International Journal of Community Medicine and Public Health
Aung TZ et al. Int J Community Med Public Health. 2016 Apr;3(4):900-905
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20160926

Research Article

Late initiation of antenatal care and its determinants: a hospital based cross-sectional study

Thin Z. Aung[1], Win M. Oo[2]*, Win Khaing[3], Nay Lwin[2], Hlaing T. Dar[2]

[1]Department of Public Health, Ministry of Health, Myanmar
[2]Faculty of Medicine, SEGi University, Malaysia
[3]Department of Preventive and Social Medicine, University of Medicine, Mandalay, Myanmar

Received: 03 February 2016
Accepted: 05 March 2016

***Correspondence:**
Dr. Win M. Oo,
E-mail: drwinuch@gmail.com

ABSTRACT

Background: Antenatal care (ANC) is important for both maternal and fetal health. Pregnant women with late initiation of ANC are more likely to attain poor outcomes of pregnancy. Little is known about the magnitude of receiving late ANC among pregnant women in Myanmar. Therefore, the present study was conducted to determine the prevalence of late initiation of ANC and its determinants among pregnant women attending antenatal clinic at Pyin-Oo-Lwin General Hospital, Mandalay region during 2014.
Methods: A hospital-based cross-sectional study was conducted. Altogether 333 pregnant women were included in the study. Data were collected through face-to-face interview after getting informed consent from the respondents.
Results: The prevalence of late initiation of ANC was 56.2% (95% CI: 50.6%, 61.6%). Univariate analysis revealed that residence; education and occupation of pregnant woman, husband's occupation, gravidity, parity and being planned pregnancy were significantly related to late initiation of ANC. Based on the results of multivariate logistic regression analysis, residence, education of pregnant woman, occupation of husband, parity and being planned pregnancy were identified as significant determinants of receiving late ANC.
Conclusions: Late ANC attendance is high in the study area. Hence, it is important to provide health education on the timing of ANC among women with reproductive age. Community's awareness on importance of receiving early ANC also needs to be promoted. Family planning program (i.e., birth-spacing in Myanmar) should be enhanced to prevent unplanned pregnancies.

Key words: Antenatal care, Late antenatal care, Late initiation, Mandalay, Myanmar

INTRODUCTION

In the life of a woman, a family and a society, pregnancy is one of the important periods. Antenatal care (ANC) is special care for pregnant women with the aim of preventing health problems or getting early detection if any in both fetus and mother.[1-3] Moreover, pregnancy is a crucial time to promote healthy lifestyles and parenting skills. Therefore, ANC is important for health of both mother and fetus. Although there has been little meticulous evaluation of optimal timing of the initiation of ANC, pregnant women who receive late or no ANC are more likely to have poor or unfavorable outcomes of pregnancy.[4-6] Late initiation of ANC was reported as a significant risk factor for maternal mortality in some studies.[7-9] Therefore, ANC should begin as early as possible either at hospital/health center or during domiciliary visit of health workers in order to have sufficient time to manage risk factors, if present or to perform appropriate screening for early and timely referral.[10,11]

Although maternal mortality worldwide drops by about 44% between 1990 and 2015, more than 800 women

(99% of them are from developing countries) die daily due to preventable causes related to pregnancy and childbirth.[12] In Myanmar, maternal mortality ratio is reduced from 520 to 130 maternal deaths per 100,000 live births between 1990 and 2015, and coverage of ANC is more than 80%.[13,14] However, maternal death remains high among South-East Asian countries.[15] Besides, little is known about the magnitude of receiving late ANC among pregnant women in Myanmar. Therefore, this study aimed to determine the prevalence of late initiation of ANC and its determinants among pregnant women attending antenatal clinic at Pyin-Oo-Lwin General Hospital, Mandalay Region, Myanmar during 2014.

