THE COMPARISON OF HEALTH PRACTICE DURING PREGNANCY AND PREGNANCY OUTCOMES BETWEEN MOTHERS WITH ADEQUATE AND INADEQUATE PRENATAL VISITS: CASE STUDY AT TAKSIN HOSPITAL

LUCKANA AMORNPRAKAS

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ABSTRACT

Prenatal visits are important for the prevention of complications or reduction of their severity. This study was a descriptive research aiming to compare health practice during pregnancy and pregnancy outcomes of mothers with an adequate number prenatal visits and those with an inadequate. The sample was composed of 140 mothers with adequate prenatal visits, and 140 mothers with inadequate prenatal visits. The instrument was comprised of the Personal Data Interview Form, the Hospital Record Form, and the Health Practice Questionnaire. Data were collected from March to June 2004. Data were analyzed with t–test and χ^2–test.

The study revealed that the mothers with adequate prenatal visits had significantly higher scores of health practice than those with inadequate prenatal visits. The average gestational age at delivery of the mothers in the adequate prenatal visits was longer than those in the inadequate prenatal visits group. As for the infants' birth weight and the 5–minute APGAR score, the results of the two groups demonstrated insignificant differences.

The results suggest that nurses should develop a program to increase prenatal visits to meet the Public Health Ministry requirement and also to improve quality of care for pregnant women during pregnancy.

KEY WORDS : HEALTH PRACTICE / PREGNANCY OUTCOMES / ADEQUATE AND INADEQUATE PRENATAL VISITS

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ศึกษาเปรียบเทียบพฤติกรรมสุขภาพในระยะตั้งครรภ์และผลลัพธ์ของการตั้งครรภ์ ระหว่างมารดากลุ่มที่ฝากครรภ์ครบและกลุ่มที่ฝากครรภ์ไม่ครบตามเกณฑ์: กรณีศึกษาโรงพยาบาลตากสิน (THE COMPARISON OF HEALTH PRACTICE DURING PREGNANCY AND PREGNANCY OUTCOMES BETWEEN MOTHERS WITH ADEQUATE AND INADEQUATE PRENATAL VISITS: CASE STUDY AT TAKSIN HOSPITAL)

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บทคัดย่อ

การฝากครรภ์ เป็นวิธีการหนึ่งที่สามารถป้องกันหรือลดความรุนแรงของภาวะแทรกซ้อนจากการตั้งครรภ์ได้ การวิจัยครั้งนี้เป็นการศึกษาเชิงบรรยาย เพื่อศึกษาเปรียบเทียบพฤติกรรมสุขภาพในระยะตั้งครรภ์และผลลัพธ์ของการตั้งครรภ์ระหว่างมารดากลุ่มที่ฝากครรภ์ครบและกลุ่มที่ฝากครรภ์ไม่ครบตามเกณฑ์ กลุ่มตัวอย่างคือมารดาหลังคลอดที่ฝากครรภ์ครบตามเกณฑ์ จำนวน 140 ราย และมารดาที่มาฝากครรภ์ไม่ครบตามเกณฑ์หรือไม่มาฝากครรภ์เลย จำนวน 140 ราย เก็บข้อมูลโดยใช้แบบสัมภาษณ์ข้อมูลส่วนบุคคล แบบบันทึกข้อมูลที่ได้จากโรงพยาบาลและแบบสอบถามพฤติกรรมสุขภาพในระยะตั้งครรภ์ เก็บข้อมูลตั้งแต่เดือนมีนาคม พ.ศ. 2547 ถึงเดือนมิถุนายน พ.ศ. 2547 วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณาและเปรียบเทียบข้อมูลของกลุ่มตัวอย่างทั้งสองกลุ่ม โดยใช้ t-test และ χ^2–test

ผลการศึกษา พบว่ากลุ่มตัวอย่างที่ฝากครรภ์ครบตามเกณฑ์มีพฤติกรรมสุขภาพโดยรวมดีกว่ากลุ่มตัวอย่างที่ฝากครรภ์ไม่ครบตามเกณฑ์อย่างมีนัยสำคัญทางสถิติ ($p<.05$) เมื่อเปรียบเทียบผลลัพธ์ของกลุ่มตัวอย่างทั้งสองกลุ่ม ได้แก่ อายุครรภ์เมื่อคลอด น้ำหนักทารกแรกเกิด และคะแนนสภาพทารกแรกเกิดนาทีที่ 5 โดยใช้ t-test พบว่า อายุครรภ์เฉลี่ยของกลุ่มตัวอย่างที่ฝากครรภ์ครบตามเกณฑ์มากกว่ากลุ่มตัวอย่างที่ฝากครรภ์ไม่ครบตามเกณฑ์อย่างมีนัยสำคัญทางสถิติ ($p<.001$) สำหรับน้ำหนักทารกแรกเกิด และคะแนนสภาพทารกแรกเกิดนาทีที่ 5 เฉลี่ยของกลุ่มตัวอย่างทั้งสองกลุ่มพบว่า แตกต่างกันอย่างไม่มีนัยสำคัญทางสถิติ ($p>.05$ และ $p>.05$ ตามลำดับ)

