PREVALENCE OF LATE BOOKING AND FACTORS OF ANTENATAL CARE AMONG PREGNANT WOMEN IN SEPANG, SELANGOR, MALAYSIA

By

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Introduction: Antenatal care (ANC) refer to the care of the women and fetus during pregnancy to monitor the maternal health and fetus growth. Ministry of Health Malaysia (MOH) recommended first ANC has to book within 12 gestational weeks. After 12 gestational weeks, it will be considered as late ANC booking. MOH has an expected target for late ANC booking should be less than 20%, however prevalence of late ANC booking in Malaysia still higher than targeted figure. Late ANC booking has been proved that will reduce the chances of detecting the maternal and baby health complication, eventually reducing the chances of providing treatment promptly. Up to now, there are few studies to investigate the factors associated with late booking on antenatal care in Malaysia.

Objective: The objective of this study was to investigate the prevalence and factors of late booking on antenatal care among pregnant women in Sepang, Selangor.

Methodology: The sample size of this cross-sectional study was 500 pregnant women in the first, second, and third trimesters who registered at government health clinics in Sepang District, Selangor. A simple random sampling method was used to recruit the respondents. Self-administrated questionnaires and performa were used to collect the data. Multiple logistic regression was used to determine factors associated with late ANC booking.

Result: The response rate was 98.4%, with a total of 492 pregnant women recruited. The prevalence of late ANC booking was 27.6% (136). Factors statistically significant associated with late ANC booking were knowledge of antenatal care, parity, and mode of the previous delivery. Pregnant women with

a poor knowledge on antenatal care (AOR=1.604, 95% CI:1.022,2.517, P-value=0.040), higher parity (AOR=1.225, 95% CI:1.003,1.495, P-value=0.046), previous experience of spontaneous vaginal delivery (SVD) (AOR=2.855, 95% CI:1.227,6.645, P-value=0.015) and did not have any experience on delivery (AOR=2.906, 95% CI:1.147,7.364, P-value=0.025) were more likely to have late ANC booking.

Conclusion: The prevalence of late ANC booking of this study was higher than MOH targeted. It is necessary to provide health education on the importance of early ANC booking to the new married couple to increase their probability of getting early antenatal care when they are pregnant. Appropriate health program can be devised for targeted population with certain characteristics (pregnant women with poor knowledge on antenatal care, higher parity, previous experience of spontaneous vaginal delivery (SVD) and did not have any experience on previous delivery) to reduce the probability of late ANC booking, eventually increasing the chances of detecting any complication during pregnancy and achieving the target settled by MOH.

Keywords: late booking, early booking, antenatal care, Selangor, pregnant women

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

KELAZIMAN TEMPAHAN LEWAT DAN FAKTOR-FAKTOR TERHADAP RAWATAN ANTENATAL DIKALANGAN WANITA MENGANDUNG DI SEPANG, SELANGOR, MALAYSIA

Oleh

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Pengenalan: Penjagaan antenatal (ANC) merujuk kepada penjagaan wanita dan janin semasa mengandung untuk memantau kesihatan ibu dan pertumbuhan janin. Kementerian Kesihatan Malaysia (KKM) mengesyorkan ANC pertama perlu membuat tempahan dalam masa 12 minggu kehamilan. Selepas 12 minggu kehamilan, ia akan dianggap sebagai tempahan ANC lewat. KKM mempunyai sasaran untuk tempahan ANC lewat mestilah kurang dari 20%, namun kelaziman tempahan ANC lewat di Malaysia masih tinggi daripada angka yang disasarkan. Tempahan ANC lewat telah dibuktikan yang dapat mengurangkan kemungkinan komplikasi kesihatan terhadap ibu dan bayi, akhirnya mengurangkan peluang memberi rawatan dengan segera. Hingga kini, terdapat sedikit kajian untuk mengkaji faktor-faktor yang berkaitan dengan tempahan lewat untuk rawatan antenatal di Malaysia.