METHODS

A hospital-based cross-sectional study was carried out between September and November, 2014. Sample size was calculated using Epi-info version 7.0 statistical software. The prevalence of receiving late ANC was estimated to be 30% with 95% confidence level and 5% absolute precision.[16] Therefore, the sample size requirement was 323. All pregnant women who received ANC at Pyin-Oo-Lwin General Hospital during study period were recruited after getting informed consent. Data were collected by face-to-face interview. Information on last menstrual period, date of receiving first ANC and gestational age at first ANC were confirmed by observing prenatal record/register. Late initiation of ANC was defined as getting first ANC after 16 completed weeks of gestation.[17,18] Socio-demographic characteristics of both pregnant woman and her husband such as education, occupation and residence, and obstetric characteristics such as gravidity, parity and whether or not the present pregnancy was planned were considered as potential determinants. Age of pregnant woman, perception of pregnant woman on ANC, size and type of family, and per capita household's income were regarded as confounders. Perception towards ANC was assessed by means of questionnaires. If a pregnant mother reported that ANC was important for both mother and baby, she was considered to have good perception. Otherwise her perception towards ANC was regarded as unfavorable.

Statistical analysis

Data entry and analysis was done using Stata 11.0 statistical package. Proportion with 95% confidence interval was used to estimate the prevalence of late initiation of ANC among study population. Multivariate logistic regression analysis with manual backward deletion procedure was applied in assessing the determinants of late initiation of ANC. A variable with p-value ≤0.25 in univariate logistic regression was selected as a candidate for inclusion in multivariate analysis.

RESULTS

Altogether 333 pregnant women voluntarily participated in this study. Socio-demographic and obstetric characteristics of the respondents are shown in Table 1. Most of the respondents were ages of 25 years and older (61.0%), and rural dwellers (70.6%).

Table 1: Socio-demographic, economic and familial characteristics.

Variables	Frequency (n = 333)	Percentage
Age in completed years		
<25	130	39.0
≥25	203	61.0
Residence		
Urban	98	29.4
Rural	235	70.6
Education of pregnant women		
Primary (up to grade 5)	146	43.9
Secondary (grade 6 to 11)	132	39.6
Tertiary (University and graduates)	55	16.5
Occupation of pregnant women		
Absent (Housewife)	145	43.5
Present	188	56.5
Education of husbands		
Primary (up to grade 5)	139	41.7
Secondary (grade 6 to 11)	159	47.8
Tertiary (University and graduates)	35	10.5
Occupation of husbands		
Farmers	115	34.5
Laborers	130	39.1
Others	88	26.4
Monthly per-capita household's income		
< Median	207	62.2
≥ Median	126	37.8
Type of family		
Nuclear family	194	58.3
Three generation family	105	31.5
Joint (or) extended family	34	10.2
Size of family		
≤5	265	79.6
>5	68	20.4

Mean (sd) ages were 26.9 (6.1) years and median (range) monthly per-capita household's income were 50,000 (10,000 – 750,000) kyats. Mean (sd) size of family was 4.1 (2.1).

Table 2: Obstetric characteristics and perception of respondents on ANC.

Variables	Frequency (n = 333)	Percentage
Gravidity		
One	172	51.7
Two	89	26.7
Three and above	72	21.6
Parity		
Zero	187	56.2
One	91	27.3
Two and above	55	16.5
Planned-pregnancy		
Yes	215	64.6
No	118	35.4
Perceptions on ANC		
Good	200	60.1
Unfavorable	133	39.9

Obstetric characteristics and perception of pregnant mothers on ANC were described in Table 2. More than half of the participants were first gravida (51.7%) and did not have any experience on live birth (56.2%). Almost two thirds (64.6%) and three fifths (60.1%) had planned-pregnancy and good (or) favourable perception towards ANC, respectively.

Table 3: The prevalence of late ANC among respondents.

Late initiation of ANC	Frequency (n = 333)	Percentage (95% CI)
Present	187	56.2% (50.6%, 61.6%)
Absent	146	43.8% (38.4%, 49.4%)

Table 4: Results of logistic regression analyses.

