Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I, WAREERAT JITTITAWORN, declare that this thesis, is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in Midwifery, in the Faculty of Health at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

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ABBREVIATIONS

ANC	Antenatal care
APH	Antepartum haemorrhage
BF	Breastfeeding
BMI	Body mass index
CAPP	Comprehensive adolescent pregnancy program
COPE	Centre of perinatal excellence
C/S	Caesarean section
CHT	Chronic hypertension
CPD	Cephalo-pelvic disproportion
CPPC	CenteringPregnancy® Prenatal Care
DFIU	Death of a fetus in utero
EDB	Estimated date of birth
EDPS	Edinburgh postnatal depression scale
GA	Gestational age
GDM	Gestational diabetes mellitus
HB-CAPP	Hospital-based comprehensive adolescent pregnancy program
HREC	Human Research Ethics Committee
ICU	Intensive care unit
IUGR	Intrauterine growth restriction
LBW	Low birth weight
LMICs	Low- and middle-income countries
LSCS	Lower segment caesarean section
MGP	Caseload midwifery group or midwifery group practice
MPPC	Multiprovider prenatal care
NICU	Neonatal intensive care unit
N/L	Normal labour
PCUs	Primary Care Units
PICO	Population Intervention Comparators Outcomes
PIH	Pregnancy-induced hypertension

PPD	Postpartum depression
PPH	Postpartum haemorrhage
PROM	Premature rupture of membranes
PTB	Preterm birth
REACH program	Relaxation encouragement appreciation communication help-fullness program
RCT	Randomised controlled trial
SA sites	South Asian site
SB-CAPP	School-based comprehensive adolescent pregnancy program
SGA	Small for gestational age
SPPC	Single-provider prenatal care
SSA/LA sites	Sub-Saharan African and Latin American Sites
STDs	Sexually transmitted diseases
STI	Sexually transmitted infection
TPPC	Teen pregnancy parenting clinic
UTI	Urinary tract infection
WHO	World Health Organization
YWC	Young women's clinic

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Abstract

Background

In maternity care, pregnant adolescent women are a concern worldwide, especially in low- and middle-income countries (LMICs), as they often have a higher incidence of adverse perinatal outcomes than older women. In high income countries, studies have been conducted on models of maternity care that improve perinatal outcomes amongst adolescent women, including group antenatal care to increase support. In LMICs including Thailand, it is necessary to understand models of maternity care for this group and the needs of the adolescent women more generally.

Aims of the study

To describe perinatal outcomes amongst Thai pregnant adolescent women who received care from the Teenage pregnancy clinics and explore the provision of these clinics from both experiences and perspectives of healthcare professionals and pregnant adolescent women.

Method and design

A concurrent mixed method study carried out in three public hospitals in Bangkok, Thailand. In the first phase, a quantitative descriptive study was conducted accessing retrospective data outlining perinatal outcomes from hospital databases. In the second phase, a qualitative descriptive study using semi-structured interviews with 21 healthcare professionals was undertaken. Finally, another qualitative descriptive study was conducted with nine group interviews (22 adolescent women) who had recently given birth in the hospital. The qualitative data were analysed using thematic analysis/SPSS was used for the quantitative aspect of the study.

Results

In the first phase, the perinatal outcomes of 759 adolescent women and 761 babies were obtained. The most common pregnancy complications were anaemia (179/759; 23.6%) and preterm labour (59/759; 7.8%). The most common adverse neonatal outcomes were low birth weight (94/759; 12.4%) and preterm birth (59/759; 7.8%). There were

two neonatal deaths (perinatal mortality rate of 2.64/1000 births). Overall, the adverse perinatal outcomes were less negative than expected although anaemia remains a significant concern.

In the second phase, healthcare professionals' experiences in caring for pregnant adolescent women were identified as '*recognising the challenges of providing care for young Thai pregnant women*'. Three themes included: 1) having an awareness of the political and cultural contexts and environment of care; 2) being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women; and 3) having different approaches to caring for pregnant adolescents.

In the final phase, adolescent women's experiences in receiving care were identified as '*having needs as a young mother*'. Four themes included: 1) having access to care, 2) feelings about, and perceptions of, the care, 3) being a pregnant woman and a mother at school age, and 4) having an awareness of the challenges of the transition to motherhood.

Conclusions

This study provides a unique overview of perinatal outcomes and experiences of adolescent women and their healthcare professionals' experiences in caring for them in Thailand. The results of this study may inform health care providers, local health care systems and policy makers with information that may assist to improve care for pregnant adolescent women in Thailand and potentially, in similar countries in the region.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

Background to the study

The global population is increasing every year. In 2015, it was estimated that there were more than 7 billion people worldwide (World Bank 2016), and the number of global births annually is 135 million (Ross 2016). The Ecology Global Network (2011) shows that the number of women giving birth every year is approximately 131.4 million worldwide. Of these, it is estimated that 16 million are adolescents, aged 15-19 years, and around 1 million are early adolescents, aged younger than 15 years (World Health Organization 2018a). The majority of adolescent births occur in low- and middle- income countries (LMICs) (World Health Organization 2018a).

Rates of adolescent pregnancy are of concern in reproductive, maternal and child health systems in many countries in Southeast Asia (UNFPA 2016; World Health Organization 2016b). Adolescent women who are pregnant and give birth are significant contributors to poor maternal and child health outcomes in LMICs (World Health Organization 2016a). Hence, it is important for all LMICs to have a focus on adolescent women.

The population of Thailand is ranked twentieth globally with a population of over 69 million in 2018 (Department of Economic and Social Affairs: Population Division 2018). While data suggests that the overall population is decreasing in Thailand, the number of births in the adolescent population has been increasing every year (Areemit et al. 2012; Sukrat 2014). The birth rate amongst adolescent women rose from 31.1 per 1000 women, in 2000, to 53.8 in 2012 (Termpittayapaisith & Peek 2013) and to 60 per 1000 women in 2015 (UNFPA 2016).

An increased adolescent birth rate is likely to be due to the lower rate of access to, and use of, modern contraceptives by women aged 15-19 years in LMICs over the past 20 years (Hindin et al. 2016). Many unintended pregnancies occur due to a lack of access to, and uptake of, contraception (Lanjakornsiripan et al. 2015; Sa-ngiamsak 2016). A previous study in Thailand about contraceptive practices amongst pregnant adolescent

women aged 15-19 years, showed 23.5% of women used oral contraceptive pills, 12.5% of women used emergency pills, 6% of women used contraceptive injections and only 1% used contraceptive implants (Lanjakornsiripan et al. 2015). In addition, a study on HIV/AIDS infection in Thai students reported only 30% of young people use a condom during sexual intercourse (Bureau of Epidemiology 2012). Thai National Statistics of Contraceptive Use does not include specific data on adolescent women (United Nations 2018). Furthermore, elective termination of pregnancy is uncommon in Thailand, due to the fear of unsafe abortions and the perceived sinful consequences arising from a Buddhist religious belief system (Pungbangkadee et al. 2008; Sriyasak et al. 2016).

According to the World Health Organization (WHO), each year more than 3 million unsafe abortions are performed globally on young women aged 15-19 years, contributing to significantly increased maternal death rates (World Health Organization 2018b). Knowledge of the number of unsafe abortions in Thailand led to a change in legislation approving legal termination of pregnancy for women from the end of 2014. This law is under the strict control of the Ministry of Public Health (Department of Health 2016) and stipulates that young women aged younger than 18 years must have parental consent before the procedure can be performed (Department of Health 2016). The religious belief context and a lack of access to termination of pregnancy often lead young women to choose to continue with an unintended pregnancy (Phoodaangau, Deoisres & Chunlestskul 2013; Sriyasak 2016). In addition, as a consequence of limited parental consent for termination the incidence of adolescent pregnancy remains high in Thailand.

In Thailand, the high rate of pregnancies in adolescent women is of concern because both physiological and psychological problems contribute to risk factors and pregnancy complications that often continue into motherhood (Pungbangkadee et al. 2008; Sriyasak 2016; Termpittayapaisith & Peek 2013). Globally, pregnancy complications for adolescent women are high (Althabe et al. 2015) with poorer neonatal outcomes for their babies compared with older women (Ganchimeg et al. 2014). This has been recognised by the WHO, who state that adolescent pregnancy can be dangerous for the mother (World Health Organization 2018b). Preterm births are common amongst

pregnant adolescent women and a major cause of neonatal death (World Health Organization 2016b). In LMICs particularly, higher adverse perinatal outcomes in adolescent pregnancies contribute to maternal and child mortality (Althabe et al. 2015; Ganchimeg et al. 2014). Previous studies in Thailand have shown a higher incidence of adverse perinatal outcomes, such as low birth weight, preterm birth and anaemia in this group of women, which is consistent with other studies globally (Areemit et al. 2012; Butchon et al. 2014; Chantrapanichkul & Chawanpaiboon 2013). Some studies have suggested that the lack of antenatal care in pregnant adolescent women may contribute increased rates of adverse perinatal outcomes (Fleming et al. 2013; Omar et al. 2010). These outcomes are further explored in Chapter 3 of this thesis.

Many countries are trying to implement initiatives to address pregnancy complications in adolescent women (World Health Organization 2013). The WHO recommended the need for increased skills of healthcare providers who care for pregnant adolescent women in the antenatal, intrapartum and postnatal periods (Chandra-Mouli, Camacho & Michaud 2013; World Health Organization 2012). The recent Global Strategy for Adolescents' Health 2016 to 2030 (Kuruvilla et al. 2016; UNICEF 2015) has also indicated the need to develop better models of maternity care for this group. Several studies have explored interventions and models of maternity care for pregnant women to help decrease adverse perinatal outcomes (Allen et al. 2015; Ickovics et al. 2016; Trotman et al. 2015); however, few studies have been conducted specifically focusing on pregnant adolescent women.

Models of maternity care for pregnant adolescent women, such as Caseload Midwifery Group Practice (Allen et al. 2015), the CenteringPregnancy® model (Ickovics et al. 2011; Trotman et al. 2015), and Young Women's Clinic (Allen et al. 2015; Das et al. 2007), have been associated with fewer adverse perinatal outcomes compared with standard ways of providing care. These models of care provide physiological, emotional and material supports for pregnant adolescent women. However, these models have mostly been studied in high-income countries. These approaches to care will be reviewed in Chapter 3 of this thesis.

In response to the global calls for Universal Health Care Coverage (World Health Organization 2010), in 2016 Thailand initiated systems where all pregnant women are able to access free antenatal, intrapartum, and postnatal care (Ministry of Public Health 2016b). Maternal and child health care has been made accessible for adolescents; however, adolescent women often present late in pregnancy for antenatal care (Chirayus & Chandeying 2012). They may therefore receive fewer than the minimum eight antenatal visits recommended by WHO to decrease perinatal mortality and enhance women's experience of care (World Health Organization 2018d). In Thailand, the quality of care provided by healthcare professionals was found to be crucial to the perception of care by pregnant adolescent women (Pungbangkadee et al. 2008; Sriyasak, Åkerlind & Akhavan 2013; Udmuangpia et al. 2017). The conflict between the desire to enjoy adolescence and the responsibilities of motherhood often seems to lead to struggles in the transition to motherhood for young people (Pungbangkadee et al. 2008). There is a need to provide sensitive and continuous care to each adolescent woman, as well as provide them with respect as they make their journey to becoming a young mother. It is also recognised in Thailand that home visiting systems need to be expanded for young mothers as currently these are limited or non-existent (Pungbangkadee et al. 2008; Sa-ngiamsak 2016; Sriyasak, Åkerlind & Akhavan 2013).

Given all these issues, there is a need to study and understand maternity care specifically for pregnant adolescent women. It is, therefore, important to explore the current practice of maternity care for pregnant adolescent women in terms of structure, process, and outcomes (Donabedian 1988, 2005), in particular in LMICs like Thailand. These issues are the focus of this thesis.

Research Aims

The aims of this study were to describe the perinatal outcomes amongst pregnant adolescent women and explore the provision of maternity care of the Teenage pregnancy clinics for this group of women in three public hospitals in Thailand.

Definition of the Teenage pregnancy clinic

The Teenage pregnancy clinic is defined as special antenatal care that provides group antenatal care and support to all pregnant adolescent women aged younger than 20 years. Each of three study sites provides group antenatal care for adolescents with both uncomplicated and complicated pregnancies in the Teenage Pregnancy clinics. The clinics are multidisciplinary, and include nurses and midwives, obstetricians, counsellors, psychologists and social workers. Group antenatal care is provided to all pregnant adolescent women, to provide them with information about how to maintain health and reduce the chance of common pregnancy complications. In the groups, women are given information on self-care during pregnancy, the reduction of preterm birth and low birth weight, breastfeeding and birth preparation and are also given a labour ward and nursery tour. The partners or parents of the young women are also invited to attend the classes. The physical care, such healthcare assessment and routine screening also provides to all pregnant adolescent women by nurses and midwives (See more details in **Chapter 2: Context of the study**).

Research questions

The research questions for this study were:

1. What were the perinatal outcomes amongst pregnant adolescent women who received maternity care from the Teenage pregnancy clinics?
2. What was the structure of the current practice of the Teenage pregnancy clinics provided for this group?
3. What was the process of the current practice of the Teenage pregnancy clinics provided for this group?
4. How could the Teenage pregnancy clinics improve perinatal outcomes amongst adolescent women?
5. What were the experiences and perspectives of pregnant adolescent women who received maternity care in the Teenage pregnancy clinics?

Outline of the thesis structure

Chapter One provides a background to the study by briefly describing the global adolescent birth rate and the Thai context. The adverse perinatal outcomes in pregnant adolescent women worldwide, including in Thailand and some models of maternity care for this cohort are briefly outlined.

Chapter Two describes the Thai context by expanding on the demographics of the country (including population, religion, and incidence of adolescent pregnancy). There is a brief description of the maternal and child health care services in Thailand. Lastly, the group antenatal care models (the Teenage pregnancy clinics) for adolescent women in Thailand are outlined.

Chapter Three provides a review of literature. Using the PRISMA guidelines and a quality appraisal tool, an integrative review was undertaken. Thirty-four papers were included to answer the first review question 'What are the reported adverse perinatal outcomes amongst pregnant adolescent women?'. Thirteen papers were used to answer the second review question 'What models of maternity care exist for pregnant adolescent women?'. The main findings of these two review questions are described in this chapter.

When this literature review was done in 2016 and that the purpose was to identify the gap in the literature before the study started and so it was not repeated. Newer evidence is now included in the discussion chapter (Chapter Eight: Discussion and conclusion).

Chapter Four provides an overview of the methodology of this study: a mixed methods study. Design and method are described in this chapter. These consist of three phases: 1) a quantitative descriptive study that aimed to describe perinatal outcomes of pregnant adolescent women; 2) a qualitative descriptive study that aimed to explore experiences and perspectives of healthcare professionals in caring for pregnant adolescent women using a semi-structured interview design; and 3) a qualitative descriptive study that aimed to explore experiences of adolescent women who received

group antenatal care in the Teenage pregnancy clinics. Details of each phase of this study are provided, such as the techniques of data collection and data analysis. This chapter also outlines the ethical considerations.

Chapter Five provides the findings from Phase 1 of the study. The chapter outlines the demographics and perinatal outcomes of 759 women, aged 12-19 years, from hospital databases from three public hospitals in Thailand. Data include socio-demographic characteristics, obstetric history, antenatal care attendance, medical and obstetric complications and neonatal outcomes.

Chapter Six provides an overview of findings from semi-structured interviews from the healthcare professionals' experiences and perspectives in caring for pregnant adolescent women in Thailand (Phase 2). Three main themes emerged: 'having an awareness of the political and cultural contexts and environment of care'; 'being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women' and 'having different approaches to caring for pregnant adolescents'. The overall impression from the healthcare professionals' responses was that they recognised the challenges of providing care for young Thai pregnant women.

This finding chapter (**Chapter Six**) is in the form of a published paper that was published to Women and Birth Journal (online on 5th April 2019) and there is some repetition of the Introduction and Methods in this chapter (thesis).

Chapter Seven provides an overview of findings from group interviews from adolescent women's experiences in receiving group antenatal care in the Teenage pregnancy clinics in Thailand (Phase 3). Four main themes evolved in this chapter: 'having access to care'; 'feelings about, and perceptions of, the care'; 'being a pregnant woman and a mother at school age'; and 'having an awareness of the challenges of the transition to motherhood'. The overriding theme was 'having needs as a young mother'.

Chapter Eight contains the discussion and conclusion. This chapter brings together the quantitative and qualitative descriptive data of this concurrent triangulation mixed methods design and discusses and compares the main findings with other studies. The thesis conclusion encompasses implications for practice, education and policy.

Summary of Chapter One

This chapter has provided an overview of the specific issues with women having pregnancies in the adolescent period worldwide, including Thailand. There was a need to study these women because of the increased incidence of adverse perinatal outcomes associated with this group in other studies. The aims of this study, its research questions, and an overview of maternal and child health care in Thailand, including the Teenage pregnancy clinics has been explained.

The next chapter will explain the Thai context of the study. There were seven main topics: the Thai context, healthcare rights and welfare, healthcare services, maternal and child healthcare, the prevention and solution of adolescent pregnancy, study site, and the model of care of the Teenage pregnancy clinics in Thailand.

CHAPTER TWO: CONTEXT OF THE STUDY

Introduction

This chapter describes the context in Thailand where the study was conducted. There are seven main topics which will be used to understand the Thai characteristics specific to this research into adolescent pregnancy. There are the 1) the Thai context, 2) healthcare rights and welfare in Thailand, 3) healthcare services in Thailand 4) maternal and child healthcare in Thailand, 5) the prevention and solution of the adolescent pregnancy in Thailand, 6) Bangkok metropolis study site, 7) the model of maternity care of the Teenage pregnancy clinics. The incidence of adolescent pregnancy, the system, process, and expected outcomes of maternity care for pregnant adolescent women will also be explained in this chapter. All of these aspects to the study provide context for this study.

The Thai context

Thailand is one of ten countries in the Southeast Asian sub-region. Thailand has developed from an agricultural society to an industrial society since the 1980s and has become an upper-middle income country in the Southeast Asian sub-region (World Bank 2016). The main religion in Thailand is Buddhism; however, there is a diversity of other religions spread in each part of Thailand, such as Islam, Christianity and Brahmanism-Hinduism. There are six regions in Thailand. These are the central region, the north and north-east region, the southern region, the east, and the west. Bangkok is the capital city which is located in the central region (See **Figure 1**). A tropical climate is found in all regions of Thailand (World Bank 2019). In Thailand, there are seventy-seven provinces, including the capital, Bangkok metropolitan, and the city of Pattaya as two special administrative areas (Office of the Royal society 2019).

Figure 1: Map of Thailand, retrieved from https://mx.depositphotos.com/53066831/stock-illustration-thailand-region-and-province-vector.html

The population of Thailand is ranked twentieth in the world with a current population over 69 million (Worldometers 2019). Thailand achieved the Health Millennium Development Goals (MDGs) prior to 2015 (UNDP 2015) and aims to reach the targets of Sustainable Development Goals (SDGs) by 2030. There are some challenges in relation to the SDGs. The World Bank data showed a high contraceptive prevalence rate of women aged 15-49 years in Thailand (78.4%) (The World Bank 2016). This could lead to a decrease in the fertility rate in Thailand; however, this data is not available, specifically for adolescents aged 12-19 years. Currently, the number of births in Thailand is decreasing (World Population Review 2016), but the number of births from adolescents has been increasing every year (Areemit et al. 2012; Sukrat 2014). As described in Chapter 1, the birth rates in Thai adolescent women rose from 47 per 1000 women in

2004 to 54 per 1000 women in 2014 (UNICEF 2015) and to 60 per 1000 women in 2015 (UNFPA 2016).

To address the challenge of adolescent pregnancy, the Thai national campaign aims to decrease the adolescent birth rate to less than 50 per 1000 women by 2026 (Bureau of Reproductive Health Thailand 2018). In 2016, to address this problem further, the Act for the Prevention and Solution of the Adolescent Pregnancy Problem, B.E. 2559 was developed (Ministry of Public Health 2016a). This is a collaboration between the Ministry of Public Health, Ministry of Education, Ministry of Social Development and Human Security, Ministry of Labour, and Ministry of Interior to reduce the birth rate amongst adolescent women.

Healthcare rights and welfare in Thailand

Healthcare rights play a vital role for all Thai people in the process of seeking and receiving care. Healthcare rights can assist people to engage care for helathcare promotion, healthcare prevention, medical treatment, nursing and maternal care, including health recovery (National Health Security Office (Thailand) 2013). In Thailand, there are three main healthcare rights and welfare schemes for all Thais: 1) Thailand's Universal Coverage Scheme, 2) Social Security Scheme, and 3) Civil Servant Medical Benefit Scheme (National Health Security Office (Thailand) 2013).

Thailand's Universal Coverage Scheme was launched in 2002 to provide healthcare access equity to all Thais. This scheme provides care with no out-of-pocket healthcare spending, making healthcare more affordable and accessibility to Thais (National Health Security Office (Thailand) 2013). Universal Coverage for the entire population is achieved through a general taxation funding; the Health Insurance Scheme (Tangcharoensathien et al. 2014). Further examination of the Universal Health Coverage's impact on health-seeking behaviour identified that this scheme was an inadequate response for people from low-income groups (Paek, Meemon & Wan 2016). Despite this, the implementation of Thailand's Universal Health Coverage has reduced provinical gaps in child mortality from 18 per 1000 livebirths in 2002 to 14 per 1000

livebirths in 2015 (Tangcharoensathien et al. 2018). The Thailand's Universal Health Coverage covers approximatly 48 million people (National Health Security Office (Thailand) 2015).

The Social Security Scheme was launched in 1990 (Tangcharoensathien et al. 2014) and covered healthcare rights to access care for the insured persons who are working in the private sectors. This scheme can help the insecured people to receive medical treatment at a registered contractor hospitals. This scheme is under the control of the Social Security Office, Ministry of Labour and Social Welfare (National Health Security Office (Thailand) 2013). This Social Security Scheme covers approximately 10 million people in the population (National Health Security Office (Thailand) 2015).

The Civil Servant Medical Benefit Scheme addresses healthcare rights for government officers and when they retire and covers all pensioners. This scheme also provides access to healthcare for the spouse, parents, and children (maximum three children) of people covered by the Civil Servant Medical Benefit Scheme (National Health Security Office (Thailand) 2013). This scheme was launched in 1980 (Tangcharoensathien et al. 2014). The number of Thai people who have this Civil Servant Medical Benefit Scheme is approximately 5 million even with these healthcare rights and welfare schemes, some people out of these schemes use private health insurance (National Health Security Office (Thailand) 2015).

Healthcare services in Thailand

In Thailand, the Ministry of Public Health is the main organisation that provides and manages healthcare services. There are organised on three levels. The primary level of healthcare services are called Primary Care Units (PCUs). They are mostly located in the countryside and primarily have responsibility in health prevention and promotion, including treatment of common ailments. Each PCU has a small number of healthcare providers. The main duties at this level are disease prevention, promoting good health in the community and providing first aid.

The secondary level of healthcare services are district or community hospitals which are located in each district. The function of these hospitals is higher level prevention, inpatient care and medical treatment. The size of the hospitals ranges from 10 to 150 inpatient beds with outpatient and community-based services of different sizes, according to the size of the district served.

The third and highest level of healthcare service is the tertiary level of care. In these services there is a greater capacity to provide clinical care and advanced treatments. There are multidisciplinary and comprehensive specialists in tertiary hospitals. The capacity to receive inpatients is up to 500 beds (Ministry of Public Health 2016b). The next section of this chapter will describe specific maternal and child healthcare in Thailand.

Maternal and child healthcare in Thailand

In Thailand, maternal and child healthcare has been a major priority in health development planning since 1962 in order to achieve a reduction in child mortality and an improvement in maternal health (Kobkarn Mahuttano 2012). The focus of maternal and child health is through antenatal, intrapartum and postpartum care, as well as child welfare clinics. In Thailand, the ministry reports the outcome indicators of maternal mortality as a small success (Ministry of Public Health 2018). The outcome indicators are:

- The maternal mortality ratio is less than 20 per 100,000 women in 2017 (Ministry of Public Health 2018) down from 26.3 per 100,000 women in 2016 (World Bank 2016).
- There has been a decrease in maternal mortality due to haemorrhage by 30% since 2017.
- Maternal mortality due to hypertensive disorder during pregnancy has decreased by 30 percent since 2017.
- Anaemia in pregnancy is now no more than 16 percent.

In Thailand, nurses and midwives are the primary providers in maternity care to all women through antenatal care (ANC), intrapartum care, and postpartum care. ANC is the care provided to women during pregnancy. Pregnant women can receive antenatal care from PCUs but mostly they receive it from hospitals. The primary healthcare providers at ANC are nurses and midwives and they are responsible to care for low-risk and high-risk pregnancies with an obstetrician available as consultants for high-risk pregnancies. In Thailand, all pregnant women are given a copy of the Maternal and Child Health (MCH) handbook known as 'Pink book' at the first ANC visit. Healthcare services provided thorough ANC visits include taking medical and family history, health assessment, routine blood test screening and a routine pregnancy examination by nurses and midwives. In addition, a government campaign for parenting classes has been introduced to prepare pregnant women for maternal roles since 2008 (Ministry of Public Health 2012). The Ministry of Public Health recommends that all pregnant women should receive the first ANC visit before 12 weeks of gestational age and attend ANC for at least five visits (Ministry of Public Health 2018).

Intrapartum care refers to care provided during labour and childbirth. Nurses and midwives are still the primary providers to care for, support, and give information to, low-risk and high-risk pregnant women and their families. Obstetricians are available to participate and give treatment for complications.

Postpartum care refers to care given after birth with an average length of stay in hospital of a few days for normal birth and four to five days for caesarean section. In Thailand, rooming in between mothers and babies is part of postnatal care. For women with complications during labour or after childbirth, mothers will receive care in the postpartum ward while their babies will be given care in the nursery or the neonatal intensive care unit (NICU) depending on the babies' conditions. When mothers and babies are discharged from the hospitals, they will receive a postpartum check-up about four to six weeks postpartum at the hospital.

The prevention and solution of adolescent pregnancy in Thailand

The reproductive health indicators suggest that Thailand has a low maternal mortality ratio (20 per 100,000 live births) (Ministry of Public Health 2018) compared to other countries in Southeast Asia (World Bank 2016). During labour and at the birth, 99.6 percent of women have a skilled birth attendant (Ministry of Public Health 2012). Thai pregnant women attend antenatal care (minimum of four visits) at a rate of over 90 percent (Ministry of Public Health 2018), there is no available data on the skills of healthcare providers in antenatal care and, in the case of pregnant adolescent women, but there are no professionals who have specialised in adolescent health care (UNICEF 2016). The national data for antenatal care visits of a minimum of eight contact points as WHO now recommends are not available.

The Bureau of Reproductive Health (2016) stated that educational institutions, workplaces, public health facilities, and social welfare organisations should be collaborating to prevent adolescent pregnancies as part of the rights of the adolescents. In this Act, the definition of adolescents is any individual aged between 11-19 years and the six rights of adolescents are to make informed decisions, have access to education and information, receive reproductive health services and social welfare services, be treated equally without discrimination and have confidentiality and privacy. In particular, in health facilities, adolescents should receive accurate and adequate information to prevent pregnancy, quality reproductive health counselling and a referral system for social welfare services. This prevention and solution of the Adolescent Pregnancy Problem Act, B.E. 2559 mainly focuses on reducing number of adolescent women who become pregnant in Thailand.

Bangkok Metropolis study site

The study site is in Bangkok, Thailand. Bangkok is the capital city of Thailand and the most populous city of over 9.4 million (Population of City & Country 2018). Bangkok city occupies 1,568 square kilometres with the population density of around 5300 persons per square kilometre (Wikipedia 2019). The immigration of people from the rural areas of the country has caused the rapid population growth in this capital city. Bangkok is the

most developed part of the Thailand and is the centre of the country's government, socioeconomic resources, education, public transportation, health services and telecommunication systems.

This study was conducted in three tertiary public hospitals in Bangkok, Thailand. These health facilities provide specialised care for adolescent women through a group antenatal care approach in the Teenage pregnancy clinics. This model of care for pregnant adolescent women will be explained in details in the next section below.

The model of maternity care of Teenage pregnancy clinics for Thai pregnant adolescent women

The Teenage pregnancy clinics are multidisciplinary. Staff at the clinics include registered nurses and midwives, obstetricians, counsellors, psychologists, nutritionists, and social workers. The first antenatal visit of an adolescent pregnant woman is usually to a general antenatal clinic as many pregnant adolescent women are not aware of the option of the Teenage pregnancy clinics. For the second and subsequent antenatal visits, these adolescent women attend the Teenage pregnancy clinics.

During the first antenatal visit, adolescent women are assessed to determine if they have a high-risk pregnancy and then they are allocated to the Teenage pregnancy clinics. In the case of pregnant women with high-risk pregnancy, women receive health assessment and specific treatment from obstetricians, but are also allocated into the group antenatal care clinic for the self-care pregnancy education given by nurses and midwives. The clinics are not separated between low-risk and high-risk pregnancies, but obstetricians are more involved in the care of women with high-risk pregnancies. These clinics operate on a particular day in each hospital to provide care as well as group support for adolescent women. The desirable frequency of antenatal care appointments is every four-weeks for adolescent women up to 28 weeks gestation, and every two-weeks after 28 weeks. Once they are 36 weeks gestation, antenatal attendances are every week until birth.

On the first visit, the women meet a small number of care providers who, ideally, will continue to care for them. This is to facilitate the development of a trusting relationship. The antenatal care at this visit assesses current and past obstetric history, physical examination, mental health assessment, and standard tests, such as blood tests and blood pressure measurements. At subsequent visits, the women receive physical care from nurse and midwives (these may be the same as the first visit but are more likely to be different at every visit) with routine screenings for blood and urine tests, monitoring blood pressure and sign and symptom for the hypertensive disorder, measuring weight gain, monitoring baby's growth, screening nipples for breastfeeding preparation, and diet and exercise information during pregnancy, determining if these are any other issues. All pregnant women have to meet the dentist to check their dental hygiene once throughout their pregnancy.

Group antenatal care sessions are run by nurses and midwives within the clinics. Women are allocated to the groups according to their trimester age. Individual care to discuss private issues will be provided if some women ask for it or need this as recognised by nurses and midwives running the group antenatal care. Over the course of their attendance at the Teenage pregnancy clinic, the women are provided with information and support about self-care during pregnancy, the prevention of preterm birth, breastfeeding, birth preparation and they are given a labour ward tour provided by nurses and midwives from the labour ward. Partners are also invited to attend these classes.

Healthcare providers provide nutritional information during pregnancy and hold group lessons for the women to share and discuss information. If the young women have extreme low weight gain during their pregnancies, they will be referred to a nutritionist. A social worker discusses financial issues with women during pregnancy, childbirth, and postpartum care. If there are mental health issues, registered nurses will collaborate with a psychologist or a counsellor to provide individualised care. Monthly meetings (nurses and midwives) for women with complex needs are held within the antenatal care unit.

Summary of Chapter Two

Chapter Two has provided a brief description and explanation of the maternity system in Thailand. The Thai context provided an overview of the study setting. Then, healthcare rights and welfare, and services, including maternal and child healthcare and the model of maternity care of the Teenage pregnancy clinics were explained. The next chapter contains the literature review that was conducted prior to the commencement of the study.

CHAPTER THREE: LITERATURE REVIEW

Introduction

This chapter presents an integrative review of the literature focusing on adverse perinatal outcomes and models of maternity care for pregnant adolescent women. The review was conducted to inform the study development.

This chapter describes the key approach to the literature search, including the inclusion and exclusion criteria and the quality appraisal of the relevant papers. The main findings of this review focus on the first aim: defining the adverse perinatal outcomes in pregnant adolescent women and also the second aim: identifying the models of maternity care for pregnant adolescent women. Finally, gaps in the evidence base are acknowledged throughout this chapter.

The review was undertaken in 2016 as a means to identify the knowledge gaps and therefore focusses on the literature prior to the study time. The review was not updated after the study was complete. However, updated literature is included in the final chapter and used to support each point of discussion and conclusion of this study (see new literature included in **Chapter 8: Discussion and conclusion**).

Review aims

The first aim of this integrative review was to describe adverse perinatal outcomes amongst pregnant adolescent women. The second aim of this integrative review was to explore the models of maternity care for pregnant adolescent women.

Review questions

The first review question was, 'What are the reported adverse perinatal outcomes amongst pregnant adolescent women?' The second review question was, 'What models of maternity care exist for pregnant adolescent women?' The population, intervention,

comparators and outcomes (PICO) framework was used to inform the review objectives and are demonstrated in **Tables 1** and **2**.

Table 1: Explanation of first review question using the PICO framework

Population	Intervention	Comparison	Outcome
Pregnant adolescent women, aged 10-19 years	NA	Non-pregnant adolescent women, aged ≥ 20 years	Adverse perinatal outcomes

Table 2: Explanation of second review question using the PICO framework

Population	Intervention	Comparison	Outcome
Pregnant adolescent women aged 10-19 years	Models of maternity care	Standard models of maternity care aged ≥ 20 years	Adverse perinatal outcomes

Approach to the literature search

Inclusion criteria

The integrative review included systematic reviews (I), randomised controlled trials (II), prospective cohort studies (III-1), retrospective cohort studies and comparative studies (III-2) (NHMRC 2009). To address the first aim, papers from any country were included if they examined adverse perinatal outcomes for adolescent women aged 19 years or younger compared with non-adolescent women aged 20 years or older. For the second aim, papers were included if they explored models of maternity care for pregnant adolescent women.

Additional eligibility criteria restricted studies to English language and those published between 1 January 2000 and 30 June 2016. Date restrictions were applied between 2000 and 2016 because this review was conducted to answer two main review questions of what were the reported adverse perinatal outcomes and models of maternity care for pregnant adolescent women available at a certain time point. The models of maternity

care have been well reported and available since 2000. The adverse perinatal outcomes were also reviewed between 2000 and 2016 as the included papers were not out of date for this issue. An additional reason was this review applied the quality appraisal for those included papers, so the literature published before this certain time point might not be appropriate for this process.

Records were identified through database searching and study titles were screened. If they were relevant to the aims of this study, they were included and the abstracts were read. Finally, the full-text of included papers were read and quality appraisal was undertaken (see **Figure 2**—Aim 1: Adverse perinatal outcomes and **Figure 3**—Aim 2: Models of maternity care).

Exclusion criteria

The review excluded comparative studies without concurrent controls, such as diagnostic case-control studies and historical control studies (III-3) and case series (IV) (NHMRC 2009). In addition, papers published in other languages (not English) were excluded, and publications before 2000 were excluded. Furthermore, papers were excluded if they did not explore the adverse perinatal outcomes in pregnant adolescent women or models of maternity care for non-adolescents.

Table 3: Summary of the inclusion and exclusion criteria (NHMRC 2009)

Inclusion criteria	Exclusion criteria

• Study design:
  ○ Systematic review (I)
  ○ Randomised controlled trial (II)
  ○ Cohort study including the prospective cohort study (III-1) and retrospective cohort study and comparative study (III-2)
	• Study design:
	  ○ Comparative studies without concurrent controls (III-3), such as diagnostic case-control studies, historical control studies
	  ○ Case series (IV)

Inclusion criteria	Exclusion criteria

• Participants
  ○ Pregnant adolescent women
• Interventions:
  ○ Interventions that provided antenatal, labour, birth and/or postnatal care
• Outcomes
  ○ Studies that compared perinatal outcomes amongst pregnant adolescent women and non-adolescents
• Access:
  ○ Papers available as full-text.
	• Participants:
	  ○ Non-adolescent women
	• Interventions:
	  ○ Interventions that provided social support only
	• Outcomes
	  ○ Studies that did not compare perinatal outcomes amongst pregnant adolescent women and non-adolescents.
	• Access:
	  ○ Papers not available as full-text.

Searching databases

Five bibliographic databases were used to search the literature. MEDLINE (Ovid), CINAHL (EBSCO), ProQuest Health & Medicine, PubMed and Science Direct (Elsevier) were searched to gather the literature published from January 2000 to June 2016. Additional online searchable resources were applied to gather relevant research articles including the Cochrane Database of Systematic Reviews, WHO Library Database, and Google Scholar. Limits were applied to restrict the search strategy to research articles that were in English and related to humans (see **Appendices: a, b, c,** and **d**).

Online resources were searched by using relevant keywords/search terms such as adolescent pregnancy, teenage pregnancy, young pregnancy, perinatal outcomes,

perinatal complications, childbearing complications, high-risk pregnancy, models of maternity care, midwifery or maternal health services, prenatal care, childbearing care and postnatal care. The retrieved papers were also searched by hand to identify any further or applicable studies.

The PRISMA flowchart demonstrated the search strategies used, as representing in **Figure 2** and **3**. In **Figure 2**, the search for Aim 1 identified 509 papers of which 284 were excluded as duplicates after screening the titles. The remaining 225 abstracts were read of which 149 were then excluded as not relevant or not meeting the inclusion criteria. The remaining 76 papers were examined in more detail of which 42 papers were excluded because they did not meet the selection criteria. As a result, 34 included papers were appraised for quality and included in this review.

In **Figure 3**, the search for Aim 2 identified 348 papers of which 150 were excluded as duplicates after screening the titles. One hundred and ninety-eight abstracts of the remaining papers were read of which 142 were excluded as being not relevant or not meeting inclusion criteria. Subsequently, 56 papers were examined in more detail. Of these, 43 papers were excluded because they did not meet the selection criteria. As a result, 13 papers were appraised for quality.

Figure 2: The literature search process for adverse perinatal outcomes in pregnant adolescent women (Aim 1).

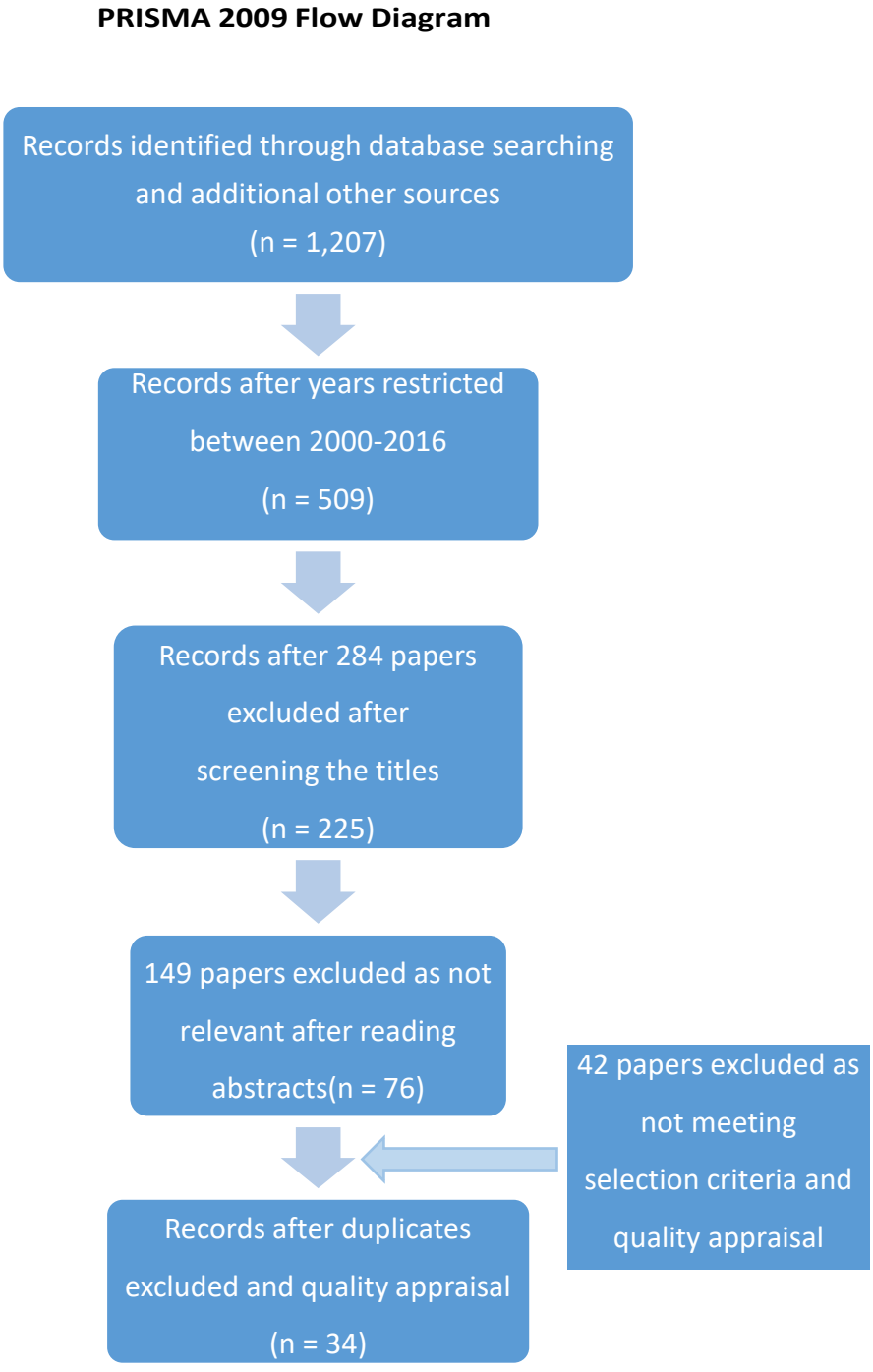
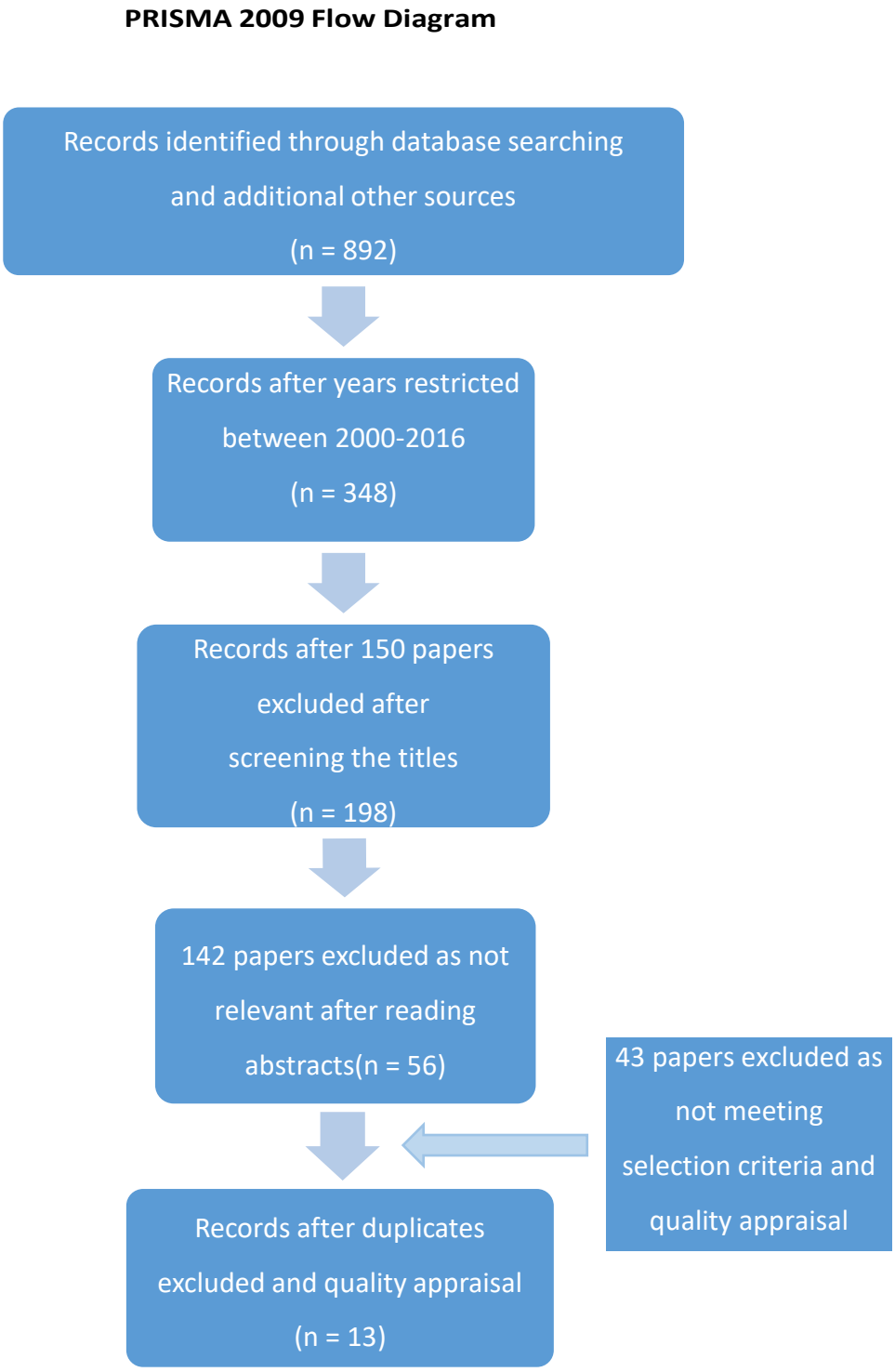


Figure 3: The literature search process for models of maternity care for pregnant adolescent women (Aim 2)



Quality appraisal

Identified papers were appraised to verify the aims or objectives of the study and methodology, to evaluate the method of participant recruitment and appropriate sample sizes between study and control groups, and to classify the findings and recommendations or the further implications (See **Appendices e** and **f**). The cohort studies were classified as quantitative observational studies. These were appraised using three main criteria of a scoring system: (1) appropriate sampling and sample, (2) Justification of measurements, and (3) control of confounding variables (Pluye et al. 2009) (see **Appendices: g** and **h**).

Randomised controlled trial studies (RCTs) were assessed using a scoring system for quantitative experimental studies which had three criteria: (1) appropriate sequence generation and/or randomisations, (2) allocation concealment and/or blinding, and (3) complete outcome data and/or low withdrawal (Pluye et al. 2009) (see **Appendix i**). For each criterion, the presence and absence were scored 1 and 0 respectively. A 'quality score' was then calculated as a percentage: [(number of presence = 1 divided by the number of relevant criteria = 3) × 100 (Pluye et al. 2009, p. 539) (see **Appendices: Tables g, h** and **i**).

For Aim 1: 'adverse perinatal outcome in pregnant adolescent women, one paper (Adeyinka et al. 2010) was subsequently excluded from the review because it scored less than 50 percent of the requirements of the quality appraisal and was therefore deemed as inadequate. For Aim 2: 'models of maternity care for pregnant adolescent women, no papers were excluded because they all scored more than 50 percent of the requirements of the quality appraisal.

Aim 1: Identification of common adverse perinatal outcomes in pregnant adolescent women

Introduction

To address the first aim, the literature was reviewed to identify which adverse perinatal outcomes were the most common amongst pregnant adolescent women. This section will present the findings of Aim 1 of the literature review.

Results

Description of studies

Thirty-four papers were included. These consisted of five different types of studies: 22 retrospective cohort studies, three prospective cohort studies, six cross-sectional studies, and three comparative studies. Overall, the main adverse perinatal outcomes identified were anaemia, hypertensive disorders of pregnancy, preterm birth (PTB), cephalo-pelvic disproportion (CPD), low birth weight (LBW), small for gestational age, low Apgar scores, high rate of neonatal intensive care unit (NICU) admission and perinatal death.

To describe the frequency of occurrences of perinatal outcomes, a content analysis of the main issues or adverse effects studied in each paper was undertaken (Vaismoradi, Turunen & Bondas 2013). The outcomes were tabulated in order of occurrence (see **Table 4**). The most frequent five of all adverse perinatal outcomes in adolescent pregnancies were identified from this table. These were preterm birth (PTB), low birth weight, anaemia, hypertensive disorder/pre-eclampsia/eclampsia, and premature rupture of membranes. For the purposes of this review, only the five most common outcomes will be discussed further.

Table 4: Main adverse perinatal outcomes in pregnant adolescent women

Adverse perinatal outcomes	Frequency of studied outcomes
Preterm birth	**27**
Low birth weight	**20**
Anaemia	**15**
Hypertensive disorders of pregnancy	**8**
Premature rupture of membranes	**6**
Low Apgar scores	5
Neonatal/perinatal death	4
Small gestational age	3
Intrauterine growth restriction	2
Birth asphyxia	1
Maternal Depression	1

NB: Most papers included more than one outcome

Main adverse perinatal outcomes

Preterm birth (PTB)

Almost all of the 37 papers (n=27) showed a higher incidence of PTB amongst pregnant adolescent women compared with non-adolescents. Preterm birth was defined as a live infant who was born before 37 weeks gestation (Ganchimeg et al. 2013; Ganchimeg et al. 2014). Study designs were mostly cohort studies, observing the prevalence of PTB in pregnant adolescent women, compared with non-adolescents. Data in most studies were collected from existing medical records, and the studies had a wide range of sample sizes (108-854,377). Eight papers were appraised as being of good quality and 19 papers were moderate (see **Appendices: g**). These papers showed that there were commonalities in relation to PTB amongst pregnant adolescent women (Liran et al. 2013; Maryam & Ali 2008; Yadav et al. 2008).

There were three common factors surrounding PTB in pregnant adolescent women. Firstly, although PTB occurred frequently in adolescent women who were aged under

20 years old, the highest rate of this complication was in those aged 15 years or less (Althabe et al. 2015; Chantrapanichkul & Chawanpaiboon 2013; Chibber et al. 2014; Ganchimeg et al. 2013; Ganchimeg et al. 2014). Conde-Agudelo, Belizan, and Lammers (2005) found that PTB amongst adolescents aged under 15 years was associated with an increased rate of perinatal death. Furthermore, PTB occurred more often in nulliparous than multiparous adolescent women (Conde-Agudelo, Belizan & Lammers 2005).

Antenatal care for pregnant women provides an opportunity for screening and prevention of PTB, adolescent women were less likely to attend antenatal visits (Chantrapanichkul & Chawanpaiboon 2013; Ganchimeg et al. 2013; Thaithae & Thato 2011; Watcharaseranee, Pinchantra & Piyaman 2006). A lack of antenatal care was associated with an increased incidence of PTB amongst pregnant adolescent women (Chantrapanichkul & Chawanpaiboon 2013).

Lastly, pregnant adolescent women were more likely to be single mothers who had a lack of economic support and this was associated with high rates of PTB (Dutta & Joshi 2013; Fouelifack et al. 2014; França Gravena et al. 2013; Kirbas, Gulerman & Daglar 2016). A combination of factors associated with PTB was seen in some studies (Omole-Ohonsi & Attah 2010). For example, a lack of family and social support correlated with an increased incidence of PTB in one study in Nigeria (Omole-Ohonsi & Attah 2010).

Low birth weight (LBW)

Low birth weight, which is associated with PTB, was reported in 20 studies. Low birth weight is defined as infants whose birth weight is less than 2500 grams (Ganchimeg et al. 2013). Relevant cohort studies with large samples of pregnant adolescent women aged 20 years and younger showed a relationship between LBW infants and pregnant adolescent women. In total, 17 studies found that babies of adolescent mothers were more likely to be born preterm and those with LBW were found to have a higher frequency of adverse perinatal outcomes. Seven studies were of good quality and 13 were appraised as neutral. The high incidence of LBW in babies of adolescent mothers

was related to three key areas. These were: early adolescence, inadequate antenatal care and nutrition, and coping with the social stigma of being pregnant.

The risk of LBW was found more frequently in early adolescent women than in late adolescents (Althabe et al. 2015; Conde-Agudelo, Belizan & Lammers 2005; Sagili et al. 2012) which is aligned with the preterm birth findings. Younger adolescent mothers had a higher rate of extremely LBW, that is, infants who weighed less than 1000 grams (Bildircin et al. 2014). Two studies in Thailand found more LBW babies (<1500 grams) amongst adolescent mothers who were aged under 19 years old compared with non-adolescents (Chantrapanichkul & Chawanpaiboon 2013; Thaithae & Thato 2011). Moreover, LBW and PTB increased the need for NICU admission (Phipps, Hall & Hodson 2015; Thaithae & Thato 2011).

Fewer antenatal attendances were associated with an increased risk of LBW infants, in particular in LMICs (Edirne et al. 2010; França Gravena et al. 2013; Ganchimeg et al. 2014). In LMICs, antenatal care aims to address complications and problems that may reduce the incidence of LBW however, in many contexts women had less than four antenatal visits which means the capacity to do this is limited (Ganchimeg et al. 2013; Ganchimeg et al. 2014).

A study in North-East India indicated that the low rate of antenatal visits was related to the social stigma of being pregnant. This might be one of the main reasons why adolescent women did not seek antenatal care which subsequently increased some of their health issues in pregnancy (Medhi et al. 2016a).

Anaemia

Fifteen papers reported anaemia as a common perinatal outcome for pregnant adolescent women. Anaemia in pregnancy was defined as having a concentrated haemoglobin less than 11.0 g/dl (Bildircin et al. 2014; Thaithae & Thato 2011). Chantrapanichkul and Chawanpaiboon (2013) reported that pregnant adolescent women, aged 16 years or younger, were more likely to have adverse pregnancy outcomes, especially anaemia. This result was consistent with Thaithae and Thato

(2011) who showed that an increased risk of anaemia amongst pregnant adolescent women was associated with being younger.

A higher risk of anaemia in pregnant adolescent women can be found in both primiparous and multiparous women (Pergialiotis et al. 2015; Stewart, Walsh & Van Eyk 2008). This is related to malnutrition and poor nutritional intake and habits (Chantrapanichkul & Chawanpaiboon 2013; Dutta & Joshi 2013; Huang et al. 2014; Watcharaseranee, Pinchantra & Piyaman 2006). In LMICs, the higher risk of anaemia in pregnant adolescent women was due to their low socioeconomic status and their consequent inability to afford a sufficient diet to maintain adequate iron storage (Ezegwui, Ikeako & Ogbuefi 2012; Omar et al. 2010; Thaithae & Thato 2011; Thato, Rachukul & Sopajaree 2007).