จากการศึกษาครั้งนี้ผู้วิจัยมีข้อเสนอแนะว่า พยาบาลควรสร้างโปรแกรมเพื่อส่งเสริมการฝากครรภ์ของสตรีตั้งครรภ์ให้ครบตามเกณฑ์ที่กระทรวงสาธารณสุขระบุไว้ และเพื่อพัฒนาคุณภาพการดูแลสตรีในระยะตั้งครรภ์

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CHAPTER I
INTRODUCTION

Background and Significance of the Study

Pregnancy is not illness; however, it induces physical, mental, emotional and social changes that can be considered as a life crisis and it is a significant process of development into adult age (Mercer, 1985). Pregnant women are at risk of complications during pregnancy and it is generally accepted that the reception of prenatal care is a way to prevent or to reduce the risk of illness or complications during pregnancy (Jensen, Benson & Bobak, 1981; Hall, 1981). During prenatal visits, a pregnant woman will receive medical care including physical examination, diagnosis, and treatment from health care professionals to prevent any disorders or complications that may occur during pregnancy. As a result, the mother and the baby will remain healthy throughout the pregnancy and the risk of complication decreases (Wren, 1985), as well as the incidence rate of low-birth-weight infants (Pillitteri, 1995). This has been shown in a study conducted by Berkman (1985), which found that prenatal visits and compliance with prenatal care could reduce the incidence rate of low-birth-weight infants. This finding is consistent with the results of previous studies, which revealed significant correlation between the number of prenatal visits and infants' birth weight (Nuchprayoon, et al., 1987; Boonyakiat, 1981 & Sawangtuk, 1996). A woman should have prenatal visits as soon as she is aware of menstrual discontinuation, which should not be later than the eighth week of pregnancy (Wren, 1985). Pregnant women should regularly attend at least 8–10 prenatal visits by the time of delivery (William, 1985). In Thailand, the 7th National Economic and Social Development Plan (1992-1996) states that a pregnant woman should receive prenatal care from physicians or other health care professionals for at least four times during pregnancy and the first prenatal visit should be made before the 24th week of pregnancy. A survey of women giving birth at Siriraj Hospital found that 30.7 percent of the women had inadequate prenatal visits and 11.3 percent never had prenatal visits

(Suwannapratheep, 1992). The record of childbirth at Taksin Hospital from October 2001 to September 2002 showed that 24.53 percent of the mothers had inadequate prenatal visits, i.e. having less than four prenatal visits over the period of pregnancy, and 28.90 percent did not have prenatal visits.

Pregnant women who do not have a prenatal visit or have inadequate prenatal visits are at risk of undesirable pregnancy outcomes. They are at higher risk of complications during the pregnancy, delivery, and postpartum period, comparing with the women having adequate prenatal visits (Porapakham & Serikajornkijcharoen, 1980). The complications include anemia, difficult labor, delayed childbirth, prolonged labor pain, and uterine dysfunction during the delivery stage. Moreover, there are problems of premature labor, abruptio placenta, early rupture of amniotic sac, and gestational hypertension. These problems affect the morbidity and mortality rates of mothers and have impact on the infants as they may be born with low APGAR score, low birth weight, or congenital defects (Puangpaka, 1997). The complications may even lead to stillbirth (Yuthpong and Niramon, 1998). This is supported by the result of a study conducted by Chintanothaithaworn (1993), which found that pregnant women with higher numbers of prenatal visits had fewer complications during the delivery stage, comparing with women having less prenatal visits. Moreover, the pregnant women who had first prenatal visits at a younger gestational age are more likely to have babies with birth weight higher than 3,000 grams, comparing with those having the first prenatal visits at later stage of pregnancy. It is also found that women not having prenatal visits tend to have premature labor and premature rupture of membranes about 11 percent while only three percent of mothers attending prenatal visits experienced complications during labor (Leveno, 1985). Srisukkham (1994) found that the babies of mothers not having prenatal visits are at 2.11 time higher risk of mortality than those whose mothers had 4 prenatal visits or more; and the risk of morbidity was 1.95 times higher among the babies whose mothers had 1–3 prenatal visits during pregnancy. This finding is in accordance with a study conducted by Misra and associates (1993), which found that the mortality rate of premature babies whose mothers did not have prenatal visits was two-folded higher than the rate of those whose mothers had prenatal visits. The results of studies by Thipsaiyas (1989),

Saennamwong (1999), and Suwichacherdchoo (1999) show an increase in the mortality rate of premature babies when the number of prenatal visits lowers. Pregnant women who have regular prenatal visits usually have good pregnancy outcomes, as shown in lower incidence of low-birth-weight infants for instance. This is consistent with the results of a number of studies concerning weight of newborn babies (Nuchprayoon, et al., 1987; Boonyakiat, 1981 & Sawangtuk, 1996).