Variables	Univariate analysis		Multivariate analysis	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Age of respondents	1.02 (0.98, 1.05)	0.375		
Residence				
Urban	Reference		Reference	
Rural	0.48 (0.29, 0.79)	0.004	0.47 (0.27, 0.83)	0.009
Education of respondents				
Primary	Reference		Reference	
Secondary	0.84 (0.52, 1.36)	0.490	0.80 (0.47, 1.37)	0.416
Tertiary	0.38 (0.20, 0.73)	0.003	0.34 (0.16, 0.75)	0.007
Occupation of respondents				
Absent	Reference			
Present	0.56 (0.36, 0.87)	0.010		
Education of husbands				
Primary	Reference			
Secondary	1.10 (0.70, 1.75)	0.679		
Tertiary	0.66 (0.31, 1.39)	0.272		
Occupation of husbands				
Farmers	Reference		Reference	
Laborers	2.54 (1.51, 4.27)	0.000	2.19 (1.24, 3.86)	0.007
Others	1.22 (0.70, 2.13)	0.476	1.50 (0.76, 2.96)	0.242
Per-capita household's income	1.00 (0.99, 1.00)	0.915		
Type of family				
Nuclear family	Reference			
Three generation family	0.81 (0.50, 1.30)	0.382		
Joint (or) extended family	1.60 (0.74, 3.46)	0.235		
Size of family				
≤ 5	Reference			
>5	1.45 (0.83, 2.50)	0.189		
Gravidity				
One	Reference			
Two	1.37 (0.82, 2.30)	0.227		
Three and above	2.49 (1.38, 4.48)	0.002		
Parity				
Zero	Reference		Reference	
One	1.98 (1.18, 3.31)	0.009	1.85 (1.07, 3.22)	0.029
Two and above	3.29 (1.68, 6.45)	0.000	2.17 (1.02, 4.61)	0.045
Planned-pregnancy				
Yes	Reference		Reference	
No	2.39 (1.48, 3.83)	0.000	1.86 (1.09, 3.18)	0.024
Perceptions on ANC				
Unfavorable	Reference			
Good	0.98 (0.63, 1.53)	0.944		

Table 3 shows the prevalence of late initiation of ANC among respondents. More than half of pregnant women (56.2%) took first ANC for their present pregnancies after 16 weeks of gestation. Gestational age at the time of first ANC visit ranged between 7 and 34 weeks. Mean (standard deviation) and median gestational ages at the time of initiation of ANC were 18.23 (4.98) and 18 weeks, respectively.

Main reasons of receiving late ANC reported by the respondents were 'being busy' (29.0%), 'misbelieve that it is appropriate time' (26.3%) and 'due to someone's advice' (18.3%). 'Economic reason' (i.e., financial constraint) was the least (1.5%).

Results of logistic regression analyses were described in Table 4. Although both gravidity and parity were significantly related to late ANC in univariate analysis, only parity was selected for multivariate analysis to avoid collinearity. Based on multivariate logistic regression analysis, residence, education of pregnant mothers, occupation of their husbands, having planned-pregnancy and parity were identified as significant determinants of late initiation of ANC.

DISCUSSION

The prevalence of late initiation of ANC among study population was 56.2%. Almost similar estimates were reported by previous studies done in Myanmar (more than 50%) and Laos (about 60%).[14,19] However, studies conducted in developed countries revealed lower proportions (4.4% to 27.3% % in USA, about 15% in UK and 41% in Australia) whereas some African studies reported comparable or higher values (53% in Ethiopia, 61.1% in Rwanda, 70.3% in Zambia, 81% in Nigeria, more than 70% in Tanzania and Malawi).[5,16-18,20-25]

Utilization of different cut-off points in defining late initiation of ANC could explain these discrepancies (first trimester or 12 completed weeks was used in USA and UK studies, 16 weeks in Ethiopian, Zambian, Tanzanian and Malawi studies, and second/third trimester in some studies).[5,16-20,22,24,25] The proportions of pregnant women who initiate ANC before 4 months of gestation among neighboring and ASEAN countries were 40.4% in Bangladesh, 32.2% in Cambodia, 56.9% in India, 78.6% in Indonesia, 37.5% in Nepal, 46.9% in Pakistan, 56.1% in the Philippines and 65% in Vietnam.[26] Differences in culture or socioeconomic status or health knowledge including awareness on the importance of early booking for ANC or education level among study populations, or differences in time of study or study area whether urban or rural may also be responsible.

In this study mean gestational age at the time of first ANC was 18.23±4.98 weeks. A study done in Ethiopia also reported almost similar result (17.7 weeks).[27] However, a previous study conducted in Myanmar reported much lower gestational age at first ANC (15 weeks) while those detected in Ethiopian and Tanzanian studies were more than 20 weeks.[14,18,24] These discrepancies may be due to differences in time or site of study or differences in education and/or socioeconomic status among study population. Difference in culture or level of awareness on the significance of early initiation of ANC could explain these variations.