Hypertensive disorders of pregnancy

Ten papers found that hypertensive disorders of pregnancy were common amongst adolescent women. These papers showed a higher risk of hypertensive disorders of pregnancy, pre-eclampsia or eclampsia in pregnant adolescent women compared with adult pregnant women (Althabe et al. 2015; Bildircin et al. 2014; Dutta & Joshi 2013; Eren et al. 2015; Ganchimeg et al. 2014; Kirbas, Gulerman & Daglar 2016; Phupong & Suebnukarn 2007; Usta et al. 2008), in particular, women aged 15 years or younger (Chibber et al. 2014; Rasheed, Abdelmonem & Amin 2011).

Ganchimeg et al. (2014) found that eclampsia was most frequent amongst younger adolescent mothers and associated with adverse neonatal outcomes, such as birth asphyxia. Similarly, in Nigeria, the incidence of pre-eclampsia and eclampsia were the main adverse perinatal outcomes amongst pregnant adolescent women compared with those who were older. The presence of hypertensive disorders of pregnancy was also found to contribute to the incidence of preterm birth and low birth weight infants (Dutta & Joshi 2013; Kirbas, Gulerman & Daglar 2016).

Premature rupture of membranes (PROM)

Six papers reported the risk of premature rupture of membranes (PROM) amongst pregnant adolescent women. This was found to be higher in those aged younger than 15 years old (Chibber et al. 2014; Kirbas, Gulerman & Daglar 2016; Rasheed, Abdelmonem & Amin 2011). PROM in adolescent women tended to occur more frequently amongst those who were multiparous compared with those who were primiparous (Pergialiotis et al. 2015).

Summary of adverse perinatal outcomes amongst pregnant adolescent women

This part of the review indicated that there are a number of adverse perinatal outcomes in pregnant adolescent women. The review showed that preterm birth, low birth weight, anaemia, hypertensive disorders of pregnancy and premature rupture of membranes were the five most frequent adverse outcomes experienced by this group of women. In addition, the highest incidence of adverse perinatal outcomes was found in the younger pregnant adolescent women, those aged younger than 15 years.

While this section has reviewed the adverse perinatal outcomes in relation to adolescent mothers, the next step will explore whether ways of providing maternity care (known as 'models of care') may be able to address these outcomes. This is the focus of the second part of this literature review (see Aim 2).

Aim 2: Review of models of maternity care for pregnant adolescent women

Introduction

The second aim of this literature review explored what models of maternity care may be able to reduce the adverse perinatal outcomes in adolescent pregnancy. This review examined the structure, process, and outcomes of each model found to be significant in improving perinatal outcomes for adolescent women. This section will illustrate the search outcomes, the results of the review, and the main outcomes from the literature.

Results

Description of studies

The 13 included papers consisted of three different types of studies: three RCTs, four prospective cohort studies and six retrospective cohort studies. The models of maternity care for pregnant adolescent women from the included studies consisted of CenteringPregnancy® models (group antenatal care), Young Women's Clinics or a dedicated teenage antenatal clinic, Caseload Midwifery Group Practices (MGP), and outreach programs (see **Table 5**).

Table 5: Models of care described within the articles

The models of maternity care	Frequency of studied model
1. CenteringPregnancy® model (group antenatal care)	7
2. Young Women's Clinic or a dedicated teenage clinic	5
3. Caseload midwifery or Midwifery Group Practice (MGP)	1
4. An outreach program	1

Main models of maternity care for pregnant adolescent women

CenteringPregnancy® model (Group antenatal care)

CenteringPregnancy® is a group antenatal care model for pregnant women which was initiated in the USA (Rising 1998; Rising, Kennedy & Klima 2004). The model has also been implemented in other countries, such as Australia (Teate, Leap & Homer 2013) and the UK (Gaudion et al. 2011). The CenteringPregnancy® model focuses on providing group antenatal care in order to develop self-care activities amongst pregnant women. A Cochrane review that compared the effects of group versus conventional antenatal care for women indicated that the incidence of preterm birth and low birth weight infants was not statistically significant (Catling et al. 2015). The limited number of studies was likely to be associated with these results, and this study did not focus on adolescents.

A number of studies have specifically addressed group antenatal care in pregnant adolescent women. Three RCTs (Ickovics et al. 2016; Ickovics et al. 2007; Ickovics et al. 2011) were conducted to explore the effect of the CenteringPregnancy® model for pregnant adolescent women and the perinatal outcomes compared with usual or standard care. These studies were assessed as good designs for measuring the interventions which were graded as level II evidence (NHMRC 2009).

Three cohort studies (Grady & Bloom 2004; Ickovics et al. 2003; Trotman et al. 2015) and one mixed-methods study (Klima et al. 2009) were undertaken to evaluate the CenteringPregnancy® model for pregnant adolescent women. All of these studies were associated with poorer perinatal outcomes in comparison to standard care. These studies were of level III-1 and 2 evidence (NHMRC 2009). After appraising the quality of these studies, they were assessed as having neutral and good qualities (Pluye et al. 2009). The characteristics of the CenteringPregnancy® model will be explained more in the next section.

In the CenteringPregnancy® model, self-care activities taught to the women include measuring their own blood pressure and weight (Grady & Bloom 2004; Klima et al. 2009; Rising, Kennedy & Klima 2004). Furthermore, education and group support are provided through discussions around issues in pregnancy, childbearing, and parenting (Grady & Bloom 2004; Ickovics et al. 2003). Through this, the CenteringPregnancy® model focused on meeting the needs of pregnant adolescent women of which seemed to be suited to their age group (Klima et al. 2009; Klima 2003). Seven studies represented the views of health care providers, the process details, and the outcomes.

In all included studies of CenteringPregnancy® in the USA, midwives, registered nurses, social workers, nutritionists, education coordinators, secretaries and medical assistants provided care (Grady & Bloom 2004; Ickovics et al. 2016; Ickovics et al. 2007; Ickovics et al. 2003; Ickovics et al. 2011; Klima et al. 2009; Trotman et al. 2015). Before providing the group antenatal care sessions, health and nutrition assessments of the women were undertaken by midwives and a nutritionist respectively. A social worker addressed any

socioeconomic problems and gave information on how to access health care services, in particular for adolescent women who lacked education and jobs. The group care was provided every two weeks while the critical issues were discussed by providers at a weekly meeting (Grady & Bloom 2004). The groups comprised of eight to twelve pregnant adolescent women. In one study, group care commenced within 12-18 weeks gestation (Grady & Bloom 2004), whereas Ickovics (Ickovics et al. 2016; Ickovics et al. 2007; Ickovics et al. 2003; Ickovics et al. 2011) provided care prior to 24 weeks. Two-hour group sessions were provided during pregnancy (up to 8-10 sessions through the pregnancy) and one session during the immediate postpartum period (Ickovics et al. 2011; Klima et al. 2009).

Two studies included an additional peer assistant to support the group discussions and help the pregnant adolescent women to assess their blood pressure and weight (Grady & Bloom 2004; Klima et al. 2009). The peer assistant was an adolescent role model who had previously attended group antenatal care, and as such, was helpful to the participants having already experienced pregnancy and birth as an adolescent woman (Grady & Bloom 2004). However, little detail was given on peer assistant recruitment or implementation.

The CenteringPregnancy® model of group prenatal care improved the outcomes for pregnant adolescent women. This was shown through an increased antenatal attendance (Ickovics et al. 2007; Klima et al. 2009), a lower incidence of preterm birth (Grady & Bloom 2004; Ickovics et al. 2016; Ickovics et al. 2007), fewer neonatal intensive care unit admissions (Ickovics et al. 2016), and fewer low birth weight infants amongst pregnant adolescent women compared to the standard care groups (Grady & Bloom 2004). In addition, the women in the CenteringPregnancy® group stated higher rates of satisfaction with their care (Ickovics et al. 2007; Klima et al. 2009).

Young Women's Clinic or a dedicated teenage clinic

A Young Women's Clinic is a special program of maternity care which provides individualised antenatal, labour, birth and postnatal care for pregnant adolescent women (Allen et al. 2015). These clinics have been developed and evaluated in the USA (Bensussen-Walls & Saewyc 2001), Australia (Allen et al. 2015; Quinlivan & Evans 2004), and the UK (Das et al. 2007; Ukil & Esen 2002).

Studies of Young Women's Clinics include cohort studies (Allen et al. 2015; Bensussen-Walls & Saewyc 2001; Das et al. 2007; Quinlivan & Evans 2004; Ukil & Esen 2002) which were graded as level III-1 and 2 evidence (NHMRC 2009). The quality appraisal of studies classified these studies as neutral to good. Five studies described the views of health care providers, process details, and outcomes, as explained in the following section.

In the Young Women's Clinics, there is often a multidisciplinary health team consisting of midwives, social workers, obstetricians, and a psychiatrist provided care during pregnancy, labour and birth and the postnatal period (Allen et al. 2015; Das et al. 2007; Quinlivan & Evans 2004; Ukil & Esen 2002). The USA study also included a public health nurse (Bensussen-Walls & Saewyc 2001). Using community venues, initial visits were conducted by midwives and obstetricians, and an individualised care plan was implemented. In one study in Australia, midwives, an obstetrician, a social worker and child protection staff conducted weekly meetings to address particular problems (Allen et al. 2015) and phone consulting was available to women and provided by a rostered midwife. The clinic midwives cared for the adolescent women when they presented in labour, and a doctor was available if they had obstetric complications. In the postpartum period, the rostered midwives provided care and visited the women at their homes within two weeks of the baby's birth (Allen et al. 2015).

The Young Women's clinics have shown favourable pregnancy and perinatal outcomes for pregnant adolescent women (Quinlivan & Evans 2004). Pregnant adolescent women who received prenatal care at a Young Women's Clinic had a lower incidence of preterm birth (Quinlivan & Evans 2004; Ukil & Esen 2002) and a higher rate of breastfeeding

initiation, although the studies were not randomised (Allen et al. 2015; Bensussen-Walls & Saewyc 2001). In addition, the rate of contraceptive use after discharge was higher than in the standard care group (Bensussen-Walls & Saewyc 2001; Quinlivan & Evans 2004). Overall, the studies of Young Women's Clinics showed a reduction of adverse perinatal outcomes, however, they cannot be considered as high level evidence as they were not randomised trials.

Caseload midwifery or Midwifery Group Practice (MGP)

Caseload and MGP models provide continuity of midwifery care and carer to women during pregnancy, labour, birth and the postnatal period (Sandall et al. 2016). These models exist in many high-income countries such as Australia, New Zealand, the Netherlands, the United Kingdom and Ireland. Different variations of caseload and MGP models can provide positive perinatal outcomes for pregnant women without adverse effects. The main objective of these models of care is to provide woman-centred, midwifery continuity of care to women with low-risk pregnancies in either community or hospital settings (Sandall et al. 2016).

Several studies show the effectiveness of caseload midwifery care or MGP (Berg 2005; Donnellan-Fernandez 2013; McLachlan et al. 2008; Symon, Winter & Cochrane 2015; Tracy et al. 2011); however, only one study was found that focused on pregnant adolescent women. This Australian retrospective cohort study by Allen et al. (2015) found that the continuity of care provided by caseload MGP was associated with a lower incidence of adverse perinatal outcomes in pregnant adolescent women compared with those in standard antenatal care.

In Allen et al. (2015), pregnant adolescent women in one city/state of Australia (Brisbane, Queensland) received antenatal care from four midwives and, similar to the Young Women's Clinics, peer support workers provided social, economic and educational support. Women had care from a primary midwife with phone access to midwives 24 hours a day, and care up to 6 weeks postpartum. During labour, a known primary midwife or one of the midwifery group practice midwives would care for the

women; however, midwives or doctors not known to women provided postnatal care in the hospital. Key findings from this non-randomised study were reduced rates of preterm birth and neonatal intensive care unit admission in caseload midwifery care compared with standard care. Further studies such as RCTs (which would provide higher evidence, that is, Level II evidence) (NHMRC 2009) are needed to examine whether these clinics improve perinatal outcomes.

Outreach program (Canada)

The outreach program is a model of care that was implemented in Canada to provide community-based care for pregnant adolescent women (Fleming, Tu & Black 2012). This was a 'one stop' service for pregnant adolescent women to receive prenatal and postnatal care with friendly services, including a nutritional program. In a prospective cohort study exploring the effect of the outreach program, a lower incidence of low birth weight and preterm birth was found in pregnant adolescent women (Fleming, Tu & Black 2012). However, this was the only paper that studied outreach programs for pregnant adolescent women and as such, there is not enough information to show its true effectiveness. In addition, the study by Fleming, Tu and Black (2012) did not clarify who the health care providers were and whether the program was provided as group sessions or individually.

Summary of models of maternity care for pregnant adolescent women

A number of studies with different designs have contributed to the evidence surrounding models of maternity care for pregnant adolescent women. Most were cohort studies that observed perinatal outcomes between the intervention group (models of maternity care) and standard care. Overall there were four significant models of maternity care for adolescents: (1) the CenteringPregnancy® model, (2) Young Women's Clinic, (3) Caseload Midwifery Group Practice, and (4) the Outreach program. Women having care within the CenteringPregnancy® model (or group prenatal care) showed the lowest rates of adverse perinatal outcomes. Understanding models of maternity care for pregnant adolescent women is required in order to improve the quality of care so that other LMICs can adapt

and improve their services for this group of women. No studies in a LMIC context like Thailand were found.

Summary of Chapter Three

This chapter reviewed the literature examining the adverse perinatal outcomes in pregnant adolescent women pertain to the first aim of this literature review. Amongst adolescent women globally there were five identified frequently occurring adverse perinatal outcomes: preterm birth, low birth weight, anaemia, hypertensive disorders of pregnancy, and premature rupture of membranes. These became key maternal and neonatal outcomes to be explored in Phase 1 of this study. The findings from Phase 1 were used to examine the quality of the current care of Teenage pregnancy clinics as terms of clinical outcomes.

In the second aim of this literature review, the contribution of models of maternity care for pregnant adolescent women was also reviewed. While the incidence of preterm birth, low birth weight infants, anaemia, hypertensive disorders of pregnancy, and premature rupture of membranes was significantly associated with pregnant adolescent women, being cared for by specifically adolescent focused on models of maternity care resulted in significant improvements of these perinatal outcomes. The effects of CenteringPregnancy® model, Young Women's Clinic, Caseload Group Midwifery Practice, and Outreach program were studied in high-income countries. Significant for this study, gaps in the literature were identified concerning similar models of maternity care for pregnant adolescent women within LMICs.

The review of models of maternity care for pregnant adolescent women indicated that providing care in a multi-disciplinary team leads towards positive roles in caring for adolescent women that may be used to define a new structure of providing care. In improving the process of care, providing group antenatal care within the CenteringPregnancy® and model Young Women's Clinic that focused on group discussions with women is superior to information giving to women. In the process of the Caseload and MGP models providing continuity of midwifery care and carer provide

women-centred continuity of care to adolescent women. This helps to improve trust and easier engagement with the adolescent women as this group of women needs care that respects them as a pregnant woman. Also, a 'one stop' service of an outreach program that was developed in Canada for pregnant adolescent women was seen to provide prenatal and postnatal care with friendly services, including a nutritional program. All of these models of maternity care in this literature review can be considered to be tailoring care as women-centered care. However, the structure-process-outcome framework needs to be first explored in the Thai context before implementing other models of care so that there is an appreciation of the cultural setting. The Donabedian's (1988, 2005) structure-process-outcome quality of care model will be explained in the conceptual framework section in next chapter.

The next chapter will outline the proposed study, the significance of the study, a conceptual framework, methodology, and methods and designs.

CHAPTER FOUR: DESIGN AND METHOD

Introduction

This chapter outlines the purpose of the study, ethical considerations, study setting, content validity of interview questions, preliminary work, and phases of the study. It also provides the design and method used. The design of the study was a mixed methods study which mostly focused on qualitative data about the quality of maternity care from the professionals' and women's perspectives. Data were collected in the antenatal and postnatal care units in three public hospitals in Bangkok, Thailand.

As described earlier, the study was conducted in three phases. The first phase was a quantitative descriptive study that aimed to describe the perinatal outcomes amongst pregnant adolescent women in Bangkok. This phase used existing routinely collected hospital data on perinatal outcomes. The second phase was a qualitative descriptive study that aimed to explore the quality of maternity care for pregnant adolescent women from the perspectives of healthcare professionals. The third phase aimed to investigate the quality of maternity care from the perspectives of pregnant adolescent women. The methods of the second and third phases of the study were semi-structured interviews with healthcare providers and group interviews with pregnant adolescent women shortly after giving birth.

The outlines of each phase describe the aim and research question, participant recruitment, data collection and data analysis. At the beginning of this chapter is the purpose of the study, explaining why this study is necessary and what it adds to the literature.

Purpose of the study

The purposes of this study were to explore maternity care in the Teenage pregnancy clinics from the experience and perspectives of healthcare professionals and pregnant adolescent women. It also described perinatal outcomes in adolescent pregnancy in

Thailand. The results of the study may help to better understand the current practice of maternity care for pregnant adolescent women in Thailand. These findings may able to support further study in terms of developing and implementing care in this study setting and other similar contexts.

The rationale for this mixed methods approach was to address the research problem by using both quantitative and qualitative data to support the future development of maternity care for pregnant adolescent women. The first phase of the study described the clinical outcome statistics for pregnant adolescent women who received care in the current Teenage pregnancy clinics. In the second and third phases, the objectives were to explore how the current practice was provided to Thai pregnant adolescent women from views of both providers and women. Those statistics and the participants' voices may guide the way to improve effective care for adolescent pregnancy.

Conceptual framework

Several conceptual frameworks have been developed to assess quality of healthcare. However, few conceptual frameworks have been used to assess quality of maternity care. Healthcare and maternity care service studies have used the Donabedian's model (Donabedian 1988, 2005) to explore quality of care (Choi et al. 2004; Gardner, Gardner & O'Connell 2014; Mngadi et al. 2002).

To achieve the objectives, the Donabedian's model (Donabedian 1988, 2005) was applied as the conceptual framework of this study to describe clinical perinatal outcomes, and explore perspectives and experiences of healthcare professionals and pregnant adolescent women. There are three categories used in this model that evaluate the quality of care (Donabedian 1988, 2005) (see **Figure 4**).

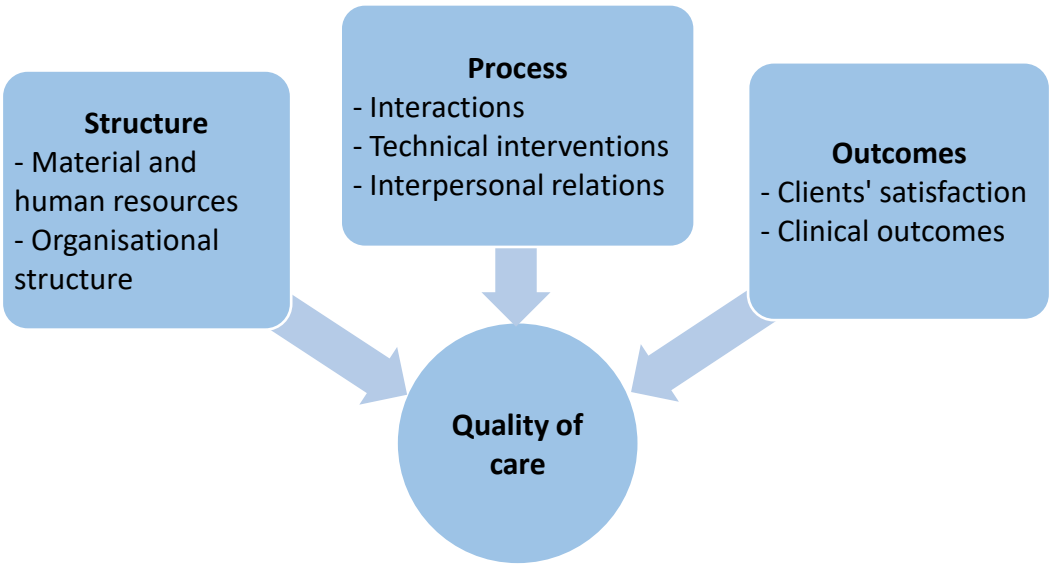


Figure 4: Conceptual framework adapted from literature review

The first category is a *structure* which evaluates the setting of care in three areas: (1) material resources, such as the facilities and equipment; (2) human resources, such as the number of healthcare providers and their qualifications; and (3) organisational structure, such as administration services and policies. The second category is a *process* which evaluates the interactions between healthcare providers and clients and also assesses the technical interventions and interpersonal relations. The third category is *outcomes* which evaluates the results of healthcare, such as clients' knowledge, behaviour, and satisfaction as well as clinical outcomes (Donabedian 1988, 2005).

Several studies have used the Donabedian's model as a conceptual framework to evaluate the quality of care (Choi et al. 2004; Gardner, Gardner & O'Connell 2014; Mngadi et al. 2002). For example, the quality of childbirth care in Swaziland found a lack of interpersonal relations in terms of communication between providers and clients led to less satisfaction and inappropriate behaviour of adolescents during labour (Mngadi et al. 2002). Furthermore, evaluation of the quality and safety of a nursing service innovation in Australia highlighted the connection between *structure, process, and outcomes* (Gardner, Gardner & O'Connell 2014). In the Gardner et al. study objectives (2014), the survey, in-depth interviews and existing health records were used to explore the setting (structure), the clinical service (process), and the influence service on clients.

Consequently, the Donabedian's model (1988, 2005) was applied as the conceptual framework for this study, focusing on the structure, process and quality of maternity care, as well as examining the perinatal outcomes of pregnant adolescent women.

Ethical considerations

The study initially received human research ethics approval on 3rd March 2017 from the University of Technology Sydney (UTS) Human Resource Ethics Committee (HREC) (Approval number is UTS HREC ETH16-1016) (See **Appendix: j**).

Ethical approval was then granted on 5th June, 2017 from Human Research Ethics Committee (HREC) of the Medical Service Department in Bangkok, Thailand (Approval number is U010q60_EXP approval letter from the study setting) (See **Appendix k**). The Medical Service Department covers the three hospitals in Bangkok where the study was conducted. Therefore, only one approval letter from the HREC of the Medical Service Department in Bangkok was necessary to cover these three hospitals. However, before submitting my study proposal to the HREC of the Medical Service Department in Bangkok, I had to send a formal letter of my intention to conduct this research project to the Institutional Research Board in those hospitals as a criterion of the HREC of the Medical Service Department.

In the first phase of the study, the retrospective data from the hospital database was used to describe clinical perinatal outcomes to be incorporated into the conceptual framework of this study (Donabedian 1988, 2005). Therefore, names and other identifiable data were removed and using codes and de-identified data at the time of analysis in order to protect privacy and confidentiality of the participants. All codes were stored separately on encrypted and protected secure databases using a password. Coding was not be traced back to any participants.

In the second and third phases (the qualitative descriptive studies), all participants who were eligible to participate in the study were asked to provide written informed consent prior to data collection. The participant's right to withdraw at any point was preserved.

Participants were also informed about the purpose of the study, the process of data collection, and the way the data was non-identifiable. The semi-structured interviews and group interviews were conducted in private rooms and all information was confidential. I am the only person who knows the identity of all participants. At the beginning of the interviews, participants were informed that there was no financial reward and only refreshments would be provided. All electronic files were stored securely using CloudStor of the University of Technology Sydney and password protected.

There were a number of ethical issues that needed consideration regarding this group of participants, especially in the qualitative phases. There was particular concern during the data collection from the women to respect the ethical considerations specific to this group of vulnerable participants. There were four main issues. The first issue was the women's capacity to voluntarily participate in the research project and understand what the research entailed. This was about respecting their ability to freely participate in the research, not because of coercion by their parents, and not to explore or judge any conflicting values and interests of their parents. The second issue was providing the option for the women to participate with or without having a parent present in the group interview. The third issue was having a provision if participants became distressed during data collection and the final issue was to obtain parental consent of pregnant adolescent women, aged younger than 18 years old. The group interviews were held at the postnatal care units. This enabled obtaining parental consent for participant, as the parents of the young women had to be present to provide hospital consent for those younger than 18 years.

In the quantitative descriptive study, electronic medical records and documents from three hospitals were reviewed to describe the perinatal outcomes in Thai adolescent women who received care at the Teenage pregnancy clinics from 1st January 1 to 31st December, 2016. To protect the privacy of the participants, there were three alternatives: (1) using data with consent; (2) using anonymous data without consent; and (3) using data without explicit consent for reasons of public interest or a particular

organisation (O'Keefe & Connolly 2010). According to the second alternative to protect the privacy of the research participants (O'Keefe & Connolly 2010), non-personal secondary use of data in health research can remove the need for individual consent, so this meant I was able to review the hospital databases while protecting the confidentiality of participants. As these were routinely collected data and I was not provided with identifying information, it was determined that individual consent was not required by HREC.

Study Setting

The settings for this study were three metropolitan public hospitals in Bangkok, Thailand. These hospitals provide group antenatal care in the Teenage pregnancy clinics for all pregnant women aged younger than 20 years. In each hospital, there were approximately 1,500-3,000 births annually, 150-350 to adolescent women.

In the first phase of the quantitative descriptive study, I reviewed the electronic records of seven hundred and fifty nine adolescent women (759) and seven hundred and sixty babies (760) to describe the clinical outcomes of maternal and neonatal outcomes. In the second phase of the study, participants in the qualitative descriptive study consisted of six obstetricians, 14 registered nurses and midwives and one social worker who worked in the Teenage pregnancy clinics of the three hospitals. They all had at least one year of experience of working within these clinics. In the third phase of the study of the qualitative descriptive study, there were nine group interviews with a total of 22 adolescent women who had attended the Teenage pregnancy clinic and given birth in the previous few days. The group interviews were undertaken during hospital stays after the birth.

Methods

Mixed methods study design

A mixed methods design was considered appropriate, to address the research questions in this study. A mixed methods study is generally a combination of qualitative and quantitative data into one research project (Creswell & Clark 2017). The design includes collecting, analysing, and interpreting both quantitative and qualitative data to represent integrative findings of complex research questions (Creswell 2014; Creswell & Clark 2017; Fetters, Curry & Creswell 2013; O'Cathain, Murphy & Nicholl 2010). In several health care studies, a mixed methods study is an optimal way to better understand research problems in order to develop transparency and quality (Baheiraei et al. 2011; Bohren et al. 2015; Creswell et al. 2011; Östlund et al. 2011; Wisdom et al. 2012). **Figure 5** shows how the mixed methods study was conducted in three phases.

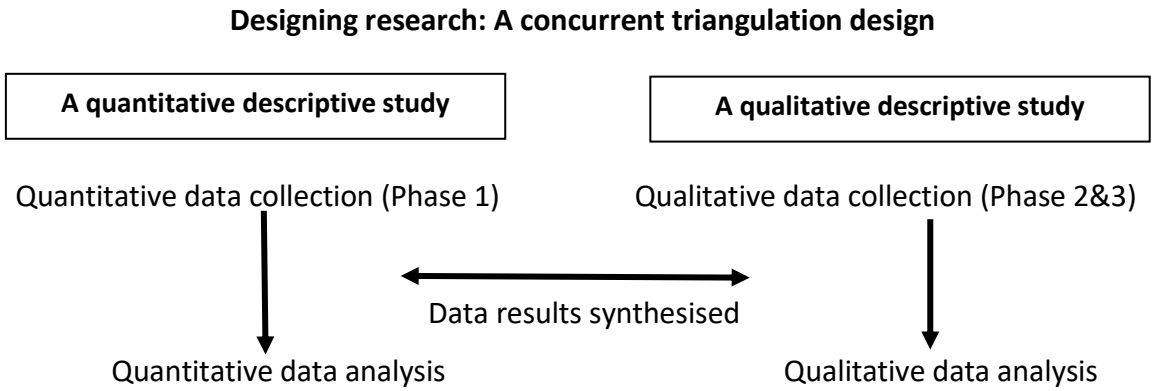


Figure 5: Describing the research design (Source: Adapted from Creswell 2013)

The first phase involved a quantitative descriptive study that described the perinatal outcomes in adolescent pregnancy. This was undertaken by collecting existing retrospective data from pregnant adolescent women who received the current practice of group antenatal care in the Teenage pregnancy clinics of the participating hospitals. As stated earlier, in using a mixed methods design it is important to expand and improve the analytic power of studies using both qualitative (story) and quantitative (number) (Sandelowski 2000a, 2000b; Sandelowski & Leeman 2012). Quantitative descriptive design is useful to explain an objective reality in the research context, which is different from studying participants' experiences or observation (Omair 2015; Östlund et al. 2015;

Romeo 2010). A number of perinatal outcomes were used to describe the outcomes for these women. They were maternal medical conditions, pregnancy complications, labour, birth, and early postpartum outcomes, and neonatal outcomes. Some of these were those identified in the Literature Review in Chapter 3.

Performed concurrently with the first phase, a qualitative descriptive study explored the experiences and perspectives of healthcare professionals caring for pregnant adolescent women as the second phase of this study. Then, the third phase of a qualitative descriptive study was undertaken to explore pregnant adolescent women's experiences in receiving this program of care. Qualitative descriptive designs contribute a comprehensive summary of understanding circumstances or actions of participants' lives and experiences (Magilvy & Thomas 2009; Maxwell 2008) using textual material from participants' words or observation (Malterud 2001). A qualitative descriptive design can assist to obtain rich descriptive data from professionals' and clients'/women's views (Magilvy & Thomas 2009; Neergaard et al. 2009; Sandelowski 2000b). In addition, qualitative descriptive data can be used to develop new interventions within the participants sociocultural context (Magilvy & Thomas 2009). Semi-structured interviews and group interviews were conducted with healthcare professionals and pregnant adolescent women respectively.

In a mixed methods study, qualitative and quantitative data are analysed and integrated in the findings as one research study (Creswell 2013; Creswell & Clark 2017). The aim of this mixed methods approach was to explore and understand the broad issues which require both quantitative and qualitative designs to answer the research questions. Health care frequently uses this methodology to address its complex issues because the scope and analytic power of data can be expanded and developed (Bohren et al. 2015; Creswell et al. 2011; Leech et al. 2010; Sandelowski 2000a).

According to Creswell (2013), the timing, weighting or priority, mixing, and theorising are four key aspects of mixed method studies. In relation to this research project, the timing of my research was concurrent. A quantitative descriptive study was conducted to

describe the perinatal outcomes amongst pregnant adolescent women. At the same time, a qualitative descriptive study was undertaken to explore the quality of the current maternity care in Teenage pregnancy clinics in Thailand. Semi-structured interviews with were used healthcare professionals and group interviews with women.

Weighting was taken into account – by focusing on the qualitative studies and integrating the quantitative findings within the discussion chapter (Creswell 2013). The quality of maternity care for pregnant adolescent women was explored by analysing qualitative data from interviews and group interviews and perinatal outcomes were used to support the arguments for improvements in the services provided.

Integrating the stories of healthcare providers and clients with the perinatal outcome data, the findings were presented in themes that describe the quality of the Teenage pregnancy clinics in Thailand. This provided information that might help explain the perinatal outcomes.

Phase One: Quantitative descriptive design

A quantitative descriptive study was conducted to describe the perinatal outcomes in pregnant adolescent women who received care from the Teenage pregnancy clinics. Data were collected from three public metropolitan hospitals using existing databases.

Phase Two and Three: Qualitative descriptive design

A qualitative descriptive study was conducted as the second phase exploring healthcare professionals' experiences. The third phase explored adolescent women's experiences. Patient and health care provider experiences and perspectives can be determined by using qualitative research (Braun & Clarke 2014). Sandelowski (2000b, p. 336) recommends that qualitative descriptive studies can be simplified as 'a comprehensive summary of an event in the everyday in terms of those events'; they can provide an understanding of the meaning of the situation in terms of perspectives and experiences of participants and how they behave in a specific context (Rubin & Rubin 2011; Sandelowski & Leeman 2012; Thomas & Magilvy 2011).

Semi-structured interviewing techniques were undertaken in the second and third phases of the study. These techniques are helpful to explore explicit knowledge, perspective, and experience of research participants (Kelly 2010). Indeed, this deep understanding of events (or experiences) provides valuable information to inform improving interventions in health care services (Magilvy & Thomas 2009). As a result, it was expected that the findings of this study may disclose structures, processes, and outcomes of maternity care in the words of healthcare providers and pregnant adolescent women.

Content validity of interview questions

Donabedian's model (Donabedian 1988, 2005) was used as the conceptual framework to build the interview questions researching the quality of care in terms of structure, process, and outcomes. In the qualitative phases, these interview questions were used to explore the health care providers' experiences and perspectives on the quality of maternity care of the Teenage pregnancy clinics. These questions were checked by two midwives. After that, I revised these interview questions and conducted a pilot study (see **Preliminary work**) with five individuals who had relevant experiences.

In Phase 3 which focused on the women's experiences, the first step was to develop interview questions based on Donabedian's model of investigating quality of care. For the second step, two experts in midwifery checked the questions for appropriateness. The third step was to apply the possible questions with two women (women, aged younger than 20 years) to check the usefulness and difficulty of the questions. The final step was to revise the interview questions ready for use.

Preliminary work

Preliminary work was done to evaluate the feasibility and validity of the interview questions. This was suggested by Arian et al. (2010) who recommended that a pilot study or preliminary study, as one component of the main study, can test the validity of tools and how the processes work. The study objectives need to be kept in mind by the researcher before conducting pilot studies in order to provide specifically useful

information that addresses the research questions of the main study (Moore et al. 2011).

The rationale of undertaking this preliminary work was to test the adequacy and validity of the interview questions, and evaluate whether those questions were workable and flexible to address the research questions of the main study (Kim 2011; Moore et al. 2011; Van Teijlingen & Hundley 2010). The interview questions were used to conduct the preliminary work with four student colleagues who had experience with qualitative research and one Thai midwife who had experience in looking after pregnant adolescent women.

There were three main steps in this preliminary study which were similar to the main study. The first step was an introduction which included three parts: (1) introducing myself to pilot individuals, (2) providing the purpose of the study and the approximate duration of conducting the semi-structured interviews and (3) asking permission for recording during the interviews.

The second step, the interviews, used four techniques: (1) asking questions slowly, (2) actively listening to them, (3) using both verbal and non-verbal language to respond to each question and reflecting back some points when the responses were unclear and (4) using silence to allow time for thinking or to reflect on their feelings.

The third step was a conclusion, including two parts: (1) asking for any comments and feedback, and (2) appreciating their time to participate in the pilot interviews. After this process, questions which were deemed as being unnecessary, difficult to follow or ambiguous were discarded or revised by the research team. The new interview questions were checked and reworded.

Preliminary work was also conducted with two pregnant adolescent women. These were two mothers, aged 18 and 19 years old from the first hospital. After undertaking the pilot study, the group interview questions with the women were not changed.

Phases of the study

This section outlined the three phases of the study design: its settings, recruitment and participants, data collection, and data analysis. This is summarized in **Table 6**.

Table 6: Outline of phases of the study and summary of each phase

Study phase	Brief description of each stage	Participant
Phase 1: A quantitative descriptive study	Description of the perinatal outcomes of adolescent pregnancy at the Teenage pregnancy clinics	Retrospective data from 759 women who received care from the Teenage pregnancy clinics
Phase 2: A qualitative descriptive study	Exploration of the quality of the current maternity care of the Teenage pregnancy clinics from professionals' perspectives, using semi-structured interviews	Six obstetricians, 14 registered nurses and midwives, one social worker work at the Teenage pregnancy clinics
Phase 3: A qualitative descriptive study	Exploration of adolescent women' experiences of the current care of the Teenage pregnancy clinics using group interviews	Nine group interviews with 22 adolescent women who received antenatal care from the clinics at the time of the study

First Phase: A quantitative descriptive study

A quantitative descriptive study using exiting hospital databases was conducted to describe the perinatal outcomes in adolescent pregnancy. The following sections provide details of the aims of the study, the research questions, the settings, recruitment and participants, data collection and data analysis.

Aim To describe the perinatal outcomes amongst pregnant adolescent women who received care from the Teenage pregnancy clinics in Thailand at three main maternity hospitals.

Research question

What were the perinatal outcomes amongst pregnant adolescent women who received care from the Teenage pregnancy clinics?

Participants and recruitments

Participants of this study consisted of adolescent women aged younger than 20 years who had given birth between 1st January and 31st December 31, 2016 and received care from the Teenage pregnancy clinics. Electronic medical records were retrieved after obtaining permission from the Institutional Research Board of the three hospitals. Generally, maternal and child health care data were recorded into the electronic systems of each hospital and reported to Ministry of Public Health.

Data collection

Data were collected from existing electronic medical records. This included maternal complications during pregnancy, birth, and the postpartum period, such as anaemia, hypertensive disorders of pregnancy and postpartum haemorrhage. Data were also collected on neonatal outcomes including the incidence of preterm birth, low birth weight, neonatal death, and NICU admission.

According to Perera et al. (2011), using existing data for health services research is helpful to evaluate interventions because it can be used to understand quality of care in terms of outcomes. In addition, to ensure the accuracy of the data collection, I retrieved the data in the presence of the medical records personnel. The staff interpreted the outcome codes within each hospital. These data were de-identified to protect privacy and confidentiality of study participants (O'Keefe & Connolly 2010; Roski, Bo-Linn & Andrews 2014; Rothstein 2010).

Data Analysis

Quantitative data were generated to an Excel spreadsheet and then exported to Statistical Package for Social Science (SPSS) Version 25.0 (IBM Corp. 2017). The demographic characteristics of the participants were analysed using descriptive statistics. These included frequencies, percentages, means and standard deviations. Pearson Chi-square P-value also used to differentiate perinatal outcomes between early adolescents and late adolescents. However, this study had some missing data that was less than 10%, so it was deemed by the research team to be acceptable in the context of this study method.

Second Phase: Semi-structured interviews with healthcare professionals

Aims To explore the quality of maternity care of the Teenage pregnancy clinics from healthcare professionals' experiences and perspectives

Research questions

- What was

1. the structure of the current practice of care in the Teenage pregnancy clinics?
2. the process of the current practice of care provided to pregnant adolescent women in the Teenage pregnancy clinics?

- How could the Teenage pregnancy clinics improve perinatal outcomes amongst adolescents?

Participants and recruitments of healthcare professionals

Twenty-one health care providers were recruited onto the study. One nurse and midwife declined to participate in the interview. In the first hospital, five obstetricians, nine registered nurses and midwives, and one social worker were approached to participate in the interviews. In the second hospital, one obstetrician, three nurses and midwives were eligible to participate in this study. In the third hospital, there were four nurses and midwives who participated in this study (see an example of interview questions below in **Table 7**).

Table 7: An example of interview questions with healthcare professionals

Interview questions with healthcare professionals
• Could you tell me about your experience with the Teenage pregnancy clinic? • What do you think about adolescent pregnancy? • Could you tell me how the Teenage pregnancy clinic works in your hospital? - What is the function/structure of the Teenage pregnancy clinic? - How does your Teenage pregnancy clinic run/organise? Please tell me about that? • - Could you tell me the process of the Teenage pregnancy clinic in terms of helping adolescent women? • What do you think the best things/strengths of the Teenage pregnancy clinic are? • What do you think the limitations/weaknesses of the Teenage pregnancy clinic are? • How do you think they could be made better? • What are the challenges of the Teenage pregnancy clinic?

All participants were recruited through purposive sampling so as to represent the specific providers of care to this group of women (Malterud, Siersma & Guassora 2016; Palinkas et al. 2015). Firstly, I contacted the director of each hospital to inform them with a brief description regarding the purpose of the study and data collection methods. Secondly, I visited the setting of the Teenage pregnancy clinics in three hospitals and met the managers of the antenatal care units to describe the purposes and methods of the study and seek eligible participants. Thirdly, individual contact with participants was made through face to face contact and by phone. Some appointments were managed by the clinic managers when there were cancellations and rescheduling.

The healthcare professionals who were eligible to participate in the study were invited for interviews. There were obstetricians, registered nurses and midwives (who had

relevant experience for at least 1 year and work within the antenatal care units). The objectives of the study were provided to all participants before collecting data. All participation in the study was voluntary and data were non-identifiable after transcription. According to Holloway and Wheeler (2017), the appropriate sample size ranges from between four and 40 participants. This study recruited 21 healthcare providers ensuring adequate data saturation.

Data collection

Semi-structured interviews were used to explore the experiences and perspectives of healthcare professionals. The seven main considerations when undertaking the interviews were that: (1) power structures can develop between the interviewer and interviewee or within the groups; (2) the social aspect, such as the culture and community can be engaged; (3) valuable information can be explored, such as truth and reality; (4) trust can initiate a good relationship; (5) meaning that evolves can show the experiences, points of views and facts; (6) the interpretation needs to focus on the framework of the study; and (7) uncertainty can occur with difficult findings, so multiple meanings and multiple interpretations will be seen (Low 2013).

Before collecting data, participants were asked for their written consent to participate in this study and were able to withdraw without jeopardising their employment.

The semi-structured interviews took 40-90 minutes and were conducted in a private room. The interviews were digitally recorded, and field notes were taken. The semi-structured interviews attempted to discuss three main aspects with the healthcare professionals: (1) the structure of the Teenage pregnancy clinics, including characteristics, and the perceived improved outcomes of the women who attend these clinics; (2) the process of this program; and (3) the benefits and drawbacks of this program.

Third Phase: Group interviews with adolescent women

Aims To explore adolescent women's experiences and perspective on the quality of maternity care in the Teenage pregnancy clinics

Research question

What were the experiences and perspectives of adolescent women who received maternity care in the Teenage pregnancy clinics?

Participants and recruitments of adolescent women

Twenty-two adolescent women were recruited after giving birth and attended nine group interviews which were held from June to September, 2017 in the postnatal care units of the three participating hospitals. At the time of this study, there were two to three women eligible to participate in each of the group interviews, none of them were younger than 16 years old. The group interviews were undertaken with adolescent women, aged 16-19 years old and held in a private hospital room on the second day after birth (see an example of interview questions below in **Table 8**).

Table 8: An example of interview questions with adolescent women

Interview questions with adolescent women
• Could you tell me your experiences when you attended the Teenage pregnancy clinic during pregnancy?
• What was the best part of the Teenage pregnancy clinic?
• What was the worst part of the Teenage pregnancy clinic?
• What would you like to suggest for the future?
• What would you have liked to be different?

At the time of data collection, participants were adolescent women who had recently given birth, aged younger than 20 years old who had received antenatal care from the Teenage pregnancy clinics. The recruitment method comprised four steps. Firstly, I contacted the inpatient postnatal care unit manager to describe the purpose of the study. The managers gave me the opportunity to explain the study to the health care team

within these units and then enlist eligible participants. Secondly, after receiving ethics approval, I visited these units to understand the environment and know the care routine in order to set times for conducting the group interviews with the mothers. Thirdly, I asked permission to look at the participant's medical records to examine if they received care from the Teenage pregnancy clinics. The final step was to make individual contact with the women (adolescent women after giving the birth) on the first day of admission to the postnatal unit and make an appointment to conduct the group interview the following day.

In summary, there were 22 adolescent women aged between 16-19 years old, recruited to nine group interviews. Two women had given birth to their second child at the time of data collection and three mothers had prior experiences of termination of pregnancy.

Data collection

Group interview design aimed to explore the experiences, opinion or attitudes and response of a sole study group of participants on a specific issue by asking participants particular questions rather than seeking a consensus (Kamberelis & Dimitriadis 2013; Stewart & Shamdasani 2014). In this study, group interviews were used to explore adolescent women's experiences and perspectives of the Teenage pregnancy clinics. The three main reasons for undertaking the group interviews with adolescent women were: (1) adolescents were more likely to talk and share their experiences with a group of peers rather than one to one (Coyne 2010), (2) to help participants to take account of the other's perspectives in order to formulate their responses and share their experiences, and (3) that the contextual details of the group interviews can be added to quantitative findings (Bolderston & Sciences 2012; Doody & Noonan 2013; Harvey 2011). Hence, I used this design for gathering adolescent women' experiences and perspectives because it seemed to be a more comfortable method for this group.

In the initial stage of conducting the group interviews, participants aged 18 years old and older were asked for their written consent. Participants aged younger than 18 years were asked to consent and parental consent was also required. All participants were informed

of their rights to withdraw without jeopardising their care.

Each group interview had two to three adolescent women. There were nine group interviews with twenty-two adolescent women, five groups had two adolescent women and four group had three adolescent women per group. These group interviews were held in a private hospital room of the postnatal care units during the participants' admission periods, and took around 40-60 minutes. The group interview design with adolescent women consisted of two main processes: the pre-interview process and the interview process.

The pre-interview process

In the pre-interview process, the managers or health care team identified eligible women. Participants who met the inclusion criteria were approached in the study setting on the first day of their postnatal period. The group interviews were undertaken the following day. The aim of conducting the group interviews on the second postnatal day was to give the adolescent women time to understand and prepare themselves as they were not familiar with the researcher and may not have felt ready so soon after giving birth.

At the first meeting, the researcher engaged the adolescent women after an introduction and describing the purpose of the study. A rapport was developed which included questions on how they gave birth and how they were managing and feeding their babies. This was so that they would feel comfortable to answer further questions and develop a relationship in anticipation of conducting the group interview in the following day. This was a crucial way of establishing a good relationship and building basic trust. In this first meeting, the times of conducting the group interviews (the second meeting) were organised to suit for adolescent women ensuring they would not miss routine care during those times.

The group interview process

The interview occurred at the second meeting with adolescent women. Doody and

Noonan (2013) suggest that places and times of conducting the interviews should be convenient for informants in order to make it a comfortable environment for participation in the study. With regards to ethical considerations, adolescent women could choose to have their parent present during the group interview, or not. All participants in three hospitals selected to participate in the group interviews without their parent. However, nine of 22 adolescent women required parental permission and consent because they were younger than 18 years old. This interview process comprised three phases which were an introduction phase, an exploration phase, a conclusion phase. The details of each phase are described below.

The introduction phase

The introduction phase began with six explanations: (1) the purpose of the study, (2) the format of a group interview, (3) an approximate time duration of a group interview, (4) the confidentiality concerns, (5) the objectives of recording and note taking, and (6) the participants' rights to withdraw or not answer any of the questions. It was explained clearly to the participants that no identifiable data would be used in this study. The interview approach with adolescents needed to have the terms of confidentiality explained in order to increase trust (Coyne 2010). After that, adolescent women were asked to complete the demographic data form. I also asked them to identify pseudonyms during the interview to help the transcription process. In the findings, all quotes from adolescent women were coded into Women 01-22 later to protect anonymity of adolescent women. There were no actual names and/or pseudonyms in the women's quotes.

The exploration phase

In the exploration phase, permission was first sought to audio record using a digital recorder and to take notes during the group interviews. Listening was balanced with taking notes and writing key words and phases of expressed emotion from the participants. In the meeting, the women were advised that the written notes and audio-recordings were used during the group interviews (Doody & Noonan 2013). These procedures were explained to women to ensure they felt comfortable and free to express

their voices (Rubin & Rubin 2011). To succeed in group interviews with adolescent women, group interview prompts were used to explore their experiences and perspectives. According to Holloway and Wheeler (2017), using probes or prompts are a helpful way to conduct interviews in nursing and healthcare to encourage participants to elaborate and explain their views. This group interview prompt included six main techniques: 1) using simple questions, 2) open-ended questions, 3) verbal and non-verbal agreements, 4) silent technique 5) using prompt of 'please tell me more' and 6) the participant word reflection.

The conclusion phase

In the last phase of the group interview, an opportunity was given for the participants to ask questions to clarify any issues that were discussed in the interviews. They were also given a chance to provide feedback to the researcher. Ashton (2014) recommends that providing opportunities for clarification is of importance to the participants.

Data analysis of the qualitative descriptive study (The second and third phases)

Thematic analysis was used to analyse interview data from the healthcare professionals and the adolescent women. This methodology is suitable for answering the research questions as it is a flexible instrument that aids understanding of complex information (Braun & Clarke 2014; Braun, Clarke & Terry 2012; Vaismoradi, Turunen & Bondas 2013). Thematic analysis can be defined as 'a method for identifying, analysis, and reporting patterns (themes) within data' (Braun & Clarke 2006, p. 79). Data were analysed following the six phases of thematic analysis (Braun, Clarke & Terry 2012).

Thematic analysis comprises six steps: (1) familiarisation with the data which includes transcribing, reading and rereading, and noting the main ideas from the raw data, (2) identification of the initial codes where data with similar meaning are grouped and sorted into preliminary codes, (3) development of themes as the codes are collected into key concepts (themes), (4) organisation of the themes as part of the confirmation processes to check the codes and the entire data set before generating a thematic map analysis, (5) developing definitions and names for each theme, and (6) interpreting the

themes (Braun, Clarke & Terry 2012). Also, the process of generating themes – checking with members of the team – cross-checking – rewriting and naming the themes for the interview data to ensure the trustworthiness of the data.

The NVivo 11 program (QSR International 2012) was used to help manage the data. This program is useful when conducting a constant comparison analysis and also helpful when conducting keyword searches in order to refine themes (Leech & Onwuegbuzie 2011).

Summary of Chapter Four

Chapter Four provided an explanation of the design and method used to conduct this research. The next chapter will explain perinatal outcome findings amongst pregnant adolescent women in Phase 1.

CHAPTER FIVE: PERINATAL OUTCOMES AMONGST PREGNANT ADOLESCENT WOMEN IN THAILAND

Introduction

In this chapter, the first phase of this study describing the perinatal outcomes amongst pregnant adolescent women is presented. This was a retrospective cohort study of adolescent women aged younger than 20 years giving birth between 1st January and 31st December, 2016. This chapter begins with the demographic data of study participants, followed by the main findings.

Findings from the first phase: Perinatal outcomes amongst pregnant adolescent women

Records from 759 pregnant adolescent women who gave birth at the study sites of three public metropolitan hospitals in Bangkok, Thailand from 1st January to 31st December, 2016 were analysed. There were 95 women in early adolescence (aged 12 to 15 years) and 664 women in late adolescence (aged 16 to 19 years). In each table, the data were illustrated as a total number of adolescent women (759 women), early adolescent women (95 women), and late adolescent women (664 women).

The socio-demographic data are described first (see **Table 9**), then the obstetric history, antenatal, labour and birth, postnatal and neonatal outcomes are presented. Perinatal outcomes were described as maternal medical conditions, pregnancy complications, intranatal and postnatal complications, and also neonatal outcomes. In **Tables 10 to 12**, the key perinatal outcomes of adolescent pregnancy are detailed during antepartum, intrapartum, and postpartum periods. In **Table 13**, the neonatal outcomes of pregnant adolescent women are presented.

Socio-demographic characteristics of the women

In total, there were 759 pregnant adolescent women. Of these, 12.5% (n= 95 women) were in the younger age group (12-15 years) with a mean age of 14.4 ± 0.7 years ($\bar{x}$ ± SD). Most women were in the later adolescent group (16-19 years) (87.5%; n= 664 women) with a mean age of 17.9 ±1.1 years ($\bar{x}$ ± SD) (see **Table 9**).

All adolescent women had some education. The majority, over 60% (n= 503 of 759 women, 66.3%), had achieved secondary school level. In the early adolescent woman group (12-15 years), just under half (n= 45 of 95 women, 47.4%) had studied in primary school. One quarter of the overall cohort studied at a vocational college (n=195 of 759 women; 25.7%).

Most women were identified as being married (n= 703 of 759 women, 92.6%). Over three quarters (79%, n= 75 of 95 women) in the early adolescent women were either in full-time study or were engaged in full-time home duties. In the late adolescent woman group, half (51.2%, n= 340 of 664 women) were unemployed. In total (n= 759 women), nearly half (45.3%) were in employment outside the home, and just over half (54.7%) were engaged in full-time study or home duties.

Table 9: Socio-demographic characteristics of the cohort

Variables		Total study sample N (%)	Maternal age n (%)	
			Early adolescent ≤ 15 years	Late adolescent 16-19 years
Study sample		759 (100.0)	95 (12.5)	664 (87.5)
Age	*Mean ± SD*	17.5 ± 1.6	14.4 ± 0.7	17.9 ± 1.1
	Range	12-19	12-15	16-19
Education	*Primary school*	53 (7.0)	45 (47.4)	8 (1.2)
	Secondary school	503 (66.3)	50 (52.6)	453 (68.2)
	Vocational college	195 (25.7)	0	195 (29.4)
	Bachelor degree	8 (1.0)	0	8 (1.2)
Marital status	*Single*	56 (7.4)	17 (17.9)	39 (5.9)
	Married	703 (92.6)	78 (82.1)	625 (94.1)
Working status	Employed	344 (45.3)	20 (21.1)	324 (48.8)
	Full-time home duty	162 (21.3)	13 (13.7)	149 (22.4)
	Full-time student	253 (33.4)	62 (65.3)	191 (28.8)

Obstetric history of the women

The obstetric history of women in the cohort is shown in **Table 10**. The variables examined in the obstetric history were gravida, parity, termination of pregnancy, and miscarriage. The literature review in this study (see **Chapter 3**) showed that these were important factors that may affect perinatal outcomes.

Most adolescent women were having their first baby (primigravida n= 595 of 759 women, 78.4%) with the overall number of previous pregnancies ranging from one to seven. Almost a quarter of women in the late adolescent group (aged 16-19 years) had been pregnant two to four times (n = 161 of 664 women, 24.2%).

In the early adolescent group, almost all (98.9%) were giving birth for the first time compared with most (80.4%) in the late adolescent group (Pearson Chi-square test P-value < 0.001). Nearly a fifth of late adolescent women (19.6%, n= 130 of 664 women) had given birth to their second baby. Of the 759 women, 53 women had had a previous termination of pregnancy (7.0 %). There was a low rate of miscarriage (n= 7 women, 0.9%).

