.045
>2	97	51.5	48.5	1.61(1.01-2.60)	0.045
≤2	269	39.8	60.2	1	
Number of children					0.006
>2	82	56.1	43.9	2.00(1.21-3.27)	0.007
≤2	284	39.1	60.9	1	
Cultural belief					<0.001
Disagree/Undecided	210	33.8	66.2	0.42(0.27-0.64)	<0.001
Agree	156	55.1	44.9	1	
Knowledge levels					<0.001
Low	81	74.1	25.9	5.54(3.189.64)	<0.001
High	258	34.0	66.0	1	
Attitude levels	366				0.005
Positive attitude	137	33.6	66.4	1	
Negative attitude	229	48.5	51.5	1.86(1.20-2.89)	0.006
Availability and accessibility					0.002
High accessibility	207	35.7	64.3	1	
Low accessibility	159	52.2	47.8	1.96(1.29-3.00)	0.002
History of last delivery					0.003
Normal	330	45.5	54.5	3.45(1.47-8.10)	0.004
Caesarean section	36	19.6	80.4	1	
Place of delivery					<0.001
Home	146	65.8	34.2	5.00(3.19-7.87)	<0.001
Government hospital and others	220	27.7	72.3	1	
Women's autonomy					<0.001
Yes	172	33.2	66.8	1	
No	193	53.5	46.5	2.32(1.52-3.54)	<0.001

As shown in Table 5, women's age, women's education, place of residence, household income, knowledge levels, attitude levelsand women's autonomy were found to be significant predictors of quality utilization ofantenatal care services.After controlling for other factors, women with no autonomy were nearly three times more likelynot utilizeantenatal careservices early and regularly than those with autonomy.

Table 5 Multiple logistic regression for quality utilization of antenatal care servicesr

Variables	Adj. OR	95% C.I.for OR		P-value
		Lower	Upper	
Age group (years)				
High risk group (<20 &>35)	2.23	1.19	5.33	0.038
Normal group (20-35)	1			
Women's education				
≤ Primary	8.94	4.56	17.51	<0.001
Secondary and above	1			
Place of residence				
Rural	2.84	1.59	5.07	<0.001
Urban	1			
Household income (USD/month)				
Low income(<100)	2.34	1.37	4.02	0.002
High income(≥100)	1			
Knowledge levels				
Low	2.70	1.35	5.38	0.005
Moderate to high	1			
Attitude levels				
Negative attitude	1.35	0.76	2.38	0.302
Positive attitude	1			
Women's autonomy				
No	2.52	1.45	4.40	<0.001
Yes	1			

[r]Referent group: women utilized antenatal care services early and regularly.

Discussion

In this study, 57.1% of women utilized antenatal care early and regularly which means early antenatal care taken at first 12 weeks together with regular antenatal visits four or more times. This result is lower than 59% of Cambodia by Liljestrand et al.,[12] 66% of Indonesia by Titaley et al.,[13]. It is also lower than the national figure where percentage of pregnant women with antenatal visits four times or more at any period of gestation is 69.3%6. However, those previous studies had highlighted only on the number of antenatal visits and had not mentioned about early registration at first trimester that is the important point in this study looked for.

Almost all (99.5%) women in this study had experienced at least once antenatal visit throughout their pregnancy period. This was above the figure of 96% from previous study done in Myanmar[14]. It is much higher than the result from a study in Vietnam where 87% of women attend antenatal services at least once and also from Indonesia where 95% of pregnant women received antenatal care services. In poor developing countries, antenatal care visits for at least one time is 80%[15].

This study found that percentage of early ANC visits of women within first 12 week was 57.4% and percentage of four or more regular ANC visits was 86.4%. The results showed although women had taken four or more regular antenatal visits, their initiation of antenatal care is late. It is an important finding because early antenatal care is the main objectives of maternal health care and it can help early identification and management of risk factors in pregnancy[16]. The result was much higher than the national data where 17.2% of early registration for the whole country[7]. Previous study in Myanmar described mean month of first antenatal visit was 4.7 and another study done in rural area of Myanmar showed mean month of antenatal visit was 5. It may be due to unawareness of benefits of early antenatal care services[14].