Objektif: Objektif kajian ini adalah untuk mengkaji tentang kelaziman dan faktor tempahan lewat terhadap penjagaan antenatal di kalangan wanita mengandung di Sepang, Selangor.

Metodologi: Ukuran sampel kajian keratan rentas ini adalah 500 orang wanita mengandung pada permulaan, trimester kedua dan ketiga yang mana berdaftar di klinik kesihatan kerajaan di Daerah Sepang, Selangor. Kaedah mudah sampel secara rawak digunakan untuk rekrut responden. Soal selidik yang dikendalikan sendiri dan performa telah digunakan untuk mengumpulkan data. Regresi logistik berganda digunakan untuk menentukan faktor yang berkait dengan tempahan lewat ANC

Keputusan: Kadar tindak balas adalah 98.4% dengan jumlah seramai 492 wanita mengandung yang telah di rekrut. Kelaziman tempahan lewat ANC adalah sebanyak 27.6% (136). Faktor yang berkaitan secara statistik dengan tempahan lewat ANC ialah pengetahuan terhadap rawatan antenatal, kesamarataan dan cara bersalin sebelumnya. Wanita mengandung yang kurang pengetahuan tentang rawatan antenatal (AOR=1.604, 95% CI:1.022,2.517, P-value=0.040), kesamarataan tinggi (AOR=1.225, 95% CI:1.003,1.495, P-value=0.046), pengalaman bersalin sebelum secara spontan (AOR=2.855, 95% CI:1.227,6.645, P-value=0.015) dan tidak mempunyai pengalaman bersalin (AOR=2.906, 95% CI:1.147,7.364, P-value=0.025) lebih cenderung untuk tempahan lewat ANC.

Kesimpulan: Kelaziman untuk tempahan lewat ANC dalam kajian ini adalah lebih tinggi dari jangkaan KKM. Sangat wajar untuk menyediakan pendidikan kesihatan terhadap kepentingan tempahan awal ANC kepada pasangan baru berkahwin untuk meningkatkan kebarangkalian terhadap rawatan atenatal secara awal apabila mereka mengandung. Program kesihatan yang sesuai boleh dirangka untuk populasi sasaran dengan kriteria tertentu (wanita mengandung yang kurang pengetahuan tentang rawatan antenatal, kesamarataan tinggi, pengalaman bersalin secara spontan) untuk mengurangkan kebarangkalian tempahan lewat ANC, dengan itu dapat meningkatkan peluang untuk mengesan sebarang komplikasi semasa mengandung dan mencapai sasaran yang ditetapkan oleh KKM.

Kata Kunci: tempahan lewat, tempahan awal, rawatan antenatal, Selangor, wanita mengandung

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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- the research and the writing of this thesis were done under our supervision;
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LIST OF ABBREVIATIONS

ANC	Antenatal Care
LSCS	Lower Segment Caesarean Section
SVD	Spontaneous Vaginal Delivery
ROC	Receiver Operating Characteristic
WHO	World Health Organisation
DOSM	Department of Statistics Malaysia
UPM	University Putra Malaysia

CHAPTER 1

INTRODUCTION

1.1 Background

Early antenatal care in crucial in improving maternal and perinatal outcomes. Antenatal care (ANC) is defined as the care of the women and foetus during pregnancy to monitor the maternal health and foetus growth (WHO, 2016). The World Health Organisation (WHO) recommends a minimum of four antenatal care visits and first ANC should be initiated in the first 12 weeks of gestation (WHO, 2017).

ANC generally is recognised as an effective method of preventing adverse outcome in pregnant woman and their unborn child (Ministry of Health, 2016). First ANC is suggested to be done in the first 12 weeks of gestation. For those 13-28 gestation weeks, pregnant women have to do ANC every month whereas for the 28-35 gestation weeks, pregnant women have to do it biweekly and finally every week after 36 gestation weeks onwards (Ministry of Health, 2016).