Table 10: Obstetric history of the cohort

Variables		Total cohort N (%)	Maternal age n (%)	
			Early adolescent ≤ 15 years	Late adolescent 16-19 years
	Study sample	759 (100.0)	95 (12.5)	664 (87.5)
Gravida	*Mean ± SD*	1.3 ± 0.6	1.0 ± 0.2	1.3 ± 0.6
	Range	1-7	1-3	1-7
	Primigravida	595 (78.4)	93 (97.9)	502 (75.6)
	2 -4 times	163 (21.5)	2 (2.2)	161 (24.2)
	≥ 5 times	1 (0.1)	0	1 (0.2)
Parity	*Mean ± SD*	0.18 ± 0.41	0.01 ± 0.10	0.21 ± 0.43
	Range	0-2	0-1	0-2
	0 (Primipara)	628 (82.7)	94 (98.9)[a]	534 (80.4)[a]
	1 – 2 times	131 (17.3)	1 (1.1)	130 (19.6)
Termination	*Mean ± SD*	0.08 ± 0.33	0.02 ± 0.14	0.09 ± 0.35
of pregnancy	*Range*	0-5	0-1	0-5
	No	706 (93.0)	93 (97.9)	613 (92.3)
	Yes (termination 1 -5 times)	53 (7.0)	2 (2.1)	51 (7.8)
Miscarriage	*No*	752 (99.1)	95 (100.0)	657 (99.0)
	Yes	7 (0.9)	0	7 (1.0)

[a]*Pearson Chi-square test: P-value* < 0.001

Antenatal characteristics of the women

Five key variables were examined, that is, gestation at birth, gestation at the first visit, antenatal care frequency, maternal medical conditions, and pregnancy complications (See **Table 11**). The majority of the women gave birth at full term with the mean of 38.4 weeks gestation (SD ± 1.6). The average gestational age at birth was not different between the early adolescent group and late adolescent group (P-value = 0.28)

Nearly one-quarter of early adolescent and late adolescent women attended the first antenatal care visit before 12 weeks (22.1% and 29.5% respectively; P-value = 0.13). There was a high proportion of late antenatal care visits after 12 weeks, with 77.9% (n=74 of 95 women) of women in the early adolescent group and 70.0% (n= 465 of 664 women) in the later adolescent group receiving their first antenatal visit after 12 weeks. The mean number of antenatal visits was similar between the two groups (8.5 ± 3.3 in the early adolescent group and 8.9 ± 3.2 in the late adolescent group). The most common number of antenatal visits was 8 to 11 times (n= 38 of 95 women, 40.0% and n= 305 of 664 women, 45.9% respectively).

The maternal medical condition data included anaemia, thalassemia, sexually transmitted infections, substance use, and others, including gestational diabetes, oligohydramnios, and polyhydramnios. The incidence of anaemia was just over a third in the early adolescent group (n=36 of 95 women, 37.9%) and almost a quarter in the late adolescent group (n=143 of 664 women, 21.5%) (P-value = 0.005). In addition, the prevalence of sexually transmitted infections (STIs) at the first trimester of pregnancy was approximately one in twenty (n=5 of 95 women, 5.3% in the early adolescent group) and one in twenty-five (n=25 of 664 women, 3.8% in the late adolescent group) (P-value = 0.83).

The most common pregnancy complication was preterm labour, occuring for 7.8% (n= 59 of 759 women). There was a similar rate of preterm labour in the early adolescent group and the late adolescent group (6.3% and 8.0% respectively, P-value = 0.57).

Table 11: Antenatal characteristics of the cohort

Variables	Total study sample N (%)	Maternal age n (%)		P-value
		Early adolescent ≤ 15 years	Late adolescent 16-19 years	
Study sample	759 (100.0)	95 (12.5)	664 (87.5)	
Gestation at birth				
Mean ± SD	38.4 ± 1.6	38.4 ± 1.5	38.4 ± 1.6	P = 0.28
Range	26-43	32-43	26-41	
Gestation at first antenatal care visit*				
≤ 12 weeks	217 (28.6)	21 (22.1)	196 (29.5)	p = 0.13
> 12 weeks	539 (71.0)	74 (77.9)	465 (70.0)	
Antenatal care visit frequency				
Mean ± SD	8.8 ± 3.2	8.5 ± 3.2	8.8 ± 3.2	P = 0.24
Range	1-23	2-17	1-23	
< 4 times	40 (5.3)	8 (8.4)	32 (4.8)	
4 – 7 times	230 (30.3)	38 (32.6)	199 (30.0)	
8 – 11 times	343 (45.2)	38 (40.0)	305 (45.9)	
≥ 12 times	146 (19.2)	18 (18.9)	128 (19.3)	
Maternal medical conditions				
Anaemia	179 (23.6)	36 (37.9)	143 (21.5)	P = 0.005
Thalassemia	83 (10.9)	6 (6.3)	77 (11.6)	
*Sexually transmitted infections (STIs)***	30 (4.0)	5 (5.3)	25 (3.8)	P = 0.83
*Substance use****	22 (2.9)	3 (3.2)	19 (2.9)	
*Other conditions*****	14 (1.8)	2 (2.1)	12 (1.8)	

Variables	Total study sample N (%)	Maternal age n (%)		P-value
		Early adolescent ≤ 15 years	Late adolescent 16-19 years	
Pregnancy complications				
Preterm labour	59 (7.8)	6 (6.3)	53 (8.0)	P = 0.57
Intrauterine growth restriction (IUGR)	11 (1.4)	3 (3.2)	8 (1.2)	P = 0.31
Hypertensive disorders of pregnancy*****	18 (2.4)	1 (1.0)	17 (2.6)	P =0.37
Other******	27 (3.6)	2 (2.1)	25 (3.8)	

* This variable has three missing data.

**Sexually transmitted infections (STIs) included syphilis and HIV.

***Substance use included smoking, alcohol, and drug addiction.

****Other conditions included asthma, chronic hypertension, hepatitis B, and hyperthyroidism and hypothyroidism.

*****Hypertensive disorders of pregnancy included preeclampsia and severe-preeclampsia.

******Other included gestational diabetes, oligohydramnios, and polyhydramnios.

Labour, birth, and early postpartum outcomes of the women

Perinatal outcomes during labour, birth, and early postpartum are presented in **Table 12**. The majority of women had a normal birth which was similar amongst both early adolescent and late adolescent groups (84.2% and 78.2% respectively, P-value = 0.21). Caesarean section rate accounted for 19.9% of all births (14.7% in the early adolescent group and 20.6% in the late adolescent group, P-value = 0.20). Nearly a third (n= 47, 6.2%) of all caesarean sections were undertaken due to cepholopelvic disproportion (CPD). Analgesia (e.g narcotics such as pethidine) during childbirth was used by 12.3% of all women. Analgesia use was higher amongst early adolescents (n= 21, 22.1%) compared with late adolescents (n= 72 women, 10.8%) (P-value = 0.002).

The postnatal outcome of postpartum haemorrhage amongst adolescent women was infrequent (n= 14 women, 1.8%). The rates of hypertensive disorders of pregnancy amongst adolescent women were low (n= 18 women, 2.4%).

Table 12: Labour, birth, and early postpartum outcomes of the cohort

Variables	Total study sample N (%)	Maternal age n (%)		P-value
		Early adolescent ≤ 15 years	Late adolescent 16-19 years	
Study sample	759 (100.0)	95 (12.5)	664 (87.5)	
Mode of birth				
Normal birth	599 (78.9)	80 (84.2)	519 (78.2)	P = 0.21
Caesarean section	151 (19.9)	14 (14.7)	137 (20.6)	P = 0.20
Vacuum extraction	9 (1.2)	1 (1.1)	8 (1.2)	
Forceps extraction	0	0	0	
Intranatal period				
Preterm birth	59 (7.8)	6 (6.3)	53 (8.0)	P = 0.57
Analgesia (pethidine)	93 (12.3)	21 (22.1)	72 (10.8)	P = 0.002
Hypertensive disorders of pregnancy*	18 (2.4)	1 (1.1)	17 (2.4)	P = 0.37
Cephalopelvic disproportion	47 (6.2)	3 (3.2)	44 (6.6)	P = 0.20
Premature rupture of membranes	14 (1.8)	3 (3.2)	11 (1.7)	P = 0.31
Postnatal period				
Postpartum haemorrhage	14 (1.8)	4 (4.2)	10 (1.5)	P = 0.20
Hypertensive disorders of pregnancy*	17 (2.2)	1 (1.1)	16 (2.4)	P = 0.37
Perineal infection	4 (0.5)	1 (1.1)	3 (0.5)	
Breast engorgement	9 (1.2)	2 (2.1)	7 (1.1)	

*Hypertensive disorders of pregnancy included preeclampsia, eclampsia and pregnancy aggravated hypertension.

Neonatal outcomes

Neonatal outcomes are presented in **Table 13**. Three main variables were neonatal birth weight, Apgar score, and perinatal outcomes. Two participants had twin pregnancies — one early adolescent woman, aged 15 years and one late adolescent woman, aged 19 years. Therefore, the total number of babies was 761. The average neonatal birth weight from the early adolescent and the late adolescent mother groups was similar ($\bar{x}$ 2897.3 grams ± 403.5 and $\bar{x}$ 2968.7 grams ± 427.4 respectively). Neonatal birth weight ranged from 665 to 4140 grams. The range of neonatal weight between 2500 to 3500 grams accounted for 78.8% of all live infants and there was no difference between the early adolescent group and the late adolescent group (80.25% versus 78.7%, P-value = 0.70). Additionally, 14.6% of babies in the early adolescent group and 12.0% in the late adolescent group were low birth weight which were not different (p-value = 0.60).

There were similar rate of fetal distress in the early adolescent group and the late adolescent group (2.1% and 4.5% respectively, P-value = 0.20). The incidence of birth asphyxia between the early adolescent and the late adolescent groups was similar (2.1% and 2.0% respectively, P-value = 0.92). There were two neonatal deaths giving a perinatal mortality rate of 2.64 per 1000 births.

Table 13: Neonatal outcomes

Variables	Total study sample N (%)	Maternal age n (%)		P-value
		Early adolescent ≤15 years	Late adolescent 16-19 years	
Neonatal birth weight	761 (100.0)	96 (12.6)	665 (87.4)	
Mean ± SD	2959.7±424.8	2897.3±403.5	2968.7±427.4	P=0.70
Range	665-4140	1560-3870	665-4140	
<2500 grams	94 (12.4)	14 (14.6)	80 (12.0)	
2500-3500 grams	600(78.8)	77 (80.2)	523 (78.7)	
>3500 grams	67 (8.8)	5 (5.2)	62 (9.3)	
Apgar score				
At 1st minute Apgar score <7	32 (4.2)	2 (2.1)	30 (4.5)	
At 5th minute Apgar score <7	8 (1.1)	1 (1.1)	7 (1.1)	
Neonatal outcomes				
Fetal distress	32 (4.2)	2 (2.1)	30 (4.5)	P=0.20
Birth asphyxia	15 (2.0)	2 (2.1)	13 (2.0)	P=0.92
Low birth weight (LBW)	94 (12.4)	14 (14.6)	80 (12.0)	P=0.60
Preterm birth (gestational <37 weeks)	59 (7.8)	6 (6.3)	53 (8.0)	P=0.57
Intrauterine growth restriction (IUGR)	13 (1.7)	3 (3.1)	10 (1.5)	P=31
Intrauterine fetal death	2 (0.3)	0	2 (0.3)	

* Twins 2 women (age 15=1 woman, age 19= 1 woman)

Summary of Chapter Five

Chapter five has provided an overview of adolescent pregnancy in context and perinatal outcomes amongst pregnant adolescent women in Thailand. Most women had received education to secondary school level and the majority were unemployed (full-time home duty and full-time student). Women were mostly having their first baby. Few women had a previous termination of pregnancy. The majority of women attended their first antenatal care visit after 12 weeks; which is later than in many recommendations. Despite what is known about this group of women and explained in the Literature Review chapter of this thesis, there were a number of acceptable perinatal indicators and outcomes. The majority of the women had more than least antenatal visits. The rates of preterm birth, hypertensive disorders of pregnancy, and postpartum haemorrhage were not high and there were few differences between the age cohorts, that is, women in early adolescence versus late adolescence. There was, however, a low birth weight which may have had a relationship with maternal weight, weight gain and nutritional status however these indicators were not included in the data set. The rate of perinatal death was also lower than might have been expected.

The critical adverse perinatal outcomes indicated in this study were the high rate of anaemia and the use of pethidine amongst the woman. The significant differences of anaemia during pregnancy (P-value < 0.05) and the use of pethidine during childbirth (P-value < 0.05) were found to be higher amongst the early adolescent woman group than the late adolescent woman group. Further analyses of these data with more information about potential contributing and mediating factors would be useful in future research and practice.

The significance of these clinical outcomes will be discussed in the final chapter of the thesis. The next chapter will explain three main themes from healthcare professionals' experiences in caring for pregnant adolescent women (Phase 2 of this study was published in Women and Birth Journal Online on 5th April 2019).

CHAPTER SIX: 'Recognising the challenges of providing care for Thai adolescent pregnant women: Healthcare professionals' views'

This findings chapter of healthcare professionals' experiences and perspectives in caring for adolescent pregnant women in Thailand was published in Women and Birth Journal Online on 5th April 2019. The paper is presented here in the style that it was submitted to the journal. Hence there is some repetition in the background and methods sections. The Journal has provided permission to include the accepted manuscript (word version). This permission has been added in this thesis (see **Appendix: o**).

Title: Recognising the challenges of providing care for Thai pregnant adolescents: Healthcare professionals' views

ABSTRACT

Background: In Thailand, maternal complications and poor neonatal outcomes are common in pregnant adolescents. There are attempts to improve outcomes for this group through specialised antenatal clinics, however, neither the way in which these clinics are provided nor the attitudes of healthcare professionals to pregnant adolescents are known. The aim of this study was to understand the experiences of healthcare professionals in caring for pregnant adolescent women in Thailand.

Methods: A qualitative descriptive design was used. Semi-structured interviews were conducted with 21 healthcare professionals involved in caring for pregnant adolescents across three public hospitals in Bangkok, Thailand. All interviews were analysed thematically.

Results: The core concept *'recognising the challenges of providing care for young Thai pregnant women'* explained the provision of care. This concept contained three main themes: 1) *having an awareness of the political and societal contexts and environment of care*; 2) *being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women; and 3) having different approaches to caring for pregnant adolescents*. A lack of continuity of care was a significant barrier in terms of structure and process. Effective communication was important to provide quality care.

Conclusion: Healthcare professionals recognised that there were barriers to providing effective care for adolescent women. These findings may inform healthcare professionals and policymakers in Thailand in relation to the systems of care required and addressing the needs of pregnant adolescents. This would enable Thailand to meet the goal in providing a positive pregnancy experience for all women.
Keywords: Quality of care, Antenatal care, Group antenatal care, Pregnant adolescent, Healthcare professional, Qualitative, Thailand

Statement of Significance

Problem: The high rate of adverse perinatal outcomes in adolescent pregnancy is of concern in many countries. Low antenatal care attendance and late presentation for antenatal care is common in adolescent women. These factors contribute to the increasing incidence of poor maternal and neonatal outcomes, and negative experiences for these women.

What is Already Known: Various models of care have been utilised for the care of pregnant adolescents to improve perinatal outcomes. Providing effective care needs to be focussed on providing support as well as information about maintaining health, reducing common pregnancy complications and addressing issues about becoming a mother at a young age.

What this Paper Adds: There is limited research on maternity care for pregnant adolescents in Thailand. This study has shown that health professionals experience many challenges in providing care to this group of women. This paper highlights the barriers and facilitators to effective care that may support and guide further innovations. In particular, healthcare professionals need to be supported to provide high quality emotional and psychosocial care and respect adolescent women during pregnancy.

1. Introduction

Rates of adolescent pregnancy are of concern globally, especially in many countries in Southeast Asia (World Health Organization 2016b). Women who give birth during their adolescence have higher rates of adverse pregnancy and perinatal outcomes than those who give birth when they are older, especially in low- and middle-income countries (LMICs) including Thailand (World Health Organization 2016a). Adolescent pregnancy is of concern because both physiological and psychological difficulties can contribute to risk factors and pregnancy complications (Pungbangkadee et al. 2008; Sriyasak et al. 2016) resulting in higher adverse perinatal outcomes (Althabe et al. 2015). Globally, pregnancy complications for adolescent women are high (Althabe et al. 2015) with poorer neonatal outcomes for their babies (Ganchimeg et al. 2014).

The population of Thailand was over 69 million in 2018 (Department of Economic and Social Affairs: Population Division 2018). Births in the Thai adolescent population have been increasing (Areemit et al. 2012; Sukrat 2014) and many of these occur due to a lack of access to, and uptake of, contraception (Bureau of Epidemiology 2012; Lanjakornsiripan et al. 2015). Furthermore, termination of pregnancy is uncommon in Thailand due to the fear of unsafe abortions and the perceived negative consequences arising from a Buddhist religious belief system (Pungbangkadee et al. 2008; Sriyasak et al. 2016). This means that many young women continue with an unintended pregnancy (Phoodaangau, Deoisres & Chunlestskul 2013; Sriyasak et al. 2016).

Previous studies in Thailand have shown a high incidence of adverse perinatal outcomes for adolescent women, such as low birth weight, preterm birth and anaemia, which is consistent with other studies globally (Butchon et al. 2014; Chantrapanichkul & Chawanpaiboon 2013). In response, Thailand has initiated policies to lower the rates of adolescent pregnancy in order to minimise maternal and child mortality (Ministry of Public Health 2016a). The Thai Ministry of Public Health is aiming to decrease the rate of adolescent pregnancy by half by 2026 (Ministry of Public Health 2017).

Many countries are implementing initiatives to try to reduce rates of pregnancy complications in adolescent women. The recent Global Strategy for Adolescents' Health

2016 to 2030 (UNICEF 2015) has also indicated the need to develop better models of maternity care for this group (Kuruvilla et al. 2016). Models of maternity care for adolescent women, such as the CenteringPregnancy® model (Trotman et al. 2015), Young Women's Clinic (Allen et al. 2015) and Caseload Midwifery Group Practice (Allen et al. 2015) have been associated with fewer adverse perinatal outcomes compared with standard care in high-income countries.

Throughout Thailand, maternal and child health care has been made accessible for adolescents; however, these young women often present late in pregnancy for antenatal care and receive fewer than the minimum number of antenatal visits as recommended by WHO (World Health Organization 2016a).The quality of care provided by healthcare professionals is crucial to the perception of care by pregnant adolescent women (Pungbangkadee et al. 2008). The conflict between their desire to enjoy adolescence and the responsibilities of motherhood lead to struggles in the transition to motherhood (Pungbangkadee et al. 2008). There is a need for services that meet the needs for this group but little understanding of the challenges in providing such services from the perspective of the health system.

This study was undertaken to better understand the context of providing antenatal care for adolescent women in Thailand. The specific aim of the study was to explore the experiences and perspectives of the healthcare professionals who cared for pregnant adolescent women in three hospitals in Bangkok.

2. Methods

A qualitative descriptive design was used. Qualitative descriptive methods facilitate a comprehensive understanding of circumstances or actions from the participants' perspectives and a rich description of their experiences using textual material from participants' words or observation (Sandelowski 2010). In addition, qualitative descriptive findings can be used to inform the development of new interventions within the sociocultural context of the participants (Magilvy & Thomas 2009). Donabedian's structure-process-outcome quality of care model (1988, 2005) was used as a framework

for this study. This model provides a constructivist framework for the evaluation of care and can be applied as a guide for addressing improvements or innovations of care. The Donabedian's quality of care model was used in this study because it helps to identify the structural provision of care as well as the experience of delivering care to pregnant adolescent women and the impact on the outcome.

Ethical approval was obtained from the university's Human Research Ethics Committee (HREC) and the Human Research Ethics Committee (HREC) of the Medical Service Department in Bangkok, Thailand.

Participants and Setting

Healthcare professionals with at least one year of experience of caring for pregnant adolescents in specialised antenatal clinics were eligible to participate. Study sampling was purposive (Teddlie & Yu 2007). Firstly, the authors contacted the director of each hospital to invite them to participate and inform them of the purpose of the study and data collection methods. Secondly, we visited the sites of the teenage pregnancy clinics in the three hospitals and met with the managers of the antenatal care units to identify eligible participants. Individual contact with participants was made through face-to-face contact and by phone. Before collecting data, participants were asked for their written consent to participate and were able to withdraw without jeopardising their employment. The selection of healthcare professionals continued until data saturation (Holloway & Galvin 2017), which occurred after 21 interviews.

Each of three study sites provides group antenatal care for adolescents with uncomplicated and complicated pregnancies in Teenage pregnancy clinics. The clinics are multidisciplinary, and include nurses and midwives, obstetricians, counsellors, psychologists and social workers. These clinics operate on a specific day to provide care and support in a group antenatal care setting for this group of women. Group antenatal care is provided to all pregnant adolescent women, to provide them with information about how to maintain health and reduce the chance of common pregnancy complications. In the groups, women are given information on self-care during

pregnancy, the prevention of preterm birth and low birth weight, breastfeeding and birth preparation and are also given a labour ward and nursery tour. These group sessions create an opportunity for adolescent women to share their experiences and support each other. The partners or parents of the adolescent women are also invited to attend the classes.

Data collection and analysis

Interview questions were formulated based on the study objective (see **Table 1**). Donabedian's quality of care framework was used to build the interview questions in terms of the structure, process, and outcomes of care (Donabedian 1988, 2005). In order to test the suitability of the questions, the researcher conducted preliminary work with five participants. This process tested the interview questions, and evaluated whether they were workable and flexible enough to address the research aim (Van Teijlingen & Hundley 2010). All semi-structured interviews were undertaken by the first author in the Thai language.

The first author of this study is a nursing and midwifery instructor from Thailand who has experience in research projects in the Thai healthcare system and with pregnant adolescents. Ongoing discussions regarding process and methodology were held with the co-authors during data collection and analysis (Doody & Noonan 2013).

Semi-structured interviews were held in a private room within the hospitals, at a time convenient to participants. Written consent to participate in the study was obtained. Data were audio recorded and de-identified to protect privacy and confidentiality. The interviews ranged from 40-90 minutes. Initially at each interview, a general question was used to open the conversation and develop a rapport with the interviewee such as: 'Could you please tell me about your experience in caring for pregnant adolescents?' and an interview probe such as: 'Could you explain more about…?' was used occasionally to obtain more details (Doody & Noonan 2013) (see **Table 1**).

Table 1: Core concept and interview questions based on Donabedian's framework (1988; 2005)

Core concept based on theoretical framework	Examples of interview questions
Opening the interview	(a) Could you tell me about your experience in caring for pregnant adolescents in the antenatal clinic for teenage pregnancy?
	(b) What do you think about teenage pregnancy in Thailand?
Structure concept	(c) Could you tell me how this antenatal clinic works for pregnant adolescents?
	(d) What is the function/structure of the antenatal clinic for young women?
	(e) How does the antenatal clinic run/organise?
Process concept	(f) Could you tell me the process of the antenatal clinic in terms of helping young women?
	(g) What do you think the best things/strengths of the clinic are?
	(h) What do you think the limitations/weaknesses of the clinic are?
Outcome concept	(i) What are the challenges of the clinic?
	(j) How do you think they could be made better?
Interview probe:	Could you please tell me more about that?
	Could you please give me some example of that?
	Could you please explain more what it means to you?

Verbatim transcription of the content in the Thai language was initially performed to understand and preserve the original ideas and meanings of the participants' experiences (Chen & Boore 2010). A professional interpreter then translated the data from Thai to English so the non-Thai-speaking authors could read, re-check and comment on part of the open codes. Back translation was conducted by the first author to ensure no missing details were in the open codes (Chen & Boore 2010). The NVivo 11 program was used to manage, compare, and store the data in this study (QSR International 2012).

The main themes and subthemes were developed from the interviews with healthcare professionals using the thematic analysis in the six stages outline by Braun, Clarke and Terry (Braun, Clarke & Terry 2012) (see Table 2). Initially, familiarisation with the data was undertaken included transcribing, reading and rereading, and noting the main ideas from the raw data. Next, identification of the initial codes took place where data with similar meanings were grouped and sorted into preliminary codes. The third stage was the development of themes as the codes were collected into unique concepts. The fourth stage organised the themes as part of the confirmation process and this process was used to check the codes and the entire data set before generating a thematic map analysis. The penultimate stage developed definitions and names for each theme — finally, interpretation of the themes to place. The process of generating and developing themes involved checking with co-authors, cross-checking, rewriting and re-naming the themes from the data to ensure the reliability of the findings. Quotations are provided to illustrate key findings identified using a code to protect anonymity.

Table 2: Example of quotes, initial codes, categorising subthemes and themes

Examples of quotes	Initial codes and categorising subthemes	Main themes
'Now we are more focusing on how to cure diseases because it is affects large parts of the community and it relates to people in the city. Nobody talked about adolescent pregnancy but there is more focus on older people instead'.	- Understanding policy as not focusing on adolescent pregnancy	**Having an awareness of the political and societal contexts and environment of care**
'If we had a good connection or collaboration with communities where adolescent women were living, they would transfer pregnant women to receive ANC [antenatal care] *early'*.	- Having a lack of collaboration with community organisations that could help improve access to antenatal care	
'*If the teen mom has a question and has met the same healthcare professionals every time she comes, she will be brave* [enough] *to ask* [because of their pre-existing relationship]*'*.	- Having a lack of continuity of care as a barrier to effective care	
'*Here, we just focus more on preterm delivery and low birth weight because adolescents do not know their risks'*.	- Having standard care for all women instead of tailoring care	**Being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women**
'It requires special technique to provide emotional care for young pregnant women. I feel that it is very difficult to care for women who have stress issues'.	- A lack of skill in emotional and psychological care	

Examples of quotes	Initial codes and categorising subthemes	Main themes
'*It is easier to work with adult women because they understand better than adolescents, who have more complicated problems on the same issue'.* '*Nobody likes to be told what to do. Even parents tell them to do something, they do not do it. Although you say that it is good for them, adolescents do not believe it. Well, working with young people we need to keep clam'*.	- Being judgemental - Having difficulty with engagement and respect for pregnant adolescents	
'*Well, it should be that we give knowledge and advice to adolescents in the group antenatal care class. I think this can help them have full term birth without complications'.* '*After talking to them, next time we meet, the adolescents will recognize me and I will follow up on how things are going. It is like this many times until the relationship becomes better and we become closer*'. '*The teenagers have pretty good family support….Parents do not leave them alone, so their families take care of them*'.	- Ensuring pregnant adolescents have good perinatal outcomes - Developing relationship and being more flexible in arranging care - Being aware that women have family support	**Having different approaches to caring for pregnant adolescents**

3. Findings

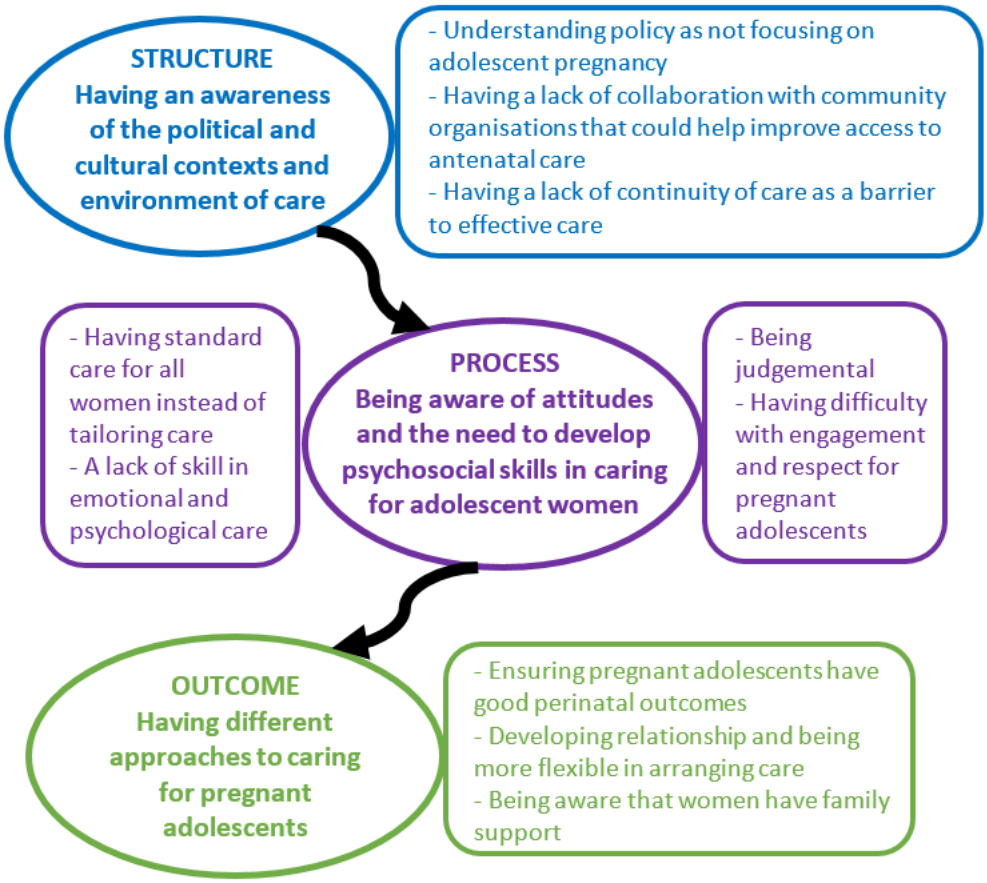
Twenty-one Thai healthcare professionals who all had experience in caring for pregnant adolescent women in the Teenage pregnancy clinics participated in the study. The sample included obstetricians, managers, nurse-midwives, and a social worker. Their ages ranged from 26 – 60 years with an average of 43 years. The majority of participants were women with only one male obstetrician. Six participants had experience of one to two years and fifteen had experience of five years and more (see **Table 3**).

Table 3: Healthcare professionals' demographic data

Age (year)	Role in the Teenage Pregnancy Clinics (Number of participants × Role in the clinics)
26 - 35	4 × Nurse-Midwives and 1 × Obstetrician
36 - 45	3 × Nurse-Midwives and 3 × Obstetrician
46 - 55	4 × Nurse-Midwives, 1 × Obstetrician and 1 × Social worker
56 and over	3 × Nurse-Midwives and 1 × Obstetrician

The core concept of *'recognising the challenges of providing care for young Thai pregnant women'* was evident (see **Figure 1**). Caring for pregnant adolescent women was challenging for participants, especially as they recognised these women were struggling with being pregnant at this early age. Three main themes emerged from healthcare professionals' experiences and perspectives. These described *having an awareness of the political and societal contexts and environment of care*, *being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women*, and *having different approaches to caring for pregnant adolescents*. These main themes and subthemes were illustrated in **Figure 1**.

Figure 1: Core concept of the main themes and subthemes: ***'Recognising the challenges of providing care for young Thai pregnant women'***, using Donabedian's (1988, 2005)



Theme 1: Having an awareness of the political and societal contexts and environment of care

Participants recognised that the political and societal contexts and the environment of care could have a positive and/or negative impact on the adolescent women. Their main concern was the prevention of the adolescent pregnancy in Thailand. This concern influenced their values. Their attitudes towards providing care for the women were sometimes negative due to their past beliefs and the prevailing social culture which often disapproved of adolescent pregnancy.

Participants recognised that the Thai government was aware of the increasing rates of adolescent pregnancy and had ensured every Thai hospital had systems in place to care for adolescent pregnant women, but many systems had not been well established. One

participant emphasised: *'As we know adolescent pregnancy is a national problem in Thailand. The real challenge is how to deal with high rates of pregnancy, which is a national problem. Alternatively, we should try to encourage them get pregnant in a proper time'* (HP_1). In relation to the societal context, it was acknowledged that most families provided social support for pregnant adolescent women, for example: '*The adolescents have pretty good social support. Some adolescents come with mother or father. Only a few cases* [women] *come alone. Most single mums come with their mothers. Parents do not leave them alone, so their families take care of them'* (HP_6).

Conversely, the Thai political agenda was not seen to be particularly focused on supporting adolescent women. Healthcare professionals were aware that national social policy was moving towards healthcare for elderly people rather than the younger age group which meant a limited emphasis, for example; '*The aging trend has become stronger and adolescents are dropped'* (HP_8). It was thought that the government's first priority was more focused on preventing disease than improving maternity care, for example: *'Pregnancy is not a disease, so there is a lack of interest as this does not kill people'* (HP_4). Most participants recognised that while adolescent pregnancy was more likely to be associated with adverse perinatal outcomes, government policy was not addressing this issue. As one participant expressed: *'This is a challenging issue for the government but nobody is taking it seriously. It is like a 'too difficult policy' to do'* (HP_18).

Participants felt that collaboration at a community level could help young pregnant women access early antenatal care. For example, Village Health Volunteers (VHVs) were more closely engaged with communities than hospital clinicians, and therefore may be able to reach out to young women and encourage them to attend antenatal clinic. Most participants emphasised that, *'If we had a good connection or collaboration with communities where adolescent women were living, they would transfer pregnant women to receive antenatal care early'* (HP_1).

Most participants in this study reported that family and social structures influenced adolescent women to access antenatal care late in pregnancy. Most Thai adolescent women are still living with their parents or guardians. Participants recognised that it may be difficult for adolescent women to let their parents know they were pregnant and then seek care in a timely way. Participants stated that most of the pregnant adolescents tried to conceal their pregnancy from their parents, for example, one said: '*Actually, the adolescents know they are pregnant but they are not brave enough to tell their parents' (HP_16)*. Adolescent women younger than 18 years had to bring their parent or guardian to their first ANC which often created a barrier to seeking care: '*The first time they* [pregnant adolescents] *come, they have to bring a parent along if they are younger than 18 years old. I think this might be a limitation'* (HP_2*)* as some women were unable to disclose their pregnancies.

From the healthcare professionals' perspective, most adolescent women were not well prepared for motherhood and they had difficulties instilling an awareness of self-care in pregnancy. Inadequate self-care was also perceived to be contributing to perinatal complications for adolescents, as one participant expressed: *'Most adolescents usually have weight gain problem. Some of them gain little weight as they don't eat much or skipping meals. Most adolescents go to bed late and then get up late, so they usually skip breakfast. In the group class, we have to remind and encourage them to try to eat breakfast or eat more as their babies need food otherwise your babies will be small'* (HP_11). Most healthcare professionals were concerned about diet/nutrition issues, as one participant stressed: *'We also emphasise self-care during pregnancy, such as, taking rest, eating and travelling. As we know, most adolescents are having first-time pregnancy, so they do not have much experience in self-care during pregnancy. I think the incidence of low birth weight baby is still high in adolescents probably because of their eating habits'* (HP_16).

Some healthcare professionals wanted to provide individual continuity of care and carer for pregnant adolescent women because they thought this care was likely to enhance interactions and relationship between providers and women. However, the Teenage

pregnancy clinics did not provide continuity of care or carer for the adolescent women. It was recognised that some measure of continuity of carer would provide a positive pregnancy experience and was associated with good clinical outcomes. However, there were barriers to implementing continuity of carer. Participants stressed that a lack of time limited their ability to provide individual continuity of care for pregnant adolescent women and the clinics were not set up to enable this to occur. For example, one participant stated: *'If the adolescent mum has a question and has met the same healthcare professionals every time she comes, she will be brave* [enough] *to ask* [because of their pre-existing relationship]' (HP_3). In this study, most participants realised having good relationships and building trust with women was a crucial way to provide effective care: '*The true weak point is a lack of individual continuity of care…As I said that for adolescents to have a good relationship with us, they must trust us and we need to take care of them individually. We also do that but not with every woman'* (HP_8).

Health care professionals worked on a rotating duty roster in the Teenage pregnancy clinics, and as a result, the women met different healthcare professionals (obstetricians, nurses and midwives) at each visit. Because the women might not meet the same healthcare professionals at subsequent visits it was difficult to build trust and improve interactions between healthcare professionals and the women. Participant expressed:

> *'To know about their* [pregnant adolescents] *problem in details, we need to talk to them individually. Actually, we hardly do that except for those* [pregnant adolescents*] with serious problems only. However, in the individual care, the young mum will realise that we really pay attention to her problem and want to help her solve it. I think we need to understand adolescents more. If we have a chance to take care of them individually, we will understand the context of each woman which is different. It should let us reach them and solve their real problems'* (HP_4).

In Thailand, there is no routine home visiting policy and practice. Home visiting is not regarded as the role of a nurse-midwife; however, sometimes they accompanied social

workers, whose duty was to check on the living conditions of adolescent women who were assessed as having financial problems after they had given birth. The challenges of providing postnatal care was recognised as one participant said 'we *cannot follow up all of our 'patients'* [pregnant adolescent women] *after giving birth. This needs to be improved*' (HP_13). There was usually one home visit to follow up on breastfeeding for adolescent mothers because of the low rate of uptake in this age group. This visit also covered other specific issues, such as mental health screening and encouraging women to have a contraceptive implant.

Theme 2: Being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women

Participants recognised that being aware of their ambivalent attitudes in caring for pregnant adolescent women was key to transforming antenatal care. Although, most participants realised that they needed to be cognisant and aware of their attitudes, this was not always easy as they felt they did not have enough skills to provide more holistic care. Providing the young women with information about potential complications in pregnancy was the main goal of the group antenatal groups, rather than emotional and psychosocial care. As participants explained: *'Here, we just focus more on preterm delivery and low birth weight because adolescents do not know their risks' (HP_11)*. Limitations in knowledge and skills around addressing emotional and psychological issues for pregnant adolescents was raised by most healthcare professionals. Healthcare professionals' judgemental attitudes towards adolescent pregnancy led to difficulty in providing emotional and psychological care for adolescent women.

The goal of providing group antenatal care in the Teenage pregnancy clinics for pregnant adolescents was predominantly information sharing and peer support, rather than individually tailored care, as participants highlighted: '*In our clinic, when adolescents come as a group, they will talk and exchange information with each other. When they come with adolescents also, they will get together and feel that they are not alone but there are others with similar conditions'* (HP_8) and *'To develop the quality in supporting pregnant adolescents by doing a specific clinic, the nurses and midwives must have*

positive attitudes towards adolescent women by not blaming them; by having a specific clinic, teen mums can talk to others like they have friends and support to share their experiences' (HP_11).

Despite the goal of information sharing, the group antenatal care sessions were not seen as being sufficiently interactive between the healthcare professionals and pregnant adolescent women, for example, '*The duty is not only to take care for the women but also to educate them and many other things. There are a lot of tasks such as teaching and giving advice for different groups of women'* (HP_2) and, *'From my experience in giving health education as a group, most adolescents do not interact with us much'* (HP_7). Participants recognised the importance of engaging the adolescent women but they did not always have the skills, for instance, '*The teaching technique must be interesting and motivating in the group antenatal care classes. Mostly, when we ask something in the group class, pregnant adolescents do not answer but only listen quietly or play with their phone, which are adolescent habits'* (HP_4).

Participants felt that they had limited knowledge in understanding the complexity of adolescent pregnancy and lacked the skills to provide effective emotional and psychosocial care. They claimed that they did not know how to manage mental health issues and would refer women to a counsellor or psychologist. They felt able to evaluate stress levels during pregnancy, but were ill equipped to care for adolescent women in the context of their stress. For example, '*If their stress level is high, we will send the woman to the counsellors to help because they know better than me and they are specialists'* (HP_10). Participants felt they lacked formal training in working with emotional and psychological issues, saying: '*We use a technique based on our experience…To understand adolescent women and do counselling, it is difficult to find out the truth and identify the problem. The providers might not know the right words to use and how to talk to the adolescent woman'* (HP_12). Most healthcare professionals recognised that skills for effective emotional care was necessary, as this participant expressed: *'It requires special technique to provide emotional care for pregnant*

adolescent women. I feel that it is very difficult to care for women who have stress issues' (HP_16).

Being judgemental was a visible attitudinal barrier to providing effective care to this group. Most participants believed that adolescent women were not mature enough to be a mother and had not thought about the difficulties of raising a child. For example, this participant emphasised: '*They* [pregnant adolescent women] *are not aware how dangerous it is to have preterm birth. They do not care at all. They just know that it is giving birth. After that, it is childrearing. They do not know how hard it* [childrearing] *is'* (HP_10). It was a challenge for participants to deal with their own ambivalent prejudices in taking care of pregnant adolescent women, and learning to respect them as future parents, as this participant expressed: '*I try to change my attitude and my mind to be positive. …As the woman already is pregnant and becoming a mother, so we have to think positively and keep talking and caring for them* [pregnant adolescent women]*. It might not be successful the first time. As we keep trying, we will know how to talk to them and understand them more' (HP_6).* Participants commented that it was harder to care for pregnant adolescents compared to adult pregnant women: '*Honestly, it is easier to work with adult women because they understand better than adolescents, who have more complicated problems on the same issue'* (HP_11).

Participants recognised that there were difficulties in engaging this younger age group. For example, one participant stated: '*they* [pregnant adolescent women] *often wanted to do things their own way, they had a lack of awareness of self-care in pregnancy, they only trusted their friends, were perceived as being self-centred, and struggled with being a teenager and a mother at the same time*' (HP_5). Other participants stated: *'They* [pregnant adolescent women] *are stubborn. Part of them, especially unplanned pregnancy cases, they have been blamed from home. Therefore, if we know that and we repeat such accusations again they would protest to us. The more we blame them, the more they do it*' (HP_14) and, '*Adolescents have self-confidence; trust their friends, or those who take care of them. Because of pride, they do not accept us easily…That's why sometimes they are not open to what we give them. We might need to build a good*

relationship first. After that, the teenager and family will trust us and come to us when having a problem or complications' (HP_2).

Participants recognised that it was necessary to better understand young people in order to provide them with information and psychosocial support. To engage this young age group, healthcare professionals identified that they needed to be more patient. Keeping calm was a necessary skill to engage this group as participants expressed: *'Healthcare professionals have to calm down'* (HP_3) and, '*I try to calm down and understand that to take care of adolescents, I need to be patient … I must gradually comfort them'* (HP_4).

Most participants believed that pregnant adolescent women had little knowledge about how to care for themselves during pregnancy. There was a perception that adults always knew how to care for themselves in pregnancy and adolescents did not. One participant mentioned: '*Some of them* [pregnant adolescent women] *ride a motorcycle very fast without worrying that it is a risk for preterm delivery. On the contrary, adults take care of themselves so well we do not need to worry'* (HP_10).

Participants were aware of the conflict between being a pregnant woman and being an adolescent, and did not think both could occur together. This participant expressed how she tried to get the young women to transition to motherhood and leave their childhood behind, '*… we are trying to make them understand that their current role is that of a mother not an adolescent anymore. They must change from being a child to becoming a mother and take care of themselves and baby well'* (HP_14).

Theme 3: Having different approaches to caring for pregnant adolescents

By establishing the Teenage pregnancy clinics, most of the participants were trying to enable pregnant adolescent women to have a positive pregnancy experience. To provide a positive pregnancy experience, healthcare professionals aimed to help women have a healthy pregnancy, preventing complications, with good perinatal outcomes for the women and their babies. They tried to prevent complications by ensuring the women

attended clinics and by providing them with information about risk factors and self-care. For example, '*a strength in taking care of this group* [pregnant adolescent women]*, it should be that we give knowledge and advice to adolescents in the group antenatal care class. I think this can help them have a full term birth without complications'* (HP_13)*.*

Tours of the labour room and nursery were undertaken in order to increase pregnant adolescents' awareness of what may be ahead which could help raise awareness of pregnancy complications. As one participant expressed, *'We also take them to see the babies in incubators and guide them about what to do in that situation. We believe this will help them realise about preterm birth and low birth weight* (HP_18).

When a good relationship between healthcare professionals and pregnant adolescent women was created, the care was described as a straightforward process. As this participant explained: '*After talking to them, next time we meet, the adolescents will recognise me and I will follow up on how things are going. It is like this many times until the relationship becomes better and we become closer* (HP_12)'*.* Being able to provide continuity of carer and develop a good relationship enhanced the ability of the healthcare professionals to promote a trusting relationship. When there was a lack of continuity of carer, the healthcare professionals were challenged saying: '*How do we talk and understand each other clearly, how to gain trust, how to talk with teenagers to make them open up and come for ANC?* [Antenatal care]' (HP_5).

They recognised that communication skills were key to providing successful care, including using easy to understand terms, spending more time listening, making time, being less the 'teacher' and recognising each woman as an individual. One participant said: '*The language used is adolescent's language so it is easy to communicate. If we do well in the beginning and they accept us, it will be easy for us. It is like we respect their opinion not holding us as the centre but the adolescents as the centre. They will cooperate with us and it will be easy to approach them'* (HP_10). They saw that keeping the young woman as the centre of care (providing woman-centred care) was one of a key approach to improving antenatal care for pregnant adolescent women.

Participants identified that family support was essential for a positive outcome. The Thai family typically helped adolescent women to raise their child, as one participant explained, '*A characteristic of Thai families is an extended family. Some families do not regard adolescent pregnancy as a problem'* (HP_1). Most pregnant adolescent women still lived with their parents and grandparents, who might help them with financial support and childcare when the women went back to school, as one participant described, '*Most adolescents have pretty good family support. Some adolescents come with mother or father. Only a few cases come alone. Most single moms come with their mothers. Parents do not leave them alone, so their families take care of them'* (HP_6).

4. Discussion

Addressing adverse perinatal outcomes amongst young pregnant women is of concern in Thailand. This study aimed to explore the quality of maternity care in Teenage Pregnancy Clinics in Bangkok from the perspective of the healthcare professionals who work in them. The core concept, '*recognising the challenges of providing care for young Thai pregnant women*', identified significant barriers which impacted on their attempts to provide quality care and highlighted opportunities to improve care for pregnant adolescent women in Thailand. The findings of this study may contribute to a deeper understanding of the current attitudes and practises to assist with developing effective services for pregnant adolescent women in this country and in other similar countries especially in the Asia region.

Continuity of care and carer for all women

Several barriers were identified from the healthcare professionals' experiences and perspectives in their attempt to provide effective care for pregnant adolescent women. Some of these barriers can create areas of opportunity to improve maternity care for all women. The lack of continuity of care and carer was a significant issue. The majority of the participants in this study were nurses and midwives and they expressed having difficulties in providing information and engaging, respecting and building relationship with the women. The understanding of continuity of care and carer in the Thai context is the provision of individual continuous antenatal care to the woman by the same carer.

Implementing continuity of carer models of care in these clinics in Thailand may help to engage and build trust in the relationship and encourage more interaction between carers and the women. The benefits of continuity of carer, especially building trust and relationship with women have been previously acknowledged in many studies worldwide, particularly in Australia (Allen et al. 2013; Boyle, Thomas & Brooks 2016; Perriman, Davis & Ferguson 2018), New Zealand (Noseworthy, Phibbs & Benn 2013) and the United Kingdom (Sandall et al. 2016).

A Cochrane Systematic Review illustrated the benefits of midwife-led continuity of care to women and babies without adverse effects (Sandall et al. 2016). A meta-synthesis of the midwifery continuity of care model in Australia also identified three main themes of the midwife-woman relationship. These included: personalised care, development of trust, and empowerment (Perriman, Davis & Ferguson 2018). Continuity of carer and care can help to easily build relationships, trust and partnership with all women (Boyle, Thomas & Brooks 2016; Williams et al. 2010). This type of care also provides emotional care which is an important element of quality care (Forster et al. 2016). Therefore, implementing continuity of carer programs within the Teenage Clinics may enhance the relationships, lead to increased engagement with the woman and greater mutual respect.

Emotional and psychosocial skills in caring for adolescent women

There is a need to provide respectful and sensitive emotional and psychosocial care to each individual adolescent woman, as well as to support them in their journey to motherhood. However, in the theme: '*Being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women*', healthcare professionals' emotional and psychosocial skill levels emerged as a barrier to providing effective care. In several Thai studies (Pungbangkadee et al. 2008; UNICEF 2015), becoming a young pregnant woman is a critical circumstance, particularly in regard to emotional and psychological issues. Another Thai study found there was triple the risk of depression during adolescent pregnancy compared to adult women (Phoosuwan, Eriksson & Lundberg

2018). Our study showed that health professionals often felt they lacked the skills to cope with the social and emotional complexities in these women's lives.

Our findings are aligned with findings from other studies which reported that developing relationships and trust was required in caring for pregnant adolescent women, particularly in relation to providing psychological care (Pungbangkadee et al. 2008; Sriyasak et al. 2016). It may be that the young women's difficulty in engaging with carers was tied up with their need to feel respected in the transition from being a pregnant adolescent to becoming a parent (Sa-ngiamsak 2016; UNICEF 2015). Healthcare professionals have a responsibility to ensure they have the emotional and psychosocial skill levels so that pregnant adolescent women feel valued and can benefit from the antenatal care provided towards a positive pregnancy experience. To provide effective maternity services, care and support for pregnant adolescent women should be tailored to each woman's individual needs, particularly in relation to emotional and psychosocial care.

The need for reflective practice about values and attitudes towards adolescent women

Societal values and attitudes towards adolescent pregnancy varies, according to socioeconomic and cultural contexts. It is well known that adolescent women feel social stigma during pregnancy (Kagawa et al. 2017; Phoosuwan, Eriksson & Lundberg 2018; Sa-ngiamsak 2016). This study shows that stigmatisation also extends to their care during pregnancy. Previous studies recommend that a positive approach and support can diminish stress/anxiety, feelings of societal stigma (Sa-ngiamsak 2016) and increase confidence amongst adolescent women to continue their role into motherhood (Kagawa et al. 2017). Our findings show that attitudes in caring for adolescent women were a noticeable obstacle; many health care providers had a punitive attitude towards the young women as they believed they should not be pregnant at a young age. Most participants felt they had a duty to scare the young women about possible negative outcomes. Very few participants had a clear understanding of general principles in supporting behaviour change to promote health, especially in relation to adolescence. Education and reflective practice regarding these attitudes would be highly beneficial.

Reflective practice can assist thoughtful consideration of healthcare professionals' experiences (Atkins & Schutz 2013; Collington & Hunt 2006) and may therefore help to transform values and promote positive attitudes to care and support for adolescent women.

Social support for pregnant adolescent women

Social support is necessary for pregnant adolescents, as for all pregnant women. Social support can be provided by healthcare professionals, partners, family and community (Kagawa et al. 2017). In the Thai context, most adolescent women receive support from their family even after initial difficulties when they disclose their unexpected pregnancies. The family was crucial in providing support for adolescent women (Akella & Jordan 2014; Kagawa et al. 2017; Ntinda, Thwala & Dlamini 2016) while healthcare providers were the main resource for information and supporting young women in hospital (Sriyasak, Åkerlind & Akhavan 2013).

Even though socioeconomic deprivation is likely to contribute to poor self-care in this group of adolescent women (Figueiredo, Pacheco & Costa 2007; Kagawa et al. 2017), their families usually offered financial and emotional support for them. In Thailand, there is insufficient welfare support for this group which adds to their financial challenges (Sa-ngiamsak 2016) and potentially to poorer perinatal outcomes. Therefore, the government should consider providing welfare support for this group who struggle with being pregnant at a young age. The home visiting systems also needs to be expanded for young mothers to ensure that nurses and midwives are able to providing ongoing support (Pungbangkadee et al. 2008; Sa-ngiamsak 2016; Sriyasak, Åkerlind & Akhavan 2013).

This is one of the first studies in Thailand to examine the perspective of the health professionals in terms of the Teenage pregnancy clinics and the services provided. There are, however, a number of limitations. One limitation is that we recruited participants who worked in urban areas where there was a high rate of repeat pregnancies amongst adolescent women. The findings may have been different if the study were conducted

in other contexts such as in private hospitals or rural areas. Adolescent pregnancy may be more accepted in rural areas which would alter the experiences and perceptions of the staff. Another limitation is that the health providers volunteered to participate suggesting that they were supportive of the clinics and the young women. The findings may have been less positive if staff who had poorer attitudes towards pregnant adolescent women.

5. Conclusion

Whilst a positive pregnancy experience is important for all women (2016a), improvement is still needed in caring for pregnant adolescent women in Thailand. The perspectives and experiences of healthcare professionals may help to transform antenatal care and the future implementation of programs to provide a positive pregnancy experience for Thai pregnant adolescent women. There is a need to prioritise collaboration of healthcare services and community-based innovations to improve the care for pregnant adolescent women. The results of this study may inform healthcare professionals, local administrative organizations, and policymakers in Thailand concerning the systems of care required and address the needs of pregnant adolescents.

The provision of quality care for pregnant adolescents in Thailand may be significantly improved by providing continuity of care and carer, enabling better community collaboration, increasing healthcare professionals' skill level, providing training in communication skills and education around psychological and emotional care. In particular, increasing pregnant adolescents' access to continuity of carer, the healthcare professionals' abilities and skills may be supported to communicate more effectively, build trust, engage with and respect adolescent pregnant women, ultimately for improved outcomes.

Conflict of interest statement

There is no conflict of interest. This paper is part of a PhD being undertaken by the first author and supervised by the other authors.

The Editor in Chief of Women and Birth is a co-author and therefore played no role in the decision for peer review, the management of the review process and the decision to accept this paper. This was managed by the Deputy Editor to avoid a conflict of interest.

Author contributions

All authors planned this study. The first author conducted the semi-structured interviews and conducted the analysis, assisted by all authors. The first author drafted the manuscript and then all authors contributed to drafts and approved of the final manuscript. All authors contributed to the revisions required by the journal.

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Summary of Chapter Six

In summary, the experiences and perspectives of healthcare professionals in caring pregnant adolescent women were described as the core theme, ***'recognising the challenges of providing antenatal care for young Thai pregnant women'***. The healthcare professional provided essential details why they thought care for young women was challenging them into the main three themes. The main themes of this chapter were described regarding the Donabedian's model for exploring the quality of care in terms of structure, process, and outcomes. Therefore, the first theme was used to investigate the structure or system of care as 'having an awareness of the political and cultural contexts and environment of care' that healthcare professionals were having difficulty as barriers in caring for young pregnant women. The second theme was 'being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women' was used to assist better understanding of the process of care. This theme was used to describe barriers and impacts from points of views from healthcare professionals. The final theme of 'having different approaches to caring for pregnant adolescents' might help to understand how the care affects to perinatal outcomes amongst pregnant adolescent women. These three main themes of this second phase of the qualitative descriptive study may assist to enhance care for pregnant adolescent women and also improve perinatal outcomes amongst this group of women.

The next chapter will describe experiences and perspectives of the adolescent women.