Education status of pregnant women, parity, being planned pregnancy, residence whether urban or rural and husband's occupation were identified as significant determinants of late ANC in the present study. This is consistent with findings of previous studies carried out in different countries. Independent studies conducted in USA and some African countries reported that there is significant relationship between late ANC and being planned pregnancy.[16-18,22,28] Parity is also reported as a significant predictor of late initiation of ANC in studies done in UK,[20] Zambia,[17] Rwanda[22] and Ethiopia.[28] Besides, similar studies conducted in USA and Malawi revealed that maternal education has significant effect on receiving late ANC.[16,25] These findings highlight that obstetric characteristics such as parity and being planned pregnancy, and maternal education are important in preventing late initiation of ANC among pregnant mothers.

The present study is not free from limitations that should be considered while interpreting the results. This study was carried out in a government hospital. Pregnant women who received ANC at health centers and private clinics or hospitals were not included in the study. Besides, gestational age at first ANC was determined, based on self-report of LMP. Assessment of gestational age using ultrasound scan was not performed. The study could have been strengthened further by increasing sample size and expanding study sites.

CONCLUSION

Late ANC attendance is high in the study area. Hence, it is important to provide health education on the timing of ANC among women within reproductive ages. Priority should be given to women with low level of education, multiparous women, women with unplanned pregnancies and urban dwellers. Community awareness on the significance of early initiation of ANC should also be raised. Family planning or birth spacing program should be enhanced to prevent unplanned or unwanted pregnancies. Future research should focus on effective interventions to encourage and enable pregnant mothers to engage with the ANC services early, especially during first trimester. Similar study that is community-based with larger sample size should also be conducted.

ACKNOWLEDGEMENTS

The investigators are grateful to the participants in this study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: This study was undertaken after obtaining approval from 'Research and Ethical Committee' of the University of Public Health, Yangon and informed written consent from the participants