Basic aim of ANC is the improvement of the quality of health of the mother and foetus. ANC services covers screening for pregnancy, assessment and identification of any health risks, provision of educational information and delivery, and preparation of the woman physically and psychologically for delivery (National Institute of Health, 2016; Ministry of Health, 2016). The aim for early ANC is to detect any pregnancy related complications which can affect both mother and foetal life. Early ANC booking was believed can minimise or avoid adverse pregnancy outcome. Late ANC initiation leading to difficulty to implement effectively the routine of ANC and can increase risk of maternal and neonatal mortality (Tesfaye et al., 2017).

Ministry of Health Malaysia recommended first ANC has to book within 12 gestation weeks (Ministry of Health, 2016). After 13 gestation weeks, it is considered late ANC booking. Perinatal Care Manual third edition recently edited by Ministry of Health Malaysia, primigravida are advised to go total of ten ANC visits during their pregnancy and seven visits for multigravida.

Previous studies reported that prevalence of late booking was 28.2%, 51.9% and 56.6% (Jiee, Safii, &Hazmi, 2018; Rosliza & Muhammad, 2011; Hazura et al., 2008). Another study in Lembah Pantai, Kuala Lumpur mentioned 180 pregnant women were late booking (Nor Zarina et al., 2015). Risk factors have been identified including unplanned pregnancy, marriage certificate issues, an absence of past medical illness, past obstetric complications, and knowledge

and attitude regarding antenatal care. A specific intervention programme has been done to reduce the rate of late antenatal booking among pregnant women.

These figures were lower compared to studies in elsewhere, for instance Euthopia (51.8%), Mynmar (56.2%), Cameroon (44.0%), West Ethiopia (81.5%), Southern Ethiopia (42.2%), Northern Ethiopia (59.4%), Sourthwest Ethiopia (52.6%), Northwest Ethiopia (64.9%), Ethiopia (66.3%), Tigray Ethiopia (72.5%) (Adekanle & Isawumi, 2008; Aung et al., 2017; Tolefac et al., 2017; Ejeta et al., 2017; Tufa, Tseyage & Seyoum, 2020; Wolde et al., 2017; Tadesse, Mulat & Gashaw, 2014; Temesgan., 2015; Yaya et al., 2017; Berhanu et al., 2017).

Various risk factors have been identified, including maternal age, unplanned pregnancy, level of education, parity, monthly income, mode of delivery, distance, transport cost, worker attitude, long queue, knowledge and attitude ANC (Adekanle & Isawumi, 2008; Ejeta et al., 2017; Jiee, Safii, & Hazmi, 2018; Lerebo, Kidanu & Tsadik, 2015; Aung et al., 2017; Tolefac et al., 2017; Kaswa, Rupesinghe, & Longo- Mbenza, 2018).

Consequences of late booking have been proved positively significantly associated with higher chance of ante partum haemorrhage (APH), gestational diabetes mellitus (GDM), intrauterine death (IUD), foetal distress, preterm labour (PTL), low birth weight and low Apgar scores (Amna, 2015; Govender, Reddy, & Ghuman, 2018; Govender, 2016).

1.2 Problem Statement

MOH has set the prevalence of late ANC booking among Malaysian pregnant women must below 20% (WHO, 2017; Ministry of Health, 2016). Late ANC booking has reported increased risk of maternal and neonatal mortality (Tesfaye et al., 2017). Statistic on Cause of Death Malaysia, 2017 reported deaths due to obstetric embolism recorded the highest percentage for maternal deaths (23.0%) followed by other maternal disease childbirth & the puerperium (18.2%), postpartum haemorrhage (11.5%), ectopic pregnancy (6.8%) and eclampsia (6.1%). This statistic showed that maternal mortality still alarming condition (Kaur & Singh, 2011; Ministry of Health Malaysia, 2016). One of the possible ways to reduce these possible risks is pregnant mother is advised to do early ANC booking. Health care workers could detect the health problems in the early ANC and provide the prompt treatment to reduce any possible maternal disease occurs.