CHAPTER SEVEN: ADOLESCENT WOMEN'S EXPERIENCES IN RECEIVING GROUP ANTENATAL CARE IN THE TEENAGE PREGNANCY CLINICS IN THAILAND

Introduction

This chapter presents the experiences and perceptions of adolescent participants who had received group antenatal care in the Teenage pregnancy clinics. Thematic analysis (Braun, Clarke & Terry 2012) was used to identify concepts and themes from the data. The Donabedian's structure-process-outcome quality of care model (1988, 2005) was used as a framework for the study. Four main themes emerged: (1) *having access to care*, (2) *feelings about, and perceptions of, the care*, (3) *being a pregnant woman and a mother at school age*, and (4) *having an awareness of the challenges of the transition to motherhood*. These findings may suggest ways to improve maternity care and enhance perinatal outcomes for pregnant adolescent women in Thailand in line with the qualitative core concept of *'having needs as a young mother'*. The relationship between the concept, four main themes, subthemes, and quotes were clarified in the concept map of the study (see section entitled **'the core concept and the themes of the study')**.

This chapter provided a description of participants, a concept map of these adolescent women's experiences and perceptions, a description of the main themes of the study, and a summary of the chapter.

Demographic data

Twenty-two adolescent women who received group antenatal care in the Teenage pregnancy clinics participated in nine group interviews during the first week after the birth of their babies. The participants' age range was from 16-19 years with an average age of 17.6 years. Three of the 22 participants were single mothers. The majority of participants had completed secondary school, with one having only completed primary school. Most of participants in this study were unemployed; only two participants were employed at the time of the group interviews (see **Table 14**).

For most of the participants, this was their first baby, except for one who had just given birth to her second baby. Three women had terminated previous pregnancies. Over 50 percent of participants received care at their first visit when gestational age was 12 weeks or older (see **Table 14**). Adverse perinatal outcomes reported by participants included syphilis, preterm birth, and low birth weight.

Table 14: Adolescent women's demographic data

No	Age	Marital status	Education level	Occupation	Parity	Gestational age at first visit
1	17	Married	Secondary school (grade 8)	Full-time home duty	Primipara	12 weeks
2	17	Single	Secondary school (grade 9)	Full-time home duty	Primipara	8 weeks
3	16	Married	Secondary school (grade 9)	Full-time home duty	Primipara	16 weeks
4	16	Single	Secondary school (grade 9)	Full-time student	Primipara	10 weeks
5	19	Married	Secondary school (grade 9)	Full-time home duty	Primipara	12 weeks
6	18	Married	Vocational college	Full-time home duty	Primipara	10 weeks
7	18	Married	Secondary school (grade 9)	Employed	Primipara	9 weeks
8	16	Married	Secondary school (grade 9)	Full-time student	Primipara	12 weeks
9	18	Married	Secondary school (grade 12)	Full-time student	Primipara	4 weeks
10	18	Married	Primary school (grade 6)	Full-time home duty	Primipara	11 weeks
11	19	Married	Secondary school (grade 12)	Full-time home duty	Primipara	16 weeks
12	18	Married	Vocational college	Full-time student	Primipara	16 weeks

No	Age	Marital status	Education level	Occupation	Parity	Gestational age at first visit
13	17	Married	Secondary school (grade 9)	Full-time student	Primipara Termination one time	12 weeks
14	18	Married	Secondary school (grade 8)	Full-time home duty	Primipara	12 weeks
15	18	Married	Secondary school (grade 12)	Full-time home duty	Primipara	20 weeks
16	16	Married	Secondary school (grade 9)	Full-time home duty	Primipara	12 weeks
17	18	Married	Secondary school (grade 9)	Full-time home duty	Second parity	20 weeks
18	18	Married	Secondary school (grade 9)	Full-time home duty	Primipara	9 weeks
19	17	Married	Vocational college	Full-time home duty	Primipara Termination one time	14 weeks
20	18	Married	Secondary school (grade 9)	Full-time home duty	Primipara	14 weeks
21	19	Married	Secondary school (grade 3)	Employed	Primipara	9 weeks
22	17	Single	Vocational college	Full-time home duty	Primipara	23 weeks

The core concept and the themes of the study

Thematic analysis occurred in six steps, according to the method of Braun and Clarke (Braun & Clarke 2006; Braun, Clarke & Terry 2012). All themes were organised by manual highlighting and then using NVivo 11 (QSR International 2012) to manage and compare data. The main themes and subthemes were developed and analysed thematically from the interviews with women (see Table 15).

Quotations were provided to illustrate the key findings, using a code to protect anonymity. The intention of using a code to represent each adolescent woman's experience rather than using pseudonyms following these two reasons. Firstly, a qualitative descriptive design was used to describe and understand the provision of maternity care provided to pregnant adolescent women in Thailand. The main objective was to better understanding the meaning of the experiences and perspectives of women who received care from the Teenage pregnancy clinics rather than phenomenology study to explore women' life or story. Secondly, this study was approved by two Human Research Ethics Committees, one at UTS and the other in Thailand. The adolescent women were considered as a particularly vulnerable group, so we had to clarify how data would be de-identified and must not be traced back to the women by using a code rather than a name. Therefore, I kept using a code for the women 01 -22 instead of pseudonyms.

Table 15: Example of quotes, initial codes, categorising subthemes and themes from women's experiences

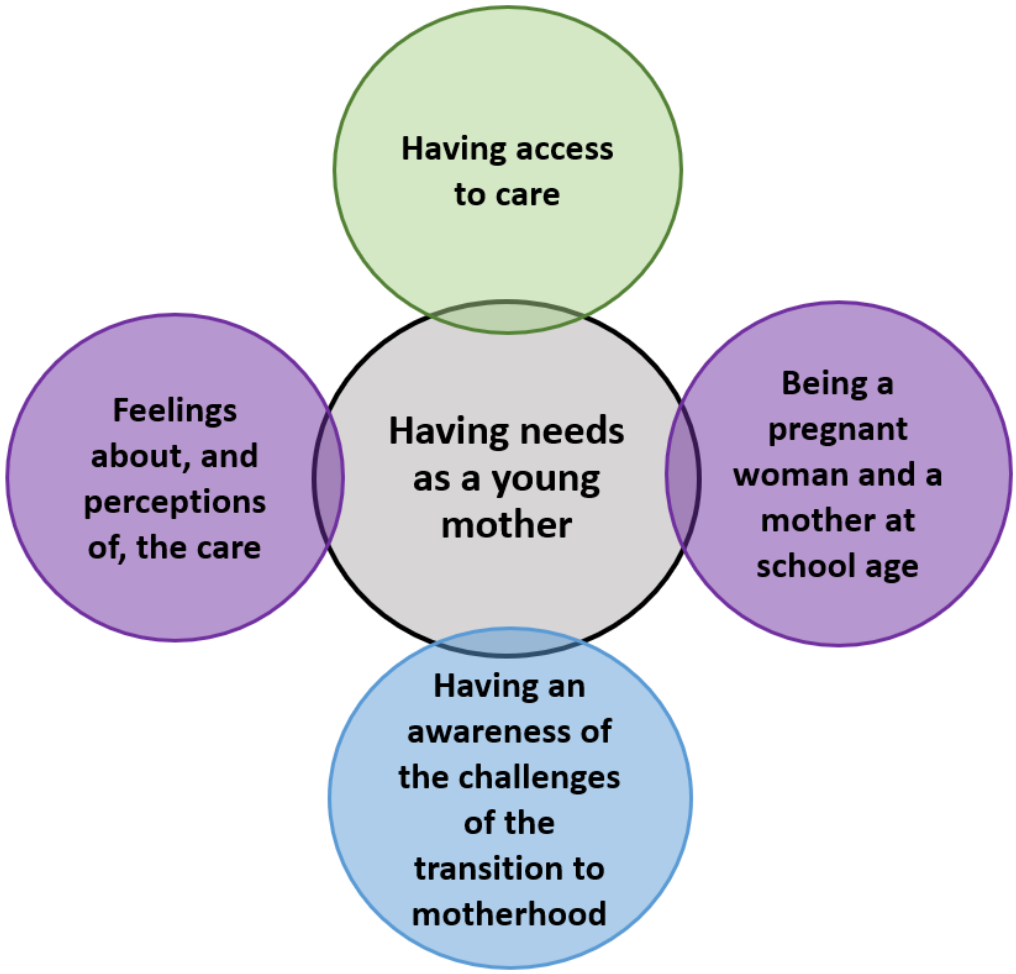
Examples of quotes	Initial codes and categorising subthemes	Main themes
'I have had rights to the "30 Baht treat all" Scheme [Thailand's national universal scheme] *here that entitled me to free antenatal care'.*	- Understanding healthcare rights to access care	**Having access to care**
'When I knew I got pregnant, I searched on the internet because I had never heard of this clinic before. After checking on the internet, I decided to come here because it was convenient to come and good as especially for me'.	- Knowing there is a place for them	
'I was scared to tell her [pregnant adolescent's mother], I got scolded at and told to come for antenatal care immediately*'.*	- Being encouraged to go to antenatal care by parents	
'*She* [nurse and midwife] *acted like a friend who is friendly and gentle. I liked it because it made me feel that we can trust her to tell her about my problem'.*	- Being understood as an adolescent pregnant woman	**Feelings about, and perceptions of, the care**
'I like the style of the group antenatal care. I could gain more experience and learn what to do next. It was like a kind of preparation'.	- Appreciating the style of information sharing	

Examples of quotes	Initial codes and categorising subthemes	Main themes
'Some content in the group antenatal care section was not relevant to me as I didn't have that kind of problem. I felt like why didn't they give me what I needed? I mean I can ask question in the group but I didn't'.	- Having unpleasant aspects of the care	
'*I was scared to ask. I would like to talk to the nurses directly but the nurse kept changing so I did not ask'.*	- Recognising what aspects of care they wanted	
'I felt embarrassed to come for ANC because I know I got pregnant too early…'.	- Feeling shame	**Being a pregnant woman and a mother at school age**
'I have a friend who got an abortion and it seemed scary .I think it would be like destroying someone's life or hurting an innocent baby'.	- Fearing termination of pregnancy	
'I think I'm going to go to a university to study on Sunday in a special program. My mother and boyfriend will help me raising the baby'.	- Considering going back to school after birth	

Examples of quotes	Initial codes and categorising subthemes	Main themes
'I was afraid that I would not be able to raise the baby because I have never done it before and I was studying'. *'My mother was angry in the beginning and then, she said she would help me raise the baby'.*	- Fear about transition into motherhood - Interactions with family about motherhood and childrearing	**Having an awareness of the challenges of the transition to motherhood**

Figure 6 shows the core concept, '**Having needs as a young mother'**. Four main themes emerged. The first main theme was 'having access to care', including three subthemes which were *understanding healthcare rights to access care*, *knowing there is a place for them* and *being encouraged to go to antenatal care by parents*. The second main theme was 'feelings about, and perceptions of, the care', comprising four subthemes which were *being understood as an adolescent pregnant woman*, *appreciating the style of information sharing*, *having unpleasant aspects of the care*, and *recognising what aspects of care they wanted*. The third main theme was 'being a pregnant woman and a mother at school age', including three subthemes, *feeling shame*, *fearing termination of pregnancy* and *considering going back to school after birth*. The final main theme was 'having an awareness of the challenges of the transition to motherhood', including two subthemes, *fear about transition into motherhood* and *interactions with family about motherhood and childrearing*.

Figure 6: Core concept of the main themes: '**Having needs as a young mother'**, using Donabedian's quality of care model (1988, 2005)



Theme 1: Having access to care

In Thailand there are several medical rights provided to women by the health system, including the Thailand's Universal Health Coverage Scheme, Social Security Scheme, and Government Officer Scheme. For this group of women who became pregnant at a young age, having access to financially covered maternity care was important because of their financial disadvantages. Most of the women were unemployed. Their healthcare rights influenced their decisions about where to receive antenatal care. As a result, some chose to access antenatal care at the hospitals studied because they knew, from their friends or family, there were special clinics for pregnant adolescent women. This accessibility formulated the first theme, 'having access to care' which was developed to explore the quality of the structure of care as experienced and perceived by the adolescent women.

This theme explained how the participants experienced maternity care through three subthemes which were *understanding healthcare rights to access care, knowing there is a place for them* and *being encouraged to go to antenatal care by parents*.

Subtheme 1.1: Understanding healthcare rights to access care

The structure of care provided to adolescent women was explored. Within this, the first priority was to know how women accessed maternity care; as one woman said *'Why I came here. Well, I have the medical right to the Universal Health Coverage Scheme here and it is located near to my house* (Woman 14)*'.*

Most adolescent women were full-time students and/or full-time home-makers, so financial difficulties were common. Healthcare rights to the Thailand's Universal Health Coverage Scheme helped them get access to maternity care and influenced why adolescent women accessed antenatal care, as one woman said:

> *I have had rights to the "30 Baht treat all" Scheme* [Thailand's national Universal scheme] *here that entitled me to free antenatal care* (Woman 03).

> *… I came here because I have the right to Universal Health Coverage here…* (Woman 11).

Almost all adolescent women had access to free care under the Universal Health Coverage. Only two women were employed and therefore received rights to access healthcare through a health insurance scheme called the Social Security Scheme. This is an employer contribution scheme that covered women aged 18 years and over who were employed. This scheme was not available to women aged younger than 18 years, hence the majority used the Thailand's National Universal Scheme. The Social Security Scheme provided access to healthcare for people who are employed by the private sectors or companies after working in those companies for at least five months. The Social Security Scheme contribution for pregnant women must be paid for at least five months before giving birth to protect the employer's rights in their responsibility when employing a woman. However, this right raised anxiety in one woman who was working in a small shop. Her risk of preterm birth might have made her ineligible for health insurance. She said:

> *When I knew that I got pregnant I was also stressed because I have worked as a leader at a 7-11 store* [a small shop] *and I have just had the Social Security Scheme*. *I could not sleep well then. I was stressed about work and Health insurance. I was sent by the nurses in the antenatal care to talk to a social worker who was nice. The social worker advised me that if I had a preterm delivery before 5 months, it would cancel my rights to the Social Security scheme. If it was over 5 months, I could use this health insurance for medical treatment* (Woman 07).

Some women had financial support from their family. They chose to go to antenatal care services that were convenient to them, because they were less reliant on external funds. Women said that healthcare services close to their house were the most convenient place for them to receive their antenatal care, as the following woman mentioned:

I came to receive antenatal care here because it is located near to my house (Woman 21).

The healthcare systems in Thailand gave young women with a high incidence of financial disadvantage access to free antenatal care.

Subtheme 1.2: Knowing there is a place for them

In the previous subtheme, financial support had a significant impact for pregnant adolescent women to able to access antenatal care. In addition, physical access to care was represented under the subtheme of *knowing there is a place for them*. Some women sought antenatal care in the study hospitals because they knew there were specialist Teenage pregnancy clinics. The antenatal care services were sought out by these women and influenced their decision of where to receive care. As women expressed:

When I knew I got pregnant, I searched on the internet because I had never heard of this clinic [Teenage pregnancy clinic] *before. After checking on the internet, I decided to come* (Woman 19).

I came here because I knew there was a clinic for teen mum. The service [Teenage pregnancy clinic] *was good and nurses paid good attention to me. There was teenage mother's clinic for Thursday* [specific day for pregnant adolescent women] (Woman 12).

These clinics made the services highly acceptable to adolescent women. Furthermore, the reputation of providers or institutions also influenced women's decision to access care. As women said:

Actually, why did I come here? I came here because I think that this hospital is more reliable than others. At first, I went to another one [another healthcare service] *nearby my place but the healthcare providers didn't take a good care of me. So, I changed to come here instead* (Woman 15).

> *There were many people saying that it was good here* [Teenage pregnancy clinic] *because they* [healthcare professionals] *provided a lot of knowledge and good service. So that why I came here* (Woman 18).

Most participants became pregnant when they were studying. Some women made a choice to go to antenatal care because of their friends' recommendations and experiences in receiving care. For example:

> *A friend of mine said it was good here* [Teenage pregnancy clinic]*. She came to give birth here last year* (Woman 22).

> *My friend recommended me to come here because her sister gave birth here and said the caring* [Teenage pregnancy clinic] *here was good so she recommended me* (Woman 03)*.*

One woman came for antenatal care because of her neighbour's recommendation: *'I came here* [Teenage pregnancy clinic] *as my neighbour told me that the service was really good here'* (Woman 04).

In the Thai context, familiarity with the place influenced the pregnant adolescent women's decisions to access care. This familiarity usually came from their family healthcare experience. When they felt familiar with the service, this intimacy led them to select where they could receive antenatal care, as women mentioned:

> *Well, normally when I get sick me and my family always come here. I felt safe to come here. I was born here* (Woman 03).

> *My family are familiar with this place. When I had Dengue fever, I stayed at this hospital. Also, I came to receive antenatal care here because it is located near to my house* (Woman 21).

Specialist clinics, reputation of providers, friend and family recommendations led the adolescent women to know that there was a place for them for their pregnancy care.

Subtheme 1.3: Being encouraged to go to antenatal care by parents

In Thailand, the tradition is that most people live with their parents and grandparents, in an extended family. Therefore, some pregnant adolescent women were influenced strongly by their parents in their decisions around antenatal care. Even though most women were initially afraid to tell their parents about their pregnancies, they often found them to be supportive after revealing that they were pregnant. When they decided to disclose their pregnancies, their parents pushed them to come for antenatal care, as these women said:

> *I was so scared, I told my mother first. She was shocked. Finally, they did not make me have abortion* (Woman 10).

> *They* [the parents] *were kind of shocked because they had some expectations on me who is the only one child. However, they told me to have ANC* [antenatal care] *as soon as possible* (Woman 13).

> *It was about 3-4 months. I did not come for ANC* [antenatal care] *…until I told my family then I decided to have ANC* (Woman 11).

However, some women were reluctant to tell their parents about their pregnancies, as one woman said '*…I came for antenatal care quite late, at about 4 months pregnant because I still had a problem at home… I did not dare to let my parents know early…* (Woman 11)*'*. This reluctance and fear of difficulties with their parents were some of the reasons why some pregnant adolescent women came to antenatal care late.

Parental consent for care was required for women aged younger than 18 years. Women tried to initially hide their pregnancies from their parents as when under 18 years of age, their parent or guardian needed to accompany them to provide consent prior to

antenatal care. This rule made participants feel uncomfortable, as this woman explained.

> *…At first, I was scared because I was only 16 years old. The nurse asked me to bring my mother but I did not want to tell her. The nurse said I must do it. My mother was angry in the beginning and then, she said she would help me raise the baby and told me to go back to school* (Woman 04).

Whilst close family ties can support the pregnant adolescent women there are still concerns about telling parents. Mandatory parental involvement for women less than 18 years of age can sometimes result in delays in presentations for care.

Summary of the first main theme, 'having access to care'

Understanding healthcare rights to access care, knowing there is a place for them and *being encouraged to go to antenatal care by parents* were the key components to this theme: 'having access to care'. Most pregnant adolescent women were unemployed, and were financially disadvantaged. Even for the two participants who were employed, economic issues were still a concern as wages were low. However, the healthcare system of Thailand's Universal Coverage Scheme and the Social Security Scheme helped all participants to access care at no cost. Fortunately, most pregnant adolescent women were part of an extended family, so they could get support and rely on their families when they could not earn enough money for themselves. Even though it was hard for these women to disclose their pregnancies, they found they could get financial support and guidance as to where to receive maternity care and how to raise their child. Access to healthcare services was seen in terms of availability and convenience, familiarity, and peer recommendation of the care amongst pregnant adolescent women in the Thai context.

Theme 2: Feelings about, and perceptions of, the care

The process of care was the second component of the analysis used to explore group antenatal care for pregnant adolescent women. The technical interventions of antenatal

care, the interactions between healthcare professionals and women and interpersonal relations were evaluated to describe the process of care from participants' perspectives. All these women received group antenatal care during their pregnancies. However, a few of them were also allocated to individual care because they had some specific issues that required this. In this second main theme, 'feelings about, and perceptions of, the care' there included four subthemes: *being understood as an adolescent pregnant woman*, *appreciating the style of information sharing, having unpleasant aspects of the care* and *recognising what aspects of care they wanted*.

Subtheme 2.1: Being understood as an adolescent pregnant woman

The care in the Teenage pregnancy clinic was a recognition of the need to be accepted as an adolescent pregnant woman by healthcare professionals, having friendly service and not being alone in getting pregnant at an early age. For example:

> *I felt embarrassed to come for ANC* [antenatal care] *because I knew I got pregnant too early. I still do not have a job. They* [nurses and midwives] *didn't mention that I got pregnant early, so I felt better* (Woman 11).

Most of the women were afraid they would be blamed by healthcare professionals for getting pregnant at a young age. The majority had never used any contraceptives and had an unintended pregnancy. Some women realised they were not ready to be a mother as they were studying and were not married, as one woman mentioned: '*…When I came here the first time, I was afraid because I am young and I might be scolded…'* (Woman 15). The questioning about why they became pregnant made women feel they were judged by healthcare professionals. Avoiding a judgemental attitude was often seen as important in the delivery of care to women in this study. One woman who had her first baby stated:

> *If they* [healthcare professionals] *asked me why I got pregnant so early, or why I didn't use birth control, I would feel they thought I shouldn't get pregnant at such a young age (*Woman 06).

Most of the women described group antenatal care of the Teenage pregnancy clinic as a friendly service that was specialised for the needs of pregnant adolescent women. The friendly service made these women feel a sense of trust to disclose their problem and talk to nurses and midwives as expressed here:

> *She* [nurse and midwife] *acted like a friend who is friendly and gentle. I liked it because it made me feel that we can trust her to tell her about my problem. Friendly talk which does not make me stressed like no question of why I got pregnant'* (Woman 05).

> *I like that they provided good advice, support, and friendliness. I felt comfortable to have ANC* [antenatal care] *there. It made me relieved* (Woman 16).

In the Thai context, providing care to clients was seen as a healthcare professional role. Providers were usually a doctor, a nurse, midwife, or a counsellor. The hierarchical communication between providers and women was stated by one woman:

> *The nurses* and midwives *also talked nicely, laughing along, being friendly, and referring to themselves as sisters* [to possibly reduce the gap or hierarchy between their roles. In this context, 'sisters' referred to all nurses and midwives]*, which was nice. It seemed like they accepted and understood that we were already pregnant so they helped by giving some advice for mother and child to be safe* (Woman 06).

Subtheme 2.2: Appreciating the style of information sharing

In group antenatal care, pregnant adolescent women shared and learnt from the experiences of others. Some women did not know whether some symptoms they experienced were normal or needed to be treated; the groups alleviated their fears. These women highlighted:

Some people had experience of being pregnant so they shared this with us. Some people talked about different symptoms to what I was having but I did not know what they were and could learn from here [group antenatal care] *such as frequent urination…* (Woman 07).

I think group antenatal care class was good also that we could hear other people's experiences (Woman 08).

It was really helpful to exchange ideas and experiences. …This way, *I could gain variety of ideas* (Woman 20).

Sharing feelings and experiences and not feeling alone were key experiences to overcome shame when they came for their antenatal care. For example:

We are adolescents so we can understand each other well. When we came for antenatal care, we were not alone because there were pregnant women who were younger than me (Woman 05).

I like group antenatal classes because I could meet people of the same age coming for antenatal care on the same day. It means that not only me who got pregnant. Other girls were even younger than me and came with their mothers every time (Woman 08).

Some women liked that the clinic provided care only for adolescent women because they found friends their own age who were also pregnant. Women felt they were not alone in getting pregnant at a young age. One woman said that:

They [nurses and midwives] *were kind and talked to me nicely. I came on Thursday so there were other adolescents. I was not the only person who got pregnant at a young age. I like that the clinic has been separated for only adolescents. It is good to have only adolescents, I have friends* (Woman 11).

Some women liked group antenatal care because they thought it was fun to attend the clinics with others who were the same age. Some women explained:

> *I thought it was fun . There were many friends who were the same age as me* (Woman 02).

> *It was fun to attend teenager's class* (Woman 01).

Women highlighted that they felt that the healthcare professionals were helping them to look after themselves to prevent complications during pregnancy, such as having a preterm birth, a low birth weight baby or anaemia. Women said that the healthcare professionals gave information about common complications during pregnancy that might affect their babies. This involved taking them on a tour of the nursery to see preterm babies and low birth weight babies. For instance:

> *I like the style of the group antenatal care classes because I could gain more experience and learn what to do next. It was like a kind of preparation. The nurse* [or midwife] *taught and demonstrated child carrying and breastfeeding so I learned how to carry a baby* (Woman 02).

> *We shared our experience in the group antenatal care classes. The nurse* [or midwife] *allowed us to ask questions and I answered sometimes. The topics were blood test results, prevention of preterm birth, breastfeeding, child caring, and delivery room and nursery tours too. The nurse* [nurse and midwife] *took us to see the preterm babies. I was afraid that my baby would be like that so I tried to take care of myself* (Woman 08).

Most of the women highlighted that they liked the session about how to take care of their babies. They liked to learn how to hold and breastfeed their baby, as these women explained:

> *The nurse taught and demonstrated child carrying and breastfeeding so I learned how to carry a baby in a group antenatal care session. I liked this session* (Woman 01).

> *They* [nurses and midwives] *understand that because we are young so we don't know how to do things. For example, I didn't know how to feed my baby [breastfeeding] but the nurse didn't get angry but talking and explaining nicely in a group session* (Woman 05).

Enjoying the shared experiences in the Teenage pregnancy clinics made women feel less isolated and buoyed up by their peers.

Subtheme 2.3: Having unpleasant aspects of the care

In the sections above, there was a lot of discussion about the positive aspects of the group antenatal care in clinics. However, undesirable aspects of this current practice were also reported, including stressful issues, inadequate interactions between providers and women, not belonging to the group antenatal care, a lack of privacy, and unpleasant communication.

The main goal of providing group antenatal care was to enable pregnant adolescent women to have good perinatal outcomes and minimise pregnancy complications. Pregnancy complications were common amongst pregnant adolescent women, so the antenatal care provided by healthcare professionals mainly focused on the prevention of those complications. This approach made some pregnant adolescent women feel stressed when their risk factors were emphasised. Coping with stressful issues was another issue that was raised by some women. For example:

> *They* [nurses and midwives] *seemed to understand adolescent women that we were not ready but they still tried to give us information. They were worried that we might have preterm birth and low birth weight, so they emphasized them* (Woman 05).

There were other instances when women in these group antenatal care felt stressed. These occurred when the healthcare professionals used a didactic approach to providing health advice, telling the women how to prevent pregnancy complications. For example, some women were under-weight throughout their pregnancy and often felt like they were being told what to do. This made them stressed and they found it unhelpful. One woman said:

> *The nurses and midwives asked if I took the medicine and ate properly. I did but the weight just did not go up. They asked me this quite often. I tried but the weight did not increase and I got stressed. When they asked too often, I became stressed. I ate but the weight did not go up then. There were many times when the consultation was about weight gain. I was worried that they would complain about it again the next appointment* (Woman 01).

Women stated that they would have liked shorter sessions in the group antenatal care. This could have been because there was a lack of meaningful interaction with the healthcare professionals due to the didactic approach of teaching. It was apparent that not all healthcare professionals were able to engage the women as a result of their communication style. The women felt they were just being given information by healthcare professionals with a lack of discussion or sharing. Examples of this include:

> *Usually, it took about one hour or more for one section. I think it was too long. It should be about half an hour for each section so that I wouldn't get sleepy. The content should be concise and brief* (Woman 05).

> *When I attended group antenatal care, I just listened and did not remember much* (Woman 14).

Poor learning opportunities in the group antenatal care session occurred when some women were felt to dominate the session by asking a lot of questions and some women

were quieter and did not participate, share their stories or ask questions, as these women explained:

> *Some people* [pregnant adolescent women] *asked many questions and the nurse* [nurse and midwife] *had to answer them. I felt like I was just listening and not gaining anything much* (Woman 19).

> *It was like everyone was trying to get advice. It was a big group* [normally around 10 women or over]*, so people had many issues to ask* (Woman 12).

In group antenatal care, some women felt that they did not belong in the group as the issues discussed were not relevant to them. Again, the communication style and information sharing approach from the healthcare professionals may have been the cause of this lack of engagement. One woman said:

> *'Some content in the group antenatal care section was not relevant to me as I didn't have that kind of problem. I felt like why didn't they give me what I needed? I mean I can ask question in the group but I didn't do'* (Woman 17).

With regards to the group antenatal care, some women thought a few topics in the group antenatal care were not relevant to them, for example, prevention of preterm birth/low birth weight as some women did not feel they had the risk factors for those complications. Providing group antenatal care in this context meant all pregnant adolescent women received a group care approach which did not allow each woman to address their needs. As a result, women thought it would be better to provide individual care which was more specific to each individual woman, suggesting that:

> *…Well, I would prefer individual care because in the group classes, the problems taught did not happen to me. I thought I can take care of myself and I had to work so individual support might be better to address the problem directly* (Woman 22).

A lack of privacy was another issue that caused women distress when they received group antenatal care. Some women felt shy to talk or cry in the front of others and others felt ashamed to explain their problems in the group setting and did not like to ask a questions during the group classes. The lack of privacy and one-to-one interactions with healthcare professionals was highlighted by most of the women receiving antenatal care. For example:

> *I preferred to talk individually with the nurse because there was no one else. I needed the privacy because I did not like to talk about my problem to others in the group antenatal care classes* (Woman 16).

> *…For me, I was stressed and easily cried. I wanted to release my misery by telling someone who understands me. When I did the stress evaluation, the score was high, so they made me see a counsellor. I saw the counsellor for a short time. I did not want to tell my problem in the group classes. It was the same. It was stressful. I had a fight with my husband* (Woman 21).

Some women felt that they experienced unpleasant interactions with healthcare professionals, as these two explained: *'Some nurses upset me. They did not talk nicely to me, but I did not care. I did not want to talk to the doctor after seeing how the nurses were. On first impression, I did not want to talk to them. I got pregnant but I did not plan to have a baby. What can I do? I was already pregnant. So I just kept calm'* (Woman 09) and *'At the beginning, I was confused. I thought that it would have been better if the nurse told us about procedures so that I would not have been scared'* (Woman 03).

Some women, when they came for their antenatal care, they felt they were reprimanded for being pregnant. This woman acknowledged: '*…I think it should be that the nurses* [nurses and midwives] *talk nicely and were not blaming. At first, I was afraid to be scolded at for not taking contraception. Actually, I did but I just forgot to take the contraceptive pills and got pregnant again'* (Woman 18).

Subtheme 2.4: Recognising what aspects of care they wanted

This subtheme, *recognising what aspects of care they wanted* identified some unmet needs that further explored the women's experience of the group antenatal care in the clinics. The women's needs included getting to know, and being known by, providers, being valued and remembered, requiring individual care in particular for emotional care and high-risk pregnancy, and having the need for home visits. These are described in detail below.

During antenatal care, knowing their healthcare professionals was very important to these women. Most women liked to talk to, and receive care from, the provider whom they had met regularly and got to know. Some indicated that by having care from the same provider might have helped them to solve their problems more directly and easily. The familiarity with carers was very influential in ensuring adolescent women accepted and were satisfied with their maternity care. This woman stated:

> *I would talk to the nurse I met regularly because she* [nurse and midwife] *remembered me and always asked me about my conditions and remembered my name. Friendly talk which did not make me stressed, like no question about why I got pregnant* (Woman 04).

The interactions between providers and women became an importance aspect to help women feel satisfied with their care and build trust with the providers, as this woman expressed:

> *The nurse and midwife acted like a friend who was friendly and gentle. I like it because it makes me feel that we can trust her to tell her about my problem* (Woman 05).

Having conversations with providers was another aspect of care that they needed, as this woman highlighted: *'Sometimes, they called me by my nickname or mother or full name but their words were nice so I was not scared, and came for ANC* [antenatal care]

appointments always. Some nurse can remember my name and she talked to me every time I saw her. She was really nice to me' (Woman 07).

Providing continuity of carers could help these adolescent women easily disclose their problems and receive advice. Adolescent women believed if they had a problem or question, they could receive care regarding their concerns, as this woman stated: '*If I have a problem or question, I can tell the nurse directly and get advice closely. I just wanted to talk to them who I felt familiar with. I think it will be nice if I can talk to and receive care from the same nurse every time I come for ANC* [antenatal care]' (Woman 10).

Some women did not feel comfortable asking questions to unfamiliar providers. One woman expressed: '*I was scared to ask. I would like to talk to the nurses directly but the nurse kept changing so I did not ask'* (Woman 01).

Familiarity through meeting the same providers was also likely to build trust between healthcare professionals and women. When women developed trust in providers through receiving care from the same nurse and midwife, this made them feel comfortable to articulate their problems. As one woman highlighted: *'I would like to get more individual talk from the same nurse. She will know everything about me and make me want to talk to her more. Sometimes, I would like the same nurse to care for me in the same way that I received examination from the doctor. We had different problems'* (Woman 01).

For these women, having a good relationship, feeling understood and valued by them as pregnant women, were crucial. Some women expressed experiences of feeling valued and being remembered when receiving care within the group antenatal care, for example: '*I felt good that they can remember me. It made me feel like we were familiar with each other and that they cared about us* (Woman 04)'.

It was clear that women needed the providers to understand them and value them as being a pregnant woman and a mother – and not to be judged as a young woman who 'should not be pregnant in the first place'. Not feeling judged or blamed for being pregnant was important to adolescent women. Women appreciated the providers when they did not feel judged for being pregnant. This was apparent when some providers used appropriate communication skills in providing care, making them feel accepted and understood. The women explained:

> *They seemed to place high value on us. I think we had different problems. For example, I did not think that food was a problem for me so I did not want to listen about it many times because I also worked during pregnancy. I think it will be better to talk individually and get to the point* (Woman 05).

> *It was good. The nurse talked gently without blaming me at all and gave good advice in a kindly manner* (Woman 07).

Being understood by providers throughout the pregnancy was likely to support the relationships between providers and women. Women thought that the providers who were familiar with them understood their conditions better. As one said: '*I think a nurse and midwife who I feel familiar with and who knows about my condition should understand me better and be able to give advice more'* (Woman 04). Some women thought if they could receive individual care and contact from the known carer/provider, that the carer/provider would better understand their problems and address those problems directly, as these women stated:

> *I wanted to release my misery by telling someone who understands me and is familiar with me…I wanted to do that every time I came for ANC…* (Woman 21).

> *Well, the problems taught did not happen to me, so individual support might be better to address the problem directly* (Woman 22).

Emotional and psychological issues were common amongst these women who felt that these need consideration and attention. Some women had family problems and/or problems with their partners. Most of the women said that they needed the healthcare professionals to talk and listen to them and they preferred to talk to those they had seen often. Some had relationship issues with their partners and needed support. In this study, all women said that they were sent to meet a counsellor when the nurse found a high stress score using a non-specific anxiety tool. However, screening for depression does not currently occur in these hospitals. The health care professionals also seemed to lack the skills to deal with emotional and psychological issues. The psychological problems were varied, as the women explained:

> *I was afraid to hear that getting pregnant without readiness would be a burden to my parents. However, I did not think about having an abortion. I was scared to do it. If I had it done and people found out, I would be condemned* (Woman 04).

> *My boyfriend has not been helping at all and he does not get along well with my mother. My problem is chronic. I was stressed and cried easily. At that time, my weight didn't increase, I couldn't eat much, so they made me attend parent's school to learn about food intake. My mood was really bad. I didn't know what to do* (Woman 21).

In healthcare services, providing group antenatal care in Teenage pregnancy clinics was common in the Thai context. However, one 19 year old woman disagreed with having a separate clinic only for pregnant adolescent women. She thought it would be good to learn from older pregnant women who had more experience than the younger age group. She did not want providers to label her as an adolescent mother who might not be ready to become a mother because she felt she was ready for that. She said:

> *I didn't like that the clinic was separated for only young pregnant women. If there are only young people, they don't have a lot of knowledge. If there are older*

people too, we can gain more knowledge. People who have been pregnant once or twice may have a lot of ideas and experiences (Woman 20).

The Teenage pregnancy clinic provided regular antenatal care sessions for women on specific days. The specific day meant these women sometimes had to spend the whole day receiving antenatal care and waiting between appointments. In some cases, pregnant adolescent women had to attend their check up from the obstetrician in the morning and then wait to attend group antenatal care in the afternoon. Some women thought there was too much waiting time with some having to go to work on the day of the antenatal visit. Women felt the clinic should be more flexible and suitable for them, for example:

I was still working, not yet taking maternity leave. I worked at a Seven-Eleven store. Sometimes, I was busy. The group antenatal class should be earlier. The waiting time between check up from the doctor and the group antenatal care class was long because we had to wait for other people too. Coming for an appointment took the whole day (Woman 05).

Some women had a number of psychological and physical issues. For example, one woman lost her partner during her second trimester of pregnancy. She was admitted to hospital once for preterm labour. Finally, her baby was born with low birth weight (2350 grams). During the time of the group interview, she said she mostly received individual care during her pregnancy due to her risk factors. She thought it was good for her as she felt her problems were different from others and more severe. Providing individual care had meant to her receiving care directly related to her specific problems as she expressed:

I was admitted once at the hospital because I had preterm labour. I didn't know what I should do next. The nurse [or midwife] *was lovely. I had met her every appointment. She knew everything about me. She paid attention to me because she said I had the risk of preterm labour* (Woman 01).

Most women stated that they needed support to empower and motivate them to cope with their new role as a mother and returning to school. They felt they had no experience and were not ready to transition to motherhood, needing someone to tell them they could be a good mother. These women mentioned:

> *I was afraid because I could not support myself but I also have to raise my child. I was afraid that my child would not have a good future. However, after having antenatal care for many times, my feelings have changed to be more positive. I learned how to raise a baby, which made me now feel that my child will have a good future* (Woman 04).

> *I had to drop* [out of] *school until giving birth. I wasn't sure about my study plan. They also encouraged me to go back to school. I think I might go back to finish Vocational Certificate 2 because my mother will help me to look after my baby when I go back to school* (Woman 10).

A lack of home visits was another issue that was raised by some women. Women stated that they needed to be followed up by nurses and midwives after birth as they felt it would help them when they had any problems, in particular, with childrearing, such as, breastfeeding and emotional issues. The women who had just had their first baby said that they did not have confidence in caring for their baby, and that home visits might increase their confidence. The women highlighted:

> *For another thing, I would like the nurse* [or midwife] *to guide me in planning about my future to go back to study and raising the baby. I think it will be nice if the nurse visits me at home. I mean I can ask the nurse directly when she comes to visit me* (Woman 04).

> *I would like them to visit me at home often after giving birth as I do not know what I can do; I am still emotionally sensitive, I cry easily. I like to release my frustration and get some advice* (Woman 21).

Breastfeeding and raising a child were difficult issues that some pregnant adolescent women still needed help with from nurses and midwives when they were discharged from hospital. Some women wanted home visits to assist them in dealing with practical issues once they were home especially breastfeeding and emotional support. For most women, this was their first pregnancy, and they needed more guidance in caring for their baby. For example:

> *The nurse emphasized breastfeeding the baby. I would like them to visit me at home as I think breastfeeding and raising my baby is really difficult. Well, I need someone* [nurse and midwife] to *come and tell me whether I am doing well or not* (Woman 20).

> *I will raise the baby and get some part time job because only my boyfriend working will not be enough. If I have a chance, I will return to school. I think if they can visit me at home regularly like once a month, it will be good for teen mum (Woman 07).*

Some women had pregnancy complications as well as family issues, so they needed extra emotional care and wanted this to continue after giving birth. The need for home visits was highlighted here: *'I would like to get home visits so that they* [nurses and midwives] *can keep looking after me as I told you my problem is chronic'* (Woman 21).

Summary of the second main theme, 'feelings about, and perceptions of, the care'

The quality of maternity care was described as the second main theme, 'feelings about, and perceptions of, the care', from the women who had received antenatal care in the Teenage pregnancy clinics. This main theme explained positive aspects of, and attitudes to, the care. Women were mostly satisfied with the group antenatal care provided on a specific day, saying it was a friendly service in which they could share experiences and not feel alone. However, some negative experiences were also uncovered, such as problems with the didactic approach from healthcare providers, a lack of privacy, a lack

of interaction with healthcare professionals, feelings of not belonging, a lack of engagement with the group antenatal care process and unpleasant communication.

Women also recognised the aspects of care they wanted from healthcare providers, such as individual continuity of care and carer and home visits. These findings may help to formulate more effective care for pregnant adolescent women. Implementing individual continuity of care and carer may improve the interactions and interpersonal relations between healthcare providers and pregnant adolescent women, resulting in increased effective communication and support for women. It was important for women to be familiar with the carers. Feeling valued and remembered by them facilitated engagement and trust; they felt they were not being judged and were finally being understood. The final issue was that home visits were important to new adolescent mothers to help and support them in childrearing, especially breastfeeding, bathing the baby, and supporting them in emotional issues after giving birth.

Theme 3: Being a pregnant woman and a mother at school age

In the previous section, the second main theme, 'feelings about, and perceptions of, the care', was used to describe the process of care that was provided to participants and identified other aspects of care the women needed. In this section, the third main theme, 'being a pregnant woman and a mother at school age' came from the data about women's feelings, experiences and needs and highlighted some issues that healthcare providers could improve in their care. It also identified several difficulties that women had in navigating their new role in life and how this may impact on improving perinatal outcomes amongst pregnant adolescent women.

This theme, 'being a pregnant woman and a mother at school age', included three subthemes which were *feeling shame, fearing termination of pregnancy* and *considering going back to school after birth*.

Subtheme 3.1: Feeling shame

Most women were studying when they became pregnant. They did not have a job and experienced insufficient financial support. These factors made them feel shame in relation to their pregnancy. They thought people around them might think they might not be able to raise a child as they were young and did not have the capacity to be a mother. Some women stated:

> *I felt embarrassed to come for ANC* [antenatal care] *because I know I got pregnant too early. I still do not have a job. People think I might not be able to raise a child as I am a teen mum* (Woman 11).

> *When I knew that I was pregnant, I was scared and afraid because I was studying and I did not know what to do. I was worried about my study because I had just graduated from Secondary School* [Grade 9] *and was going to apply to study in another school. After giving birth, I am planning to go back to study* (Woman 01).

> *I was a little afraid because I was young so people might wonder why I got pregnant early and whether I had been pregnant before getting married or if I was a single mum. I was worried about that. I was afraid that other people might think that I had a baby before having enough money to support my baby and that I would not be able to do it* (Woman 22).

Most of the women were scared to tell their parents about their pregnancies as they felt that they were too young and had not intended to become pregnant. Generally, parents in Thailand have an expectation that young women would get a higher education before getting married and beginning a family. When these women told their parents about their pregnancies, the parents usually sent them to have antenatal care, not to have a termination of pregnancy. This level of support from the extended family is reasonably common in Thailand. Women expressed:

> *They* [my parents] *were kind of shocked because they had some expectations of me as the only one child. However, they told me to have ANC* [antenatal care] *as soon as possible* (Woman 13).

> *I was scared to tell my parents and grandmother because I was not yet married to my boyfriend. I was afraid that they would blame me for letting myself get pregnant* (Woman 06).

> *I felt like I was gazed at because I got pregnant while studying. I remember that I was very embarrassed. I came here with my mother so I felt sorry for her that she had to feel embarrassed too. I felt ashamed but I did not know what to do* (Woman 10).

These women had a fear of telling parents and family about their pregnancy but they often received more support than they expected. For example: '*I was scared to tell my family. Later, when I told them, I got scolded and they complained a little bit but they said they would help raising the baby'* (Woman 09).

In Thailand, an extended family is still found in urban and rural areas. When adolescent women had babies, they usually received support from not only their parents but also their siblings, as this woman mentioned: '*I was worried at the beginning that I would not be able to raise the baby because I have never done it before and I was studying. However, after giving birth, there are my mother and brother to help me raise the child'* (Woman 12).

Subtheme 3.2: Fearing termination of pregnancy

Even though the pregnancies were unintended, most never considered terminating them. Women had a fear of terminations, because they were seen as unacceptable and because there are restrictions to access them legally. The fear of terminating the pregnancy pushed them into accepting that they would become a mother. Termination of pregnancy is a very delicate issue in Thailand because the main religion is Buddhism.

As a conservative Buddhist society they had a negative view of women who had an abortion. Women explained:

> *I did not take birth control. I did not think that I would get pregnant. However, I did not intend to get pregnant but I dare not get abortion. I was afraid as it is a Buddhist sin* (Woman 01).

> *I have a friend who got an abortion and it seemed scary. I think it would be like destroying someone's life or hurting an innocent baby* (Woman 10).

Subtheme 3.3: Considering going back to school after birth

As mentioned earlier, most of the women became pregnant during their schooling. The issue of *considering going back to school after birth* was worked out once the baby was born. It was hoped that family support enabled the adolescent women to go back to school. These women said:

> *At first, I want to study on Saturday-Sunday in a special program but my mother told me to take a full-time course, and she will raise the baby. Therefore, I will take a full-time course. My mother will look after my baby when I have to go to school* (Woman 13).

> *I think I will because my mother wants me to go back to study. I think I'm going to go to a university to study on Sunday in a special program. My mother and boyfriend will help me raising the baby. My boyfriend is already working* (Woman 11).

> *It was not fun but stressful to get pregnant early. In my opinion, I was not ready in many ways. However, I'm not stressed now because my family takes good care of me. I want to go back to study on Sunday, just 1 day per week. I can have time to raise my baby and ask my mother to help* (Woman 14).

However, some adolescent women considered raising their baby by themselves first before going back to school later, as one woman stated: *'After my baby grows up more, I will ask my family to help to take care and I will continue to study higher vocational certificate because it is also open on Sunday'* (Woman 19).

Summary of the third main theme, 'being a pregnant woman and a mother at school age'

'Being a pregnant woman and a mother at school age' was an important issue that influenced how women experienced their new role. Most of the women realised that having a baby at a young age would elicit overwhelming feelings. Some women expressed feeling ashamed at becoming pregnant when they were not ready to begin this journey. It was difficult for them to disclose their pregnancies to their parents, as they knew their parents would not want this to happen to them. As well as this, a termination of pregnancy was not acceptable in Thailand as in their Buddhist religion this was sinful. Therefore, being a pregnant woman and a mother at a young age was a critical situation for the young women and their family.

Theme 4: Having an awareness of the challenges of the transition to motherhood

The women in this study were aware that becoming a mother at their young age was a difficult task. This final theme, 'having an awareness of the challenges of the transition to motherhood', addressed the challenges faced by these adolescent women. This final theme included two subthemes which were the *fear about transition into motherhood* and the *interactions with family about motherhood and childrearing*. Exploration of this theme was used to better understand the way in which women coped with their critical roles as a mother and how the care they received supported them.

Subtheme 4.1: Fear about transition into motherhood

The fear about transition to motherhood was the first subtheme in 'having an awareness of the challenges of the transition to motherhood'. Their fear about transition to

motherhood increased over the course of the pregnancy. Most of the women became stressed as they realised what a challenging role it would be for them. Some also mentioned they were concerned about their baby's future as they did not want them to be like them; for example,

> *I know I am a teen mum. I don't want my baby to face the same problem of early pregnancy like me. I know how hard it is and no one wants a girl to get pregnant so early* (Woman 17).

Being pregnant at such a young age also taught women about the importance of contraception. These issues were explained with further quotes in this subtheme.

Most of the women did not want to terminate their pregnancies, being fearful of the consequence of such a sin (as known as 'Bap' in Thai), as mentioned earlier. However, most women were still not ready and confident to raise their baby as a participant said: *'I didn't want to do it* [termination of pregnancy]*, but I also didn't know what to do. How could I raise a child? I wasn't ready'* (Woman 21).

Having decided to continue their pregnancies, uncertainty and ambivalence prevailed. They still thought they should not be pregnant at such a young age, without enough financial support or education. Women expressed:

> *I was confused if I was ready or not ready. I was nervous and afraid that I would not be able to raise the child. I partly wanted to because I had just got married and then got pregnant. To think again, I was worried if I could raise the child because I was still young so I would better not have a baby. We should be ready, and I was worried too much during pregnancy. It is a baby, so I am not sure if I can raise the baby or not, so I am still scared* (Woman 09).

> *I was kind of glad to have a baby because I got a boyfriend. However, I am not working so I am afraid that I am not good enough and I am not ready. My age is*

not good enough to have a baby. Actually, it should be fine to have a baby, but I do not have a job, and my education has not gone so far (Woman 12).

However, their anxieties about transitioning to motherhood were eased when they felt fetal movements and whilst all pregnant adolescent women in this study believed it was not a natural role to become a mother at a young age, some expressed the feeling of happiness when they first heard their babies' heart sounds. This helped these women to cope with uncertainty and ambivalence of becoming a mother, for example:

I felt most impressed when I heard my baby's heart sound. Actually, I felt this was a real life inside my body (Woman 10).

When I was newly pregnant, I was stressed out about many things, but now I am not stressed anymore because I have a baby (Woman 06).

Some women began to anticipate the future for their babies and their new role as mothers and changed their lifestyle to look after themselves better as they were afraid of experiencing poor neonatal outcomes. They realised how it was essential to take care of themselves to reduce any pregnancy complications; they mentioned that the nursery tour to see the babies in incubators made them aware that they needed to improve their lifestyles. As these women said:

I tried to eat more because I didn't want my baby too small. I was so worried about my baby. I need to learn many new things because I don't have experience and I am too young. Now I am a mother (Woman 01).

Here [antenatal care clinic]*, they taught everything, so I gained a lot of knowledge to take care of myself for well-being baby. I ate more and tried to eat good food. When I ate, I thought about the baby. Anything that tastes good, I ate it a lot* (Woman 06).

When some adolescent women accepted being pregnant, they tried to put more effort into becoming a good mother. Some transformed their lifestyle by changing bad habits that might have adversely affected perinatal outcomes and successful breastfeeding. These women said:

> *I want to learn everything to take care my baby. I feel more confident at some level that it is not difficult to raise a child but we must put in the effort* (Woman 05).

> *During pregnancy, the nurse taught and demonstrated how to carry a child and breastfeeding so I know how to carry a baby. However, I am a bit scared to hold my baby the first time. I am careful when I hold her because I am afraid to let her fall. I feel she is mine and now I am her mother* [smile] (Woman 02).

Financial concerns were raised. Some women were concerned about not earning enough money to raise a baby with only one salary-earner in the family. Women talked about finding a job in which they could work from home to help their partner to address the financial issue. For example: '*I will raise the baby and get some small jobs because only my boyfriend working will not be enough'* (Woman 07).

One woman in this study had just given birth to her second child at the time of the group interview. She expressed having the second baby became overwhelming for her and her partner because she had the responsibility to look after the first child who was still young and now she had another baby. This situation made her realise that she had to pay more attention to use modern contraceptives. As she said:

> *My husband works in construction, but I don't* [have a paid job]*. I stay home because I have to take care of the first child. It's stressful. Because the first child is still young so I'm afraid I will not be able to support them. I'm not working, only my husband works, so he is tired. From now, I will take contraception as well* (Woman 16).

Subtheme 4.2: Interactions with family about motherhood and childrearing

Family support was a vital resource to assist the adolescent women in becoming mothers. In the beginning when realising they were pregnant, all women reflected that disclosing their pregnancies to their parents was a difficult challenge because they felt that it was not good to get pregnant at a young age. Most of the women still relied on their family, in particular for financial support, and they were aware that being pregnant and having a baby would put additional pressure on the family. However, most adolescent women received more support than they expected from their family to keep their baby and raise their child. This was also explained earlier in the first main theme of *'having access to care'*. Women stated:

> *I was scared to tell my family. Later, when I told them, I got scolded, and they complained a little bit, but they said they would help raise the baby* (Woman 08).

> *At first, I was stressed out and confused about what to do. I was afraid that I would not be able to raise the baby because I have never done it before and I was studying. However, after giving birth, my family helped to take care of the baby, so I could go back to study* (Woman 13).

There was family support to raise the child. Most adolescent women realised that they were worried about how to raise their babies because they had no experience of taking care of babies. Some of the parents of the pregnant adolescent women also did not want to be grandparents themselves, but they often provided support. For example:

> *There are many people in my family and my boyfriend's family to support. After giving birth, my husband and my family will help to take turns in raising the baby* (Woman 19).

> *I am going to raise the baby for 6 months with breastfeeding. There are my mother and brother to help raise the child* (Woman 04).

A few women in this study were employed, so family support was necessary to enable to help them to go back to work. One woman shared:

> *Sometimes when I go to work, I squeeze my milk into a bag and give it to my grandmother to use it to feed the baby. If I am off on Saturday-Sunday, I will breastfeed the baby. When I go to work, I have to keep milk and she can give it to the baby by using bottle. It is good that my grandmother helps to take a shower for the baby. After I come back from work, I go to bed right away without time to take care. My mother also helps to take care of the baby* (Woman 20).

Summary of the final main theme, 'having an awareness of the challenges of the transition to motherhood'

All adolescent women in this study viewed the transition into motherhood as a challenging and difficult task for them. They highlighted that raising a child became their main concern as they realised it required effort and finances. However, they often had family support to help raise their child and some had an opportunity to go back to work. The challenges raised issues about how the adolescent women can be supported during their antenatal care to educate them about child-raising issues and how ongoing early childhood support would enable a healthy mother-baby relationship.

Summary of Chapter Seven

In summary, the main four themes, 'having access to care', 'feelings about, and perceptions of, the care', 'being a pregnant woman and a mother at school age', and 'having an awareness of the challenges of the transition to motherhood', may help to improve the maternity care experienced by Thai pregnant adolescent women. To explore the quality of maternity care, the experiences and perceptions of women were used to describe the structure, process, and outcomes. There were positive and negative experiences from the women in receiving antenatal care. These women needed understanding and sympathy with their circumstances, whatever model of care was used as one highlighted:

The way of care method and support can be group or individual care but it is important to sympathise with young mothers who might have made a mistake and got pregnant (Woman 20).

The next chapter, 'Discussion and Conclusion', will integrate and discuss issues and knowledge arising from the results from clinical perinatal outcomes, healthcare professionals' and adolescent women' experiences.