This study identified the significant factors that predict on quality utilization of antenatal care including women's age, education, household income, place of residence, knowledge on ANC, attitude and women's autonomy. The majority of women were between normal age group (20-35 years). The finding of association between high risk age group (less than 20 years and more than 35 years) and utilization of ANC is consistent with a previous study in Cambodia where women with age less than 20 years are associated with late registration of antenatal care[17]. Other studies in Nigeria[18] and Ethiopia[19] supported the findings of the present study.

Level of education was significantly associated with quality utilization of antenatal care. After adjusting other factors, women with primary education is nine times higher not to utilizeantenatal care services early and regularly than those with higher education level (AdjOR=8.94, 95%CI =4.56-17.51). Similar findings were shown in the studies done by Singh et al.,[20] Munsur et al.,[21] and Haque et al.,[22]. Women's education is not only influence the utilization of antenatal care content but also in attending regular antenatal care[23].

The study showed that women from rural area were three times more likely not to utilize quality antenatal care (Adj OR=2.84, 95%CI=1.59-5.07). The result is similar with a study in Uganda that

women living in rural areas were less likely to use antenatal care services compared to counterparts in urban areas[23].

The study demonstrated that women from low income group are two times more likely to not quality utilize of antenatal care than women from high income group (Adj OR=2.34, 95% CI=1.37-4.02).It is supported by other studies indicating that household income is important determinant in initiation and utilization of early and regular antenatal care[24,25].

Women with low level of knowledge on antenatal care were three time higher not to qualityutilize antenatal care than those with high level of knowledge (Adj OR=2.70, 95%CI=1.35-5.38). Similarly, previous studies have emphasized that low level of knowledge played an important role in lowutilization of ANC[26,27]. Evidence suggested that limited knowledge on ANC is also associated with timing and continuation of antenatal care[28,29].

Although attitude towards ANC is not a strong predictor for quality utilization of antenatal care, this study revealed women who had negative attitude towards antenatal care services were more likely to use irregular and late antenatal care than women with positive attitude. The result is consistent with previous study in Ethiopia that women with positive attitude on antenatal care utilize regular antenatal care services[19].

Our analysis revealed important finding that women's autonomy was a predicting factor for quality utilization of antenatal care services. Women with no autonomy were nearly three times more likely not to utilize antenatal care services early and regularly. It is similar with a study in Bangladesh that women's autonomy is associated with greater number of antenatal care services utilization[30]. Similar findings were reported by other studies in India[11] and Kenya[31]. Women autonomy is the major contributing factors in utilization of antenatal health care. If the women have higher power in deciding health care and other major decision, they had higher probability of seeking antenatal care services.

Since the information on pregnancy was collected retrospectively, women might forget or might not accurately recall the information during the interview. Women might prone to report fewer pregnancy complications or greater women autonomy than they actually had.This study was cross-sectional study; it cannot establish the causal relationship between independent variables and quality utilization of antenatal care services.

Recommendations

In conclusion, the result of the study confirmed that nearly all women utilize antenatal services however initiation of ANC was late. The main factors determining quality utilization of antenatal care are women's age, women's education, household income, place of residence, knowledge on ANC, attitude towards ANC and women's autonomy.

There is a need to increase the knowledge of women about quality utilization of antenatal care by health education, health promotion and mass media. With improvement of knowledge about benefits of quality antenatal care and positive attitude towards it, women will come to understand that early and regular ANC is important for their lives and their babies. Maternal health programs should emphasize on the

importance and benefits of early registration at first 12 weeks and continuity of ANC visits for 4 times or more especially in rural areas.Programs should be aimed to promote secondary or higher education in women and strengthen women empowerment in Myanmar.

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