REFERENCES

1. Sullivan TR, Hirst JE. Reducing maternal mortality: a review of progress and evidence-based strategies to achieve millennium development goal 5. Health Care for Women International. 2011;32(10): 901-16.
2. Carroli G, Rooney C, and Villar J. How effective is antenatal care in preventing maternal mortality and serious morbidity. An overview of the evidence. Paediatric and Perinatal Epidemiology. 2001;15(suppl 1):1-42.
3. World Health Organization (WHO).Antenatal Care in Developing Countries: Promises, Achievements and Missed Opportunities. An Analysis of Trends, Levels and Differentials.1990-2001;WHO,Geneva, Switzerland,2003.
4. Rowe RE, Garcia J. Social class, ethnicity and attendance for antenatal care in the United Kingdom: a systematic review. J Public Health Med. 2003;25(2):113-9.
5. Child Trends Databank. Late or no prenatal care. Available at: http://www.childtrends.org/?late-or-no-prenatal-care. 2015. Accessed 8 January 2016.
6. Sah RB, Gaurav K, Baral DD, JhaNand Pokharel PK. Antenatal care practices in hilly area of eastern region of Nepal. Journal of Chitwan Medical College. 2013;3(4):12-5.
7. Lewis G (Ed): The Confidential Enquiry into Maternal and Child Health (CEMACH). Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer. 2003-2005. The Seventh Report on Confidential Enquiries into Maternal Deaths in the United Kingdom. London: CEMACH.2007.
8. Centre for Maternal and Child Enquiries (CMACE): Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer: 2006-08. The Eighth Report on Confidential Enquiries into Maternal Deaths in the United Kingdom. BJOG. 2011;118(Suppl. 1):1-203.
9. Amnesty International. Struggle for Maternal Health, Barriers to Antenatal Care in South Africa. 2014. Index: AFR 53/007/2014. PP:8 Available at: http://www.amnesty.ca/sites/amnesty/files/mh_es_eng_final_low_resolution.pdf. Accessed 28 December 2015.
10. Shahjahan Md, Chowdhury HA, Akter J, Afroz A, Rahman MM, Hafez MA. Factors associated with use of antenatal care services in a rural area of Bangladesh. South East Asia Journal of Public Health. 2012;2(2):61-6.
11. Phafoli SH, Aswegen EJV, Alberts UU. Variables influencing delay in antenatal clinic attendance among teenagers in Lesotho. South African Family Practice. 2007;49(9):17a-h.
12. WHO. Maternal Mortality. Available at www.who.int/entity/mediacentre/factsheets/fs348/en. Accessed 8 January 2016.
13. Ministry of Health (MOH). Health in Myanmar 2014. MOH. Nay-Pyi-Taw. Myanmar, 2015.
14. Kyaw Oo, Le Le Win, Saw Saw, Myo Myo Mon, Yin Thet Nu Oo, Thae Maung Maung, Su Latt Tun Myint, Theingi Myint. Challenges faced by skilled birth attendants in providing antenatal and intrapartum care in selected rural areas of Myanmar. WHO South-East Asia Journal of Public Health. 2012;1(4):467-76.
15. United Nations Population Fund. Improving Myanmar's maternal health care and boosting midwifery skills are UNFPA's priorities. Available athttp://countryoffice.unfpa.org/myanmar/2015/05/26/12163/improving_myanmar_rsquo_s_maternal_health_care_and_boosting_midwifery_skills_are_unfpa_priorities/. Accessed 10 January 2016.
16. Chandler D. Late entry into prenatal care in a rural setting. Journal of Midwifery & Women's Health. 2002;47(1):28-34.
17. Banda I, Michelo C, Hazemba A. Factors Associated with late antenatal care attendance in selected rural and urban communities of the Copperbelt Province of Zambia. Medical Journal of Zambia. Vol. 39. No. 2012;39(3):29-36.
18. Gebremeskel F, Dibaba Y, Admassu B. Timing of first antenatal care attendance and associated factors among pregnant women in Arba Minch Town and Arba Minch District, GamoGofa Zone, South Ethiopia. Journal of Environmental and Public Health.2015;DOI: 10.1155/2015/971506.
19. Ye Y, Yoshida Y, Harun-Or-Rashid, Sakamoto J. Factors affecting the utilization of antenatal care services among women in Kham District, Xiengkhouang Province, Lao PDR. Nagoya J Med Sci. 2010;72:23-33.
20. CresswellJA, Yu G, Hatherall B, Morris J, Jamal F, Harden A, Renton A. Predictors of the timing of initiationof antenatal care in an ethnically diverse urban cohort in the UK. BMC Pregnancy and Childbirth. 2013;13:103.
21. Trinh TTL, Rubin G. Late entry to antenatal care in New South Wales, Australia. BMC Journal of Reproductive Health. 2006;3:8.
22. Manzi A, Munyaneza F, Mujawase F, Banamwana L, Sayinzoga F,Thomson DR, NtaganiraJ, Hedt-Gauthier BL. Assessing predictors of delayed antenatal carevisits in Rwanda: a secondary analysis of Rwanda demographic and health survey 2010. BMC Pregnancy and Childbirth. 2014;14:290.
23. Adekanle DA, Isawumi AI. Late antenatal care booking and its predictors among pregnant women in south western Nigeria. Online Journal of Health and Allied Sciences. 2008;7(1):1-6.
24. Gross K, Alba S, Glass TR, Schellenberg JA, Obrist B. Timing of antenatal care for adolescent and adult pregnant women in South-Eastern Tanzania. BMC Pregnancy and Childbirth. 2012;12:16.
25. Mkandawire P. Gestational age at first antenatal care visit in Malawi. Matern Child Health J. 2015;19:2366-74.
26. Wang W, Alva S, Wang S, Fort A. Levels and Trends in the Use of Maternal Health Services in

Developing Countries. DHS Comparative Reports No. 26. 2011. Calverton, Maryland, USA: ICF Macro.
27. Gudayu TW, Woldeyohannes SM, Abdo AA. Timing and factors associated with first antenatal care booking among pregnant mothers in Gondar Town; North West Ethiopia. BMC Pregnancy and Childbirth. 2014;14:287.
28. Zegeye AM, Bitew BD, Koye DN. Prevalence and determinants of early antenatal care visit among pregnant women attending antenatal care in debreberhan health institutions, Central Ethiopia. African Journal of Reproductive Health December. 2013;17(4):130-6.

Cite this article as: Aung TZ, Oo WM, Khaing W, Lwin N, Dar HT. Late initiation of antenatal care and its determinants: a hospital based cross-sectional study. Int J Community Med Public Health 2016;3:900-5.