CHAPTER EIGHT: DISCUSSION AND CONCLUSION

Introduction

The aims of this mixed methods study were to describe perinatal outcomes amongst pregnant adolescent women and explore the current model of maternity care provided for them in three public hospitals in Bangkok, Thailand. Donabedian's model (1988, 2005) was used as a conceptual framework for this study. A convergent parallel mixed methods study was used, involving using retrospective existing data from the hospitals databases of 759 women, semi-structured interviews with 21 healthcare professionals and group interviews with 22 adolescent women. Descriptive statistics were used to analyse quantitative clinical outcomes amongst 759 women using IBM SPSS Statistics 25. A theoretical thematic analysis (Braun, Clarke & Terry 2012) was used to analyse interview data from the healthcare professionals and adolescent women.

Significance of the study

This study provides an opportunity to address the gaps of information by seeking to understand what and how the current antenatal care practice of the Teenage pregnancy clinics can be ultimately improved for pregnant adolescent women in Thailand. The study has described the perinatal outcomes for a cohort of adolescent women, has provided an understanding of the healthcare professionals' experiences in caring for pregnant adolescent women and also explored women's views about the care they received. These findings may benefit health providers, adolescent women, health policy-makers, and midwifery education and practice in Thailand and other similar countries. By helping to revise and formulate the quality of antenatal care it acknowledges the providers' experiences for *'recognising the challenges of providing care for young Thai pregnant women'* and the adolescent women's concerns of *'having needs as a young mother'*. This study is the first time adolescent women within the Teenage pregnancy clinics, and the healthcare professionals who care for them have been studied in relation to quality of care in Thailand.

The literature review, which was conducted in 2016, examined adolescent pregnancy in LMICs and identified this group as a global concern (World Health Organization 2016b). The content analysis of the first objective of the integrative review identified the five most common pregnancy complications in adolescent women were preterm birth (Ganchimeg et al. 2014), low birth weight (Althabe et al. 2015), anaemia (Bildircin et al. 2014), hypertensive disorders of pregnancy (Chibber et al. 2014), and premature rupture of membranes (Kirbas, Gulerman & Daglar 2016). These complications can lead to maternal and child mortality and morbidity (World Health Organization 2016b, 2018b). Furthermore, the review showed the younger age group of pregnant adolescent women, those less than 16 years old have the highest incidence of poor perinatal outcomes. The perinatal outcomes in this study will be explored later in comparison to the global evidence.

Effective models of maternity care will result in good perinatal outcomes for pregnant adolescent women. Therefore, the second objective of the literature review was to explore models of maternity care to enhance perinatal outcomes amongst adolescent women. In Western countries, there are the CenteringPregnancy® model (Teate, Leap & Homer 2013), Young Women's Clinic (Allen et al. 2015), Caseload Midwifery Group Practice (Allen et al. 2013) and an Outreach program (Fleming, Tu & Black 2012) that were found to be able to improve perinatal outcomes. These studies recommended priority be given to further understanding how different models of care improved outcomes.

In Thailand, the model of group antenatal care in the Teenage pregnancy clinics was specifically provided to all pregnant adolescent women. This clinic aims to help women have good perinatal outcomes and a positive pregnancy experience. In the quantitative data, late booking for antenatal care after 12 weeks were frequent amongst the cohort of women. Late booking may contribute to a higher incidence of poor perinatal outcomes. However, an acceptable rate of overall antenatal care attendance was found with an average of eight visits over the antenatal care period and this may explain the overall lower rate than expected of poor perinatal outcomes in this group. In Thailand,

screening for emotional and psychological issues or antenatal depressive symptoms has not been well established using specific tools, such as the Edinburgh Postnatal Depression Scale (EDPS). Many women talked about social and emotional issues in the group interviews and psychological concerns were highlighted, although usually not addressed in this clinics. Introducing some form of screening for depression or social and emotional concerns may highlight the need for more support for these women to improve the pregnancy experience for adolescent women in Thailand (Phoosuwan, Eriksson & Lundberg 2018).

There is new evidence that has been conducted from other countries between late 2016 and 2018 that has explored adverse perinatal outcomes and the care for pregnant adolescent women. A nationwide epidemiological study in Korea showed a higher incidence of preterm birth, caused by inadequate antenatal care, compared with older women (Lee et al. 2016). Adverse perinatal outcomes amongst pregnant adolescent women are similar in other studies that found inadequate antenatal care is associated with preterm birth (Katie et al. 2018) and low birth weight (Belfort et al. 2018; Nguyen et al. 2017). Other issues that have been found amongst pregnant adolescent women are a fear of intimate partner violence (Herrman, Finigan ‐ Carr & Haigh 2017) and psychological issue (Felder et al. 2017). Some researchers have suggested that depressive symptoms should be screened prior to third trimester amongst pregnant adolescent women (Felder et al. 2017). Stigma and abandonment need to have a greater focus than physical maturity (November & Sandall 2018). The findings in Phase 3 in this study have shown that stigma and psychological issues were experienced by most women through feelings of shame and fear of termination of pregnancy under the main theme of *'being a pregnant woman and a mother at school age'*. In relation to this, being judged by healthcare professionals in Phase 2 was noted under the main theme of *'being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women'*. These findings need to be considered to improve the quality of care for adolescent women in Thailand.

The need for emotional and psychosocial care were issues of concern in Phase 3 of this study and require attention in the future. Adolescent women felt that they needed more focus on psychological care and for this to be continued after birth. In Phase 2, healthcare professional also recognised this skill needed to be developed in their own practice. This is in line with other studies. For example, Chikalipo et al (2018) presented two main themes, the care provided and the motivation to attend antenatal care, which were also relevant to the pregnant adolescent women's experiences in this study. The antenatal care provided to adolescent women was inadequate as it did not address the women's engagement to be involved in their care. Another study in Zambia also recommended that friendly and supportive antenatal care services may help to enhance the accessibility of antenatal services amongst adolescent women (Bwalya et al. 2018). Adolescent women in another study (Bwalya et al. 2018) experienced poor attitudes and behaviours by healthcare providers. Similarly, these studies from other countries showed that the healthcare professionals or providers had similar sentiments regarding the importance of their relationship with the adolescent women. Likewise, in my study, interactions between providers and women were seen as a priority to improve antenatal care for adolescent women. This may be improved by ensuring the provision of continuity of care and carer in order to build trust and respect and engage with individual women.

Previous Thai studies have shown a higher incidence of poor maternal and neonatal outcomes in adolescent pregnancy such as preterm birth, low birth weight, anaemia, and premature rupture of membranes, which were also consistent with other studies worldwide (Areemit et al. 2012; Butchon et al. 2014; Chantrapanichkul & Chawanpaiboon 2013). In my findings, there are a number of adverse perinatal outcomes amongst pregnant adolescent women, but they were not as high as compared with previous studies in Thailand or as seen in the literature review. There was no available data on psychological issue particularly, antenatal depressive symptoms. Qualitative data from adolescent women's experiences in Phase 3 showed the need for emotional and psychological care from nurses and midwives. New research that studied the prevalence of antenatal depressive symptoms and had shown a higher risk of

depressive symptoms amongst pregnant adolescent women compared with older women (Phoosuwan, Eriksson & Lundberg 2018). This might be associated with social stigma as several studies indicated stigmatisation is playing a critical role for pregnant adolescent women, as being pregnant as a young age is not socially acceptable (Ntinda, Thwala & Dlamini 2016; Sa-ngiamsak 2016; Udmuangpia et al. 2017). According to my findings from Phase 3, this group of women often have socioeconomic problems and the need for social welfare was highlighted by most of the women in this study. This need is similar to other studies conducted in Thailand (Sa-ngiamsak 2016; Sriyasak et al. 2016; Thitimapong, Kruehaew & Yongwanichsetha 2017). Financial concerns were also found in the study of young adolescent men becoming fathers as a challenge for adolescent fathers in Thailand (Uengwongsapat et al. 2018). These current studies found similar issues with the findings in Phase 3 of my study to response to *'having needs as a young mother'*. Providing appropriate innovative care to all pregnant adolescent women is necessary to ensure good perinatal outcomes and a positive pregnancy experience in line with WHO's recommendations.

Overview of the findings of this study

The first phase of this study aimed to describe perinatal outcomes amongst pregnant adolescent women in Thailand. Almost three-quarters of participants were late antenatal care attendees, commencing care after 12 weeks gestation (n= 539 of 759, 71%). Highlighting a deficiency in the access to care for young women, the Thai Department of Maternal and Child Health in the Ministry of Public Health set the 2019 targets that 65% of all pregnant women commence antenatal care visit at 12 weeks or before, and that they attend at least five visits during their pregnancy (Ministry of Public Health 2018). The incidence of anaemia was high amongst the adolescent women (n=179 of 759, 23.6%). There was a significantly higher rate of anaemia amongst the early adolescent woman group (37.9%) compared with the late adolescent woman group (21.5%) (P-value < 0.05). This study result echoed the qualitative findings from the healthcare professionals' experiences indicating nutritional problems in pregnant adolescent women and related to the high incidence of low birth weight compared to the Thai National Maternal and Child Health indicators (Ministry of Public Health 2016b).

The policy from the Department of Maternal and Child Health aims to decrease anaemia in all pregnant women to less than 16%; however, the base-line indicator is not available specifically in adolescents. In addition, the prevalence of sexually transmitted infections was 4% (n= 30 of 759) higher than the Thai nation indicator aiming to less than 0.76% as these infections are known to be associated with adverse neonatal outcomes (Ministry of Public Health 2016b). In Thailand, there is now a focus on reducing sexually transmitted infections amongst people age 15-24 years as a public health surveillance issue (Ministry of Public Health 2018).

The incidence of postnatal outcomes of postpartum haemorrhage and hypertensive disorders of pregnancy amongst pregnant adolescent women accounted for 1.8% and 2.2% respectively in the study data. Even as these rates of adverse perinatal were not high in my quantitative findings, these are still indicators and outcomes that may contribute to maternal mortality. In Thailand, the proportions of postpartum haemorrhage and hypertensive disorders during pregnancy are two key indicators of maternal mortality. As my study showed a significant difference between the early adolescent cohort of levels of anaemia (37.9%) compared to the late adolescent cohort (21.5%) (P-value < 0.05), education and policy should be tailored to address low levels of anaemia to prevent postpartum haemorrhage in an effort to reduce maternal mortality. These numbers are required to adhere to the Maternal and Child Policy that aims to reduce to less than 30% of maternal mortality being due to hypertensive disorders of pregnancy through quality care, early identification and better management (Ministry of Public Health 2016b). However, the national data that represent the national percentages of these complications for pregnant adolescent women are not available.

The proportion of low birth weight was 14.6% in the early adolescent group and 12.0% in the late adolescent group. The proportion of preterm birth in the pregnant adolescent women in this study group accounted for 7.8% (6.3% in the early adolescent group and 8.0% in the late adolescent group). In this study, these data of preterm birth were not high compared with other studies in similar contexts (Althabe et al. 2015; Çift et al. 2017;

Ganchimeg et al. 2014; Medhi et al. 2016b). However, one study using national data from Korea showed a lower incidence of preterm birth (3.7%) amongst adolescent women than in my findings. This number is lower than the Global Study in South Asian that reported a preterm birth rate amongst adolescent women aged 15-19 years of 12% (Althabe et al. 2015). The proportion of low birth weight and preterm birth in my findings are high compared to the Thai National Maternal and Child Health indicators which are less than 8% and 7% of all births respectively (Ministry of Public Health 2016b). Preterm newborn and low birthweight baby and birth asphyxia are concerning outcomes that need to be reduced. The model of care of group antenatal care in Teenage pregnancy clinics could be contributing to reducing these poor perinatal outcomes in pregnant adolescent women although we cannot attribute cause and effect from this study. In my qualitative findings from healthcare professionals' experiences in Phase 2, the main focus of the care was to prevent common pregnancy complication as a standard care that is provided to all pregnant adolescent women. In conclusion, there were a number of adverse perinatal outcomes in this cohort, highlighting areas for improvement and future study and addressing the first aim of this study. There is also a need to further study the psychological issues amongst pregnant adolescent women as there were represented by women's experiences with other supported new evidence (Phoosuwan, Eriksson & Lundberg 2018; Torres et al. 2017).

The second phase of this study explored healthcare professionals' experiences and perspectives in caring for Thai pregnant adolescent women as represented in the concept map: **recognising the challenges of providing care for young Thai pregnant women** (see **Chapter 6, page 85**). Three main themes emerged from the healthcare professional data that explored the structure, process and outcomes (Donabedian 1988, 2005) of the current model of maternity care in the Teenage pregnancy clinics. These were *having an awareness of the political and cultural contexts and environment of care*, *being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women*, and *having different approaches to caring for pregnant adolescents*. Several barriers were explored and recognised as the challenges in improving maternity care for pregnant adolescent women. A lack of continuity of care and carer was shown

to be one of the significant barriers to providing effective care for pregnant adolescent women. Attitude, stigma and judgemental towards to adolescent women were a significant factor that influence care of pregnant adolescent women. Effective communication was important to provide quality care. In addition, social support was crucial for pregnant adolescent women as for all pregnant women.

The third phase of this study, exploring the women's experiences in receiving care in the Teenage pregnancy clinics, was illustrated by the core concept of **having needs as a young mother** (see **Chapter 8, page 109**). Four main themes emerged from the women's views, including *having access to care*, *feelings about, and perceptions of, the care*, *being a pregnant woman and a mother at school age*, and *having an awareness of the challenges of the transition to motherhood*. A summary of the findings from **Chapters 5**, **6** and **7** is represented in **Table 16**.

Table 16: Summary of findings

Study phase	Summary of findings
Phase 1: Quantitative descriptive design using the existing hospital databases to explore clinical perinatal outcomes amongst pregnant adolescent women	- Adverse perinatal outcomes were found amongst pregnant adolescent women, such as preterm birth, low birth weight baby, and anaemia during pregnancy. There were not higher than the national maternal outcome indicators, except low birth weight and sexually transmitted infections. - The perinatal mortality rate was 2.64 per 1000 births which is lower than expected. There were no maternal deaths.
Phase 2: Qualitative descriptive design by undertaking 21 semi-structured interviews with healthcare professionals	Three main themes emerged: 1) having an awareness of the political and cultural contexts and environment of care 2) being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women 3) having different approaches to caring for pregnant adolescents

Study phase	Summary of findings
Phase 3: Qualitative descriptive design by undertaking nine group interviews with 22 adolescent women	Four main themes emerged: 1) having access to care 2) feelings about, and perceptions of, the care 3) being a pregnant woman and a mother at school age 4) having an awareness of the challenges of the transition to motherhood

This chapter will integrate the findings from the three phases to address the overall goal of finding ways to improve care for pregnant adolescent women in Thailand. The author's reflection of conducting the research will also be described in this chapter. Finally, the strengths and limitations of the study will be described.

Adolescent pregnancy in context

As described in Chapter 1, adolescent pregnancy is a concern in Thailand. The World Health Organization (World Health Organization 2018a) asserts that the number of adolescent pregnancies will grow globally by 2030 because of an adolescent population growth. In my quantitative descriptive data, the socio-demographic characteristics of pregnant adolescent women showed the highest prevalence is in the late adolescent group, those aged 16 to 19 years (n= 664/759 women; 87.5%). The prevalence of early adolescent pregnancy in this sample was 12.5% (n=95), with the youngest woman being only 12 years at the time of the birth. In my interview data, healthcare professionals reported feeling that the rate of pregnancy was increasing in the younger age group, those aged 12 to 15 years. In the literature review in Chapter 3, research from other countries and in previous studies in Thailand showed that pregnancies in women in this early adolescent period were associated with the highest incidence of adverse perinatal outcomes (Althabe et al. 2015; Chibber et al. 2014; Ganchimeg et al. 2013; Ganchimeg et al. 2014; Huang et al. 2014; Suciu et al. 2016; Thaithae & Thato 2011). These findings are inconsistent with my quantitative data that showed adverse perinatal outcomes between early adolescents and late adolescents were not different. However, these

results may be affected by the small number of early adolescents in this sample (n= 95 of 759 women) and also because all women received care through the Teenage pregnancy clinic.

Many participating adolescent women were under financial stress and potentially facing socioeconomic deprivation. Most pregnant adolescent women tend to live in difficult situations with higher incidence of socioeconomic disadvantage compared to adult women who become pregnant (Bureau of Reproductive Health Thailand 2018; Kagawa et al. 2017; Phoosuwan, Eriksson & Lundberg 2018). This financial pressure experienced by these young women is common in low- and middle-income countries and has been found in previous studies in Thailand (Huang et al. 2014; Kagawa et al. 2017; Medhi et al. 2016a; Sriyasak et al. 2016). Problems associated with socio-economic status were found in the quantitative and qualitative data in this study. Just over half (54.7%) of the adolescent women were unemployed or either in full-time study or full-time home duties. Only two of the 22 women who participated in the group interviews were employed and all participants raised concerns about the financial pressure that was going to impact on themselves and their babies. Less than two-thirds of women (60%) had completed secondary school which placed additional medium to long term challenges in terms of future opportunities. Another interesting issue was that the two women who were employed worked in a convenience store from a large company which has over 4,000 branches in Bangkok (over 10,000 branches in Thailand). Adolescents are often able to gain employment in these stores as they do not require a high educational level and while this provides an opportunity to enable women to earn money it is not an effective long-term strategy and does not provide maternity leave provisions. Access for all women to education at secondary school and beyond is a critical element of women's empowerment and future economic stability and success (Bureau of Reproductive Health Thailand 2018). My findings from Phases 1 and 3 illustrated that financial problems and anxiety may be contributing to adverse perinatal outcomes amongst pregnant adolescent women.

The failure to improve of sex education, reproductive health and access to termination of pregnancy are factors in the care of adolescent women who are pregnant in Thailand. A previous study in Thailand to assess contraceptive practices amongst pregnant adolescent women found 37.5% of women engaged in sexual activities from an early age, 15 years and even younger, and had never used any birth control methods (Lanjakornsiripan et al. 2015). Even though legalisation of termination of pregnancy was launched in 2014, services which are under the strict control of the Thai Ministry of Public Health (Ministry of Public Health 2016a) and termination carries cultural and religious barriers and taboos. While several educational institutes in Thailand are concerned with improving young women's knowledge about sexual health, they are still not allowed to provide advice about how to get a legal termination of pregnancy and/or how to access condom vending machines to prevent pregnancy (Viravaidya 2017). The issue of prevention of adolescent pregnancy remains sensitive and there is an ongoing difficulty for adolescent women seeking information on, and access to, a termination of pregnancy.

In my qualitative data, healthcare professionals seemed committed to providing effective care for pregnant adolescent women in order to decrease common pregnancy complications and also to addressing social stigma. The findings of the study and the literature review from other LMICs call attention to the role that social stigmatisation plays in adolescent pregnancy and parenting (Neamsakul 2008; Ntinda, Thwala & Dlamini 2016; Sa-ngiamsak 2016; Sriyasak et al. 2016; UNICEF 2015). My findings from Phase 3 of adolescent women's experiences feelings of the stigmatisation were expressed by most women in this study. Stigmatisation also affects emotional and psychological health amongst pregnant adolescent women. Unplanned pregnancy or unintended pregnancy amongst adolescent women is likely to make an unsupportive environment of care worse because of social stigma. Respect by healthcare professionals for adolescents when they become pregnant and a mother is crucial (Jittitaworn et al. 2018).

In my study, most pregnancies were unintended. Some of the women were single mothers or having difficulty living with their partners. Clearly, there is a significant need to care for the emotional and psychological issues that they faced rather than focusing on their physical issues alone. As with findings from previous studies in Thailand and other countries, a psychosocial care model needs to be developed for pregnant adolescent women (Neamsakul 2008; Pungbangkadee et al. 2008; Termpittayapaisith & Peek 2013). My findings indicated the psychosocial care need was required to help them addressed this critical time of great change in a woman's life. Healthcare professionals' views also identified their psychosocial care skills needed to be developed to care for pregnant adolescent women. The mental health care in the perinatal period may need to be researched to develop a guideline to help not only adolescent women, but also assist all women to start with a healthy life when becoming a mother. The guideline in providing evidence-based care may support healthcare professionals to be able to provide effective care regarding mental and psychosocial care and again could contribute to reducing poor perinatal outcomes as shown in Phase 1.

In Australia, the Centre of Perinatal Excellence (COPE) (Austin, Highet & the Expert Working Group 2017) has developed guidelines for Mental Health Care in the Perinatal Period. The guidelines include recommendations for assessing and screening for mental health issues, supporting, care planning for, and psychosocial caring for women, including prescribing in pregnant and breastfeeding women, referral and care pathways and areas for future development. This guideline contains an understanding of the woman's context and effective provision of mental healthcare, including continuity of care so this will help healthcare professionals to engage and be able to provide care for all women. In addition, the policy makers in many other countries focus on the mental health issues during the perinatal period. For example, the New South Wales (NSW) Department of Health has created the provision of supporting families through the early SAFE START strategic policy to improve mental health outcomes for parents and infants (NSW Department of Health 2009). This provision of care also uses Edinburgh Postnatal Depression Scale (EDPS) to screen and assess the mental issues amongst women.

This does not happen in Thailand but implementation could improve perinatal outcomes for all pregnant women, including adolescent women. The healthcare sector in Thailand needs to understand these issues and seek opportunities to address them both in caring for pregnant adolescent women to ensure good perinatal outcomes and to be sensitive to the psychological trauma faced by many adolescent women when they become pregnant.

Continuity of care and carer for all women

In 2016, the World Health Organization (WHO) recommended that all pregnant women should receive quality maternity care in order to provide a positive pregnancy experience (World Health Organization 2016a). The WHO recommendations (World Health Organization 2016a) focus on the care that is provided throughout the pregnancy. These recommendations highlight that pregnancy as a critical time for the woman to not only survive this process of life, but also to thrive into motherhood. The importance of providing effective communication about physical, emotional and psychological support, and behavioural and sociocultural issues, has been highlighted by these recommendations for antenatal care for all women (World Health Organization 2016a).

In my interview data from the women's perspectives the core concept which emerged, *having needs as a young mother*, highlighted the need for pregnant adolescent women to receive effective care, in particular, that they be understood and respected as a pregnant woman and a mother. The women recognised that they needed and wanted quality of care including emotional and psychological support from the healthcare professionals throughout their pregnancies. In the data from the healthcare professionals' perspectives in caring for pregnant adolescent women, the core concept was *recognising the challenges of providing care for young Thai pregnant women*. Data from both the healthcare professionals and the women showed barriers to provide effective care occurred due to poor interactions between healthcare professionals and women in the process of care. This process of care is the key component of providing quality care using the Donabedian's conceptual framework (1988, 2005). To achieve the

goal of providing a positive pregnancy experience to all women (World Health Organization 2016a) and quality care, it is necessary in Thailand to enhance emotional and psychological support and for communication skills to become more supportive and less didactic.

Continuity of care and carer is one model that may improve the interactions between healthcare professionals and young women and psychological and emotional care. WHO (World Health Organization 2016a) recommends midwife-led continuity of care for a positive childbearing experience for all women in the contexts where midwifery models of care are present. This is not the care in Thailand currently although this may change in the future.

The lack of continuity of care and carer was identified as a barrier to providing effective care for pregnant adolescent women. The nurses and midwives in the study expressed they had difficulties in providing information and engaging, respecting and building relationship with the women, often because they did not know them and did not have a trusting relationship. This was supported by the women's experiences when they encountered poor communication and didactic teaching and they could see that continuity would make a difference.

The understanding of continuity of care and carer in the Thai context is the provision of individual continuous antenatal care to the woman by the same carer. Implementing continuity of carer models of care in these clinics in Thailand may contribute to engaging and build trust in the relationship and encourage more interaction between carers and the women. The benefits of continuity of care and carer, especially building trust and relationship with women have been previously acknowledged in many studies worldwide, particularly in Australia (Allen et al. 2013; Perriman, Davis & Ferguson 2018; Williams et al. 2010) , New Zealand (Noseworthy, Phibbs & Benn 2013) and the United Kingdom (Boyle, Thomas & Brooks 2016; Homer et al. 2017). Providing midwife-led continuity of care reduces preterm birth (Sandall et al. 2016), so this model of care may help to decrease this common complication amongst pregnant adolescent women as

shown in Phase 1 of this study. Also, this continuity of care may help to improve interactions between nurses and midwives and women in particular building trust.

A Cochrane Systematic Review illustrated the benefits of midwife-led continuity of care to women and babies without adverse effects (Sandall et al. 2016). A meta-synthesis of the midwifery continuity of care model in Australia also identified three main themes of the midwife-woman relationship. These included: personalised care, development of trust, and empowerment (Perriman, Davis & Ferguson 2018). Continuity of carer and care can help to easily build relationships, trust and partnership with all women (Boyle, Thomas & Brooks 2016; Davey, Brown & Bruinsma 2005; Williams et al. 2010). This type of care also provides emotional care which is an important element of quality care (Forster et al. 2016). Therefore, implementing continuity of carer programs within the Teenage pregnancy clinics may enhance relationships, lead to, mutual respect and increased engagement with women especially the younger adolescent women.

In Thailand, there are concepts and models of care that have been taught in nursing and midwifery, mostly in nursing models that might support future development. The concept of a midwifery model of continuity of care has not been well established in undergraduate or postgraduate degrees or in midwifery practice (Srisuphan 2009). This needs to be considered and introduced in nursing and midwifery education to assist students in their clinical practice to provide care for and engage with women. This will be a challenge to establish and transform the care for all women keeping women at the centre of care. In 2018, World Health Organization suggested the WHO framework on integrated people-centred health services including four main approaches for achieving continuity of care: 1) interpersonal continuity, 2) longitudinal continuity, 3) management continuity and 4) informational continuity (World Health Organization 2018c). This WHO framework is useful to guide for implementing continuity of care that may help to improve perinatal outcomes for pregnant adolescents. This framework will help to enhance ongoing contact and interaction between women and healthcare providers. Also, these approaches respecting on continuity of care will be likely to

support communication throughout childbearing for women and families and again initiate a positive pregnancy experience.

Mental and psychosocial skills in caring for adolescent women

There is a need to provide sensitive and respectful care to each adolescent woman, as well as effectively engage with them in their journey in becoming a mother. In the theme, '*being aware of attitudes and the need to develop psychosocial skills in caring for adolescent women*', healthcare professionals' attitudes emerged as a barrier to providing effective care in respect to the core concept *'having needs as a young mother'* from pregnant adolescent women in receiving the current practice. In several Thai studies, becoming a young pregnant woman was a critical event, particularly in regard to emotional and psychological issues in transition into motherhood, having difficulty in their relationship with their partner (Pungbangkadee et al. 2008; Sa-ngiamsak 2016), having socio-economic strain, and being stigmatised by society (UNICEF 2015). My study showed that health professionals often felt they lacked the skills to cope with the social and emotional complexities in these women's lives highlighting the need for education, support, and improve the systems to address perinatal mental health.

The importance of the woman's physical and psychological needs should be central to aspect of maternity care and this is even more critical in adolescence. My study found that there is a need to provide effective care, particularly mental and psychosocial care. In a recent study in Thailand (Phoosuwan, Eriksson & Lundberg 2018), perinatal depression is becoming an increasing concern in the perinatal period. The study of perinatal depression in Asian countries is relatively common finding and it is slightly higher than in Western countries (Roomruangwong & Epperson 2011). There were several associated factors with perinatal depression amongst women in Asian countries, such as financial difficulty, a lack of social support, and the unique Asian cultural-related factor of unacceptable premarital pregnancy (shame and stigma) (Roomruangwong & Epperson 2011). The meta-analysis study in LMICs identified that perinatal depression was highly prevalent, affecting approximately one in four to five women (Gelaye et al. 2016). This study identified that there was a significant challenge in term of the lack of

cross-culturally valid perinatal screening and diagnostic tools in particular during antenatal care. This study also recommended that there was the need for integrated antenatal care program to address perinatal depression for pregnant women. In many LMICs, the interaction with healthcare system was typically the first and only time for many women (Gelaye et al. 2016).

Recently, another Thai study found there was triple the risk of depression during adolescent pregnancy compared to older women (Phoosuwan, Eriksson & Lundberg 2018). The EPDS was used to research antenatal depressive symptoms during late pregnancy and recommended it be nationally implemented for pregnant women. As described earlier, other countries have developed guidelines to address perinatal depression for all women. In Australia, these guidelines also use the EPDS as a screening tool for symptoms of depression and recommend the provision of effective mental healthcare in the perinatal period. From my findings and the recommendations from several studies, the implementation of an innovation of care for screening using EPDS and the use of guidelines to care for perinatal depression needs to be studied further for the development of the healthcare policy in Thailand.

My findings are aligned with other studies which reported that developing relationships and building trust was required in caring for pregnant adolescent women, particularly in relation to providing psychological care (Pungbangkadee et al. 2008; Sriyasak et al. 2016). It may be that the young women's difficulty in engaging with carers in this study was related their need to feel respected in the transition from pregnant adolescent to being a parent. Healthcare professionals have a responsibility to ensure they have the necessary skills and attitudes so that pregnant adolescent women feel valued. In this way they can benefit from the antenatal care provided and enjoy a positive pregnancy experience. This will help pregnant adolescent women meet their needs, as the core concept for these women regarding *having needs as a young mother*.

Reflective practice about values and attitudes towards pregnant adolescent women

Societal values and attitudes towards adolescent pregnancy varies, according to socioeconomic and cultural contexts. It is well known that adolescent women feel social stigma during pregnancy (Kagawa et al. 2017; Phoosuwan, Eriksson & Lundberg 2018). My study shows that stigmatisation also extends to their care during pregnancy. Previous studies recommend that a positive approach and support can diminish stress/anxiety, feelings of societal stigma (Sa-ngiamsak 2016) and increase confidence amongst adolescent women to continue their role into motherhood (Kagawa et al. 2017). My findings show that attitudes in caring for adolescent women were a noticeable obstacle; many health care providers had a punitive attitude towards the young women as they believed they should not be pregnant at a young age. Most participants felt they had a duty to scare the young women about possible negative outcomes. Very few participants had a clear understanding of general principles in supporting behaviour change to promote health, especially in relation to adolescence. Education and reflective practice regarding these attitudes would be highly beneficial. Reflective practice can assist thoughtful consideration of healthcare professionals' experiences (Atkins & Schutz 2013; Collington & Hunt 2006) and may therefore help to transform values and promote positive attitudes to care and support for adolescent women.

Social support for pregnant adolescent women

Social support is necessary for all pregnant women and may be provided by healthcare professionals, partners, family and the community (Kagawa et al. 2017). In the Thai context, most adolescent women receive support from their family after the initial difficulties disclosing their unexpected pregnancies. Even though socioeconomic deprivation is likely to contribute to poor self-care in this group of adolescent women (Figueiredo, Tendais & Dias 2014; Kagawa et al. 2017), their families usually offered financial and emotional support for them (Akella & Jordan 2014; Kagawa et al. 2017; Ntinda, Thwala & Dlamini 2016). Another study showed that healthcare providers were

the main source for information and for supporting the young women in hospital (Sriyasak, Åkerlind & Akhavan 2013).

In this study, the majority of the women were students. Therefore, returning to school was another issue that arose for them. Social support from healthcare professionals needs to provide information about how to balance childrearing and returning to school (Thitimapong, Petpichetchian & Wiroonpanich 2015). In my findings, there was the need for guidance about going back to school under main theme of *'being a pregnant woman and a mother at school age'*. This is the adolescents' right to have access to education and information (Bureau of Reproductive Health 2016). A previous study in Thailand of students who had an unplanned pregnancy indicated that information and support for returning to school were needed to encourage and guide them to stay in education system (Phoodaangau, Deoisres & Chunlestskul 2013). In addition, asking for support from the government to help adolescent mothers to continue their studies was suggested in another Thai study to achieve the goal for returning back to school (Thitimapong, Petpichetchian & Wiroonpanich 2015). In Thai culture and society, the parents often need the adolescents to continue their education (Sriyasak et al. 2018). When adolescent women fell pregnant again, a lack of motivation in continuing education became a significant consequence of repeat pregnancy amongst adolescent women (Pungbangkadee & Ratinthorn 2014). Recommendation of this study and my findings in Phase 3 highlighted the need for postpartum contraception. However, this information of contraceptive uses should be considered to meet adolescent women's needs.

In Thailand, there is insufficient welfare support for this group which adds to their financial challenges (Sa-ngiamsak 2016) and potentially to poorer perinatal outcomes. Therefore, the government should consider providing welfare support for this group who struggle with being pregnant at a young age. The home visiting systems also needs to be expanded for young mothers to ensure that nurses and midwives are able to providing ongoing support (Pungbangkadee et al. 2008; Sa-ngiamsak 2016; Sriyasak, Åkerlind & Akhavan 2013).

Coping with an early transition to motherhood

The transition to becoming a young mother demands that the woman establishes a distinctive new role (Mercer 2004). The transition to motherhood might be a positive or a negative experience for a young woman. Some women might perceive it as a challenge and benefit from receiving support from healthcare professionals and their family; however, a woman's perception might be one of dissatisfaction and struggle in a difficult time, especially if there is not enough support. To facilitate the transition to motherhood, pregnancy is an important time for adolescents to receive information about becoming a mother. My findings of the young women's perspectives on their experience of their maternity care may be used to develop programs of care for this group of women in their transition to motherhood.

A major developmental life event for any woman is the transition to motherhood. This event can be a positive and/or negative experience depending on the readiness, preparedness and social support she receives. Mercer's study (2004) on transition to motherhood recommended that the woman's psychosocial development can contribute to the role of becoming a mother. In my interview data from women, the main theme of *being a pregnant woman and a mother at school age* highlighted the need for emotional and psychological support. In addition, socioeconomically deprived circumstances, family issues and relationship difficulties with their partners, contributed to many adolescent women feeling overwhelmed about becoming a young mother. Similar findings from other countries indicate that childbearing at a young age makes transition to motherhood difficult (Kagawa et al. 2017; Pungbangkadee et al. 2008; Sriyasak et al. 2016). Although transition to motherhood is a critical task for all women, adolescent women are more likely to have traumatic issues, such as adverse perinatal outcomes, social stigma, being treated unequally or discrimination, and financial disadvantages compared to adult pregnant women (Figueiredo, Pacheco & Costa 2007; Figueiredo, Tendais & Dias 2014; Phoodaangau, Deoisres & Chunlestskul 2013; Termpittayapaisith & Peek 2013).

Most of the women in my study had not intended to become pregnant and it was their first pregnancy. This unexpected aspect of their experience further challenged them in taking on the role of being a mother. The subtheme of *being aware that women have family support* emerged from healthcare professionals' perspectives in caring for pregnant adolescent women. However, the routine of care from the Teenage pregnancy clinic did not always engage families in assisting those women in transitioning to motherhood. Empathy for their uncertainty about the future, and balancing the roles of being a mother and an adolescent, needs to be developed. Most adolescent women became pregnant while studying, so healthcare providers should support this group of women to balance and cope with maternal and student roles (Thitimapong, Kruehaew & Yongwanichsetha 2017; Thitimapong, Petpichetchian & Wiroonpanich 2015). Health professionals cannot only focus on physical complications during pregnancy because early motherhood amongst adolescent women can cause feelings of anxiety, ambivalence, regret, and having difficulty in balancing maternal and student roles (Ntinda, Thwala & Dlamini 2016; Thitimapong, Kruehaew & Yongwanichsetha 2017; Thitimapong, Petpichetchian & Wiroonpanich 2015).

Women require a proactive professional support during their transition to motherhood and this should be tailored to each woman' need individually (Seefat-van Teeffelen, Nieuwenhuijze & Korstjens 2011). Tailoring care to each woman's needs may effectively prepare them to become a mother. My data indicated that women had different needs: as one woman emphasised that *'...we were different…I did not have those problems…'*. To provide information and support to pregnant adolescent women, healthcare providers needed to put more effort into understanding the special individual needs of becoming a young mother (Sriyasak, Åkerlind & Akhavan 2013).

Reflection on my background and interest in this study

The main focus in this reflection is to provide an account of what my passion and enthusiasm are and how being a midwife myself has been an influence on how this study needed to be done. This reflection will start with my education and work experience and then what and how my interest evolved to undertake this study.

After I graduated with my Bachelor of Nursing and Midwifery in 2005, I worked as a midwife in the labour ward at a public hospital in Bangkok. This provided a lot of experience in taking care of women during labour and birth, including caring for pregnant adolescent women. I used to ask myself why adolescent women were less able to cope with pain during childbirth than the older women. Some of the younger women were screaming and not able to control themselves when they had pain during labour. This loss of control is hard to accept in Thai culture. Even though I tried to provide care for reducing pain, such as breathing, changing position, and massage, it did not work well with adolescent women. In the Thai context, an association between Thai culture and the response to pain seems to be different from the women in Western culture. The ability to keep calm and silent is perceived to be acceptable and an indication of the maturity of the woman managing pain in labour. In fact, some healthcare professionals' attitude in caring for pregnant adolescent women consider crying out or screaming during childbirth as an inappropriate response to pain, or childish behaviour. I think this belief needs to be challenged and changing the environment of maternity care to one that is emotionally secure for and respectful of all pregnant women regardless of maternal age is something to work towards.

When women could not work with the pain and labour progress was delayed, there was an increased risk for poor neonatal outcomes, such as fetal distress, birth asphyxia, and increased incidence of caesarean section due to prolonged labour. As a midwife, I tried to help them to relieve pain during childbirth without giving any medication. In Thailand, the medicalisation of pregnancy and childbirth has influenced and regulated midwifery practice which regards childbirth as a natural phenomenon. Medicalisation has had an impact on the maternity care by focusing on the physical issues or complications rather

than believing childbirth is a natural and normal event for the woman and not an illness requiring more intervention. Regardless, when adolescent women could not cope with the pain they were given analgesia, such as, pethidine.

When I had the opportunity to do my Master degree in 2005, I elected to research the effects of complimentary massage and aromatherapy on labour pain for adolescent women having their first baby. The results of this research indicated these complimentary practices may help to reduce pain during childbirth. I also found this group of women needed more support in particular psychosocial care from nurses and midwives. From my experience conducting this master's research project and working as a midwife and a lecturer in midwifery, the conclusion that I came to was that midwives need understand and value the women to provide adequate care and women's health support.

After doing this research, I received an offer to work as a lecturer in nursing and midwifery at the university in Bangkok. This journey was the beginning to fulfil my passion and confidence to improve maternity care provided by midwives. I taught nursing and midwifery to bachelor degree students in the lecture room for two days (Monday and Tuesday) and in clinical practice for three days (Wednesday to Friday) per week. All aspects of midwifery were covered; antenatal care, intrapartum care, postpartum care on general and high-risk pregnancy wards.

Over time I realised there was an increase in the number of pregnant adolescent women. With this, there were increasing physical and psychological complications during pregnancy and childbirth amongst adolescent women compared with mature pregnant women. I have participated in a few research projects addressing preventing preterm birth amongst pregnant adolescent women by providing individual care to each woman. There were discussions about how pregnant adolescent women could be better supported. I became aware that social stigma also played a role that affected the way care was provided to adolescent women. Although there are attempts to improve perinatal outcomes amongst this group of women by implementing innovations of care,

adverse perinatal outcomes persisted. Several models of care focused on how to prevent pregnancy complication. Nurses and midwives were trying to provide these innovations of care, but we did not explore how these current care models worked for the women. This probably occurs as the provision of midwifery practice is not understandable and recognisable in the Thai context. I began to be interested in what and how changes in midwifery practice could improve maternity care for all women and how this could be introduced into midwifery education.

As I realised my essential role as a midwife academic was to improve midwifery practice with the goal to improve maternal and neonatal outcomes I also became interested in exploring the relationship between midwives and the women in the context of supporting this as a partnership, rather than a top down relationship. Many questions and aspirations developed in my mind every time I taught my students how midwifery practice, with a partnership focus, should be established for all women in Thailand. My experience tells me that the most critical problems for improving care for women occur in the interactions between the carers and women. There is little research which tells us whether the current care model is adequate or not. With this in mind, I started to consider this as the subject to undertake my PhD in Midwifery with a focus on pregnant adolescent women.

I hope that the findings of this research project to guide future direction in midwifery practice for maternity care, starting, in the first instance, with pregnant adolescent women in Thailand. As the Nursing and Midwifery Board of Australia (2018, p. 9) states ‘woman-centred care recognises the woman’s baby or babies, partner, family, and community, and respects cultural and religious diversity by the woman herself’. This inclusive approach can enhance maternity care for the Thai pregnant women. A midwifery approach of working with the woman as partners providing woman-centred care is an innovation that can to be established through education and research.

Reflection on conducting the qualitative phases of this study

The main approach used in the qualitative phases of my study were semi-structured interviews with healthcare professionals and group interviews with pregnant adolescent women. The findings of qualitative health research can be translated to simplify and understand issues or circumstances in order to implement or invent strategies for practice (Sandelowski & Leeman 2012). Malterud (2001) recommended that the development of an understanding of research as a systematic and reflective process can be performed by conducting qualitative research. Nonetheless, it can be challenging for a novice researcher like myself to conduct a qualitative study.

This reflection will focus on the experience of conducting a qualitative study using interview methods as part of my first undertaking of qualitative research. When I commenced this PhD I was a novice researcher in the undertaking of qualitative research and lacked confidence in using interviews to collect the data. I had reviewed several journals about undertaking interviews and summarised key strategies for my research project. I also practised my interviewing skills as explained earlier (see **Chapter 4**, **Preliminary work** section) before conducting the data collection. This section reflects on my own role in conducting the qualitative study that I wrote at the time of data collection. In addition, the journal reflection and discussion were integrated to introduce and provide possible techniques for the novice qualitative researchers like myself. The reflection section helped me to consider what and how I have learned as a novice qualitative researcher.

Reflection on developing interview skills to collect data with healthcare professionals

Before describing how I conducted the semi-structured interviews with healthcare professionals (research participants), I will explain my role in the study setting as a junior researcher. As already explained, the study was conducted in three public hospitals in Bangkok, Thailand. I was employed in one of these hospitals as a midwife for two years until I changed my career pathway to work as an academic in midwifery at the university in Bangkok. When I was working as a lecturer, I still collaborated with the hospital in

nursing and midwifery clinical education. Therefore, I knew some of the healthcare professionals in the study settings and there was some uncertainty about participation in the interviews as they were not sure if I was a colleague or a researcher. I used the invitation letter and communicated with research participants to ensure they clearly understood my role as a researcher. Nonetheless, I had challenges at the beginning of conducting the interviews with those participants, as explained in the three main challenges below.

The stages of reflection were described under three main challenges: 1) confronting the poor perceptions of the value of qualitative research, 2) dealing with unexpected situations, and 3) being uncertain and challenged by processing the qualitative data analysis. All three stages of the reflection were summarised in **Table 17** and indicated in detail below.

Table 17: Reflections and strategies of conducting interviews with healthcare professionals

Reflections	Contributing factors	Strategies
The first challenge of confronting poor perceptions of the value of qualitative research	• Qualitative research was not valued by clinicians • Less confident as a novice qualitative researcher	- Using research journal reflection - Providing a clear purpose of the study - Conducting preliminary work - Discussing with an expert panel
The second challenge of dealing with unexpected situations	• Recruitment of participants • Setting up the environment for the interviews • Ending the interviews	- Managing meeting cancellations - Providing a comfortable environment for the interviews - Taking notes at the end of the interviews
The third challenge of being uncertain and feeling challenged by processing the qualitative data analysis	• Less skills in analysing qualitative data as a novice qualitative researcher • Conducting the interviews in original language (Thai)	- Learning skills and practising qualitative data analysis - Transcribing and translating procedure for non-English language (Thai)

Confronting poor perceptions of the value of qualitative research

In Thailand, many studies in health services are conducted using quantitative designs (Pungbangkadee & Ratinthorn 2014; Sriyasak et al. 2016; Sriyasak et al. 2018). When I first met with research participants, some of them asked why I was doing the interviews and how the results of a qualitative study could help to improve care for pregnant adolescent women. Some participants did not understand qualitative research and so did not value this approach. My colleagues questioned the value of the study at the time of making an appointment for the interviews. This led to me feeling uncomfortable when I conducted the first interview. However, the preparation I had done to deal with this was helpful, as described below.

Firstly, in my reflection I used a research journal to explain how qualitative studies were important in improving and understanding current practice. Qualitative designs can provide a comprehensive summary of the current events by listening to participants' experiences and perspectives (Sandelowski & Leeman 2012). Secondly, I provided a clear purpose for the study and the rationale why this study was necessary. I hoped that this step would help participants to clearly understand and encourage them to contribute to this research.

I gave the participants time to read the participant information sheet and answer any questions before starting the interviews on the following day. I have learned to ensure they fully understand the rationale for the research and also provide an opportunity for participants to know the researcher before starting the interviews.

After a few interviews, I was felt more confident and comfortable. I remembered one participant told me '*we do not know whether we are doing well or not* [in our work]. *We have never been interviewed and we have never been told that what we do it is okay for women or not* (HP_1)'. Another participant said '*you might need to interview pregnant adolescent women' parents or people in community or their teacher in high school about this issue. I think it may be useful for helping the adolescent pregnancy issue in Thailand*

(HP_5)'. Overall, I felt satisfied that I conducted this study even though it was difficult because I was unconfident for the first few interviews.

Dealing with unexpected situations

In the second challenge of the reflection, some unexpected situations occurred. The first issue was recruitment of participants. When an appointment was made after meeting with the participants to introduce myself, a few cancellations occurred. Some participants needed to cancel the interviews because they had an urgent issue, such as an operation or other meeting. These cancellations occurred when I had arrived there (in the study setting) to conduct the interview. Rescheduling of the interviews needed to be done, but it was a difficult to organise new times as I wanted to ensure it would not be cancelled again. I felt the pressure of my own time restrictions and it was challenging for me to handle the cancellations. What I had learnt from this situation is that when the interview was cancelled by the participant, I should provide them more time to make a decision for the next meeting. I also gave them more choices to choose any time when they were available. These could help me to recruit the planned number of participants for the study.

The second issue was the environment of the interview. This can be divided into three components: 1) interviewer, 2) location for conducting the interview and 3) recorders. Firstly, in learning how to be a qualitative interviewer, active listening rather than active questioning was necessary. I had to show the participants how I was interested and appreciated their experience. I made sure that my interview questions were objective and did not judge them in any way. Secondly, the location should make the participant feel comfortable to speak up and feel free to share their stories and discuss any issues in private. The final issue was the process of using audio-recorder and taking notes. As I am a novice interviewer, I felt I needed to use note-taking as well as using audio-recorders (two recorders every interviews). I used note-taking to remind me to discuss any further issue with the participants and also to keep track of their main words. I tried to balance between paying attention while taking notes and being interactive in the

interviews. I used two audio-recorders in case one of them had any unexpected problems and checked the recorders before the interviews.

The final issue was closure of the interview and the use of audio-recorders. The audio-recorder was organised to record for 40-90 minutes. When the time to end the interview came, some participants continued talking, even though they were not being recorded. Note-taking helped me write down any interesting issues that were raised after the termination of the recording. This occurred with a few interviews, so this led me to consider that some participants might feel free to talk without feeling that they were being recorded. I would recommend for future studies that the interviews need to be recorded; however, it would be better not to leave the recorders on the table or in the front of the interviewees as this can be intimidating. Naturally, respecting the participant's rights, the interviewer must explain that the audio-recorder will be used.

Being uncertain and feeling challenged by processing the qualitative data analysis

Data analysis was an area of uncertainty for me as I was a beginner in conducting a qualitative study. Data analysis was the main focus in the post interview reflection. Being new to the NVivo program, I had attended the NVivo workshops four times before the study. The first time I attended, I could not understand anything about the NVivo workshop. When I attended the second time it helped me to understand a bit more. I thought it was not enough so I attended the third time. When I did the preliminary work, I attended the NVivo workshop again and was able to refer back to my notes from these workshops.

Translation became another issue in this post-interview stage. The interviews were conducted in Thai, so the data needed to be translated into English. I transcribed and translated 25% of all the interviews and the rest of the interviews were done by professional transcribers and translators. I went through all transcripts in Thai and English to double check the translation. This process took more time than I expected, making this data analysis process challenging and time consuming.

Chen and Boore (2010) recommend translation procedures for qualitative studies that use non-English language to collect data. They recommend four steps to increase the trustworthiness of interview data in these situations. The first step is verbatim transcription in original language and then analysis of content. I transcribed 25% of the interviews and the professional transcriber was hired to finish this process. After that, content analysis was applied to check key concepts in Thai language.

The second step was checking of key concepts by two bilingual translators. In this step, I checked in detail and then key concepts were checked by myself (the researcher) and the professional translator.

The third step was back-translation of the key concepts in English to the original language. In this step, I rechecked the key concepts and back translated from English to Thai because the culture and language factors might influence the meaning of those concepts (Chen & Boore 2010). To ensure the trustworthiness of the original meaning of interview data, I again discussed them with the professional translator.

The final step was to have agreement from the expert panel in the final translation. In this step, all supervisors had checked key concepts and quotes in English and discussed any question and issues for clarification.

Summary of developing interview skills to collect data with healthcare professionals

Understanding how care was provided to pregnant adolescent women and how this care can be improved was vital to my thesis. I appreciated doing the interviews as I felt that they presented the real voices and stories of the healthcare professionals. It was meaningful and also provided a direction to improve care for pregnant adolescent women in my country.

Reflection on learning interview skills to collect data with adolescent women

Several studies in nursing and midwifery have attempted to improve the quality of maternity care provided to young women using qualitative research methods (Boyle, Thomas & Brooks 2016; Bwalya et al. 2018; Chikalipo et al. 2018) including in Thailand (Pungbangkadee & Ratinthorn 2014; Thitimapong, Petpichetchian & Wiroonpanich 2015). This group is considered a vulnerable population and ethical considerations in the methodological design need to be clarified to ensure no physical or psychological harm occurs to the participants (National Statement on Ethical Conduct in Human Research 2007 (Updated 2018)).

The group interview was conducted after the women had given birth. In some group interviews, there were initial relationship difficulties with the adolescent women since they did not know the researcher or each other and may have been concerned about expressing their views. Using a variety of communication skills and well-organised group interview processes were essential to gather data from these women.

The aims of this reflection were to discuss the challenges and learning opportunities of undertaking the group interviews with adolescents and to provide strategies from this experience for others in the future. The stages of reflection were divided into three main challenges: 1) addressing the ethical considerations and building relationship with adolescent women, 2) being an active listener and having various interview techniques and 3) Difficulty with transcribing the group interviews. All three challenges were summarised in **Table 18** and indicated in details below.

Table 18: Reflections and strategies of learning interview skills to collect data with adolescent women

Reflections	Contributing factors	Strategies
The first challenge of addressing the ethical considerations and building relationship with adolescent women	• Acknowledging they were vulnerable group • Having difficulty at the beginning of the group interviews	- Considering the women's capacity to understand what the research entailed - Respecting the women's ability to freely participate in the research and not be coerced by their parents - Ensuring to establish a good relationship before conducting the interviews - Having conversation to build trust with the women
The second challenge of using active listening and a variety of interview techniques	• Being reticent about answering questions • Being shy to express their feeling	- Being an active listener without judgment - Using simple questions - Asking open-ended questions - Acknowledging the women' answers by using verbal and non-verbal cues - Pausing or using silent technique when it is necessary - Using prompts to help women to elaborate on their responses - Using the participant word reflective technique

Reflections	Contributing factors	Strategies
The third challenge of difficulty with transcribing	• Having difficulty with transcribing group interviews	- Using note taking to remind myself of key words from each woman

Addressing the ethical considerations and building relationship with adolescent women

In the first challenge, there were two major issues. The first issue was ensuring that ethical considerations for this group of women were addressed. There were four concerns in conducting group interviews with adolescent women. The first concern was ensuring the women's capacity to understand what the research entailed, respecting their ability to freely participate in the research, without coercion from their parents, and not to account for conflicting values and interests of their parents. The second concern was providing the option for young mothers to participate with or without having a parent present in the group interview. The third concern was providing support if the young mothers became distressed during data collection. The final concern was to obtain parental consent for young mothers, aged younger than 18 years old. I conducted the group interview at the postnatal care unit because the hospital's requirement of parental presence helped me to obtain consent from parents of participants where necessary.

The second issue was building a relationship with, and becoming known to, the adolescent women. I had to ensure women felt I was not judging them for being a pregnant woman at a young age. My aim was to make women feel they were telling their story or sharing their experience rather than being questioned. Hence, building a relationship needed to be done before conducting the interviews. After contacting the managers of three hospitals, I made individual contact with each woman on the first day of their admission to postnatal care units and made an appointment to conduct the group interview on the following day. Some women I had met during their pregnancies in the Teenage pregnancy clinics, so they recognised me.

Women who met the inclusion criteria were approached on the first postnatal day. At the first meeting, I introduced myself and gave a brief overview of the purpose of the study. My general conversation included questions about how they were, how their baby was, how they gave birth and how they were feeding their babies. These acted as ice-breakers, to help them feel comfortable to talk further with me in the group

interview the following day. This was a crucial way of establishing an initial relationship and building basic trust.

Using active listening and a variety of interview techniques

In the second challenge of being an active listening and using a variety of interview techniques were the main strategies for conducting the interviews. In some group interviews, I had initial relationship difficulties with the women since they were not familiar with me and concerned about expressing their views to a stranger. Several techniques needed to be applied during the interview stage to establish a good relationship and building trust: using simple questions, employing non-verbal communication and providing opportunities for them to ask questions. Explaining that the interviews were confidential was important to gain trust.

During the interviews, six interview techniques were used to help me access a deeper experience from the women. Some women would not explain in detail, so using other interview techniques helped them to think and rethink what happened and how they felt about their care during pregnancy.

The first technique was using simple questions, for example, 'Did you like the Teenage pregnancy clinic?', or 'How did you feel when you received care during your pregnancy?'. These often elicited yes/no answers but this was an important start and provided an opportunity to talk.

The second technique was asking open-ended questions to encourage participants to share their feelings or experiences and to feel free to talk at length, for example, 'Could you tell me your experiences when you attended the Teenage mother clinic?' Morrison and Flegel (2017) suggest that using open-ended questions can help participants to: (1) give non-specific answers and more variety, (2) encourage more accurate answers, and (3) enhance rapport to enable them to explain their feelings (Whiting 2008).