Selangor had the highest live birth (93,257) in Malaysia in 2020 and the infant mortality rate for Malaysia in 2021 was 5.451 deaths per 1000 live births. The maternal mortality rate was 25 pregnant women per 100,00 live birth and complicating pregnancy, childbirth, and puerperium were recorded as the principal causes of death for maternal. Complications such as pulmonary

embolism (20.3%), ectopic pregnancy (14.4%), Post-Partum Haemorrhage (PPH) (12.7%), hypertension (HPT) (5.1%) (DOSM, 2019). According to the statistic provided by the health clinic in Sepang District, a total of 282 pregnant women had late ANC bookings in 2018. No study investigated the factors associated with late ANC booking in the Sepang district. Sepang district had four Klinik Kesihatan which is Klinik Kesihatan Sungai Pelek, Klinik Kesihatan Salak, Klinik Kesihatan Sepang and Klinik Kesihatan Dengkil. Sepang district covers an area of around 600 square kilometers and had a population of 324,935 in the 2020 Census.

Sepang district is located in the southern part of the Selangor, with approximately 61,900 hectares. The majority of the population of Sepang district are urban areas such as Cyberjaya, Kuala Lumpur International Airport (KLIA), Salak Tinggi, and Sepang (Anon 2021). Most of the residents live in urban areas, however, there is a large portion of M40 and B40 categories in Sepang district There are 12 government clinic services in Sepang district, which are provided free of charge for the residents of Sepang district and it is sufficient according to the population. There are a few private clinics that offer pregnant mother screening services such as SCAN and normal treatment. Most of the residents will choose to do an antenatal follow-up at a government clinic as compared to private clinics will charge rm200-250 per follow-up visit.

The government clinic has a standard requirement for the antenatal visit. Primigravida is advised to go total of ten ANC visits during their pregnancy and seven visits for multigravida. The first visit has to be before the first 12 weeks of gestation. However, private hospitals or clinics have no standard guidelines of the minimum visits and first antenatal care for private clinics, therefore it is understood the late booking ANC of the pregnant women in private clinics.

Up to now, there are only few studies on investigating the prevalence of late booking in Malaysia. Studies that conducted in Sarawak, Negeri Sembilan and Kota Bharu Malaysia have reported the prevalence of late booking were 28.2%, 51.9% and 56.6% respectively (Jiee, Safii, & Hazmi, 2018; Rosliza & Muhammad, 2011; Hazura et al., 2008). Another study in Lembah Pantai, Kuala Lumpur mentioned 180 pregnant women were late booking (Nor Zarina et al., 2015). Among these studies, there was only one study in latest five years (Jiee, Safii, & Hazmi, 2018) and there is no study on ANC late booking has been conducted in Selangor. Thus, there is a need for understanding the factors contributing to ANC late booking.

Globally, studies in other countries showed that the prevalence of early ANC booking was ranging from 42.0% to 81.5% (Adekanle & Isawumi, 2008; Aung et al., 2017; Tolefac et al., 2017; Ejeta et al., 2017; Tufa, Tseyage & Seyoum, 2020; Wolde et al., 2017; Tadesse, Mulat & Gashaw, 2014; Temesgan., 2015; Yaya et al., 2017; Berhanu et al., 2017). Implementing appropriate maternal and fetal health can be improved through ANC services and enhancing good pregnancy outcome. Early ANC booking enables the mother to obtain the correct for

pregnancy, which is important for monitoring foetal growth (Jiee, Safii, & Hazmi, 2018). Early medical management strategy also can be done according to the critical vital signs that are monitored during the antenatal care visit thus enhancing maternal wellbeing and good prenatal outcome (Grum & Brhane, 2018). Failure or delay in attending ANC affect the lives of the mother and foetus (Grum & Brhane, 2018; Tesfaye et al., 2017).