The third technique was acknowledging the participants answers and feelings with verbal and non-verbal agreements, such as, ‘umm’, ‘okay’, ‘yes’, and ‘nodding’.

The fourth technique was being silent, providing time for participants to process their thoughts.

The fifth technique was using interview prompts. Some women gave only short answers, so it was important to use the interview prompts by asking ‘please tell me more’ to help them to elaborate on their responses (Whiting 2008).

The sixth technique was using the women’s key words or phrases as a participant word reflective technique, to help them to reflect on their responses so they could give more details. At the end of the group interview, I provided opportunities for women to ask questions.

Difficulty with transcribing

In the third challenge of having difficulty with transcribing, most of the concern was about the transcribing the group interviews. It would be better if I had hired a research assistant who might help me to take notes during the group interviews but due to resources this was not possible. However, I also took some notes and key words during the interviews. When I went back to check the transcripts, the note-taking was helpful. I did draw a picture of who sat where and noted some characteristics for each woman. This also helped me recognise who was speaking about the issues although ultimately it was the group data that was important rather than tracking individual woman.

Summary of learning interview skill to collect data with adolescent women

Reflecting on learning skills to conduct the group interviews with adolescent women, I have learnt about the nature of young women, for example, those who are shy, reticent, reluctant, anxious, scared and intolerant. They were more likely to be comfortable to answer easy and short questions, particularly in the initial stage of the interview. They usually gave short answers, so prompts during the interview, for example, ‘please tell

me more' needed to be used several times. Many seemed to have a concentration span of around 30 minutes, limiting the time for them to participate in the interview.

I learnt that when they paused during the interview, they either needed more time to think about answers or they did not understand the meaning of the question. The last thing I learnt was that sequential interviews would yield more information than the single interviews I had the opportunity to do. This would build more trust and, would be more supportive of the nature of young people.

My perceived strengths for conducting the interviews with young women were being open-minded, relaxed, friendly and interested to learn about the young women's experiences and perspectives, not to judge them. I tried to focus on active listening. However, I did not anticipate the short off-handedness of some responses and did not always find a way around them with other strategies to get more information. In future work in this area I would undertake the sequential interviewing to build more trust. This would also be more suitable for this group as they cannot focus on long interviews. I would try to learn and understand the nature of young people in the setting before conducting the interview and I would have an adolescent person to be an assistant researcher with me.

Strengths of the study

This is one of the first studies in Thailand to examine the perspective of the health professionals involved in the Teenage pregnancy clinics and other services provided. This mixed methods approach enabled me to explore the issues for adolescent women from a range of perspectives, to better understand the quality of maternity care of the Teenage pregnancy clinics in Thailand. This enabled an evaluation of clinical perinatal outcomes through the quantitative phase as well as a qualitative exploration of the direct experiences and perspectives from both the healthcare providers and the women. This mixed method study gave a unique perspective in different ways of looking at the experiences--both views of healthcare providers and women and perinatal outcomes amongst adolescent women. These challenges provide the areas of opportunities to improve effective care for Thai pregnant adolescent women.

By being able to use the theoretical framework, the research was able to be analysed into structure, process and outcome leading me into a logical data analysis toward an understanding of the factors and significant issues that can guide future designs of the evidence based programs of care for pregnant adolescent women.

The final strength of this study is the careful translation process that was undertaken in terms of conducting a study like this in a language other than English. The one-to-one interviews and group interviews gathered qualitative data in the form of audio-files. Careful translation procedures were applied to ensure the accuracy of the transcriptions. This translation process was adapted from Chen and Boore (2010). In addition, a reflective diary was written during the data collection to memorise stories and the process of first undertaking the interviews.

Limitations of the study

There are a number of limitations in this mixed methods study. The first limitation was incomplete data in the quantitative data to describe perinatal outcomes amongst pregnant adolescent women. The missing data was less than 10%, so it was acceptable in the context of this study method. Unfortunately, data of psychological issues were not available in the existing data set of this study.

The second limitation is that it was not possible to recruit adolescent women aged younger than 16 years at the time of the interview. This limits the ability to generalise the experience of early adolescents (12 to 15 years) with only healthcare professional and quantitative information for this group. The group interviews were conducted in the postpartum wards, so the participants were asked to recall their experiences when they received antenatal care from the Teenage pregnancy clinics. This became an issue for a few participants when they could not recall much detail.

The young women who participated in this study lived in urban areas. The findings might not be representative of the wider range of pregnant adolescent women' experiences receiving the care in Thailand. The interviews were with the women only and highlighted the impact that the family, community and peers had on women's experiences. It would be useful in future studies to include their perspectives to obtain a more holistic view of the experiences.

The third limitation is that healthcare professionals were also recruited from urban areas where there was a high rate of repeat pregnancies amongst adolescent women. The findings may have been different if the study were conducted in other contexts such as in private hospitals or rural areas. Adolescent pregnancy may be more accepted in rural areas which would alter the experiences and perceptions of the staff and possibly the young women themselves. Another final limitation is that the health providers volunteered to participate, and as a result may have been more supportive of the clinics and the young women than those who did not participate.

Implications for the future research and practice

The implications for the future research and practice that emerged from this study are that the provision of quality care for pregnant adolescent women in Thailand may be improved by ensuring there is continuity of care, enhancing the healthcare professionals' scope of practice through further education and better opportunities to provide social and emotional support. This may include training in communication skills for working with adolescents and education around psychological and emotional care and collaborating with community organisations. Effective antenatal education about nutrition and pain relief in labour, including using alternative complementary methods also needs to be more researched in order to reduce the incidence of anaemia in pregnancy and the use of pethidine during the intrapartum period.

Structural barriers to the provision of maternity care for pregnant adolescent women in Thailand resulted in inadequate levels of continuity of care. By increasing pregnant adolescent women' access to continuity of care and carer, healthcare professionals may be able to communicate more effectively, build trust, engage with and have respect for pregnant adolescent women. Recommendations from previous Thai studies also suggested the importance of expressing positive attitudes and developing a relationship of trust with pregnant adolescent women so that carers or providers can reassure adolescent women to disclose their needs (Phoodaangau, Deoisres & Chunlestskul 2013; Pungbangkadee et al. 2008; Termpittayapaisith & Peek 2013; UNICEF 2015). In 2016, continuity of care was recommended by the World Health Organization (World Health Organization 2016a) as a way to provide a positive pregnancy experience for all women. Future research needs to be done in the context of implementing models of care, with the findings of this study taken into account, that provide effective continuity of care for Thai pregnant adolescent women.

The establishment of continuity of care and carer should be implemented from the antenatal period and followed through childbirth and postpartum care to enhance interaction between the carers and the women and improve communication and support (Tunçalp et al. 2017). The core concept of the continuity of care needs to be

introduced in nursing and midwifery education to assist students in their clinical practice to provide care for and engage with women. Meeting the women's needs should be done by considering an innovation of care, such as continuity of care throughout pregnancy, childbirth, postpartum care and home visit. Nonetheless, this improvement may require an expansive revision of the practice by nurse and midwife team.

Although this study aimed to explore care during pregnancy, data from women's experiences showed a desire for home visits by nurses and midwives. Home visits are not in the scope of practice of nurse and midwives in Thailand. However, this group of women felt that home visits would be a useful form of support. Holistic healthcare services should be provided for pregnant adolescent women to meet their needs during pregnancy and after birth (Laeheem & Suwansuntorn 2014) and this should include a continuation of care from the hospital. In order to address the core concept of *having needs as a young mother,* accessible maternity care services provided to women during pregnancy, childbirth and shortly after giving birth (Sa-ngiamsak 2016) requires additional care at home. Again it may be easier to engage young women if carers are familiar with women.

The role of the family of these young women is clearly important. Even when the pregnant women in this study found it was hard to disclose their pregnancies to the parents, their family became the key source of social support, in particular for parenting, childrearing, and returning to education. Most adolescents were also being encouraged to go to antenatal care by parents, highlighting the commitment of the family. Formulating improvements in the practice of antenatal care towards woman-centred and family-centred care models are necessary in caring for pregnant adolescent women in Thailand. It could be argued that because of their youth they are still dependants and the family is vital – so a new design model with woman-centred care would need to include the family – especially with the younger ones. In my findings from healthcare professionals' and adolescent women's experiences, the Thai cultural context of family structure can be seen as the main social support for adolescent women. To provide a holistic maternity care to adolescent women, involving their family may be an essential

part of the care program. For example, the care should include providing information of understanding and supporting for pregnant adolescent women or establishing centre for adolescents and their family.

In my literature review, one of most common pregnancy complications in adolescent women was anaemia. In my qualitative findings, healthcare professionals also stressed that one major problem in caring for pregnant adolescent women was poor weight gain in pregnancy due to poor diet and skipping meal. Healthcare professionals stated that it was challenging to emphasise the importance of nutrition and weight gain to the adolescent women. Combining nutrition education with providing continuity of care may encourage adolescent women with their individual weight gain goals. This antenatal education should include pain relief during childbirth, including using alternative complementary methods to reduce the high level of the use of pethidine for adolescent women.

Conclusion

Whilst a positive pregnancy experience has been driven by transforming antenatal care, as the World Health Organization (2016a, 2018d) recommends for all women, improvement is still needed in caring for pregnant adolescent women in Thailand. The information from both the perspectives and experiences of healthcare professionals and adolescent women and reviewing perinatal outcomes may help to provide the opportunity to transform antenatal care and the future implementation of programs to provide a positive pregnancy experience for Thai pregnant adolescent women. There is a need to prioritise the collaboration of healthcare services and community-based innovations to improve the care for pregnant adolescent women. Implementing appropriate innovative care can provide physiological and psychological care and social supports for pregnant adolescent women to meet their *needs as a young mother*.

The results of this study may inform healthcare professionals, local administrative organizations, and policymakers in Thailand concerning the systems of care required and addressing the needs of pregnant adolescent women. The study details under the core

concept, *'recognising the challenges of providing care for young Thai pregnant women*', may support healthcare services and providers to formulate maternity care in other similar contexts addressing adolescent pregnancy.

More research on implementing maternity care programs for pregnant adolescent women in Thailand can expand the new knowledge to ensure that a positive pregnancy experience provides to all women. Future research opportunities include developing new models of care that provide continuity of care and carer and addressing perinatal mental health issues in the adolescent population in Thailand.

Appendices

Appendix a: Summary of literature review search strategies of adverse perinatal outcomes amongst pregnant adolescent women

Databases	1. Cochrane Library (Wiley) 2. CINAHL (EBSCO) 3. MEDLINE (OVID) 4. ProQuest Health & Medicine 5. PubMed 6. Science Direct (Elsevier)
Key/Search words	adolescent pregnancy OR teenage pregnancy OR young pregnancy adolescent women OR woman young women OR woman adolescent pregnant women OR teen pregnant women adolescent mother OR teen mother OR young mother AND perinatal outcomes OR pregnancy complications OR childbearing complications OR high-risk pregnancy
Limitation	
Month/Year Published	January 2000 to June 2016
Language	English language
Location	Globally
Type of publication	Peer review
Inclusion/Exclusion Criteria	
Inclusion criteria *	A comparative study with concurrent controls (III-2): • Non-randomised experimental trial • Cohort study • Case-control study • Interrupted time series with a control group
Exclusion criteria *	A comparative study without concurrent controls (III-3) Case series with either post-test or pre-test/post-test outcomes (IV)

* NHMRC levels of evidence (NHMRC 2009)

Appendix b: One example of bibliographic databases: Medline (OVID) of adverse maternal and perinatal outcomes amongst pregnant adolescent women (first review question)

Number	Searches	Results
12	limit 11 to (English language and yr="2000 - Current")limit 11 to (English language and yr="2000 -Current")	509
11	9 and 10	1217
10	3 OR 4 or 5 OR r 6 OR 7 OR 8	239857
9	1 OR 2	8029
8	Delivery, Obstetric/ OR Labour, Obstetric/	48619
7	spontaneous abortion.mp. OR Abortion, Spontaneous/	21344
6	fetal deaths.mp. OR Fetal Death/	24272
5	preterm births.mp. OR Premature Birth/	9992
4	Anaemia/	46354
3	Pregnancy Outcome/ OR Pregnancy Complications/	113293
2	teenage pregnancy.mp. OR Pregnancy in Adolescence/	7490
1	adolescent pregnancy.mp. OR Pregnancy in Adolescence/	7613

Appendix c: Summary of literature review search strategies of models of maternity care for pregnant adolescent women (second review question)

Databases	1. Cochrane Library (Wiley) 2. CINAHL (EBSCO) 3. MEDLINE (OVID) 4. ProQuest Health & Medicine 5. PubMed 6. Science Direct (Elsevier)
Key/Search words	adolescent pregnancy OR teenage pregnancy OR young pregnancy OR adolescent women OR young women adolescent pregnant women OR teen pregnant women adolescent mother OR teen mother OR young mother AND Midwifery/ OR Maternal Health Services/ OR midwifery care.mp. OR Nurse Midwives/ OR Prenatal Care/ Prenatal Care/ OR Maternal Health Services/ OR maternity care.mp. OR Midwifery/ OR Nurse Midwives/
Limitation	
Month/Year Published	January 2000 to June 2016
Language	English languages
Location	Globally
Type of publication	Peer review
Inclusion/Exclusion Criteria	
Inclusion criteria *	A systematic review (Level I) A randomised controlled trial (Level II) A pseudorandomised controlled trail (III-1) A comparative study with concurrent controls (III-2): • Non-randomised experimental trial • Cohort study • Case-control study
Exclusion criteria *	A comparative study without concurrent controls (III-3) • Historical control study • Two or more single arm study • Interrupted time series without a parallel control group Case series with either post-test or pre-test/post-test outcomes (IV)

* NHMRC levels of evidence (NHMRC 2009)

Appendix d: One example of bibliographic databases: Medline (OVID) of models of maternity care for pregnant adolescent women (second review question)

Number	Searches	Results
8	limit 7 to (english language and yr="2000 -Current")	348
7	3 and 6	892
6	4 OR 5	51316
5	Prenatal Care/ OR Maternal Health Services/ OR maternity care.mp. OR Midwifery/ OR Nurse Midwives/	51240
4	Midwifery/ OR Maternal Health Services/ OR midwifery care.mp. OR Nurse Midwives/ OR Prenatal Care/	50245
3	1 OR 2	8029
2	teenage pregnancy.mp. OR Pregnancy in Adolescence/	7490
1	adolescent pregnancy.mp. OR Pregnancy in Adolescence/	7613

Appendix e: Summary of studies included in the literature review of adverse maternal and perinatal outcomes amongst pregnant adolescent women (first review question)

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
1 Althabe et al. 2015 - Western Kenya, - Kafue and Chongwe, Zambia - Thatta, Pakistan - Belgaum, India - Nagpur, India - Chimaltenango Guatemala - Santiago del Estero Argentina	A prospective cohort study (III-1)	To explore whether adolescent pregnant women are at higher risk of adverse maternal and perinatal outcomes	- 269,273 participants from seven study sites were observed the adverse outcomes between 2010 and 2013. - Pregnant women, who were giving birth ≥ 20 weeks' gestation and weighing ≥ 500 grams were recruited. - 370 women, aged younger than 15 years were a first study group. - 32,097 women, aged 15-19 years were a second study group. - 120,872 women, aged 20-24 years were an adult group (control group).	- The higher rate of antepartum haemorrhage (APH) was found in adolescent pregnant women, aged 15-19 years than adults group both South Asia and Sub-Saharan African/Latin American sites. - The significant incidence of hypertensive disorders and obstructed labour was explored in both adolescent groups compared with adult group in South Asia and Sub-Saharan African/Latin American sites. - The significant incidence of preterm birth (PTB) and low birth weight (LBW) was investigated in adolescents compared with adults.	- Rates of adverse perinatal outcomes in early adolescents and adolescents were higher than in adults, especially PTB and LBW. - The risk of adverse perinatal outcomes should be the main concern in adolescent pregnancy. - The socio-economic factors or quality of antenatal or childbearing care can affect perinatal outcomes.
2 Bildircin et al. 2014 Turkey	A retrospective cohort study (III-2)	To analyse perinatal outcomes amongst adolescent pregnant women	- 1,861 labour records between 2006 and 2013 were assessed. -574 pregnant women, aged 15-19 years were an adolescent group (study group). - 1,334 pregnant women, aged 20-47 years were an adult group (control group).	- There was a higher incidence of anaemia, low Apgar scores, LBW and extremely LBW was indicated in adolescent pregnant women than in adults. - The incidence of C/S rate was higher in the adult group than in the adolescent group.	The improvement of prenatal care is important for adolescent pregnancy in Turkey to reduce adverse perinatal outcomes.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
				- The incidence of postpartum haemorrhage (PPH) was higher in adult mothers than in adolescent mothers.	
3 Chantrapanichkul and Chawanpaiboon 2013 Bangkok, Thailand	A retrospective cohort study (III-2)	To investigate pregnancy outcomes amongst adolescent pregnant women	- 2,161 completed labour charts between 2006 and 2010 were assessed. - 1,061 pregnant women, aged ≤ 16 years were an adolescent group (study group). - 1,100 pregnant women, aged 20-29 years were a non-adolescent group (control group).	- The incidence of pregnancy complications including anaemia, heart disease, thyroid disorder, gestational diabetes mellitus (GDM), placenta previa and PTB was investigated in adolescent pregnant women and compared with non-adolescents. - Mean birth weight of infants was higher in adult mothers than in adolescent mothers.	- The adverse perinatal outcomes occurred mostly amongst adolescent pregnant women in Thailand and globally. - The implication for further study is that comprehensive knowledge of contraceptives which should be provided for adolescents to reduce poor childbearing outcomes.
4 Chibber et al. 2014 Kuwait	A retrospective cohort study (III-2)	To assess maternal and perinatal outcomes in primiparous adolescent pregnancies	- 8,279 case records between 2002 and 2010 were assessed. - Pregnant women, aged ≤ 19 years were an adolescent group (study group). - 3,863 case records were divided into three study groups: (1) 78 women, aged < 15 years, (2) 307 women, aged 15-16 years, (3) 579 women, aged 16-17 years, 1,275 women, aged 17-18 years, and (4) 1,622 women, aged 18–19 years.	- The incidence of preeclampsia, eclampsia, and prolonged pregnancy was explored in adolescent pregnant women compared with non-adolescents. - The incidence of PROM, PTB, dysfunctional labour, CPD, and C/S were found to be higher in adolescent mothers rather than non-adolescent mothers.	- A lack of psychosocial supports related to the incidence of PTB and PROM in adolescent pregnant women. - The improvement of psychosocial supports was the main concern for adolescent pregnant women.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 4,416 pregnant women, aged 20-29 years were a non-adolescent group (control group).		
5 Conde-Agudelo, Belizan & Lammers 2005 USA	A cross-sectional retrospective cohort study	To explore whether motherhood at a young mother age is related to adverse pregnancy outcomes	- 854,377 case reports between 1985 and 2003 were assessed. - Latin American women, aged 10-24 years old were recruited in this study. - Inclusion criteria were a singleton pregnancy, gestational age at birth ≥ 20 weeks or baby's birth weight ≥ 400 grams. - In the study group, case reports were divided into three groups: (1) 33,498 women, aged ≤ 15 years, (2) 119,723 women, aged 16-17 years, and (3) 191,405 women, aged 18-19 years. - 509,751 women, aged 20 to 24 years were a control group.	- The incidence of LBW, very LBW, PTB, very PTB, and SGA was investigated in adolescent mothers compared with adult mothers. - Pregnant women, ≤ 15 years showed a higher rate of neonatal death compared with the adult group.	- There was a higher incidence of adverse pregnancy outcomes in nulliparous adolescents compared to parous pregnant women. - Further study should explore improvements in prenatal and obstetric care to improve outcomes amongst adolescent pregnant women.
6 Dutta & Joshi 2013 Southern India	A prospective cohort study (III-1)	To investigate maternal and perinatal outcomes and complications in adolescent primigravida	- 240 participants between 2010 and 2012 were observed for pregnancy complications and outcomes. - 80 pregnant women, aged ≤ 20 were an adolescent group (study group).	- A higher incidence of anaemia was noted in an adolescent group rather than non-adolescents. - The incidence of hypertensive disorders of pregnancy was higher in an adolescent group rather than non-adolescents. - The incidence of PTB, LBW, and birth asphyxia was higher in an adolescent	- A lack of socio-economic supports and education led to perinatal complications. - Programs of care should be further investigated to reduce complications for this group, particularly in rural areas.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 160 pregnant women, aged 20-29 years were a non-adolescent group (control group).	group rather than a non-adolescent group.	
7 Edirne et al. 2010 Turkey	A comparative study (III-1)	To explore risk factors and pregnancy outcomes in pregnant adolescent compared with non-adolescents	- Face-to-face questionnaires and interviews were conducted in this comparative study. - 1,872 participants between 2008 and 2009 were recruited by using the random number tables. - 211 pregnant women, aged < 19 years were an adolescent group (study group). - 1,661 pregnant women, aged ≥ 19 years were a non-adolescent group (control group).	- An increased significant risk of PTB and LBW was explored amongst adolescent pregnant women rather than a non-adolescent group.	Cultural factors were associated with poor perinatal outcomes amongst adolescent pregnant women, more so than economic factors.
8 Eren et al. 2015 Istanbul, Turkey	A retrospective cohort study (III-2)	To assess pregnancy outcomes amongst adolescents	- 2,491 case records between 2005 and 2010 were assessed. - 998 pregnant women, aged mean 17.10 years were an adolescent group (study group). - 1,493 pregnant women, aged mean 26.73 years were a non-adolescent group (control group).	- There was a higher incidence of PROM, PTB and preeclampsia in the adolescent group compared with the non-adolescent group.	The incidence of poor maternal and perinatal outcomes was common in adolescent group, so the effective program of care should be provided for this group.
9 Ezegwui, Ikeako & Ogbuefi 2012 South-East, Nigeria	A retrospective cohort study (III-2)	To explore obstetric outcomes amongst adolescent pregnant women	- 179 birth records between 2000 and 2005 were assessed. - 74 pregnant women, aged 11-19 years were an adolescent group (study group).	- The incidence of anaemia was higher in an adolescent group rather than in a non-adolescent group.	The higher rates of adverse perinatal outcomes should be addressed by providing the knowledge of

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 105 pregnant women, aged 20-34 years were a non-adolescent group (control group).	- The incidence of C/S rate was higher in an adolescent group rather than non-adolescent group. - The incidence of APGAR scores < 7 at one minute and perinatal death was higher in an adolescent group compared with a non-adolescent group.	contraceptive use and socioeducational development for adolescent women.
10 Figueiredo, Pacheco & Costa 2007 Portuguese	A comparative study (III-1)	To examine the prevalence and risk factors for depression during pregnancy and postpartum periods amongst adolescent pregnant women	- A socio-demographic questionnaire and Edinburgh Postnatal Depression Scale (EPDS) questionnaires were conducted in this comparative study. - 54 adolescent pregnant women were randomly allocated to study group. - 54 pregnant women were randomly allocated to an adult group (control group).	- Depressive symptoms (EPDS>12) during pregnancy and postpartum period were investigated amongst adolescent pregnant women, but there were not found in adult pregnant women.	The preventive and intervention measures for treatment of depression should be provided for adolescent pregnant women.
11 Fleming et al. 2013 Ontario, Canada	A retrospective cohort study (III-2)	To identify adverse perinatal, obstetrical, and neonatal outcomes amongst adolescent pregnant women	- 551,079 case reports between 2006 and 2010 were assessed. - 23,810 pregnant women, aged < 20 years were recruited to an adolescent group (study group). - 523,021 pregnant women, aged 20-35 years were recruited to an adult group (control group).	- A higher risk of PPROM and emergency C/S was shown in an adolescent group rather than an adult group. - The incidence of NICU admission and very PTB was explored in an adolescent group compared with an adult group. - There were lower rates of prenatal class attendance, prenatal visits in the	The multidisciplinary prenatal management may improve perinatal outcomes amongst adolescent pregnant women.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
				first trimester, and breastfeeding represented in an adolescent group than an adult group.	
12 Fouelifack et al. 2014 Cameroon	A cross-sectional retrospective study (III-2)	To study pregnancy outcomes amongst adolescent pregnant women	- 5,997 delivered records between 2008 and 2010 were assessed. - 560 pregnant women, aged 10-19 years were recruited to the adolescent group (study group). - 5,437 pregnant women, aged 20 years or older were recruited to the adult group (control group).	- The significant incidence of PTB and post-term birth represented in an adolescent group compared with an adult group. - The incidence of perinatal death and fetal death after resuscitation were higher in an adolescent group than an adult group.	The incidence of poor pregnancy outcomes associated with adolescent pregnant women, so the further improvement of maternity care was necessary to reduce this problem.
13 França Gravena et al. 2013 Maringa, Parana, South of Brazil	A cross-sectional retrospective study (III-2)	To examine perinatal outcomes amongst adolescent pregnant women and elderly pregnant women compared with adults	- 18,009 case reports between 2007 and 2009 were assessed. - 2,161 pregnant women, aged 10-19 years were recruited to an adolescent group (study group). - 2,454 pregnant women, aged ≥ 35 years were recruited to older pregnant group (study group). - 13,394 pregnant women, aged 20-34 years were recruited to an adult group (control group).	- The incidence of LBW and PTB was higher amongst adolescent pregnant women and older pregnant women compared with control group. - The incidence of five-minute Apgar score < 7 was highest in adolescent pregnant women rather than another group.	These findings showed the higher rates of adverse perinatal outcomes in adolescent pregnant women and older pregnant women, so the further implications should develop effective programs of care for them.
14 Ganchimeg et al. 2013 Twenty-four countries in Africa, Latin America, and Asia	A cross-sectional prospective study (III-1)	To explore the risk of poor pregnancy outcomes and caesarean section amongst adolescent	- This study applied a stratified multistage cluster sampling design to select twenty-four low- and middle-income countries.	- There was significantly lower risk of C/S represented in an adolescent group compared with a non-adolescent group. - The significant incidence of C/S due to CPD was explored amongst an early	- The risks of adverse pregnancy outcomes were associated with maternal age and increased poor pregnancy outcomes were

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
Global study		pregnant women in LMICs	- 78,646 pregnant women were surveyed to explore poor pregnancy and C/S rates. - 2,361 pregnant women, aged ≤ 15 years were recruited to an early adolescent group (study group) - 27,398 pregnant women, aged 16-19 years were recruited to an adolescent group (study group). - 48,887 pregnant women, aged 20-24 years were recruited to a non-adolescent group (control group).	adolescent group compared a non-adolescent group. - The risk of LBW was found higher both adolescents, aged 16-19 and ≤15 years than mothers aged 20-24 years. - The risk of PTB was higher in both adolescents aged 16-19 and ≤15 years when compared to mothers, aged 20-24 years.	found in the early adolescent women.
15 Ganchimeg et al. 2014 Twenty-nine countries in Africa, Latin America, Asia and the Middle East Global study	A cross-sectional prospective study (III-1)	To explore whether adolescent mothers at a higher risk of poor pregnancy outcomes compared with non-adolescents after controlling for the confounding factors	- Multi-countries in Africa, Latin America, Asia and the Middle East were selected by using a stratified multi-stage cluster sampling strategy. - In 359 health facilities, 124,446 pregnant women, aged ≤ 24 years and had a gestational age at least 22 weeks with a birth weight of a baby at least 500 grams were surveyed to explore poor pregnancy outcomes between 2010 and 2011. - 32,179 pregnant women, aged ≤ 19 years were recruited to an adolescent group (study group).	- The incidence of eclampsia, puerperal endometritis, systemic infections, LBW, PTB and severe neonatal conditions were higher in adolescent mothers than non-adolescent mothers. - In adolescent mothers, the lower incidence of the coverage of prophylactic uterotonics, prophylactic antibiotics for C/S and antenatal corticosteroids for PTB at 26–34 weeks was identified.	Pregnancy prevention and improvement of healthcare intervention should be provided amongst adolescent mothers to reduce adverse pregnancy outcomes, in particular LMICs.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 92,267 pregnant women, aged 20-24 years were recruited to the non-adolescent group (control group).		
16 Huang et al. 2014 Taiwan	A retrospective cohort study (III-2)	To analyse poor pregnancy and perinatal outcomes amongst early adolescents, adolescents, and adults	- 335,590 case records between 2002 and 2011 were assessed. - 1,199 pregnant women, aged ≤ 15 years were recruited to an early adolescent group (study group). - 38,716 pregnant women, aged 16-19 years were recruited to an adolescent group (study group). - 295,675 pregnant women, aged 20-24 years were recruited to an adult group (control group).	- The incidence of IUGR and PTB was higher in early adolescent mothers and adolescent mothers rather than adult mothers. - The incidence of anaemia, oligohydramnios, failed labour induction, and fetal distress was higher in an early adolescent and adolescent groups rather than an adult group.	- The further implication of special models of maternity care for adolescent pregnant women should develop to reduce risks of medical problems. - Prevention of adolescent pregnancy was essential care this group.
17 Kirbas, Gulerman & Daglar 2016 Ankara, Turkey	A retrospective cohort study (III-2)	To explore an increased risk of perinatal complications amongst adolescent pregnant women	- 3,502 case records between 2008 and 2009 were assessed. - 582 pregnant women, aged ≤ 20 years were recruited to an adolescent group (study group). - 2,920 pregnant women, aged 20-24 years were recruited to the non-adolescent group (control group).	- The risks of PTB and preeclampsia were higher in an adolescent group rather than an adult group. - The incidence of C/S due to CPD was higher in adolescent mothers than adult mothers. - Higher risks of LBW and Apgar scores <7 at five-minute were found in adolescent mothers than adult mothers.	- The increased frequency of prenatal attendances was the main concern to decrease the adverse perinatal outcomes because the findings showed the relation between the higher risks of PTB and low antenatal attendance.
18 Liran et al. 2013 Israel	A retrospective cohort study	To determine an independent risk factor for poor perinatal outcomes	- 31,985 nulliparous pregnant women between 1988 and 2010 were evaluated.	The significant incidence of PTB and LBW was investigated in adolescent mothers compared with adult mothers.	- The adolescent pregnant women demonstrated the higher risks of PTB and LBW rather than adult

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
		amongst adolescent pregnant women	- 7,358 pregnant women, aged 15-19 years were recruited to an adolescent group (study group). - 24,627 pregnant women, aged 20-24 years were recruited to an adult group (control group).		pregnant women because of a lack of prenatal care and socio-cultural factors. - Improvement of prenatal care for adolescent pregnant women is requires further study.
19 Maryam & Ali 2008 Zahedan, Iran.	A retrospective cohort study (III-2)	To analyse perinatal outcomes amongst primiparous adolescents compared with primiparous adults	- 10,352 case reports of primiparous singleton women between 2003 and 2005 were evaluated. - 156 pregnant women, aged ≤ 16 years were recruited to an early adolescent group (first study group). - 1,076 pregnant women, aged 17-19 years were recruited to an adolescent group (second study group). -9,120 pregnant women, aged 20-24 were recruited to an adult group (control group).	- The incidence of PTB and IUGR was investigated in early adolescent and adolescent groups compared with adults. - In particular, the highest incidence of PTB and IUGR was shown in early adolescent pregnant women.	An increased quality of prenatal care was a further improvement for adolescent pregnant women because they were investigated as a high-risk group for the incidence of IUGR and PTB.
20 Medhi et al. 2016 North-East India	A prospective cohort study (III-1)	To identify pregnancy complications and perinatal outcomes amongst adolescent pregnant women	- 495 primiparous singleton women between January 2014 and December 2014 were evaluated. - 165 pregnant women, aged 15-19 years were allocated to an adolescent group (study group).	- The incidence of PTB, LBW, and NICU admission was higher in adolescent pregnant women than in adult pregnant women.	- The further improvement of antenatal, intranatal, and postnatal care was the main implication to reduce the poor obstetric outcomes amongst adolescent pregnant

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 330 pregnant women, aged 20-25 years were allocated to an adult group (control group).		women group, in particular LMICs.
21 Omar et al. 2010 Kuala Lumpur, Malaysia	A comparative case-control study (III-2)	To analyse risk factors and pregnancy outcomes amongst adolescent pregnant women	- Self-administered questionnaire and obstetric and perinatal hospital records were used to gather data in this case-control study. - 223 pregnant women between May 1 and October 30, 2008, were assessed. - 102 pregnant women, aged 15-19 years were recruited to an adolescent group (study group). - 102 pregnant women, aged 20-35 years were recruited to an adult group (control group).	- The incidence of anaemia was higher in adolescent pregnant women than in adult pregnant women. - The higher incidence of a late antenatal visit, an insufficient number of antenatal care (≤7 times based on the Malaysian Ministry of Health guidelines) was investigated in adolescent pregnant women rather than an adult group.	Pregnancy complications were common amongst adolescent women; therefore, further study should focus on the improvement of early antenatal care to reduce adverse maternal outcomes.
22 Omole-Ohonsi & Attah 2010 Nigeria	A retrospective cohort study (III-2)	To explore pregnancy outcomes amongst adolescent primigravida	- 1,000 case reports of primiparous singleton women between 2002 and 2005 were evaluated. - 500 pregnant women, aged 13-19 years were recruited to an adolescent group (study group). - 500 pregnant women, aged 20-34 years were recruited to an adult group (control group).	- The incidence of PTB was higher in adolescent pregnant women than in adult pregnant women. - The incidence of premature neonatal birth and LBW was higher in adolescent mothers than in adult mothers. - A lower incidence of C/S and instrumental deliveries was found in adolescent mothers than in adult mothers.	- Adolescent pregnant women who had the family and social supports experienced improved pregnancy and neonatal outcomes compared to adolescent pregnant women who lacked support.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
23 Pergialiotis et al. 2015 Greece	A retrospective cohort study	To assess pregnancy outcomes and evaluate the antenatal and postnatal characteristics for adolescent pregnant women	- 1,928 case reports of primiparous singleton women between January and December 2012 were assessed. - 224 pregnant women, aged 13-19 years were recruited to an adolescent group (study group). - 1,704 pregnant women, aged 20-34 years were recruited to a non-adolescent group (control group).	- The incidence of PTB and PPROM were higher in adolescent pregnant women than in the adult group. - A lower rate of antenatal surveillance was found in an adolescent group than in an adult group. - The incidence of anaemia was higher in adolescent pregnant women than in the control group.	- The adolescent pregnant women received lower rates of antenatal surveillance which led to an increased pregnancy complications. - Further study should focus on increased antenatal surveillance to reduce adverse pregnancy outcomes.
24 Phipps, Hall & Hodson 2015 At Vidant Medical Center, USA	A retrospective cohort study (III-2)	To determine whether adolescent pregnant women were a higher risk of poor pregnancy outcomes	- 11,835 case reports of pregnant women between 2009 and 2012 were evaluated. - 1,177 pregnant women, aged 13-19 years were recruited to an adolescent group (study group). - 10,658 pregnant women, aged 20-48 years were recruited to an adult group (control group).	- Lower rates of C/S occurred in adolescent group than in an adult group. - The incidence of five-minute Apgar scores < 7 was higher in an adolescent group than in an adult group. - The incidence of NICU admission was higher in an adolescent group than an adult group.	- The incidence of lower Apgar scores and a higher rate of NICU admission were more common in adolescent group than in adult group, so the development of maternity care should focus upon this vulnerable group.
25 Phupong & Suebnukarn 2007 Bangkok, Thailand	A retrospective cohort study (III-2)	To explore several obstetric characteristic and perinatal outcomes in adolescent pregnant women compared with adults	- 242 case reports of pregnant women between 1994 and 2004 were evaluated. - 121 pregnant women, aged < 15 years were recruited to an adolescent group (study group). - 121 pregnant women, aged 20-29 years were recruited to an adult group (control group).	- The incidence of PTB, anaemia and preeclampsia was higher in an adolescent group than an adult group. - The incidence of N/L was higher in adolescent mothers while C/S rates were higher in adult mothers. - The incidence of SGA was higher in adolescent mothers rather than adult mothers.	The development of antenatal care program should be provided in order to reduce adverse perinatal outcomes in Thailand.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
26 Rasheed, Abdelmonem & Amin 2011 Sohag, Egypt	A cross-sectional retrospective study (III-2)	To assess maternal, fetal, and neonatal outcomes amongst adolescent pregnant women	- 5,315 case reports between 2005 and 2009 were conducted. - 2,153 pregnant women, aged ≤ 19 years were recruited to an adolescent group (study group). - 3,162 pregnant women, aged 20-23 years were recruited to an adult group (control group).	- The incidences of PTB, preeclampsia, eclampsia and ectopic pregnancy were higher in an adolescent group than in an adult group. - The incidences of PROM and dysfunctional labour were higher in adolescent pregnant women than adult pregnant women. - However, incidences of prolonged pregnancy and gestational diabetes were higher in adult pregnant women than adolescent pregnant women.	- The adverse pregnancy and perinatal outcomes were common amongst adolescent pregnant women. - The authors concluded that women, aged > 16 years were not associated with increased risk of complications in pregnancy.
27 Sagili et al. 2012 Pondicherry, South India	A retrospective cohort study (III-2)	To analyse the obstetric and perinatal outcomes amongst adolescent pregnant women compared with adults	- 15,498 case reports between 2008 and 2009 were conducted. - 620 pregnant women, aged ≤ 19 years were recruited to an adolescent group (study group). - 14,878 pregnant women, > 19 years were recruited to an adult group (study group).	- The incidence of anaemia, post-term pregnancy and PROM was higher in an adolescent group rather than an adult group. - The incidence of N/L birth rates was higher in an adolescent group whereas C/S rates were higher in an adult group. - The incidence of LBW was higher in adolescent mothers while stillbirth and SGA were higher in adult mothers.	- An improvement in rates of early and adequate antenatal care can lead to a decreased adverse pregnancy and perinatal outcomes. - Further programs of antenatal care should be provided for adolescent pregnant women in LMICs.
28 Stewart, Walsh & Van Eyk 2008 Nova Scotia, Canada.	A retrospective cohort study (III-2)	To analyse adverse maternal and perinatal outcomes amongst adolescent pregnant women	- 51,860 case reports between 2000 and 2005 were conducted. - 918 pregnant women, aged < 19 years were recruited to an adolescent group (study group).	- The incidence of anaemia, PTB, N/L, and LBW was higher in an adolescent group rather than an adult group. - The lower incidence of GDM, breastfeeding (BF), an assisted vaginal delivery, C/S and macrosomia	- Adolescent pregnant women experiencing more anaemia, PTB and SGA than adult pregnant women.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
		compared with adults	- 50,942 pregnant women, aged ≥ 19 years were recruited to an adult group (control group).	represented amongst adolescent mothers rather than adult mothers.	- It is important to improve the quality of maternity care for adolescent pregnant women.
29 Suciu et al. 2016 Romania	A retrospective cohort study (III-2)	To evaluate the risk factors and reproductive outcomes amongst adolescent pregnant women compared with adults	- 51,860 case reports between 2011 and 2012 were assessed. - 395 pregnant women, aged 13-19 years were recruited to an adolescent group (study group). - 736 pregnant women, aged 25-29 years were recruited to an adult group (control group).	- The incidence of LBW was higher in adolescent mothers than in adult mothers. - The significant incidence of N/L and successful BF was higher in adolescent mothers rather than adult mothers. - The incidence of C/S rate was lower in adolescent mothers than in adult mothers.	- Risks and behaviours amongst adolescent pregnant women were associated with poor pregnancy and perinatal outcomes. - The implications for further study should highlight programs or models of maternity care that improve adolescents' behaviour and reduce risk factors.
30 Thaithae & Thato 2011 Bangkok, Thailand	A retrospective cohort study (III-2)	To evaluate whether adverse maternal and perinatal outcomes associated with adolescent pregnant women	- 2,743 singleton pregnant women between 2004 and 2006 were studied. - 286 pregnant women, aged 11-15 years were recruited to an early adolescent group (first study group). 1,068 pregnant women, aged 16-19 years were recruited to an adolescent group (second study group).	- The incidence of anaemia, very PTB, very LBW and NICU admission and postpartum complications was higher in an early adolescent group and adolescent group than in adult group. - The significant incidence of C/S rate and oxytocin augmentation was lower amongst adolescent mothers rather than adult mothers.	An effective intervention was required for adolescent pregnant women because of higher risks of adverse pregnancy outcomes in this group.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 1,389 pregnant women, aged 20-34 years were recruited to an adult group (control group).		
31 Thato, Rachukul & Sopajaree 2007 Bangkok, Thailand	A retrospective cohort study (III-2)	To assess adverse pregnancy outcomes amongst adolescent pregnant women compared with adult pregnant women	- 1,216 singleton pregnant women between 2001 and 2003 were studied. - 401 pregnant women, aged < 19 years were recruited to an adolescent group (study group). - 815 pregnant women, aged 20-34 years were recruited to an adult group (control group).	- The incidence of anaemia, PTB, and LBW was higher amongst adolescent pregnant women than in adult pregnant women.	The high incidence of poor obstetric and perinatal outcomes was evident in adolescent pregnant women; therefore, the further development of antenatal care was crucial for this group.
32 Usta et al. 2008 USA	A retrospective cohort study (III-2)	To evaluate pregnancy/birth complications, and neonatal outcomes amongst adolescent pregnant women compared with adults	- 972 singleton pregnant women between 1994 and 2003 were studied. - 486 pregnant women, aged ≤ 19 years were recruited to an adolescent group (study group). - 486 pregnant women, aged 25-30 years were recruited to an adult group (control group).	- The incidence of PTB was higher in adolescent pregnant women than in adult pregnant women. - The incidence of preeclampsia and anaemia was higher in the adolescent group than in the adult group. - Lower average infant birth weight was evident in adolescent mothers when compared to adult mothers.	Adolescent pregnant women, aged < 20 years experienced a higher incidence of PTB, preeclampsia, and anaemia than adult pregnant women. Further research should focus on the reduction of these outcomes.
33 Watcharaseranee, Pinchantra & Piyaman 2006 Chonburi, Thailand	A retrospective cohort study (III-2)	To explore the maternal and perinatal complications amongst adolescent pregnant women	- 6,399 singleton pregnant reports between 2000 and 2005 were conducted. - 2,490 pregnant women, aged 13-20 years were recruited to an adolescent group (study group).	- The incidence of PTB and anaemia was higher in adolescent pregnant women than in adult pregnant women. - The higher incidence of LBW (1,500-2,500 grams) and extremely LBW (<	- A lack of education and inadequate antenatal attendance (ANC < 4 times) were investigated in adolescent pregnant women and the poor

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
			- 3,909 pregnant women, aged 20-25 years were recruited to an adult group (control group).	1,500 grams) were explored in an adolescent group and compared with an adult group. - The antenatal attendance was lower in the adolescent group rather than in the adult group.	pregnancy and neonatal outcomes were common amongst this group. - Further research should highlight the improvement of antenatal attendance so as to reduce poor outcomes amongst adolescent pregnant women.
34 Yadav et al. 2008 Chitwan, Nepal	A retrospective cohort study (III-2)	To assess whether adolescent pregnancy is associated with adverse maternal and perinatal outcomes	- 4,101 singleton pregnant women report 2005 and 2006 were assessed. - 790 pregnant women, aged 15-19 years were recruited to an adolescent group (study group). - 3,311 pregnant women, aged 20-29 years were recruited to an adult group (control group).	- The significant incidence of very PTB, preterm birth and LBW were higher amongst an adolescent group than in an adult group.	Further study should explore how the socioeconomic factors and behaviours amongst adolescent pregnant women may increase or decrease the adverse pregnancy outcomes.

Appendix f: Summary of studies included in the literature review of models of maternity care for pregnant adolescent women (second review question)

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
1. Allen et al. 2015 Australia	A retrospective cohort study (III-2)	Caseload midwifery group practice (MGP) and young women's clinic (YWC) vs Standard care	To explore the effectiveness of each model of maternity care in reducing the adverse maternal and perinatal outcomes, compared with standard care	- 1,971 case reports were observed between 2008 and 2012. - Singleton pregnant women without abnormalities, aged ≤ 21 years were included. - 625 cases – Caseload midwifery group practice - 408 cases– Young women's clinic 938 cases- Standard care	- The incidence of PTB and NICU admission was lower in Caseload midwifery group practice than in standard care. - The incidence of LBW was lower in Young women's clinic than in standard care.	- Caseload midwifery group practice was associated with the reduction in PTB, LBW infants, and NICU admissions. - Caseload midwifery group practice was effective in decreasing adverse maternal and perinatal outcomes.
2. Bensussen-Walls and Saewyc 2001 USA	A retrospective cohort study (III-2)	Young women's clinic and Teen pregnancy and parenting clinic vs the traditional adult-centred obstetric clinic	To measure pregnancy outcomes and cost effectiveness in adolescent pregnant women between teen-centred prenatal clinic and adult-centred obstetric clinic	- 106 case reports were observed between 1996 and 1997. - Pregnant women aged 13-18 years were participants in this study. - 27 cases – Young women's clinic - 27 cases – Teen pregnancy and parenting clinic - 52 cases – Traditional adult-centred obstetric clinic	- Babies of women in teen-centred prenatal clinics experienced significantly higher birth weight than traditional group. - Significantly higher rates of contraceptive use, BF, school return and follow-up were found in teen-centred prenatal clinics rather than an adult-centred obstetric clinic.	- Teen-centred prenatal clinics provided holistic care that was advantageous for adolescent pregnant women. - Further research should focus on the cost of this program in different contexts.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
					- Teen-centred prenatal clinics ran at a lower cost than the adult-centred obstetric clinic.	
3. Das et al. 2007 Uk	A retrospective cohort study (III-2)	A dedicated young and pregnant antenatal clinic vs standard care	To examine the effectiveness of a dedicated young and parenting antenatal clinic to improve the obstetric and perinatal outcomes in pregnant adolescent	- 260 pregnant women were observed in 2001 (standard care) and in 2004 (a dedicated young and pregnant antenatal clinic). - Pregnant women aged 11-17 years were the participants. - The study did not show the sample sizes of each group.	- The higher infant birth weights were found in a dedicated young pregnant antenatal clinic than in standard care. - The incidence of neonatal admission was lower in a dedicated young pregnant antenatal clinic than in standard care. - The incidence of normal labour, contraceptive uses and continuation of BF was higher in a dedicated young pregnant antenatal clinic than in standard care.	- A dedicated young pregnant antenatal clinic can improve obstetric and perinatal outcomes amongst adolescent pregnant women. - A dedicated young pregnant antenatal clinic can reduce the repeat unintended pregnancy because of increased contraceptive use in attending adolescent pregnant women.
4. Fleming, Tu and Black 2012 Ottawa Hospital, Canada	A retrospective match cohort study (III-2)	The outreach program vs Standard care	To examine the effectiveness of an outreach program to improve perinatal outcomes	- 1,037 pregnant reports were observed between 2004 and 2010. - Pregnant women, aged < 20 years were the participants of the study.	- The incidence of PTB and LBW infant was lower in the outreach program than in standard care group.	A significant reduction of poor neonatal outcomes was found amongst adolescent pregnant women who received the outreach

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
				- 206 cases- The outreach program - 831 cases- Standard care		program because of an increased rate of early antenatal attendance.
5. Grady and Bloom 2004 Barnes-Jewish Hospital in St. Louis, Missouri, USA	A retrospective cohort study (III-2)	CenteringPregnancy® group care vs Standard care	To examine the effectiveness of models of maternity care to reduce the adverse perinatal outcomes and improve adolescent satisfaction	- 501 case reports were observed between 1998 and 2003. - Pregnant women aged 11- 17 years were the participants of the study. - 124 cases – CenteringPregnancy® care - 377 cases – Standard care	- The significant incidence of PTB and LBW were lower in CenteringPregnancy® care group rather than standard care group. - Higher satisfaction wasreported by adolescents in CenteringPregnancy® group than in standard care group.	- The CenteringPregnancy® model offered one postpartum session but the adolescent mothers still needed more postpartum support. - Authors recommended that the group-based parenting model, family planning, and well-baby care should provide for adolescents within the first year postpartum. - Further research should include an RCT study to explore the effectiveness of CenteringPregnancy® program. This study showed a reduction in poor outcomes amongst adolescent pregnant women

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
						attending CenteringPregnancy®.
6. Ickovics et al. 2016 Fourteen health centres in New York City, USA	A multisite cluster RCT (II)	CenteringPregnancy® care (group prenatal care) vs Traditional care	To examine the effectiveness of a model of group prenatal care on birth, neonatal, and reproductive health outcomes	- 1,148 pregnant women, aged 14-24 years were randomly allocated to measure the effectiveness of models of maternity care between 2008 and 2012. - 573 cases - CenteringPregnancy® - 575 cases – Traditional care	- The significant incidence of PTB and SGA was lower in the CenteringPregnancy® group than in the traditional group. - The significant incidence of NICU admission was lower in CenteringPregnancy® group than in the traditional group.	- CenteringPregnancy® or group prenatal care can reduce pregnancy complications and poor outcomes in young women. - Further research should explore how group prenatal care affects the maternal complications and poor perinatal outcomes. – Implement of the CenteringPregnancy® care should occur for other vulnerable groups.
7. Ickovics et al. 2007 Atlanta and New haven, USA	RCT (II)	CenteringPregnancy® care vs an individual standard care	To examine the effectiveness of group prenatal care to improve the pregnancy and psychosocial outcomes and women's satisfaction	- 1,040 adolescent pregnant women, aged 14-25 years were randomly allocated to each model of care between 2001 and 2004. - 416 cases - CenteringPregnancy® group care	- The incidence of the number of prenatal visits was higher in the CenteringPregnancy® care than an individual standard care. - The incidence of PTB was lower in the CenteringPregnancy®	Further research is needed on how the group prenatal care can improve outcomes, focussing on biologic, behavioural and social mechanisms.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
				- 624 cases- an individual Standard care	care than an individual standard care. - Psychosocial outcomes and women's satisfaction was higher in the CenteringPregnancy® care than in individual standard care.	
8. Ickovics et al. 2003 USA	A prospective cohort study (III-1)	CenteringPregnancy® care vs individual care	To explore the impact of CenteringPregnancy® care on infant birth weight and gestational age compared with individual care	- 458 pregnant adolescent women's records were examined for infant birth weight and gestational age, between 1999 and 2002. - 229 cases - CenteringPregnancy® care - 229 cases - individual care	Higher infant birth weights were found in CenteringPregnancy® care than in an individual care, especially in PTB cohorts.	CenteringPregnancy® care can provide improvement of quality and cost-effective antenatal services for adolescent pregnant women.
9. Ickovics et al. 2011 Public hospitals in New Haven, CT, and Atlanta, GA, USA	RCT (II)	CenteringPregnancy® care vs Standard individual care	To investigate the effectiveness of each model of maternity care for adolescent pregnant women on birth outcomes and sexual risk, and psychosocial outcomes	- 1,047 adolescent pregnant women were randomly allocated to each model of care between 2001 and 2004. - 503 cases - CenteringPregnancy® group care - 544 cases- Standard individual care	- Self-esteem scores were higher in the CenteringPregnancy® group than in the standard individual care. - Lower rates of stress and social conflict in the third trimester of pregnancy were found in the CenteringPregnancy®	- The main findings of this study showed the CenteringPregnancy® care can increase the self-esteem and also decrease depression and negative emotional issues. - Further research is needed to explore how the CenteringPregnancy®

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
					group than in the standard individual care. - The incidence of depression during the first year postpartum period was lower in the CenteringPregnancy® group than in the standard individual group.	care improved the psychological outcomes and whether this model of care also affects physiological outcomes.
10. Klima et al. 2009	A mixed-method study (III-1)	CenteringPregnancy® care vs individual care	To explore the feasibility of implementation of the CenteringPregnancy® care and related pregnancy outcomes in a public health clinic	- 317 adolescent pregnant women were participants - 110 cases – CenteringPregnancy® care - 207 cases – an individual care	- The women's satisfaction survey showed higher scores in the CenteringPregnancy® care than in individual care. - Overall, higher satisfaction was found in focus group of the CenteringPregnancy® care. - The incidence of an increased antenatal attendance, exclusive BF, and increased maternal weight gain was found in the CenteringPregnancy care group.	Further research is needed to develop a well-design study to explore the effectiveness of group prenatal care for adolescent pregnant women.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
11. Quinlivan and Evans 2004 Australia	A prospective cohort study (III-1)	Teenage antenatal clinic vs General antenatal clinic	To explore the effectiveness of the teenage antenatal clinic compared with the general antenatal clinic on the incidence of preterm birth, LBW, BF, and the contraceptive uses	- 651 pregnant women, aged ≤ 18 years were observed for perinatal outcomes. - 448 cases - Teenage antenatal clinic - 203 cases - General antenatal clinic	- The incidence of PTB was lower in the teenage pregnancy clinic group than in the general antenatal clinic group. - A higher mean birth weight was seen in women from the teenage pregnancy clinic group rather than the general antenatal clinic group. - Contraceptive uses after discharge was higher rates in the teenage pregnancy clinic group than in the general antenatal clinic group.	- A reduction of PTB and LBW was shown in the teenage antenatal clinic group; therefore, this model should be provided for adolescent pregnant women. - The findings indicated that the prevention of genital tract infection was related to the lower incidence of PTB.
12. Trotman et al. 2015 At MedStar Washington Hospital Center, USA	A retrospective cohort study (III-2)	CenteringPregnancy® care vs Traditional prenatal care (Single-provider prenatal care and multi-provider prenatal care)	To explore an effectiveness of each model of maternity care on maternal health behaviour amongst adolescent pregnant women	- 150 case reports were assessed between 2008 and 2012. - Pregnant women aged 11-21 years were the participants of the study. - 50 cases - CenteringPregnancy® prenatal care - 50 cases – Single-provider prenatal care	- The incidence of normal weight gain in babies was higher in the CenteringPregnancy® prenatal care group when compared with Single-provider prenatal care and Multiprovider prenatal care. - Higher rates of BF were seen in	CenteringPregnancy® prenatal care should be provided for adolescent pregnant women, to improve maternal health behaviour, such as an increased BF rates and contraceptive use.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
				- 50 cases – Multi-provider prenatal care	CenteringPregnancy® prenatal care group than in Multiprovider prenatal care group. - Increased use of reversible contraceptives use was shown in the CenteringPregnancy® prenatal care group compared with the traditional prenatal care group. - The incidence of postpartum depression was lower in CenteringPregnancy® care group than in the traditional prenatal care group.	
13. Ukil and Esen 2002 South Tyneside District General Hospital, UK	A retrospective cohort study (III-2)	A dedicated teenage antenatal clinic vs a standard antenatal clinic	To measure the pregnancy outcomes in adolescent pregnant women after receiving each program of care	- 113 case reports were assessed between 1996 and 1999. - Pregnant women aged 16 years or younger were the participants. - 78 cases – a dedicated teenage antenatal clinic - 34 cases – a standard antenatal clinic	- A significantly higher incidence of normal labour was found in a dedicated teenage antenatal clinic group compared with the standard adult antenatal clinic group. - A lower incidence of PTB found in a dedicated teenage antenatal clinic	- A dedicated teenage antenatal clinic reduced the incidence of PTB.