The associated factors of late ANC booking that reported were age, employed, level of education, family income, economic status, parity, mode of delivery, distance, transport cost, worker attitude, long queue, knowledge and attitude (Jiee, Safii, & Hazmi, 2018; Hazura, Mohdhashim & Zaharah, 2008., Ejeta et al., 2017; Adekanle & Isawumi, 2008; Tolefac et al., 2017; Lerebo, Kidanu, & Tsadik, 2015; Aung et al., 2017; Kaswa, Rupesinghe & Longo-Mbenza, 2018). As author aware, there is limited study conducted on late ANC booking in Selangor. According to the statistic provided by health clinic in Sepang District, a total of 282 pregnant women had late ANC booking in 2018. High prevalence of late booking will cause late detected of any abnormalities to the babies. Complications to the mothers and babies will cause mortality and morbidity among pregnant women. Exploring prevalence of late ANC booking and factor associated with is important to find more concrete finding in order to constructing intervention to reduce late ANC booking in Malaysia and to reach late booking percentage below 20% as per aimed by MOH.

1.3 Significance of Study

Understanding the prevalence of late ANC booking among pregnant women is vital to understand the particular district has reached target settled by MOH. Besides, factors of associate with late ANC booking can serve as baseline data for designing an appropriate intervention for targeted high risk population. This study is important to create awareness among expectant mothers about the importance of early booking to avoid any complications for the mother and child throughout the pregnancy. Complications such as pulmonary embolism, ectopic pregnancy, postpartum hemorrhage (PPH), and hypertension (HPT), are recorded as the principal causes of death for maternal. The study could also see if the government's target of a late booking rate of less than 20% was achieved. If the rate is still above 20%, the factors that influence can be identified and the government can plan more carefully on ways to reduce late rates more effectively.

Government can devise suitable awareness program and activities to enhance the importance of antenatal care to expected mothers, especially newly married couple. Health care providers can come out with informative flyers to pregnant women for the purpose of increasing awareness regarding of late ANC booking. All health providers in community healthcare interested to know about the associated factors of late booking among pregnant women. The special program can be devised for targeted population with certain characteristics (such as low knowledge or certain income group of pregnant women). Awareness of antenatal

care talks and activities can be conducted among community to improve knowledge and awareness of importance of early ANC.

Antenatal care promotes the Sustainable Development Goals (SDGs) by empowering women for education, healthcare and social services, improving nutritional standards towards improving maternal health (Moller et al., 2017). Increasing prevalence of early ANC booking is one of the efforts to sustain and accelerate progress to prevent maternal and child morbidity and reach the related SDGs. With the new SDGs agenda which has set ambitious goals and target for maternal and child health, this study can be as a baseline in providing information about the information of late ANC booking.

Researcher can aid to develop the intervention program on reducing the late booking prevalence by understanding the associated factors. This is baseline data for aiding the researcher on developing the suitable and appropriate intervention for pregnant women.

1.4 Objective

1.4.1 General Objective

The objective of this study to investigate the prevalence and factors of late booking on antenatal care among pregnant women in Sepang, Selangor.

1.4.2 Specific Objective

i) To determine prevalence of late booking on antenatal care among pregnant women.

ii) To identify the socio-demographic characteristic (age, religion, ethnicity, maternal education, family income and working status), knowledge and attitude on antenatal care, obstetric history and medical problem and clinic factors among pregnant women.

iii) To determine the association between socio-demographic characteristics (age, religion, ethnicity, maternal education, family income and working status), knowledge and attitude on antenatal care, obstetric history and medical problem and clinic factors with late booking on antenatal care among pregnant women.

iv) To determine the factors of late booking on antenatal care among pregnant women.

1.5 Research Question

i) What is the prevalence of late booking on antenatal care among pregnant women?

ii) What are the factors of late booking on antenatal care among pregnant women?

1.6 Research Hypothesis

i) There are significant association between socio-demographic characteristics (age, religion, ethnicity, maternal education, family income and working status), knowledge and attitude on antenatal care, obstetric history and medical problem and clinic factors with late booking on antenatal care among pregnant women.

ii) There are significant factors of late booking on antenatal care among pregnant women.

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