Author, Year, Country of study	Methodology (NHMRC level of evidence)	Models of care studied	Aims/ Objectives of study	Method of participant recruitment and sample sizes	Findings-perinatal outcomes/ complications	Recommendation/ Implication for further study
					group compared with the standard adult antenatal clinic group.	

Appendix g: Quality appraisal of quantitative observational studies of adverse maternal and perinatal outcomes in pregnant adolescent women (first review question)

Citation	Design of study	A scoring system (Pluye et al. 2009)			Quality scores (percent) [(Presence criteria/3)×100]	Quality levels
		Appropriate sampling and sample	Justification of measurements	Control of confounding variables		
Althabe et al. 2015	A prospective cohort study	√	√	√	100	Good
Bildircin et al. 2014	A retrospective cohort study	√	√	×	66.67	Moderate
Chantrapanichkul & Chawanpaiboon 2013	A retrospective cohort study	√	√	×	66.67	Moderate
Chibber et al. 2014	A retrospective cohort study	√	√	×	66.67	Moderate
Conde-Agudelo, Belizan & Lammers 2005	A cross-sectional retrospective study	√	√	√	100	Good
Dutta & Joshi 2013	A prospective case-control study	√	√	×	66.67	Moderate
Edirne et al. 2010	A comparative study	√	√	×	66.67	Moderate
Eren et al. 2015	A retrospective case-control study	√	√	×	66.67	Moderate
Ezegwui, Ikeako & Ogbuefi 2012	A retrospective case-control study	√	√	√	100	Good
Figueiredo, Pacheco & Costa 2007	A comparative study	√	√	×	66.67	Moderate
Fleming et al. 2013	A retrospective cohort study	√	√	×	66.67	Moderate
Fouelifack et al. 2014	A cross-sectional retrospective study	√	√	×	66.67	Moderate

Citation	Design of study	A scoring system (Pluye et al. 2009)			Quality scores (percent) [(Presence criteria/3)×100]	Quality levels
		Appropriate sampling and sample	Justification of measurements	Control of confounding variables		
França Gravena et al. 2013	A cross-sectional retrospective study	√	√	×	66.67	Moderate
Ganchimeg et al. 2013	A cross-sectional retrospective study	√	√	√	100	Good
Ganchimeg et al. 2014	A cross-sectional retrospective study	√	√	√	100	Good
Huang et al. 2014	A retrospective population-based cohort study	√	√	×	66.67	Moderate
Kirbas, Gulerman & Daglar 2016	A retrospective case-control study	√	√	×	66.67	Moderate
Liran et al. 2013	A retrospective population-based cohort study	√	√	×	66.67	Moderate
Maryam & Ali 2008	A retrospective cohort study	√	√	×	66.67	Moderate
Medhi et al. 2016	A prospective case-control study	√	√	×	66.67	Moderate
Omar et al. 2010	A comparative study	√	√	×	66.67	Moderate
Omole-Ohonsi & Attah 2010	A retrospective case-control study	√	√	×	66.67	Moderate
Pergialiotis et al. 2015	A retrospective cohort study	√	√	×	66.67	Moderate
Phipps, Hall & Hodson 2015	A retrospective chart review	√	√	×	66.67	Moderate
Phupong & Suebnukarn 2007	A retrospective case-control study	√	√	×	66.67	Moderate

Citation	Design of study	A scoring system (Pluye et al. 2009)			Quality scores (percent) [(Presence criteria/3)×100]	Quality levels
		Appropriate sampling and sample	Justification of measurements	Control of confounding variables		
Rasheed, Abdelmonem & Amin 2011	A cross-sectional retrospective study	√	√	×	66.67	Moderate
Sagili et al. 2012	A retrospective study	√	√	×	66.67	Moderate
Stewart, Walsh & Van Eyk 2008	A retrospective cohort study	√	√	×	66.67	Moderate
Suciu et al. 2016	A retrospective study	√	√	×	66.67	Moderate
Thaithae & Thato 2011	A retrospective case cohort study	√	√	√	100	Good
Thato, Rachukul & Sopajaree 2007	A retrospective case-control study	√	√	√	100	Good
Usta et al. 2008	A hospital-based retrospective cohort study	√	√	√	100	Good
Watcharaseranee, Pinchantra & Piyaman 2006	A retrospective cohort study	√	√	√	100	Good
Yadav et al. 2008	A hospital-based retrospective cohort study	√	√	×	66.67	Moderate

Description of quality levels

Good	The study showed all of three characteristics of a scoring system and quality score was 100 percent.
Moderate	The study showed at least two of characteristics of a scoring system and quality score was more than 50 percent.
Poor	The study showed only one of characteristics of a scoring system was less than 50 percent (not included to this paper)

Appendix h: Quality appraisal of quantitative observational studies of models of maternity care for pregnant adolescent women (second review question)

Citation	Design of study	A scoring system (Pluye et al. 2009)			Quality scores (percent) [(Presence criteria/3)×100]	Quality levels
		Appropriate sampling and sample	Justification of measurements	Control of confounding variables		
Allen et al. 2015	A prospective cohort study	√	√	√	100	Good
Bensussen-Walls & Saewyc 2001	A retrospective cohort study	√	√	×	66.67	Moderate
Das et al. 2007	A retrospective cohort study	√	√	×	66.67	Moderate
Fleming, Tu and Black 2012	A retrospective cohort study	√	√	√	100	Good
Grady and Bloom 2004	A retrospective cohort study	√	√	×	66.67	Moderate
Ickovics et al. 2003	A prospective cohort study	√	√	√	100	Good
Klima et al. 2009	A mixed-method study	√	√	√	100	Good
Quinlivan and Evans 2004	A prospective cohort study	√	√	√	100	Good
Trotman et al. 2015	A retrospective cohort study	√	√	×	66.67	Moderate
Ukil and Esen 2002		√	√	×	66.67	Moderate

Description of quality levels

Good	The study showed all of three characteristics of a scoring system and quality score was 100 percent.
Moderate	The study showed at least two of characteristics of a scoring system and quality score was more than 50 percent.
Poor	The study showed only one of characteristics of a scoring system was less than 50 percent (not included to this paper)

Appendix i: Quality appraisal of quantitative experimental studies (RCT) of models of maternity care for pregnant adolescent women (second review question)

Citation	Design of study	A scoring system (Pluye et al. 2009)			Quality scores (percent) [(Presence criteria/3)×100]	Quality levels
		Appropriate sequence generation and/or randomisation	Allocation concealment and/ or blinding	Complete outcome data and/or low withdrawal		
Ickovics et al. 2007	RCT	√	×	√	66.67	Moderate
Ickovics et al. 2011	RCT	√	×	√	66.67	Moderate
Ickovics et al. 2016	RCT	√	×	√	66.67	Moderate

Description of quality levels

Good	The study showed all of three characteristics of a scoring system and quality score was 100 percent.
Moderate	The study showed at least two of characteristics of a scoring system and quality score was more than 50 percent.
Poor	The study showed only one of characteristics of a scoring system was less than 50 percent (not included to this paper)

Appendix j: Ethics approval letter from the University of Technology Sydney

UTS
UNIVERSITY OF TECHNOLOGY SYDNEY
Research & Innovation
Building 1, Level 14
PO Box 123 Broadway
NSW 2007 Australia
T: +61 2 9514 9681
F: +61 2 9514 1244
www.uts.edu.au
UTS CRICOS PROVIDER CODE 00099F

03 March 2017

Professor Caroline Homer
Faculty of Health
CB10.06.213
UNIVERSITY OF TECHNOLOGY, SYDNEY

Dear Caroline,

UTS HREC ETH16-1016 – (Caroline Homer, Christine Catling, Wareerat Jittitaworn) – "Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study"

Thank you for your response to the Committee's comments for your project titled, "Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study". Your response satisfactorily addresses the concerns and questions raised by the Committee who agreed that the application now meets the requirements of the NHMRC National Statement on Ethical Conduct in Human Research (2007). I am pleased to inform you that ethics approval is now granted.

Your approval number is UTS HREC REF NO. UTS HREC ETH16-1016.

Approval will be for a period of five (5) years from the date of this correspondence subject to the provision of annual reports. Your approval number must be included in all participant material and advertisements. Any advertisements on the UTS Staff Connect without an approval number will be removed. Please note that the ethical conduct of research is an on-going process. The National Statement on Ethical Conduct in Research Involving Humans requires us to obtain a report about the progress of the research, and in particular about any changes to the research which may have ethical implications. This report form must be completed at least annually from the date of approval, and at the end of the project (if it takes more than a year). The Ethics Secretariat will contact you when it is time to complete your first report.

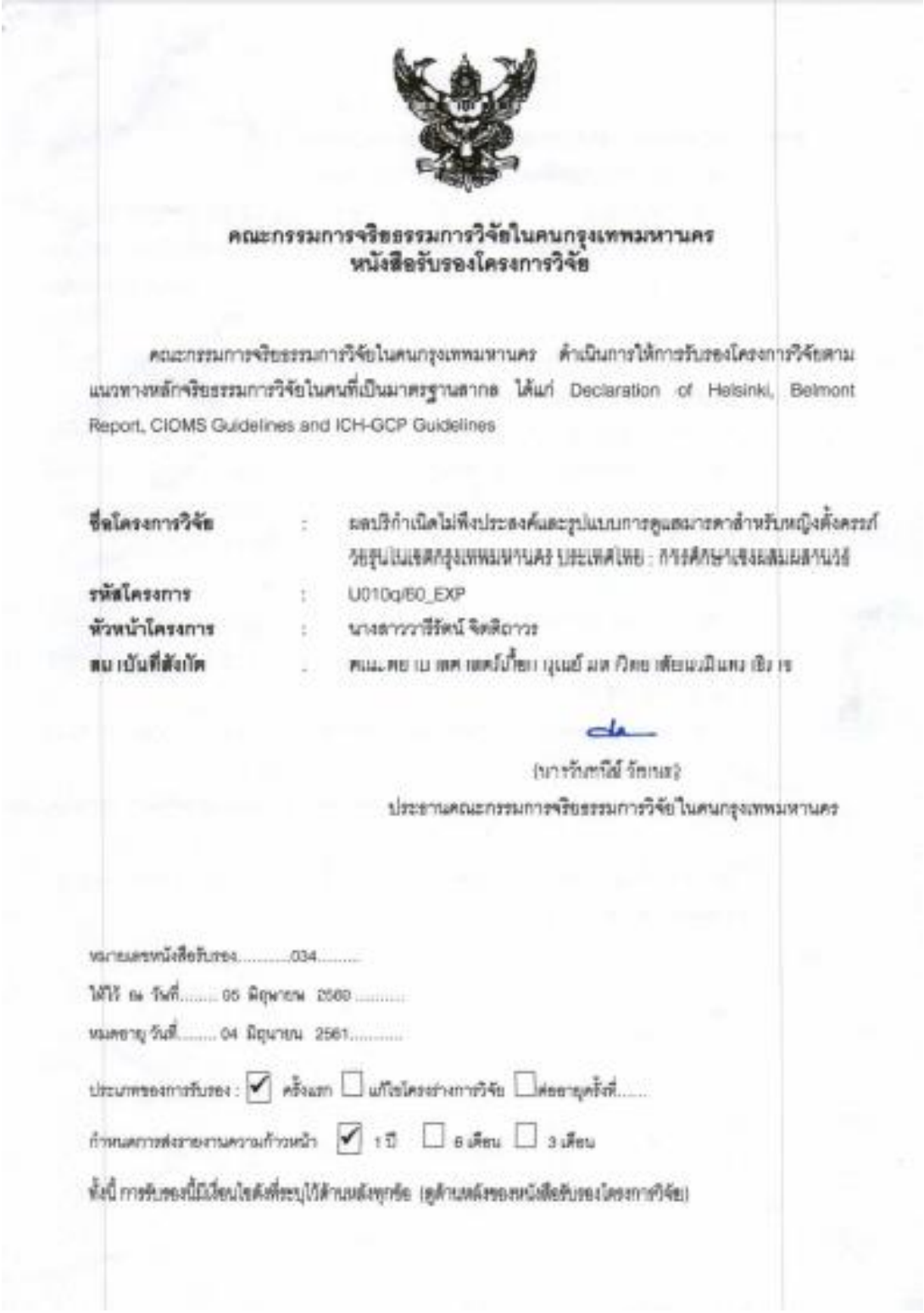
I also refer you to the AVCC guidelines relating to the storage of data, which require that data be kept for a minimum of 5 years after publication of research. However, in NSW, longer retention requirements are required for research on human subjects with potential long-term effects, research with long-term environmental effects, or research considered of national or international significance, importance, or controversy. If the data from this research project falls into one of these categories, contact University Records for advice on long-term retention.

If you have any queries about your ethics clearance, or require any amendments to your research in the future, please do not hesitate to contact the Ethics Secretariat at the Research and Innovation Office, on 02 9514 9772.

Yours sincerely,

Associate Professor Beata Bajorek
Chairperson
UTS Human Research Ethics Committee

Appendix k: Ethics approval letter from the Medical Service Department in Bangkok, Thailand



คณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร
หนังสือรับรองโครงการวิจัย

คณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร ดำเนินการให้การรับรองโครงการวิจัยตามแนวทางหลักจริยธรรมการวิจัยในคนที่เป็นมาตรฐานสากล ได้แก่ Declaration of Helsinki, Belmont Report, CIOMS Guidelines and ICH-GCP Guidelines

ชื่อโครงการวิจัย : ผลปริก้ำเบิดไม่พึงประสงค์และรูปแบบการดูแลมาตราสำหรับหญิงตั้งครรภ์วัยรุ่นในเขตกรุงเทพมหานคร ประเทศไทย : การศึกษาเชิงผสมผสานวิธี

รหัสโครงการ : U010q/60_EXP

หัวหน้าโครงการ : นางสาววารีรัตน์ จิตสิถาวร

สถานที่สังกัด : คณะเภสัชศาสตร์ มหาวิทยาลัยเกษตรศาสตร์ วิทยาเขตกำแพงแสน

(นายรังสรรค์ วัชรเมธ)
ประธานคณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร

หมายเลขหนังสือรับรอง.....034.....

ให้ไว้ ณ วันที่..... 05 มิถุนายน 2560.....

หมดอายุ วันที่..... 04 มิถุนายน 2561.....

ประเภทของการรับรอง : ☑ ครั้งแรก ☐ แก้ไขโครงร่างการวิจัย ☐ ต่ออายุครั้งที่.....

กำหนดการส่งรายงานความก้าวหน้า ☑ 1 ปี ☐ 6 เดือน ☐ 3 เดือน

ทั้งนี้ การรับรองนี้มีเงื่อนไขดังที่ระบุไว้ด้านหลังทุกข้อ (ดูด้านหลังของหนังสือรับรองโครงการวิจัย)

Appendix I: Documents for research participants

1. An invitation letter

INVITATION LETTER

Investigator: Miss Wareerat Jittitaworn, PhD Candidature

Supervisors: Professor Caroline Homer (Director of the Centre for Midwifery, Child and Family Heath, Faculty of Health, UTS)

Dr. Christine Catling (Senior Lecturer, Faculty of Health, UTS)

Dear Participant,

I would like to invite you to participate in a research project that I am undertaking for a Doctor of Philosophy (Midwifery) at University of Technology, Sydney (UTS).

The aims of my study are to explore the quality of the Teenage pregnancy clinics in Thailand and also describe perinatal outcomes and experiences of pregnant adolescent women. This research project will collect data from health care providers' and adolescent mothers' experiences and perspectives to understand and evaluate structures, processes, and outcomes of the Teenage pregnancy clinics.

Semi-structured interviews and group interviews will be used to explore the experiences and perspectives of health care providers and adolescent mothers respectively. These methods will take around 40-90 minutes. The semi-structured interviews will discuss three main aspects with the health providers: (1) the structure of the Teenage pregnancy clinics, including characteristics, and the perceived improved outcomes of the women who attend these clinics; (2) the process of these clinics and (3) the benefits and drawbacks of these clinics.

Group interviews will be conducted with five to seven adolescent mothers who received care from the Teenage pregnancy clinics and gave birth during the 3-month data collection time period. A discussion guide will be used to explore adolescent mothers' experiences and perspectives on the Teenage pregnancy clinics.

Your participation is completely voluntary; and you are able to withdraw at any point. I will be the only person who knows the identity of all participants and individuals will not be identified in any reports, publications or presentations. The information obtained will only be considered for the purpose of the research project. All details of interviews and group interviews will be kept in a secure, private location

that will be only available for me as a researcher and identifying details will be removed and started separately.

There will be no financial reward for your participation in this study and that there are no direct benefits for participating in this study.

If you agree to be involved in this research project, please sign the consent form prior to data collection. If you have any further questions or would like to know more about this research project and its progress and outcomes, please do not hesitate to contact me on my mobile [redacted] Australia or [redacted] Thailand or Email address: [redacted] as I am willing to be assistance.

I would appreciate your participation.

Thank you so much for your time and cooperation.

Production Note:
Signature removed prior to publication.

Wareerat Jittitaworn

PhD Candidate, the Centre for Midwifery, Child and Family Health (CMCFH)

Faculty of Health, University of Technology Sydney, Australia

2. Participant information sheets

Participant information sheet for healthcare providers

Title Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study

UTS HREC approval number ETH 16-1016

Medical Service Department in Bangkok, Thailand approval number U010q60_EXP

Investigator: Miss Wareerat Jittitaworn, PhD Candidate

Supervisors: Professor Caroline Homer (Director of the Centre for Midwifery, Child and Family Heath, Faculty of Health, UTS)

Dr. Christine Catling (Senior Lecturer, Faculty of Health, UTS)

Who is doing the research?

My name is Wareerat Jittitaworn and I am PhD student at UTS.

My supervisors are Professor Caroline Homer and Dr. Christine Catling.

You can contact me via my mobile phone [redacted] Australia or [redacted] Thailand or Email address: [redacted]

What is this research about?

This research aims to explore the quality of maternity care of the Teenage pregnancy clinics and also describe perinatal outcomes amongst adolescent pregnant women. The participants for this study will include health care providers and adolescent mothers in three public metropolitan hospitals in the Medical Service Department in Bangkok, Thailand.

Semi-structured interviews and group interviews will be used to explore the experiences and perspectives of participants, in terms of structure, process, and outcomes of the Teenage pregnancy clinics. Additional data outlining perinatal outcomes will be gained from electronic medical records. The qualitative data will be analysed using thematic analysis and SPSS will be used for the quantitative aspect of the study. It is anticipated that the findings of this study will inform the quality of the Teenage pregnancy clinics and also in order to evaluate maternity care for Thai adolescent pregnant women.

Funding

This research project is being conducted by Wareerat Jittitaworn as part of the fulfillment of a Doctor of Philosophy degree (PhD). Currently, funding for this project has not been received.

If I say yes, what will it involve?

I would like to invite you to participate in a research project that I am undertaking for a Doctor of Philosophy (Midwifery) at University of Technology Sydney (UTS).

Written informed consent:

- You must provide written informed consent prior to data collection.
- You will receive a copy of the written informed consent, invitation letter, and participant information sheet prior to participation.

Procedures:

If you consent to be participants in this project, semi-structured interviews will be conducted to explore your experiences and perspectives on the Teenage clinics.

Semi-structured interviews with health care providers: I will ask you to

- complete a demographic question about yourself
- participate in 40-90 minutes audio recorded interview during your regular working hours within a hospital or another suitable time and location

Follow up:

- The audio records will be transcribed by the research student.
- I will also require your current contact details if you need to receive updates about the results of this project.

Are there any risks/inconvenience?

Yes, there are some potential risks or convenience. There might be emotional distress or feeling uncomfortable during the interview as a result of the information that you will be asked to recall, give more deep details, discuss or consider the quality of maternity care of the Teenage pregnancy clinics.

Possible solutions:

- The provision of an information participant sheet, an invitation letter, and consent form will be provided clearly and fully explanation of a summary detail of this research project, the purpose of the study, the process of data collection, and the way the data will be non-identifiable.
- The participant's right to withdraw is preserved any time when you feel uncomfortable or emotional distress.

- If you have an emotional distress as a result of your participation in this interview, you will be able to get counseling or other support.

Why have I been asked?

Health care provider:

You have been approached to the semi-structured interview because you are health care provider (obstetrician or midwife or registered nurse) who has relevant experience for at least 1 years and works in the Teenage pregnancy clinics.

Do I have to say yes?

Participation in this research project is voluntary.

What will happen if I say no?

You are free to withdraw participation in this research project at any time without any consequences. The participant's right to withdraw at any point is preserved. I will thank you for your time so far and I will not contact you about this project again.

If I say yes, can I change my mind later?

If you say yes, you can change your mind at any time. However, changing your mind after data collection might affect the analysis and research outcomes. Please inform me as soon as possible of any intention to withdraw. I would appreciate for your time so far.

What if I have concerns or a complaint?

If you have concerns about the research that you think I or my supervisors can help you with, please do not hesitate to contact me (us) on my mobile [redacted] Australia or [redacted] Thailand or Email address: [redacted]

Professor Caroline Homer (Email address: caroline.homer@uts.edu.au)

Dr. Christine Catling (Email address: Christine.catling@uts.edu.au)

Note:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee (UTS HREC) and The Medical Service Department in Bangkok, Thailand. If you have any concerns or complaints about any about aspect of the conduct of this research, please contact the Ethics Secretariat on phone: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au, and quote the UTS HREC

Participant information sheet for adolescent mothers

Title Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study

UTS HREC approval number ETH 16-1016

Medical Service Department in Bangkok, Thailand approval number U010q60_EXP

Investigator: Miss Wareerat Jittitaworn, PhD Candidate

Supervisors: Professor Caroline Homer (Director of the Centre for Midwifery, Child and Family Heath, Faculty of Health, UTS)

Dr. Christine Catling (Senior Lecturer, Faculty of Health, UTS)

Who is doing the research?

My name is Wareerat Jittitaworn and I am PhD student at UTS.

My supervisors are Professor Caroline Homer and Dr. Christine Catling.

You can contact me via my mobile phone [redacted] Australia or [redacted] Thailand or Email address: [redacted]

What is this research about?

This research aims to explore the quality of maternity care of the Teenage pregnancy clinics and also describe perinatal outcomes amongst adolescent pregnant women. The participants for this study will include health care providers and adolescent mothers in three public metropolitan hospitals in the Medical Service Department in Bangkok, Thailand.

Semi-structured interviews and group interviews will be used to explore the experiences and perspectives of participants, in terms of structure, process, and outcomes of the Teenage pregnancy clinics. Additional data outlining perinatal outcomes will be gained from electronic medical records. The qualitative data will be analysed using thematic analysis and SPSS will be used for the quantitative aspect of the study. It is anticipated that the findings of this study will inform the quality of the Teenage pregnancy clinics and also in order to evaluate maternity care for Thai adolescent pregnant women.

Funding

This research project is being conducted by Wareerat Jittitaworn as part of the fulfillment of a Doctor of Philosophy degree (PhD). Currently, funding for this project has not been received.

If I say yes, what will it involve?

I would like to invite you to participate in a research project that I am undertaking for a Doctor of Philosophy (Midwifery) at University of Technology Sydney (UTS).

Written informed consent:

- You must provide written informed consent prior to data collection.
- You will receive a copy of the written informed consent, invitation letter, and participant information sheet prior to participation.

Procedures:

If you consent to be participants in this project, group interview will be conducted to explore your experiences and perspectives on the Teenage pregnancy clinic.

Group interviews with adolescent mothers: I will ask you to

- complete a demographic question about yourself
- participate in 40-90 minutes audio recorded interview during the admission times on the postnatal wards
- participate in a group interview with other adolescent mothers which is around five to seven (5-7), including you
- choose the option to be interviewed between having a parent/guardian or without a parent/ guardian during the group interview

Follow up:

- The audio records will be transcribed by the researcher.
- I will also require your current contact details if you need to receive updates about the results of this project.

Are there any risks/inconvenience?

Yes, there are some potential risks or convenience. The social harm has been considered that could arise as a result of group interviews with adolescent mothers who are vulnerable participants. There is social stigmatisation of being pregnant or any conflicting values and interests of parents during the group interviews as a result of the information that they will be asked to tell experiences and perspective about receiving care at the Teenage clinics.

Possible solutions:

- The provision of an information participant sheet, an invitation letter, and consent form will be provided clearly and fully explanation of a summary detail of this research project, the purpose of the study, the process of data collection, and the way the data will be non-identifiable.

- The participant's right to withdraw is preserved any time when you feel uncomfortable or emotional distress.
- If you have an emotional distress as a result of your participation in this interview, you will be able to get counselling or other support.

Why have I been asked?

Adolescent mothers:

You have been approached to group interview because you are an adolescent mother, aged younger than 20 years old and received care from the Teenage pregnancy clinics.

Do I have to say yes?

Participation in this research project is voluntary.

What will happen if I say no?

You are free to withdraw participation in this research project at any time without any consequences. The participant's right to withdraw at any point is preserved. I will thank you for your time so far and I will not contact you about this project again.

If I say yes, can I change my mind later?

If you say yes, you can change your mind at any time. However, changing your mind after data collection might affect the analysis and research outcomes. Please inform me as soon as possible of any intention to withdraw. I would appreciate for your time so far.

What if I have concerns or a complaint?

If you have concerns about the research that you think I or my supervisors can help you with, please do not hesitate to contact me (us) on my mobile [redacted] Australia or [redacted] Thailand or Email address: [redacted]

Professor Caroline Homer (Email address: caroline.homer@uts.edu.au)

Dr. Christine Catling (Email address: Christine.catling@uts.edu.au)

Note:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee (UTS HREC) and the Medical Service Department in Bangkok, Thailand. If you have any concerns or complaints about any about aspect of the conduct of this research, please contact the Ethics Secretariat on phone: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au, and quote the UTS HRE

3. Consent forms

CONSENT FORM (health care provider)

I …… (Participant's name) agree to participate in the research project 'Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study' by Wareerat Jittitaworn, Email address: [redacted] of the University of Technology Sydney, Australia for her degree Doctor of Philosophy (Nursing).

I understand that the purposes of this study are to explore health care providers' and adolescent mothers' experiences and perspectives on the Teenage clinics and also describe perinatal outcomes amongst adolescent pregnant women.

I understand that I have been asked to participate in this study because I am a health care provider who has cared for pregnant adolescent women in the Teenage clinics. My participation in this research will involve participating in 60-90 minutes of a semi-structured interview and this interview will be recorded and transcribed. I understand that interview will be conducted in private room on my workplace (hospital) at times suited to me.

I understand that there are no financial rewards or other direct benefits for my participation.

I am aware that I can contact Wareerat Jittitaworn OR her supervisor, Professor Caroline Homer (Caroline.Homer@uts.edu.au or 612 9514 4866) OR Ms. Chutima Nopakao (Klang hospital +66 81 731 6690) OR Ms. Prakongsri Kittiruangnam (Charoenkrung Pracharak hospital +66 86 908 2837) OR Ms. Pongsri Suaysom (Taksin hospital +66 89 661 0212) if I have any concerns about her research project. I also understand that I can withdraw my participation from this research project at any time without providing any reason and penalty.
I agree that Wareerat Jittitaworn has answered all my questions fully and clearly.
I agree that the research data gathered from this project will be published in a form that will not identify me or my health facility.

I agree that research data gathered will be used and published in a form that does not identify me in the event of my withdrawal from the study.

I have read and acknowledged the explanation of this study and I voluntarily agree to participate in this research project.

…… ……./……./…….

Participant's signature

…… ……./……./…….

Researcher's signature

NOTE:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee (UTS HREC) and the Medical Service Department in Bangkok, Thailand. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: HYPERLINK "mailto:Research.Ethics@uts.edu.au" Research.Ethics@uts.edu.au, and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome. This study will have been approved by the Human Research Ethics Committee of Health department in Bangkok, Thailand as well.

For further information, please contact Wareerat Jittitaworn (PhD Candidate) University of Technology, Sydney

Seventh Floor, Faculty of Health

235-253 Jones Street, Ultimo, NSW 2007 AUSTRALIA

Phone: [redacted] Australia/ [redacted] Thailand Email address: [redacted]

CONSENT FORM (Adolescent woman aged ≥ 18 years old)

I …… (Participant's name) agree to participate in the research project 'Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study' by Wareerat Jittitaworn, Email address: [redacted] of the University of Technology Sydney, Australia for her degree Doctor of Philosophy (Nursing).

I understand that the purposes of this study are to explore health care providers' and adolescent mothers' experiences and perspective on the Teenage clinics and also describe perinatal outcomes amongst adolescent pregnant women.

I understand that I have been asked to participate in this study because I am an adolescent mother who received maternity care from the Teenage clinic. My participation in this research will be approached using a group interview and this interview will be recorded and transcribed. I understand that interview will be conducted in private room on the postnatal ward during postpartum admission.

I understand that there are no financial reward and direct benefits for my participation.

I am aware that I can contact Wareerat Jittitaworn OR her supervisor, Professor Caroline Homer (Caroline.Homer@uts.edu.au or 612 9514 4866) OR Ms. Chutima Nopakao (Klang hospital +66 81 731 6690) OR Ms. Prakongsri Kittiruangnam (Charoenkrung Pracharak hospital +66 86 908 2837) OR Ms. Pongsri Suaysom (Taksin hospital +66 89 661 0212) if I have any concerns about her research project. I also understand that I can withdraw my participation from this research project at any time without providing any reason and penalty.

I agree that Wareerat Jittitaworn has answered all my questions fully and clearly.
I agree that the research data gathered from this project will be published in a form that will not identify me, my family or the health facility.
I agree that research data gathered will be used and published in a form that does not identify me in the event of my withdrawal from the study.

I have read and acknowledged the explanation of this study and I voluntarily agree to participate in this research project.

…… ……./……./…….

Participant's signature

…… ……./……./…….

Researcher's signature

NOTE:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee (UTS HREC) and the Medical Service Department in Bangkok, Thailand. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: HYPERLINK "mailto:Research.Ethics@uts.edu.au" Research.Ethics@uts.edu.au, and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome. This study will have been approved by the Human Research Ethics Committee of Health department in Bangkok, Thailand as well.

For further information, please contact Wareerat Jittitaworn (PhD Candidate) University of Technology, Sydney

Seventh Floor, Faculty of Health

235-253 Jones Street, Ultimo, NSW 2007 AUSTRALIA

Phone: [redacted] Australia/ [redacted] Thailand Email address: [redacted]

CONSENT FORM (Adolescent woman aged < 18 years old)

I …… (Parent/guardian's name) agree to allow young women in the research project 'Adverse perinatal outcomes and models of maternity care for Thai adolescent pregnant women: A mixed methods study' by Wareerat Jittitaworn, Email address: [redacted]of the University of Technology Sydney, Australia for her degree Doctor of Philosophy (Nursing).

We (parent/guardian and young woman) understand that the purposes of this study are to explore health care providers' and adolescent mothers' experiences and perspective on the Teenage clinics and also describe perinatal outcomes amongst adolescent pregnant women.

I (parent/guardian) understand that I have been asked for a permission to allow young woman participates in this study because she is an adolescent mother who received maternity care from the Teenage clinic. Her participation in this research will be approached using a group interview and this interview will be recorded and transcribed. We understand that interview will be conducted in private room on the postnatal ward during postpartum admission.

We (parent/guardian and young woman) understand that there are no financial reward and direct benefits for young woman's participation.

We are aware that we can contact Wareerat Jittitaworn OR her supervisor, Professor Caroline Homer (Caroline.Homer@uts.edu.au or 612 9514 4866) OR Ms. Chutima Nopakao (Klang hospital +66 81 731 6690) OR Ms. Prakongsri Kittiruangnam (Charoenkrung Pracharak hospital +66 86 908 2837) OR Ms. Pongsri Suaysom (Taksin hospital +66 89 661 0212) if we have any concerns about her research project. We also understand that young woman can withdraw her participation from this research project at any time without providing any reason and penalty. We agree that Wareerat Jittitaworn has answered all our questions fully and clearly.

We agree that the research data gathered from this project will be published in a form that will not identify young woman, her family or the health facility.
We agree that research data gathered will be used and published in a form that does not identify young woman in the event of her withdrawal from the study.

We have read and acknowledged the explanation of this study and young woman voluntarily agrees to participate in this research project.

…… ……./……./…….

Parent/guardian of participant's signature

…… ……./……./…….

Participant's signature (young woman)

…… ……./……./…….

Researcher's signature

NOTE:

This study has been approved by the University of Technology Sydney Human Research Ethics Committee (UTS HREC) and the Medical Service Department in Bangkok, Thailand. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: HYPERLINK "mailto:Research.Ethics@uts.edu.au" Research.Ethics@uts.edu.au, and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome. This study will have been approved by the Human Research Ethics Committee of Health department in Bangkok, Thailand as well.

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4. Demographic data forms

Demographic data of health care provider

Participant code ☐☐

Date: ☐☐/☐☐/☐☐☐☐

Please answer the questions below

1. Occupation of interviewee:

☐1 Obstetrician ☐2 Nurse and Midwife ☐3 Social worker

2. Age: ……

3. Gender: ☐1 Female ☐2 Male

4. Position in the Teenage pregnancy clinic

……

……

5. Length of working in the Teenage pregnancy clinic

……

……

Demographic data of adolescent women

Participant code ☐☐

Date: ☐☐/☐☐/☐☐☐☐

Please answer the questions below

1. Age: ……

2. Past obstetric history:

Pregnancies	…….
Deliveries	…….
Abortions	…….
Miscarriages	…….

3. What is your highest education level?

……

4. How many weeks or months pregnant were you when you first stated antenatal care?

……

5. Did you attend the Teenage pregnancy clinic? ☐1 Yes ☐2 No

5. Interview questions

Possible interview questions (health care provider)

The semi-structured interviews will attempt to discuss three main aspects with the health providers:

(1) the structure of the Teenage pregnancy clinics, including characteristics, and the perceived improved outcomes of the women who attend these clinics

(2) the process of this program; and

(3) the benefits and drawbacks of this program

A series of open-ended questions to the health care providers will be asked:

Set 1 (General conversation and asking the participant's experiences and perspectives on adolescent pregnancy and care of the Teenage pregnancy clinic)

1. Could you tell me about your experience with the Teenage pregnancy clinic?
2. What do you think about adolescent pregnancy?

Set 2 (Including the structure and process of the Teenage pregnancy clinic to describe what the Teenage pregnancy clinic is and how this clinic works or process for adolescent pregnant women aged younger than 20 years old)

3. Could you tell me how the Teenage pregnancy clinic works in your hospital?

   - What is the function/structure of the Teenage pregnancy clinic?

   - How does your Teenage pregnancy clinic run/organise? Please tell me about that?

   - Could you tell me the process of the Teenage pregnancy clinic in term of helping adolescent women?

Set 3 (Including the best things/strengths and limitations/weaknesses)

4. What do you think the best things/strengths of the Teenage pregnancy clinic are?
5. What do you think the limitations/weaknesses of the Teenage pregnancy clinic are?

Set 4 (Making the Teenage pregnancy clinic better and the challenges on this clinic)

6. How do you think they could be made better?
7. What are the challenges of the Teenage pregnancy clinic?

Possible interview questions (adolescent women)

The group interviews

The group interviews will be conducted with five to seven adolescent mothers per hospital who receive care from the Teenage pregnancy clinics and give birth during the 3-month data collection time period. Participants on the postnatal wards (following birth) will be recruited to the group interviews and the aim is to conduct the group during this admission period. During the group interviews, I will use a discussion guide to explore adolescent mothers' experiences and perspectives.

The discussion guide to the adolescent mothers will be asked:

- Could you tell me your experiences when you attended the Teenage pregnancy clinic during pregnancy?
- What was the best part of the Teenage pregnancy clinic?
- What was the worst part of the Teenage pregnancy clinic?
- What would you like to suggest for the future?
- What would you have liked different?

6. Perinatal outcome data sheet

Perinatal outcome data sheet

A quantitative descriptive study will be conducted as the second phase to describe the perinatal outcomes in adolescent pregnant women who received care from the Teenage pregnancy clinics from January 1 to December 31, 2016. Data will be collected from three public metropolitan hospitals using the existing electronic medical records. This table below will show possible perinatal outcomes that I will access medical records.

Topic	Data
Demographic data	Level of education
	Maternal age
	Marital status
	Pregnancies
	Live births (>20 weeks)
	Abortions
	Miscarriages
	Gestational age (GA) at first visit
Clinical outcomes	Maternal and perinatal outcomes such as - Anaemia
	- Pregnancy hypertensive disorders (pre-eclampsia and eclampsia)
	- Antepartum and postpartum haemorrhage
	- Depression
	- preterm birth
	- low birth weight
	- neonatal death
	- Neonatal Intensive Care Unit (NICU) admission

Appendix m: Thai documents for research participants

เอกสารชี้แจงข้อมูลแก่อาสาสมัคร

RF 02.1-03

เอกสารชี้แจงข้อมูลแก่อาสาสมัคร (บุคลากรทางสุขภาพ)

1. ชื่อโครงการวิจัย

ภาวะแทรกซ้อนจากการตั้งครรภ์และรูปแบบการดูแลมารดาสำหรับหญิงตั้งครรภ์วัยรุ่นในประเทศไทย: การศึกษาเชิงผสมผสานวิธี

2. รหัสโครงการ

3. ชื่อ สถานที่ทำงานของหัวหน้าโครงการวิจัย และชื่อผู้วิจัยร่วม

3.1 นางสาว วารีรัตน์ จิตติถาวร

อาจารย์ประจำภาควิชา การพยาบาลสูติ-นรีเวชศาสตร์

คณะพยาบาลศาสตร์เกื้อการุณย์ มหาวิทยาลัยนวมินทราธิราช

3.2 Professor Caroline Homer

Professor of Midwifery, Centre for Midwifery, Child and Family Health

Faculty of Health | University of Technology Sydney

3.3 Doctor Christine Catling

Senior Lecturer in Midwifery

Faculty of Health | University of Technology Sydney

4. ผู้ให้ทุนวิจัย

มหาวิทยาลัยเทคโนโลยี ซิดนีย์ (Faculty of Health, University of Technology Sydney) ในโครงการของ the 'Health Services and Practice (HSP) research student development award' รอบที่ 1 ปี 2560 บางส่วน และทุนส่วนตัวของผู้วิจัย

5. วันที่ชี้แจงข้อมูล

เดือน พฤษภาคม 2560

6. คำเชิญชวนเข้าร่วมโครงการวิจัย

ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้ แต่ก่อนที่ท่านจะตัดสินใจว่าจะเข้าร่วมหรือไม่ ขอให้ท่านอ่านเอกสารฉบับนี้ทั้งหมดอย่างถี่ถ้วน เพื่อให้เข้าใจเหตุผลและรายละเอียดของการศึกษาวิจัยในครั้งนี้ว่าเหตุใดท่านจึงได้รับเชิญให้เข้าร่วมในโครงการวิจัยนี้ หากเข้าร่วมโครงการวิจัยนี้ ท่านจะต้องทำอะไรบ้าง รวมทั้งข้อดีและข้อเสียที่อาจเกิดขึ้นในระหว่างการวิจัยในเอกสารนี้ อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัยเพื่อให้อธิบายจนกว่าท่านเข้าใจ ท่านจะได้รับเอกสารนี้ ชุด กลับไปอ่านที่บ้านและสามารถขอคำแนะนำในก 1รตัดสินใจเข้าร่วมโครงการวิจัยนี้จากครอบครัว เพื่อนร่วมงาน หรือผู้บังคับบัญชาของท่าน ท่านมีเวลาอย่างเพียงพอในการตัดสินใจโดยอิสระ โดยไม่มีการบังคับหรือชักจูง ถึงแม้ท่านจะไม่เข้าร่วมในโครงการวิจัย จะไม่มีผลกระทบต่อการปฏิบัติงานหรือผลประโยชน์ที่ท่านพึงจะได้รับของท่านแต่อย่างใด ถ้าท่านตัดสินใจแล้วว่าจะเข้าร่วมโครงการวิจัยนี้ ขอให้ท่านลงลายมือชื่อในหนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย

7. โครงการวิจัยนี้มีที่มาอย่างไร และวัตถุประสงค์ของโครงการวิจัย

สถิติการเพิ่มขึ้นของประชากรทั่วโลกในแต่ละปีประมาณ 131.4 ล้านคน ซึ่ง 16 ล้านคน มาจากหญิงตั้งครรภ์วัยรุ่นอายุ 15-19 ปี และอีกประมาณ 1 ล้านคน มาจากวัยรุ่นอายุต่ำกว่า 15 ปี (World Health Organization 2014) โดยอัตราการเกิดจากหญิงตั้งครรภ์วัยรุ่นส่วนใหญ่ถูกพบในกลุ่มประเทศกำลังพัฒนา (World Health Organization 2016) อัตราการเกิดจากหญิงตั้งครรภ์วัยรุ่นยังคงเป็นปัญหาที่ทั่วโลกให้ความสนใจ เพราะจากการศึกษายังคงพบว่า อุบัติการณ์ภาวะแทรกซ้อนขณะตั้งครรภ์สูงกว่ากลุ่มที่ไม่ใช่วัยรุ่น (Althabe et al. 2015; Ganchimeg et al. 2014; Thaithae & Thato 2011) นอกจากนี้การศึกษาที่ผ่านมา ยังพบว่าในกลุ่มหญิงตั้งครรภ์วัยรุ่นพบผลปริกำเนิดที่ไม่พึงประสงค์จากการตั้งครรภ์ อาจมีความสัมพันธ์อันเนื่องจากการได้รับการดูแลในระยะตั้งครรภ์ที่ไม่เพียงพอ (Fleming et al. 2013; Omar et al. 2010)

องค์การอนามัยโลก (World Health Organization 2016) ได้ให้ความสนใจในการเพิ่มขึ้นของอุบัติการณ์หญิงตั้งครรภ์วัยรุ่น และผลปริกำเนิดที่ไม่พึงประสงค์ ในกลุ่มประเทศกำลังพัฒนา รวมถึงประเทศไทย ซึ่งมันมีความสำคัญที่จะต้องศึกษาเข้าใจรูปแบบการดูแลมารดาวัยรุ่น ในโครงสร้าง กระบวนการ และผลลัพธ์ (Donabedian 1988) ปัจจุบันอัตราการเกิดในประเทศไทยกำลังลดลง (World Population Review 2016) ในขณะที่อัตราการเกิดจากหญิงตั้งครรภ์วัยรุ่นกำลังเพิ่มขึ้นทุกปี (Areemit et al. 2012; Sukrat 2014) การศึกษาในประเทศไทยพบว่า ในหญิงตั้งครรภ์วัยรุ่นพบอุบัติการณ์เกิดภาวะแทรกซ้อนและผลปริกำเนิดไม่ พึงประสงค์จากการตั้งครรภ์ (Chantrapanichkul & Chawanpaiboon 2013; Phupong & Suebnukarn 2007; Thaithae & Thato 2011) หญิงตั้งครรภ์วัยรุ่นยังคงเป็นประเด็นที่ยังให้ความสำคัญ และแก้ไขในประเทศไทย ถึงแม้จะมีการส่งเสริมการเข้าถึงระบบบริการด้านสุขภาพอนามัยของหญิงตั้งครรภ์ การคลอด และหลังคลอด สำหรับหญิงตั้งครรภ์ทุกคนโดยไม่เสียค่าใช้จ่าย (the universal health care coverage) (Ministry of Public Health, Thailand 2016) จำนวนครั้งของการมาฝากครรภ์น้อย และล่าช้ายังคงพบในหญิงตั้งครรภ์วัยรุ่น (Chirayus & Chandeying 2012) สิ่งเหล่านี้อาจเป็นปัจจัยเสี่ยงต่อการเกิดผลปริกำเนิดที่ไม่พึงประสงค์ในกลุ่มหญิงตั้งครรภ์วัยรุ่น ดังนั้นการศึกษาและเข้าใจระบบการดูแลสำหรับหญิงตั้งครรภ์วัยรุ่น เพื่ออุบัติการณ์เกิดของผลปริกำเนิดที่ไม่พึงประสงค์ต่อไป

การวิจัยนี้จะศึกษาและสำรวจคุณภาพการดูแลสำหรับหญิงตั้งครรภ์วัยรุ่นไทย และอธิบายผลลัพธ์จากการตั้งครรภ์หรือผลปริกำเนิดในกลุ่มนี้ โดยมุ่งเน้นศึกษาจากประสบการณ์และมุมมองความคิดจากกลุ่มผู้ให้การดูแลและกลุ่มมารดาวัยรุ่นผู้ได้รับการดูแลในระยะตั้งครรภ์ในคลินิควัยรุ่น และศึกษาผลลัพธ์การตั้งครรภ์จากข้อมูลทุติยภูมิ จุดมุ่งหมายของการศึกษาเพื่อเข้าใจและประเมินคุณภาพการดูแลหญิงตั้งครรภ์วัยรุ่นในประเทศไทย นอกจากนี้ผลปริกำเนิดในกลุ่มหญิงตั้งครรภ์วัยรุ่นจะถูกนำมาใช้เพื่ออธิบายประสิทธิผลของระบบการดูแลในการศึกษาครั้งนี้ด้วย ตามทฤษฎีคุณภาพการดูแลการพยาบาล ของ Donabedian (1988; 2005) ซึ่งถูกนำมาใช้เป็นกรอบแนวคิดในการศึกษาครั้งนี้

8. ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้เพราะคุณสมบัติที่เหมาะสมดังต่อไปนี้

ท่านได้รับเชิญเข้าร่วมการวิจัยนี้ เนื่องจากท่านเป็นบุคลากรทางสุขภาพ ได้แก่ สูติแพทย์ พยาบาลผดุงครรภ์ และพยาบาลวิชาชีพ ที่มีประสบการณ์ในการทำงานอย่างน้อย 1 ปี ในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น ในคลินิควัยรุ่น

9. ท่านไม่สามารถเข้าร่วมโครงการวิจัยได้หากท่านมีคุณสมบัติดังต่อไปนี้

ท่านไม่สามารถเข้าร่วมการวิจัยนี้ เนื่องจากประสบการณ์ในการทำงานของท่าน น้อยกว่า 5 ปี หรือท่านไม่ได้เป็นบุคลากรทางสุขภาพที่ผ่านการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น

10. จะมีการทำโครงการวิจัยนี้ที่ใด และมีจำนวนอาสาสมัครผู้เข้าร่วมโครงการวิจัยทั้งสิ้นเท่าไร

การศึกษาวิจัยในครั้งนี้ เป็นการวิจัยในการศึกษาต่อระดับปริญญาเอก ซึ่งทั้งนี้ผู้ร่วมวิจัยจากมหาวิทยาลัยเทคโนโลยี ซิดนีย์ ประเทศออสเตรเลีย (Faculty of Health, University of Technology Sydney, Australia) ได้แก่ Professor Caroline Homer และ Doctor Christine Catling โดยการศึกษาวิจัยในครั้งนี้ จะดำเนินการเก็บรวบรวมข้อมูลในโรงพยาบาลกลาง โรงพยาบาลเจริญกรุงประชารักษ์ และโรงพยาบาลตากสิน กรุงเทพมหานคร ประเทศไทย

11. ระยะเวลาที่ท่านจะต้องร่วมโครงการวิจัยและจำนวนครั้งที่นัด

ระยะเวลาในการดำเนินการวิจัยของการวิจัยคุณภาพเชิงพรรณนาเป็นเวลา 3 เดือน เริ่มตั้งแต่เดือนพฤษภาคมถึงสิงหาคม พ.ศ. 2560 โดยใช้ระยะเวลาในการสัมภาษณ์แบบกึ่งโครงสร้างกับบุคลากรทางสุขภาพ 40-90 นาทีต่อท่าน

12. หากท่านเข้าร่วมโครงการวิจัยครั้งนี้ ท่านจะได้รับการปฏิบัติ หรือต้องปฏิบัติตามขั้นตอนอย่างไรบ้าง

หากท่านตัดสินใจในการเข้าร่วมการวิจัยในครั้งนี้ ซึ่งจะดำเนินการรวบรวมข้อมูลจากการสัมภาษณ์แบบกึ่งโครงสร้าง โดยผู้วิจัยจะใช้ข้อคำถามในการสัมภาษณ์ท่าน เพื่อศึกษาประสบการณ์ และมุมมองความคิดต่อการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น ทั้งนี้การสัมภาษณ์จะถูกทำการบันทึก และถอดเทป

13. ความไม่สบายทางกายและใจ หรือความเสี่ยงต่ออันตรายที่อาจจะได้รับจากกรรมวิธีการวิจัยมีอะไรบ้าง และวิธีการป้องกัน/แก้ไขที่ผู้วิจัยเตรียมไว้หากมีเหตุการณ์ดังกล่าวเกิดขึ้น

ในระหว่างการดำเนินการสัมภาษณ์หากท่านมีความรู้สึกไม่สบายทางกายหรือทางด้านจิตใจ ท่านสามารถขอยุติการสัมภาษณ์ได้ทันที โดยไม่มีผลกระทบใดๆ ต่อการปฏิบัติงานของท่าน นอกจากนี้หากท่านยินดีเข้าร่วมการสัมภาษณ์ครั้งนี้ แต่ท่านอาจมีธุระเร่งด่วนที่อาจจะเกิดขึ้นในระหว่างการรวบรวมข้อมูล ท่านสามารถขอเลื่อนนัดเวลาไปในครั้งใหม่ได้ โดยผู้วิจัยจะทำการนัดเวลาในการสัมภาษณ์ครั้งใหม่ถัดไป เพื่อไม่ให้เกิดผลกระทบต่อการปฏิบัติงานของบุคลากรทางสุขภาพ

14. ประโยชน์ที่คาดว่าจะได้รับจากโครงการวิจัย

การศึกษาวิจัยในครั้งนี้ มุ่งหวังผลการศึกษาจะเป็นประโยชน์เพื่อนำมาใช้ในการพัฒนาคุณภาพการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่นต่อไป และจะเป็นแนวทางในการศึกษาในครั้งถัดไปในระดับภาพรวมของประเทศไทย อย่างไรก็อาสาสมัครจะไม่ได้รับประโยชน์โดยตรง อาทิเช่น ค่าตอบแทน หรือรางวัล แต่ในระยะหว่างการดำเนินการสัมภาษณ์ ท่านจะได้รับเครื่องดื่ม ของว่าง เพื่อให้เกิดความสุขสบายทางกาย จากการสัมภาษณ์เป็นระยะเวลา 40-90 นาที

15. ค่าใช้จ่ายที่อาสาสมัครจะต้องรับผิดชอบ (ถ้ามี)

ไม่มี

16. ค่าตอบแทนที่จะได้รับเมื่อเข้าร่วมโครงการวิจัย

โครงการวิจัยในครั้งนี้ ไม่มีการจ่ายค่าตอบแทนแก่อาสาสมัคร

17. หากท่านไม่เข้าร่วมโครงการวิจัยนี้ ท่านมีทางเลือกอื่นอย่างไรบ้าง

เนื่องจากการศึกษานี้เป็นการวิจัยคุณภาพเชิงพรรณนา ดังนั้นไม่ได้มีการระบุวิธีการรักษาที่เป็นทางเลือกอื่นใดๆ อย่างไรก็ตามอาสาสมัครมีสิทธิในการเข้าร่วมการวิจัยผ่านการตัดสินใจด้วยตัวท่านเอง

18. หากเกิดอันตรายที่เกี่ยวข้องกับโครงการวิจัยนี้ จะติดต่อกับใคร และจะได้รับการปฏิบัติอย่างไร

หากอาสาสมัครในการวิจัยครั้งนี้ในการวิจัยครั้งนี้ มีความไม่สบายกายหรือใจ จากการสัมภาษณ์สามารถติดต่อแพทย์ผู้รับผิดชอบในโครงการวิจัยนี้แต่ละโรงพยาบาล ดังรายละเอียดต่อไปนี้

โรงพยาบาลกลาง

นพ.วิชัย ชวาลไพบูลย์ กลุ่มงานสูติ-นรีเวชกรรม โทรศัพท์ 0-2220-8000

โรงพยาบาลเจริญกรุงประชารักษ์

น.พ.วันชัย จันทราพิทักษ์ กลุ่มงานสูติ-นรีเวชกรรม โทรศัพท์ 0-2289-7050 หรือ 08-1585-1588

โรงพยาบาลตากสิน

พญ.พุทธวรรณ ทีฆสกุล กลุ่มงานสูติ-นรีเวชกรรม โทรศัพท์ 0-2437-0123

19. หากท่านมีคำถามที่เกี่ยวข้องกับโครงการวิจัย จะถามใคร ระบุชื่อผู้วิจัยหรือผู้วิจัยร่วม

หากท่านมีข้อสงสัยประการใด โปรดสอบถาม น.ส. วารีรัตน์ จิตติถาวร โทรศัพท์ 02-241-6500 ต่อ 8213-14 หรือ 086-171-6173 ภาควิชา การพยาบาลสูติ-นรีเวชศาสตร์ คณะพยาบาลศาสตร์เกื้อการุณย์ มหาวิทยาลัยนวมินทราธิราช

20. หากท่านรู้สึกว่าได้รับการปฏิบัติอย่างไม่เป็นธรรมในระหว่างโครงการวิจัยนี้ ท่านอาจแจ้งเรื่องได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร

กรณีไม่ได้รับการปฏิบัติตามที่ปรากฏในเอกสารชี้แจงข้อมูลหรือไม่ได้รับการชดเชยอันควรต่อการบาดเจ็บหรือเจ็บป่วยที่เกิดขึ้นโดยตรงจากการวิจัย ท่านสามารถร้องเรียนได้ที่สานักงานคณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร โทรศัพท์ 0-2220-7564 ในเวลาราชการ

21. ข้อมูลส่วนตัวของท่านที่ได้จากโครงการวิจัยครั้งนี้จะถูกนำไปใช้ดังต่อไปนี้

ผู้วิจัยจะเก็บข้อมูลเกี่ยวกับตัวท่านเป็นความลับและจะเปิดเผยข้อมูลเฉพาะสรุปผลการวิจัยด้วยเหตุผลทางวิชาการ โดยไม่มีการเปิดเผยชื่อ นามสกุล ที่อยู่เป็นรายบุคคลและข้อมูลที่ได้จากโครงการวิจัยจะมีการนาเสนอให้คณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานครต่อไป

22. ท่านจะถอนตัวออกจากโครงการวิจัยหลังจากได้ลงนามเข้าร่วมโครงการวิจัยแล้วได้หรือไม่

ท่านสามารถขอถอนตัวออกจากการศึกษาวิจัยในครั้งนี้ได้ตลอดเวลา ภายหลังจากได้ลงนามเข้าร่วมการวิจัย โดยไม่จำเป็นต้องชี้แจงเหตุผล และการยุติการเข้าร่วมการวิจัยนี้ ไม่ได้ส่งผลใดๆ ต่อการปฏิบัติงานของท่าน เหตุผลที่ท่านอาจจะถอนตัวออกจากการวิจัยนี้ เช่น ท่านรู้สึกไม่สุขสบายกายหรือใจในระหว่างการสัมภาษณ์ ซึ่งอาจส่งผลให้ท่านขอยุติการสัมภาษณ์ ทั้งนี้ข้อมูลที่ไม่สมบูรณ์จะไม่ถูกนำมาใช้ในการวิเคราะห์ ตีพิมพ์ หรือเผยแพร่แต่อย่างใด

23. หากมีข้อมูลใหม่ที่เกี่ยวข้องกับโครงการวิจัย ท่านจะได้รับแจ้งข้อมูลนั้นโดยผู้วิจัยหรือผู้วิจัยร่วมนั้นทันที

ไม่มี

24. ท่านจะได้รับเอกสารชี้แจงและหนังสือแสดงเจตนายินยอมที่มีข้อความเดียวกันกับของผู้วิจัย เก็บไว้เป็นส่วนตัว 1 ชุด

มีลายมือชื่อของอาสาสมัครและผู้ให้คาอธิบายเพื่อขอความร่วมมือให้เข้าร่วมโครงการวิจัย พร้อมวันที่ที่ลงชื่อ

เอกสารชี้แจงข้อมูลแก่อาสาสมัคร (มารดาวัยรุ่น)

1. ชื่อโครงการวิจัย

ภาวะแทรกซ้อนจากการตั้งครรภ์และรูปแบบการดูแลมารดาสำหรับหญิงตั้งครรภ์วัยรุ่นในประเทศไทย: การศึกษาเชิงผสมผสานวิธี

2. รหัสโครงการ

3. ชื่อ สถานที่ทำงานของหัวหน้าโครงการวิจัย และชื่อผู้วิจัยร่วม

3.1 นางสาว วารีรัตน์ จิตติถาวร

หน่วยงานที่สังกัด คณะพยาบาลศาสตร์เกื้อการุณย์ มหาวิทยาลัยนวมินทราธิราช

ตำแหน่งปัจจุบัน อาจารย์ประจำภาควิชา การพยาบาลสูติ-นรีเวชศาสตร์

3.2 Professor Caroline Homer

Professor of Midwifery, Centre for Midwifery, Child and Family Health

Faculty of Health | University of Technology Sydney

3.3 Doctor Christine Catling

Senior Lecturer in Midwifery

Faculty of Health | University of Technology Sydney

4. ผู้ให้ทุนวิจัย

มหาวิทยาลัยเทคโนโลยี ซิดนีย์ ในโครงการของรางวัลพัฒนาการวิจัยด้านสุขภาพและแนวทางปฏิบัติ สำหรับนักศึกษาวิจัย รอบที่ 1 ปี 2560 บางส่วน และทุนส่วนตัวของผู้วิจัย

5. วันที่ชี้แจงข้อมูล

เดือน พฤษภาคม 2560

6. คำเชิญชวนเข้าร่วมโครงการวิจัย

ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้ แต่ก่อนที่ท่านจะตัดสินใจว่าจะเข้าร่วมหรือไม่ ผู้วิจัยจะอธิบายรายละเอียดของโครงการให้ท่านและสามี หรือญาติท่านฟังอย่างละเอียด โดยผู้วิจัยจะทำการติดต่อและอธิบายโครงการวิจัยนี้ เมื่อท่านเข้ารับการรักษาในห้องคลอด การศึกษาจะดำเนินภายหลังท่านวันที่ ภายหลังการให้ 3 หรือ 2 กำเนิดบุตร โดยผู้วิจัยจะดำเนินการสัมภาษณ์แบบกลุ่ม ขอให้ท่านอ่านเอกสารฉบับนี้ทั้งหมดอย่างถี่ถ้วน เพื่อให้เข้าใจเหตุผลและรายละเอียดของการศึกษาวิจัยในครั้งนี้ว่าเหตุใดท่านจึงได้รับเชิญให้เข้าร่วมในโครงการวิจัยนี้ หากเข้าร่วมโครงการวิจัยนี้ ท่านจะต้องทำอะไรบ้าง รวมทั้งข้อดีและข้อเสียที่อาจเกิดขึ้นในระหว่างการวิจัย

ในเอกสารนี้ อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัยเพื่อให้อธิบายจนกว่าท่านเข้าใจ ท่านจะได้รับเอกสารนี้ ชุด กลับไปอ่านที่บ้านและสามารถขอคำแนะนำในการตัดสินใจเข้าร่วมโครงการวิจัยนี้จาก 1 ครอบครัว เพื่อนหรือสูติแพทย์ที่ท่านไว้ใจ ท่านมีเวลาในการตัดสินใจอย่างเพียงพอและเป็นอิสระ จะไม่มีการบังคับหรือชักจูง หากท่านไม่เข้าร่วมการวิจัย หรือเข้าร่วมแล้วขอถอนตัวจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อการปฏิบัติงานหรือผลประโยชน์ที่ท่านพึงได้รับแต่ประการใด ถ้าหากท่านตัดสินใจเข้าร่วมโครงการ ขอให้ท่านลงลายมือชื่อในหนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย

7. โครงการวิจัยนี้มีที่มาอย่างไร และวัตถุประสงค์ของโครงการวิจัย

สถิติการเพิ่มขึ้นของประชากรทั่วโลกในแต่ละปีประมาณ 131.4 ล้านคน ซึ่ง 16 ล้านคน มาจากหญิงตั้งครรภ์วัยรุ่นอายุ 15-19 ปี และอีกประมาณ 1 ล้านคน มาจากวัยรุ่นอายุต่ำกว่า 15 ปี (World Health Organization 2014) โดยอัตราการเกิดจากหญิงตั้งครรภ์วัยรุ่นส่วนใหญ่ถูกพบในกลุ่มประเทศกำลังพัฒนา (World Health Organization 2016) อัตราการเกิดจากหญิงตั้งครรภ์วัยรุ่นยังคงเป็นปัญหาที่ทั่วโลกให้ความสนใจ เพราะจากการศึกษายังคงพบว่า อุบัติการณ์ภาวะแทรกซ้อนขณะตั้งครรภ์สูงกว่ากลุ่มที่ไม่ใช่วัยรุ่น (Althabe et al. 2015; Ganchimeg et al. 2014; Thaithae & Thato 2011) นอกจากนี้การศึกษาที่ผ่านมา ยังพบว่าในกลุ่มหญิงตั้งครรภ์วัยรุ่นพบผลปริกำเนิดที่ไม่พึงประสงค์จากการตั้งครรภ์ อาจมีความสัมพันธ์อันเนื่องจากการได้รับการดูแลในระยะตั้งครรภ์ที่ไม่เพียงพอ (Fleming et al. 2013; Omar et al. 2010)

องค์การอนามัยโลก (World Health Organization 2016) ได้ให้ความสนใจในการเพิ่มขึ้นของอุบัติการณ์หญิงตั้งครรภ์วัยรุ่น และผลปริกำเนิดที่ไม่พึงประสงค์ ในกลุ่มประเทศกำลังพัฒนา รวมถึงประเทศไทย ซึ่งมันมีความสำคัญที่จะต้องศึกษาเข้าใจรูปแบบการดูแลมารดาวัยรุ่น ในโครงสร้าง กระบวนการ และผลลัพธ์ (Donabedian 1988) ปัจจุบันอัตราการเกิดในประเทศไทยกำลังลดลง (World Population Review 2016) ในขณะที่อัตราการเกิดจากหญิงตั้งครรภ์วัยรุ่นกำลังเพิ่มขึ้นทุกปี (Areemit et al. 2012; Sukrat 2014) การศึกษาในประเทศไทยพบว่า ในหญิงตั้งครรภ์วัยรุ่นพบอุบัติการณ์เกิดภาวะแทรกซ้อนและผลปริกำเนิดไม่พึงประสงค์จากการตั้งครรภ์ (Chantrapanichkul & Chawanpaiboon 2013; Phupong & Suebnukarn 2007; Thaithae & Thato 2011) หญิงตั้งครรภ์วัยรุ่นยังคงเป็นประเด็นที่ยังให้ความสำคัญ และแก้ไขในประเทศไทย ถึงแม้จะมีการส่งเสริมการเข้าถึงระบบบริการด้านสุขภาพอนามัยของหญิงตั้งครรภ์ การคลอด และหลังคลอด สำหรับหญิงตั้งครรภ์ทุกคนโดยไม่เสียค่าใช้จ่าย (the universal health care coverage) (Ministry of Public Health, Thailand 2016) จำนวนครั้งของการมาฝากครรภ์น้อย และล่าช้ายังคงพบในหญิงตั้งครรภ์วัยรุ่น (Chirayus & Chandeying 2012) สิ่งเหล่านี้อาจเป็นปัจจัยเสี่ยงต่อการเกิดผลปริกำเนิดที่ไม่พึงประสงคในกลุ่มหญิงตั้งครรภ์วัยรุ่น ดังนั้นการศึกษาและเข้าใจระบบการดูแลสำหรับหญิงตั้งครรภ์วัยรุ่น เพื่ออุบัติการณ์เกิดของผลปริกำเนิดที่ไม่พึงประสงค์ต่อไป

การวิจัยนี้จะศึกษาและสำรวจคุณภาพการดูแลสำหรับหญิงตั้งครรภ์วัยรุ่นไทย และอธิบายผลลัพธ์จากการตั้งครรภ์หรือผลปริกำเนิดในกลุ่มนี้ โดยมุ่งเน้นศึกษาจากประสบการณ์และมุมมองความคิดจากกลุ่มผู้ให้การดูแลและกลุ่มมารดาวัยรุ่นผู้ได้รับการดูแลในระยะตั้งครรภ์ในคลินิควัยรุ่น และศึกษาผลลัพธ์การตั้งครรภ์จากข้อมูลทุติยภูมิ จุดมุ่งหมายของการศึกษาเพื่อเข้าใจและประเมินคุณภาพการดูแลหญิงตั้งครรภ์วัยรุ่นในประเทศไทย นอกจากนี้ผลปริกำเนิดในกลุ่มหญิงตั้งครรภ์วัยรุ่นจะถูกนำมาใช้เพื่ออธิบายประสิทธิผลของระบบการดูแลในการศึกษาครั้งนี้ด้วย ตามทฤษฎีคุณภาพการดูแลการพยาบาล ของ Donabedian (1988; 2005) ซึ่งถูกนำมาใช้เป็นกรอบแนวคิดในการศึกษาครั้งนี้

8. ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้เพราะคุณสมบัติที่เหมาะสมดังต่อไปนี้

ท่านได้รับเชิญเข้าร่วมการวิจัยนี้ เนื่องจากท่านเป็นมารดาวัยรุ่น ที่มีอายุน้อยกว่า 20 ปี และได้รับการดูแลในระยะตั้งครรภ์จากคลินิควัยรุ่น ในโรงพยาบาลกลาง โรงพยาบาลเจริญกรุงประชารักษ์ และโรงพยาบาลตากสิน

9. ท่านไม่สามารถเข้าร่วมโครงการวิจัยได้หากท่านมีคุณสมบัติดังต่อไปนี้

ท่านไม่สามารถเข้าร่วมการวิจัยนี้ เนื่องจากท่านไม่ได้อยู่ในกลุ่มหญิงตั้งครรภ์วัยรุ่นที่มีอายุน้อยกว่า 20 ปี หรือท่านเป็นหญิงตั้งครรภ์วัยรุ่น แต่ท่านไม่ได้ผ่านการฝากครรภ์ หรือไม่ได้รับการดูแลในระยะตั้งครรภ์จากคลินิควัยรุ่นจาก 1 ใน 3 โรงพยาบาลนี้ ที่ได้กล่าวไปแล้วข้างต้น

10. จะมีการทำโครงการวิจัยนี้ที่ใด และมีจำนวนอาสาสมัครผู้เข้าร่วมโครงการวิจัยทั้งสิ้นเท่าไร

การศึกษาวิจัยในครั้งนี้ เป็นการวิจัยในการศึกษาต่อระดับปริญญาเอก ซึ่งทั้งนี้ผู้ร่วมวิจัยจากมหาวิทยาลัยเทคโนโลยี ซิดนีย์ ประเทศออสเตรเลีย ได้แก่ Professor Caroline Homer และ Doctor Christine Catling โดยการศึกษาวิจัยในครั้งนี้ จะดำเนินการเก็บรวบรวมข้อมูลในโรงพยาบาลกลาง โรงพยาบาลเจริญกรุงประชารักษ์ และโรงพยาบาลตากสิน กรุงเทพมหานคร ประเทศไทย

11. ระยะเวลาที่ท่านจะต้องร่วมโครงการวิจัยและจำนวนครั้งที่นัด

ระยะเวลาในการดำเนินการวิจัยของการวิจัยคุณภาพเชิงพรรณนาเป็นเวลา 3 เดือน เริ่มตั้งแต่เดือนพฤษภาคมถึงสิงหาคม พ.ศ. 2560 โดยใช้ระยะเวลาในการสัมภาษณ์แบบกลุ่มกับมารดาวัยรุ่น 5-7 ท่านต่อกลุ่ม โดยใช้เวลาในการดำเนินกลุ่ม 40-60 นาทีต่อกลุ่ม

12. หากท่านเข้าร่วมโครงการวิจัยครั้งนี้ ท่านจะได้รับการปฏิบัติ หรือต้องปฏิบัติตามขั้นตอนอย่างไรบ้าง

หากท่านตัดสินใจในการเข้าร่วมการวิจัยในครั้งนี้ ซึ่งจะดำเนินการรวบรวมข้อมูลจากการสัมภาษณ์แบบกลุ่ม โดยผู้วิจัยจะใช้ข้อคำถามในการสัมภาษณ์ท่าน เพื่อศึกษาประสบการณ์ และมุมมองความคิดต่อการได้รับการดูแลในระยะตั้งครรภ์จากคลินิควัยรุ่น ทั้งนี้การสัมภาษณ์จะถูกทำการบันทึก และถอดเทป

13. ความไม่สบายทางกายและใจ หรือความเสี่ยงต่ออันตรายที่อาจจะได้รับจากกรรมวิธีการวิจัยมีอะไรบ้าง และวิธีการป้องกัน/แก้ไขที่ผู้วิจัยเตรียมไว้หากมีเหตุการณ์ดังกล่าวเกิดขึ้น

ในระหว่างการดำเนินการสัมภาษณ์หากท่านมีความรู้สึกไม่สบายทางกายหรือทางด้านจิตใจ ท่านสามารถขอยุติการสัมภาษณ์ได้ทันที โดยไม่มีผลกระทบใดๆ ต่อการได้รับการดูแลรักษาพยาบาลของท่าน นอกจากนี้หากท่านยินดีเข้าร่วมการสัมภาษณ์ครั้งนี้ แต่ท่านอาจเกิดความลำบากใจในการตอบคำถามหรือรู้สึกไม่สุขสบายทางกายหรือจิตใจ ท่านมีสิทธิ์สามารถขอยุติการเข้าร่วมการสัมภาษณ์แบบกลุ่มได้ทันที โดยไม่จำเป็นต้องแจ้งเหตุผลแก่ผู้วิจัย

14. ประโยชน์ที่คาดว่าจะได้รับจากโครงการวิจัย

การศึกษาวิจัยในครั้งนี้ มุ่งหวังผลการศึกษาจะเป็นประโยชน์เพื่อนำมาใช้ในการพัฒนาคุณภาพการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่นต่อไป และจะเป็นแนวทางในการศึกษาในครั้งถัดไปในระดับภาพรวมของประเทศไทย อย่างไรก็อาสาสมัครจะไม่ได้รับประโยชน์โดยตรง อาทิเช่น ค่าตอบแทน หรือรางวัล แต่ในระยะหว่างการดำเนินการสัมภาษณ์แบบกลุ่ม ท่านจะได้รับเครื่องดื่ม ของว่าง เพื่อให้เกิดความสุขสบายทางกาย จากการสัมภาษณ์เป็นระยะเวลา 40-60 นาที

15. ค่าใช้จ่ายที่อาสาสมัครจะต้องรับผิดชอบ (ถ้ามี)

ไม่มี

16. ค่าตอบแทนที่จะได้รับเมื่อเข้าร่วมโครงการวิจัย

โครงการวิจัยในครั้งนี้ ไม่มีการจ่ายค่าตอบแทนแก่อาสาสมัคร

17. หากท่านไม่เข้าร่วมโครงการวิจัยนี้ ท่านมีทางเลือกอื่นอย่างไรบ้าง

เนื่องจากการศึกษานี้เป็นการวิจัยคุณภาพเชิงพรรณนา ดังนั้นไม่ได้มีการระบุวิธีการรักษาที่เป็นทางเลือกอื่นใดๆ อย่างไรก็ตามอาสาสมัครมีสิทธิในการเข้าร่วมการวิจัยผ่านการตัดสินใจด้วยตัวท่าน

18. หากเกิดอันตรายที่เกี่ยวข้องกับโครงการวิจัยนี้ จะติดต่อกับใคร และจะได้รับการปฏิบัติอย่างไร

หากอาสาสมัครในการวิจัยครั้งนี้ในการวิจัยครั้งนี้ มีความไม่สบายกายหรือใจ จากการสัมภาษณ์สามารถติดต่อแพทย์ผู้รับผิดชอบในโครงการวิจัยนี้แต่ละโรงพยาบาล ดังรายละเอียดต่อไปนี้

โรงพยาบาลกลาง

นพ.วิชัย ชวาลไพบูลย์ กลุ่มงานสูติ-นรีเวชกรรม โทรศัพท์ 0-2220-8000

โรงพยาบาลเจริญกรุงประชารักษ์

น.พ.วันชัย จันทราพิทักษ์ กลุ่มงานสูติ-นรีเวชกรรม โทรศัพท์ 0-2289-7050 หรือ 08-1585-1588

โรงพยาบาลตากสิน

พญ.พุทธวรรณ ทีฆสกุล กลุ่มงานสูติ-นรีเวชกรรม โทรศัพท์ 0-2437-0123

19. หากท่านมีคำถามที่เกี่ยวข้องกับโครงการวิจัย จะถามใคร ระบุชื่อผู้วิจัยหรือผู้วิจัยร่วม

หากท่านมีข้อสงสัยประการใด โปรดสอบถาม น.ส. วารีรัตน์ จิตติถาวร โทรศัพท์ 02-241-6500 ต่อ 8213-14 หรือ 086-171-6173 ภาควิชา การพยาบาลสูติ-นรีเวชศาสตร์ คณะพยาบาลศาสตร์เกื้อการุณย์ มหาวิทยาลัยนวมินทราธิราช

20. หากท่านรู้สึกว่าได้รับการปฏิบัติอย่างไม่เป็นธรรมในระหว่างโครงการวิจัยนี้ ท่านอาจแจ้งเรื่องได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร

กรณีไม่ได้รับการปฏิบัติตามที่ปรากฏในเอกสารชี้แจงข้อมูลหรือไม่ได้รับการชดเชยอันควรต่อการบาดเจ็บหรือเจ็บป่วยที่เกิดขึ้นโดยตรงจากการวิจัย ท่านสามารถร้องเรียนได้ที่สานักงานคณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานคร โทรศัพท์ 0-2220-7564 ในเวลาราชการ

21. ข้อมูลส่วนตัวของท่านที่ได้จากโครงการวิจัยครั้งนี้จะถูกนำไปใช้ดังต่อไปนี้

ผู้วิจัยจะเก็บข้อมูลเกี่ยวกับตัวท่านเป็นความลับและจะเปิดเผยข้อมูลเฉพาะสรุปผลการวิจัยด้วยเหตุผลทางวิชาการ โดยไม่มีการเปิดเผยชื่อ นามสกุล ที่อยู่เป็นรายบุคคลและข้อมูลที่ได้จากโครงการวิจัยจะมีการนาเสนอให้คณะกรรมการจริยธรรมการวิจัยในคนกรุงเทพมหานครต่อไป

22. ท่านจะถอนตัวออกจากโครงการวิจัยหลังจากได้ลงนามเข้าร่วมโครงการวิจัยแล้วได้หรือไม่

ท่านสามารถขอถอนตัวออกจากการศึกษาวิจัยในครั้งนี้ได้ตลอดเวลา ภายหลังจากได้ลงนามเข้าร่วมการวิจัย โดยไม่จำเป็นต้องชี้แจงเหตุผล และการยุติการเข้าร่วมการวิจัยนี้ ไม่ได้ส่งผลใดๆ ต่อการปฏิบัติงานของท่าน เหตุผลที่ท่านอาจจะถอนตัวออกจากการวิจัยนี้ เช่น ท่านรู้สึกไม่สุขสบายกายหรือใจในระหว่างการสัมภาษณ์ ซึ่งอาจส่งผลให้ท่านขอยุติการสัมภาษณ์ ทั้งนี้ข้อมูลที่ไม่สมบูรณ์จะไม่ถูกนำมาใช้ในการวิเคราะห์ ตีพิมพ์ หรือเผยแพร่แต่อย่างใด

23. หากมีข้อมูลใหม่ที่เกี่ยวข้องกับโครงการวิจัย ท่านจะได้รับแจ้งข้อมูลนั้นโดยผู้วิจัยหรือผู้วิจัยร่วมนั้นทันที

ไม่มี

24. ท่านจะได้รับเอกสารชี้แจงและหนังสือแสดงเจตนายินยอมที่มีข้อความเดียวกันกับของผู้วิจัย เก็บไว้เป็นส่วนตัว 1 ชุด

มีลายมือชื่อของอาสาสมัครและผู้ให้คาอธิบายเพื่อขอความร่วมมือให้เข้าร่วมโครงการวิจัย พร้อมวันที่ที่ลงชื่อ

หนังสือแสดงเจตนาเข้าร่วมโครงการวิจัย

RF 03.1-03

หนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย

(กรณีอาสาสมัครอายุ 18 ปีขึ้นไป)

ทำที่.....

วันที่.....

ข้าพเจ้า (นาย/นาง/นางสาว) .....อายุ.....ปี

อยู่บ้านเลขที่.....ถนน.....หมู่ที่.....แขวง/ตำบล.....เขต/อำเภอ.....จังหวัด.....

ขอทำหนังสือนี้ให้ไว้ต่อหัวหน้าโครงการวิจัยเพื่อเป็นหลักฐานแสดงว่า

ข้อ 1 ข้าพเจ้าได้รับทราบโครงการวิจัยของ (หัวหน้าโครงการและคณะ)...น.ส.วารีรัตน์ จิตติถาวรและคณะ เรื่อง ภาวะแทรกซ้อนจากการตั้งครรภ์และรูปแบบการดูแลมารดาสำหรับหญิงตั้งครรภ์วัยรุ่นในประเทศไทย: การศึกษาเชิงผสมผสานวิธี

ข้อ 2 ข้าพเจ้ายินยอมเข้าร่วมโครงการวิจัยนี้ด้วยความสมัครใจ โดยมิได้มีการบังคับ ขู่เข็ญ หลอกลวง แต่ประการใด และพร้อมจะให้ความร่วมมือในการวิจัย

ข้อ 3 ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยเกี่ยวกับวัตถุประสงค์ของการวิจัย วิธีการวิจัย ประสิทธิภาพ ความปลอดภัย อาการหรืออันตรายที่อาจเกิดขึ้น รวมทั้งประโยชน์ที่จะได้รับจากการวิจัยโดยละเอียดแล้วจากเอกสารการวิจัยที่แนบท้ายหนังสือให้ความยินยอมนี้

ข้อ 4 ข้าพเจ้าได้รับการรับรองจากผู้วิจัยว่า จะเก็บข้อมูลส่วนตัวของข้าพเจ้าเป็นความลับ จะเปิดเผยเฉพาะผลสรุปการวิจัยเท่านั้น

ข้อ 5 ข้าพเจ้าได้รับทราบจากผู้วิจัยแล้วว่าหากมีอันตรายใดๆ ในระหว่างการวิจัยหรือภายหลังการวิจัยอันพิสูจน์ได้จากผู้เชี่ยวชาญของสถาบันที่ควบคุมวิชาชีพนั้นๆ ได้ว่าเกิดขึ้นจากการวิจัยดังกล่าว ข้าพเจ้าจะได้รับการดูแลและค่าใช้จ่ายในการรักษาพยาบาลจากผู้วิจัยและ/หรือผู้สนับสนุนการวิจัย และจะได้รับค่าชดเชยรายได้ที่สูญเสียไปในระหว่างการรักษาพยาบาลดังกล่าวตามมาตรฐานค่าแรงขั้นต่ำตามกฎหมาย ตลอดจนมีสิทธิได้รับค่าทดแทนความพิการที่อาจเกิดขึ้นจากการวิจัยตามมาตรฐานค่าแรงขั้นต่ำตามกฎหมายและในกรณีที่ข้าพเจ้าได้รับอันตรายจากการวิจัยถึงแก่ความตาย ทายาทของข้าพเจ้ามีสิทธิได้รับค่าชดเชยและค่าทดแทนดังกล่าวจากผู้วิจัยและ/หรือผู้สนับสนุนการวิจัยแทนตัวข้าพเจ้า

ข้อ 6 ข้าพเจ้าได้รับทราบแล้วว่า ข้าพเจ้ามีสิทธิจะบอกเลิกการร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการร่วมโครงการวิจัยจะไม่มีผลกระทบต่อการได้รับบรรดาค่าใช้จ่าย ค่าชดเชยและค่าทดแทนตาม ข้อ 5 ทุกประการ

ข้าพเจ้าได้อ่านและเข้าใจข้อความตามหนังสือนี้โดยตลอดแล้ว เห็นว่าถูกต้องตามเจตนาของข้าพเจ้า จึงได้ลงลายมือชื่อยินยอมเป็นอาสาสมัครของโครงการวิจัย ต่อหน้าผู้ให้ข้อมูลและพยาน

ลงชื่อ.....อาสาสมัคร

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ. .....

ลงชื่อ.....พยาน

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ. .....

ลงชื่อ.....พยาน

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ. .....

ลงชื่อ.....ผู้ให้ข้อมูล

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ .....

ลงชื่อ.....หัวหน้าโครงการวิจัย

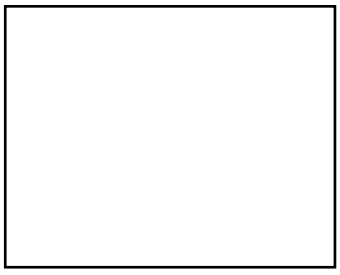
(.....)ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ .....

หมายเหตุ

1) ผู้ให้ข้อมูล/ขอความยินยอม ควรเป็นผู้ที่ได้รับการอบรมและมีความรู้อย่างดีเกี่ยวกับการวิจัย และเป็นผู้ไม่มีความสัมพันธ์กับอาสาสมัครในกรณีการวิจัยทางคลินิก ผู้อธิบายให้ข้อมูลต้องไม่ใช่แพทย์ผู้ทำการวิจัยที่เป็นแพทย์ผู้ดูแลรักษาอาสาสมัคร เพื่อป้องกันการเข้าร่วมโครงการด้วยความเกรงใจ
2) ในกรณีการวิจัยทางคลินิก ผู้อธิบายให้ข้อมูล ต้องไม่ใช่แพทย์ผู้ทาการวิจัยที่เป็นแพทย์ผู้ดูแลรักษาอาสาสมัคร เพื่อป้องกันการเข้าร่วมโครงการด้วยความเกรงใจ
3) พยานเป็นผู้บรรลุนิติภาวะต้องไม่ใช่ผู้วิจัยและทีมงาน และไม่ใช่ผู้ให้ข้อมูล ลงลายมือชื่อและวันที่ด้วยตนเอง
4) ในกรณีที่อาสาสมัครไม่สามารถอ่านหนังสือ หรือลงลายมือชื่อได้ ให้ใช้การประทับลายนิ้วมือแทน

ข้าพเจ้าไม่สามารถอ่านหรือเขียนหนังสือได้ แต่มีผู้อ่านข้อความในหนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยนี้ให้แก่ข้าพเจ้าฟังจนเข้าใจดี และมีพยานที่เป็นกลางอยู่ด้วยตลอดเวลาที่ขอความยินยอมข้าพเจ้าจึงประทับตราลายนิ้วมือขวาของข้าพเจ้าในหนังสือแสดงเจตนานี้ด้วยความเต็มใจ



ประทับลายนิ้วมือขวา

ลงชื่อ.....ผู้ให้ข้อมูล

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ. .....

ลงชื่อ.....พยาน

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ. .....

ลงชื่อ.....พยาน

(.....) ชื่อสกุล ตัวบรรจง

วันที่.....เดือน.....พ.ศ. .....

หนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัย

(กรณีอาสาสมัครอายุน้อยกว่า 18 ปี)

ทำที่.....

วันที่.....

ข้าพเจ้า (นาย/นาง/นางสาว) .....อายุ.....ปี

อยู่บ้านเลขที่.....ถนน.....หมู่ที่.....แขวง/ตำบล.....เขต/อำเภอ.....จังหวัด.....

เป็นบิดา/มารดา/ผู้ปกครองของ (ด.ญ./นางสาว) .....อายุ.....ปี

ได้รับฟังคำอธิบายจาก น.ส. วารีรัตน์ จิตติถาวร (ผู้วิจัย) ขอทำหนังสือนี้ให้ไว้ต่อหัวหน้าโครงการวิจัยเพื่อเป็นหลักฐานแสดงว่า

ข้อ 1 ข้าพเจ้าและบุคคลในปกครองของข้าพเจ้า ได้รับทราบโครงการวิจัยของ (หัวหน้าโครงการและคณะ)...น.ส.วารีรัตน์ จิตติถาวรและคณะ เรื่อง ภาวะแทรกซ้อนจากการตั้งครรภ์และรูปแบบการดูแลมารดาสำหรับหญิงตั้งครรภ์วัยรุ่นในประเทศไทย: การศึกษาเชิงผสมผสานวิธี

ข้อ 2 ข้าพเจ้ายินยอมให้บุคคลในปกครองของข้าพเจ้า เข้าร่วมโครงการวิจัยนี้ด้วยความสมัครใจ โดยมิได้มีการบังคับ ขู่เข็ญ หลอกลวงแต่ประการใด และพร้อมจะให้ความร่วมมือในการวิจัย

ข้อ 3 ข้าพเจ้าและบุคคลในปกครองของข้าพเจ้า ได้รับการอธิบายจากผู้วิจัยเกี่ยวกับวัตถุประสงค์ของการวิจัย วิธีการวิจัย ประสิทธิภาพความปลอดภัย อาการหรืออันตรายที่อาจเกิดขึ้น รวมทั้งประโยชน์ที่จะได้รับจากการวิจัยโดยละเอียดแล้วจากเอกสารการวิจัยที่แนบท้ายหนังสือให้ความยินยอมนี้

ข้อ 4 ข้าพเจ้าและบุคคลในปกครองของข้าพเจ้า ได้รับการรับรองจากผู้วิจัยว่า จะเก็บข้อมูลส่วนตัวของบุคคลในปกครองของข้าพเจ้าเป็นความลับ จะเปิดเผยเฉพาะผลสรุปการวิจัยเท่านั้น

ข้อ 5 ข้าพเจ้าและบุคคลในปกครองของข้าพเจ้า ได้รับทราบจากผู้วิจัยแล้วว่าหากมีอันตรายใดๆ ในระหว่างการวิจัยหรือภายหลังการวิจัยอันพิสูจน์ได้จากผู้เชี่ยวชาญของสถาบันที่ควบคุมวิชาชีพนั้นๆ ได้ว่าเกิดขึ้นจากการวิจัยดังกล่าว บุคคลในปกครองของข้าพเจ้าจะได้รับการดูแลและค่าใช้จ่ายในการรักษาพยาบาลจากผู้วิจัยและ/หรือผู้สนับสนุนการวิจัย และจะได้รับค่าชดเชยรายได้ที่สูญเสียไปในระหว่างการรักษาพยาบาลดังกล่าวตามมาตรฐานค่าแรงขั้นต่ำตามกฎหมาย ตลอดจนมีสิทธิได้รับค่าทดแทนความพิการที่อาจเกิดขึ้นจากการวิจัยตามมาตรฐานค่าแรงขั้นต่ำตามกฎหมายและในกรณีที่บุคคลในปกครองของข้าพเจ้าได้รับอันตรายจากการวิจัยถึงแก่ความตาย ทายาทมีสิทธิได้รับค่าชดเชยและค่าทดแทนดังกล่าวจากผู้วิจัยและ/หรือผู้สนับสนุนการวิจัยแทนบุคคลในปกครองของข้าพเจ้า

ข้อ 6 ข้าพเจ้าได้รับทราบแล้วว่า บุคคลในปกครองของข้าพเจ้ามีสิทธิจะบอกเลิกการร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการร่วมโครงการวิจัยจะไม่มีผลกระทบต่อการได้รับบรรดาค่าใช้จ่าย ค่าชดเชยและค่าทดแทนตาม ข้อ 5 ทุกประการ

ข้าพเจ้าได้อ่านและเข้าใจข้อความตามหนังสือนี้โดยตลอดแล้ว เห็นว่าถูกต้องตามเจตนาของข้าพเจ้าและบุคคลในปกครองของข้าพเจ้า จึงได้ลงลายมือชื่อยินยอมเป็นอาสาสมัครของโครงการวิจัย ต่อหน้าผู้ให้ข้อมูลและพยาน

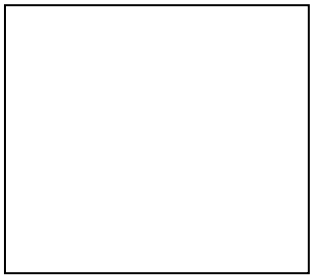
ลงชื่อ.....อาสาสมัคร
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....
ลงชื่อ.....พยาน
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....
ลงชื่อ.....พยาน
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....

ลงชื่อ.....บิดา/มารดา/ผู้ปกครอง
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....
ลงชื่อ.....ผู้ให้ข้อมูล
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....
ลงชื่อ.....หัวหน้าโครงการวิจัย
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....

หมายเหตุ

1) ในกรณีอาสาสมัครเป็นเด็กโต อายุ 7- น้อยกว่า 18 ปี สามารถรับรู้ได้ให้ลงลายมือชื่อทั้งผู้ยินยอม (เด็ก) และผู้ปกครองตามกฎหมายหรือผู้แทนโดยชอบธรรมเป็นผู้ให้ความยินยอมด้วย
2) ผู้ให้ข้อมูล/ขอความยินยอม ควรเป็นผู้ที่ได้รับการอบรมและมีความรู้อย่างดีเกี่ยวกับการวิจัย และเป็นผู้ไม่มีความสัมพันธ์กับอาสาสมัคร
3) ในกรณีการวิจัยทางคลินิก ผู้อธิบายให้ข้อมูล ต้องไม่ใช่แพทย์ผู้ทำการวิจัยที่เป็นแพทย์ผู้ดูแลรักษาอาสาสมัคร เพื่อป้องกันการเข้าร่วมโครงการด้วยความเกรงใจ
4) พยานเป็นผู้บรรลุนิติภาวะต้องไม่ใช่ผู้วิจัยและทีมงาน และไม่ใช่ผู้ให้ข้อมูล ลงลายมือชื่อและวันที่ด้วยตนเอง
5) ในกรณีที่อาสาสมัครไม่สามารถอ่านหนังสือหรือลงลายมือชื่อได้ ให้ใช้การประทับลายนิ้วมือแทน

ข้าพเจ้าไม่สามารถอ่านหรือเขียนหนังสือได้ แต่มีผู้อ่านข้อความในหนังสือแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยนี้ให้แก่ข้าพเจ้าฟังจนเข้าใจดี และมีพยานที่เป็นกลางอยู่ด้วยตลอดเวลาที่ขอความยินยอมข้าพเจ้าจึงประทับตราลายนิ้วมือขวาของข้าพเจ้าในหนังสือแสดงเจตนานี้ด้วยความเต็มใจ



ประทับลายนิ้วมือขวา

ลงชื่อ.....ผู้ให้ข้อมูล
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....
ลงชื่อ.....พยาน
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....
ลงชื่อ.....พยาน
(.....) ชื่อสกุล ตัวบรรจง
วันที่.....เดือน.....พ.ศ .....

ข้อมูลทั่วไปของบุคลากรด้านสุขภาพ

รหัสของกลุ่มตัวอย่าง ☐☐

วัน/เดือน/ปี ☐☐/☐☐/☐☐☐☐

โปรดตอบคำถามด้านล่าง ก่อนการเข้าร่วมการสัมภาษณ์

1. อาชีพของผู้เข้าร่วมการสัมภาษณ์

☐1 สูติแพทย์ ☐2 พยาบาลวิชาชีพ ☐3 พยาบาลผดุงครรภ์

2. อายุ .....

3. เพศ ☐1 หญิง ☐2 ชาย

4. ตำแหน่งหน้าที่ในการให้การดูแลในระยะตั้งครรภ์ ในคลินิควัยรุ่น

.....

.....

5. ระยะเวลาในการทำงานในการให้การดูแลในระยะตั้งครรภ์ ในคลินิควัยรุ่น

.....

.....

แบบข้อคำถามในการสัมภาษณ์บุคลากรด้านสุขภาพ

การสัมภาษณ์แบบกึ่งโครงสร้าง มุ่งเน้นที่จะศึกษาและเข้าใจเกี่ยวกับการให้การดูแลในระยะตั้งครรภ์ของคลินิควัยรุ่น จากประสบการณ์และมุมมองความคิดจากบุคลากรด้านสุขภาพ ในประเด็นหลักดังนี้

1. โครงสร้างของรูปแบบการให้การดูแลในระยะตั้งครรภ์คลินิควัยรุ่น ลักษณะของคลินิค อาทิเช่น จำนวนบุคลากร เครื่องมือ รวมถึงการรับรู้เกี่ยวกับผลลัพธ์ทางคลินิคที่ดีขึ้นจากการได้รับการดูแลจากคลินิค

2. กระบวนการหรือรูปแบบลักษณะการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น

3. ข้อดีและข้อเสียในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น

ทั้งนี้ชุดข้อคำถามปลายเปิดจะถูกนำมาใช้ในการศึกษาประสบการณ์และมุมมองจากบุคลากรทางสุขภาพ ดังนี้

4. ท่านช่วยเล่าถึงประสบการณ์ในการทำงานของท่านในการให้การดูแลหญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่น

5. ท่านคิดว่าการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่น เป็นอย่างไรในโรงพยาบาลของท่าน ทั้งนี้อาจมาจากประสบการณ์ทางตรงของท่านเอง หรืออาจจากประสบการณ์ทางอ้อมซึ่งอาจเป็นเสียงสะท้อนจากผู้รับบริการ

-โครงสร้างหรือรูปแบบการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่นคืออะไร อาทิเช่น นโยบาย) ของโรงพยาบาล จำนวนบุคลากรผู้ให้การดูแลแก่หญิงตั้งครรภ์วัยรุ่น เครื่องมือหรือสิ่งแวดล้อมที่มีผลต่อการให้การดูแล ตลอดจนการให้การส่งเสริมพัฒนาองค์ความรู้ในการดูแลในหญิงตั้งครรภ์กลุ่มนี้(
ท่านคิดว่าการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่นมีการจัดระบบงานหรือวางแผนการ - ทำงานอย่างไร โปรดช่วยอธิบายเพิ่มเติมในรายละเอียด
- แนวทางปฏิบัติในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่น ที่ท่านคิดว่าเป็นประโยชน์หรือมีส่วนช่วยในการเพิ่มคุณภาพการตั้งครรภ์ในกลุ่มนี้คืออะไร และมีกระบวนการอย่างไร

6. ท่านคิดว่าอะไรคือสิ่งที่ดีที่สุดหรือจุดแข็งในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่น ในโรงพยาบาลของท่าน

7. ท่านคิดว่าอะไรคือจุดอ่อนที่สุดในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่น ในโรงพยาบาลของท่าน

8. ท่านคิดว่าอะไรคือข้อจำกัดในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น คลินิควัยรุ่น

9. ท่านคิดว่าจะสามารถพัฒนาสิ่งเหล่านี้ หรือพัฒนาการให้การดูแลในระยะตั้งครรภ์ในกลุ่มนี้ให้ดีขึ้นได้อย่างไร

10. จากประสบการณ์ และมุมมองความคิดในการทำงาน อะไรคือสิ่งที่ท้าทายในการให้การดูแลในระยะตั้งครรภ์แก่หญิงตั้งครรภ์วัยรุ่น ในคลินิควัยรุ่น

ข้อมูลทั่วไปของมารดาวัยรุ่น

รหัสของกลุ่มตัวอย่าง ☐☐
วัน/เดือน/ปี ☐☐/☐☐/☐☐☐☐

โปรดตอบคำถามด้านล่าง ก่อนการเข้าร่วมการสัมภาษณ์

1. อายุ .....

2. ประวัติทางสูติกรรมที่ผ่านมา
การตั้งครรภ์ .....
การคลอด .....
การแท้งบุตร .....
การคลอดก่อนกำหนด .....

3. ระดับการศึกษาสูงสุด

.....

4. อายุครรภ์กี่สัปดาห์หรือกี่เดือน เมื่อท่านมาฝากครรภ์ครั้งแรก

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5. ท่านได้รับการดูแลในระยะตั้งครรภ์จากคลินิควัยรุ่นหรือไม่

☐1 ได้รับ ☐2 ไม่ได้รับ

เหตุผลเพิ่มเติม

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แบบข้อคำถามในการสัมภาษณ์กลุ่มกับมารดาวัยรุ่น

การสัมภาษณ์แบบกลุ่มจะถูกนำมาใช้ในการรวบรวมข้อมูลเกี่ยวกับคุณภาพการให้การดูแลในระยะตั้งครรภ์แก่มารดาวัยรุ่น โดยจะทำการสัมภาษณ์จากมารดาวัยรุ่น 5-7 รายต่อกลุ่ม ผู้ซึ่งผ่านการได้รับการดูแลจากคลินิควัยรุ่น ผ่านการคลอด และยังคงอยู่ในช่วงการได้รับการดูแลจากหอผู้ป่วยหลังคลอด โดยการทำการสัมภาษณ์กลุ่มจะดำเนินการรวบรวมข้อมูลในวันที่ 2 หรือ 3 หลังการคลอดบุตร ทั้งนี้แบบข้อคำถามในการสัมภาษณ์แบบกลุ่มจะนำมาใช้ในการศึกษาสำรวจประสบการณ์และมุมมองความคิดจากมารดาวัยรุ่น

แบบข้อคำถามในการสัมภาษณ์แบบกลุ่มกับมารดาวัยรุ่นจะถูกใช้ถามดังนี้

- ท่านได้รับการดูแลในระยะตั้งครรภ์จากคลินิควัยรุ่นหรือไม่ ฝากครรภ์ครั้งแรกเมื่ออายุครรภ์เท่าไหร่ และด้วยเหตุผลใดจึงเลือกมาฝากครรภ์ที่นี้
- ท่านช่วยเล่าประสบการณ์ของท่าน เมื่อได้รับการดูแลในระยะตั้งครรภ์จากคลินิควัยรุ่น ตั้งแต่เริ่มต้นฝากครรภ์จนถึงระยะคลอด
- ท่านคิดว่าอะไรคือส่วนที่ดีที่สุดหรือสิ่งที่ท่านประทับใจหรือข้อดีที่สุด จากการได้รับการดูแลในระยะตั้งครรภ์ครั้งนี้
- ท่านคิดว่าอะไรคือส่วนที่ต้องปรับปรุงที่สุดหรือสิ่งที่ท่านรู้สึกไม่พึงพอใจจากการได้รับการดูแลในระยะตั้งครรภ์ครั้งนี้
- หากท่านตั้งครรภ์ครั้งถัดไป อะไรคือสิ่งที่ท่านอยากจะแนะนำให้เกิดขึ้นในอนาคต
- อะไรเป็นสิ่งที่ท่านชอบหรือประทับใจ สิ่งเป็นสิ่งที่ท่านคิดว่าแตกต่างจากที่อื่น หรือแตกต่างจากประสบการณ์ทั้งทางตรง และทางอ้อมที่ผ่านมาของท่าน โปรดอธิบาย

ข้อมูลปฐมภูมิต่อผลลัพธ์ทางคลินิคหรือผลปริกำเนิด

ระยะที่สองของการวิจัยเชิงผสมผสานวิธี (A mixed methods study) คือ การวิจัยปริมาณเชิงพรรณนา เพื่อที่จะทำการศึกษาผลลัพธ์ทางคลินิคหรือผลปริกำเนิดในหญิงตั้งครรภ์วัยรุ่น โดยใช้ข้อมูลปฐมภูมิจากแฟ้มประวัติอิเล็กโทรนิคหญิงตั้งครรภ์วัยรุ่น ในช่วงตั้งแต่ วันที่ 1 มกราคม ถึงวันที่ 31 ธันวาคม 2559 ทั้งนี้เนื่องจากการทบทวนวรรณกรรมที่ผ่านมา (ตามเอกสารหมายเลข 3 'โครงร่างการวิจัยภาษาอังกฤษ' บทที่ 2 (Doctoral assessment)) ข้อมูลที่ต้องการศึกษาจะแสดงตามรายละเอียดในตารางด้านล่างนี้

หัวข้อ	รายละเอียดข้อมูล
ข้อมูลทั่วไป	ระดับการศึกษา
	อายุของหญิงตั้งครรภ์วัยรุ่น
	สถานภาพการสมรส
	การตั้งครรภ์
	การคลอด (อายุครรภ์มากกว่าหรือเท่ากับ 20 สัปดาห์)
	การแท้งบุตร
	การคลอดก่อนกำหนด
	อายุครรภ์ ณ การมาฝากครรภ์ครั้งแรก
	จำนวนครั้งของการมาฝากครรภ์
ผลลัพธ์ทางคลินิคหรือผลปริกำเนิด	ผลลัพธ์ทางคลินิคด้านมารดาและทารก อาทิเช่น - ภาวะโลหิตจางร่วมกับการตั้งครรภ์
	- ภาวะความดันโลหิตสูงร่วมกับการตั้งครรภ์
	- ภาวะตกเลือดก่อนและหรือหลังคลอด
	- ภาวะซึมเศร้า
	- การเจ็บครรภ์คลอดก่อนกำหนด
	- ทารกแรกเกิดน้ำหนักตัวน้อย
	- ทารกตายในครรภ์
	- ทารกตายปริกำเนิด
	- ทารกแรกเกิดในหออภิบาลวิกฤต

Appendix n: Confidentiality Deed Poll

UTS
UNIVERSITY OF TECHNOLOGY SYDNEY

CONFIDENTIALITY DEED POLL

THIS CONFIDENTIALITY DEED POLL is made on the date set out in **Item 1** by the person set out in **Item 2** of the Schedule (**"Company"**)

FOR THE BENEFIT OF:

UNIVERSITY TECHNOLOGY SYDNEY (ABN 77 257 686 961) of 15-73 Broadway, NSW 2007, Australia (**"Discloser"**).

1. DEFINITIONS

(a) **Confidential Information** means any information or record of information or information that is derived from information which:

(i) has not been publicly disclosed; or
(ii) is marked "Confidential"; or
(iii) may reasonably be regarded as confidential,

that concerns the Discloser's management, operations, affairs, finances, research, intellectual property, technical information and know-how.

(b) **Permitted Purpose** means any purpose authorised by the Discloser in writing or as set out in **Item 3** of the Schedule.

2. CONFIDENTIALITY

2.1 The Company undertakes that he or she:-

(a) will hold all Confidential Information confidential and will not disclose to any person or use any Confidential Information except for the Permitted Purpose; and

(c) will not copy, reproduce or otherwise deal with Confidential Information in any manner otherwise than for the Permitted Purpose.

2.2 The Company will follow all guidelines or directions given by the Discloser for the handling and safe keeping of Confidential Information and must take all steps to keep that information secret.

2.3 If the Discloser requests, the Company must immediately return any material in his or her possession or control that is or contains Confidential Information.

3. EXCEPTIONS

3.1 This Deed Poll does not apply to:

(a) disclosure of Confidential Information necessary by operation of law;

(b) disclosure of Confidential Information made for the purpose of seeking legal advice; or

(c) the Confidential Information is publicly known unless the public knowledge is a result of a breach of this Deed Poll.

3.2 This Deed Poll does not operate to derogate from any other rights (including intellectual property rights) that the Discloser might have relating to the Confidential Information.

4. OWNERSHIP OF CONFIDENTIAL INFORMATION

The Company acknowledges that this Deed Poll does not convey any interest in Confidential Information to the Company.

SCHEDULE

Item 1	Date of Deed	Enter a date 20/02/2018
Item 2	Name, ABN and address of Company	Enter Name and Address of Company 108 Translations
Item 3	Permitted Purpose	Permitted Purpose

EXECUTED AS A DEED POLL

SIGNED BY THE COMPANY in the presence of:

Production Note:
Signature removed prior to publication.

Signature of Company

Thipawan Amornpitpratya

Print name

Production Note:
Signature removed prior to publication.

Signature of witness

Charida Beunmak

Print name

UTS
UNIVERSITY OF TECHNOLOGY SYDNEY

CONFIDENTIALITY DEED POLL

THIS CONFIDENTIALITY DEED POLL is made on the date set out in **Item 1** by the person set out in **Item 2** of the Schedule ("**Company**")

FOR THE BENEFIT OF:

UNIVERSITY TECHNOLOGY SYDNEY (ABN 77 257 686 961) of 15-73 Broadway, NSW 2007, Australia ("**Discloser**").

1. DEFINITIONS

(a) **Confidential Information** means any information or record of information or information that is derived from information which:

(i) has not been publicly disclosed; or
(ii) is marked "Confidential"; or
(iii) may reasonably be regarded as confidential,

that concerns the Discloser's management, operations, affairs, finances, research, intellectual property, technical information and know-how.

(b) **Permitted Purpose** means any purpose authorised by the Discloser in writing or as set out in **Item 3** of the Schedule.

2. CONFIDENTIALITY

2.1 The Company undertakes that he or she:-

(a) will hold all Confidential Information confidential and will not disclose to any person or use any Confidential Information except for the Permitted Purpose; and

(c) will not copy, reproduce or otherwise deal with Confidential Information in any manner otherwise than for the Permitted Purpose.

2.2 The Company will follow all guidelines or directions given by the Discloser for the handling and safe keeping of Confidential Information and must take all steps to keep that information secret.

2.3 If the Discloser requests, the Company must immediately return any material in his or her possession or control that is or contains Confidential Information.

3. EXCEPTIONS

3.1 This Deed Poll does not apply to:

(a) disclosure of Confidential Information necessary by operation of law;

(b) disclosure of Confidential Information made for the purpose of seeking legal advice; or

(c) the Confidential Information is publicly known unless the public knowledge is a result of a breach of this Deed Poll.

3.2 This Deed Poll does not operate to derogate from any other rights (including intellectual property rights) that the Discloser might have relating to the Confidential Information.

4. REMEDIES

The Company acknowledges that any unauthorised use or disclosure of the Confidential Information or any part of it in breach of this Deed Poll and any other breach of the terms of the Deed Poll may cause damage to the Discloser and that damages may be inadequate compensation. Consequently, the Discloser has the right in such circumstances, in addition to any other remedies available at law or in equity, to seek injunctive relief against the Company in respect of any breach of this Deed Poll.

5. OWNERSHIP OF CONFIDENTIAL INFORMATION

The Company acknowledges that this Deed Poll does not convey any interest in Confidential Information to the Company.

6. SEVERANCE

If anything in this Deed Poll is unenforceable, illegal or void then it is deemed severed and the rest of Deed Poll remains in force.

7. GOVERNING LAW

This Deed Poll is governed by the laws of the State of New South Wales in Australia. The Company submits to the exclusive jurisdiction of the courts of New South Wales.

EXECUTED AS A DEED POLL

SIGNED BY THE COMPANY in the presence of:

Production Note:
Signature removed prior to publication.

.....

Signature of Company

Ms. Pakchanok Mapaisankit

Print name

Production Note:
Signature removed prior to publication.

.....

Signature of witness

Mr. Akachai Danpongpee

Print name

Appendix o: Copy permission of published work in this thesis

Inclusion of paper

CH

Caroline Homer <caroline.homer@burnet.edu.au>
Today, 8:40 AM
Wareerat Jittitaworn

Dear Fon

I am Editor in Chief for the Woman and Birth journal and give permission for you to include the accepted word version (not the copy-edited PDF) in your thesis.

Caroline

Professor Caroline Homer AO

Editor-in-Chief: *Women and Birth*
Twitter: @womenandbirth

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