Hence prenatal visits and compliance with prenatal care are essential and very important for the mother and the baby. With regular prenatal assessment, physicians can detect disorders, make diagnosis, and give treatment to the pregnant woman without delay. Moreover, during prenatal visits pregnant women will receive knowledge and advice about their physical and mental changes, as well as the instruction on self-care practice, prevention of complications and appropriate practice during pregnancy, delivery, and postpartum period. The instruction about self-care practice during pregnancy contributes to healthy condition of pregnant women and their babies as it promotes appropriate health practice. Referring to Pender, health promoting behavior involves six domains comprising health responsibility, nutrition, physical activity, interpersonal relation, stress management, and spiritual growth. Pregnant women should conduct appropriate health behavior in these six domains. With appropriate health behavior, pregnant women–particularly those attending prenatal visits who are well informed about self-care during pregnancy, will not have complications during pregnancy, delivery or postpartum stage. On the contrary, pregnant women who do not have prenatal visits will not receive information or advice about self-care practice during pregnancy and cannot conduct appropriate health behavior thus they are more likely to have the complications previously mentioned. According to Pender (1987), health promoting behavior promotes health status of individuals, family, and community. Hence pregnant women should modify their lifestyle to promote their health during pregnancy, when they are at high risk of complications. Prenatal visits help pregnant women to gain knowledge about appropriate health behavior. In contrast, pregnant women who do not have prenatal visits may not receive information or advice about self-care practice during pregnancy thus not performing health behavior and having complications as a consequence.

During prenatal visits, pregnant women receive knowledge about the complications during pregnancy and receive instruction for preventing those complications. Poor self-care practice during pregnancy contributes to increased severity of complications; therefore, it is important to conduct appropriate practice during pregnancy. Moreover, the women and their families will be less anxious, as they constantly receive knowledge about pregnancy, as well as having opportunities to inquire for more information about pregnancy, childbirth, postpartum care, and child care (Tongsawasdi, 1988; Thompson, 1995). In addition, mothers' reception of supplementary pills during prenatal visits will enhance the baby's health, as well as the mother's because the baby's growth and development are dependent on the mother's condition. A study conducted by Siripakdee (1987) revealed that mothers who regularly attended prenatal visits received knowledge about appropriate self-care during pregnancy and were at lower risk of complications, resulting higher chance in giving birth to healthy babies without complications. This is consistent with a study conducted by Sripojanart and Pongthanawisutthi (1993), which found that pregnant women who had less than four prenatal visits during pregnancy lacked opportunity to receive sufficient knowledge about self-care practice during pregnancy.

Despite the importance of prenatal visits, it has been found that a significant number of pregnant women do not have prenatal visits or have inadequate prenatal visits. These data demonstrate inadequate or no prenatal visits in half of the pregnant woman population. Moreover, the number of mothers not having prenatal visits tends to elevate. However, nowadays pregnant women and their families can obtain knowledge from various media, including books, magazines, television programs, radio, or brochure. They can also ask for information from health care providers more easily than before because they have already gained some knowledge about prenatal care. Some women can conduct prenatal self-care practice by themselves even though they are not able to attend prenatal visits for some reasons. Pensuwan (1997) found that major causes of inadequate prenatal visits are associated with work and lack of money. It is also due to low level of perceived benefits of prenatal visits, poor attitude toward prenatal care service, inconvenient transportation, uncertainty about the pregnancy, and the desire to conceal pregnancy from other people (Poland, et al.,

1987). The researcher of this study, therefore, was interested in comparing the health practice during pregnancy and the pregnancy outcomes between mothers with adequate prenatal visits and those with inadequate prenatal visits. The results of this study can be used as basic information for further development and improvement of prenatal care services.

Research Question

Do mothers with adequate prenatal visits have different health practice during pregnancy and different pregnancy outcomes, in comparing with those with inadequate prenatal visits? If they do, what are the differences?

Purpose of the Study

To compare health practice during the pregnancy and the pregnancy outcomes between mothers with adequate prenatal visits and those with inadequate prenatal visits.

Conceptual Framework

This study used a framework obtained from literature review. Decision to seek prenatal care are affected by demographic factors, attitude, social support, and perceived stress. Demographic factors include maternal age, socioeconomic status, education, marital status, parity, transportation, and ethnic (Lumbiganon, Laopaiboon, Panamonta & Pothinam, 1991). Attitude involves opinion about the importance of prenatal care, service, and health care provider (Kogan, Alexander, Kotelchuck & Nagey, 1994). Social support includes spouse, parents, friends, and significant others (Schaffer & Lia-Hoagberg, 1997). Perceived stress refers to the extent to which situations in one's life are evaluated as stressful (Cohen, Kamark & Mermelstein, 1983), for example, unwanted pregnancy, unfavorable living condition. Then, decision to seek prenatal care is decided, resulted in obtaining adequate or in adequate prenatal visits that leads to receiving or not receiving health behavior advice from health personnel (Catherine & Melissa, 1996). Prenatal visits and health behaviors during pregnancy have profound effects on health outcomes of both the pregnant women and

the babies. Lack of prenatal care increases perinatal morbidity and mortality rate, preterm delivery, and low birth weight (Leveno, 1985; Blondel, 1993). The conceptual framework is summarized in **Figure 1**.

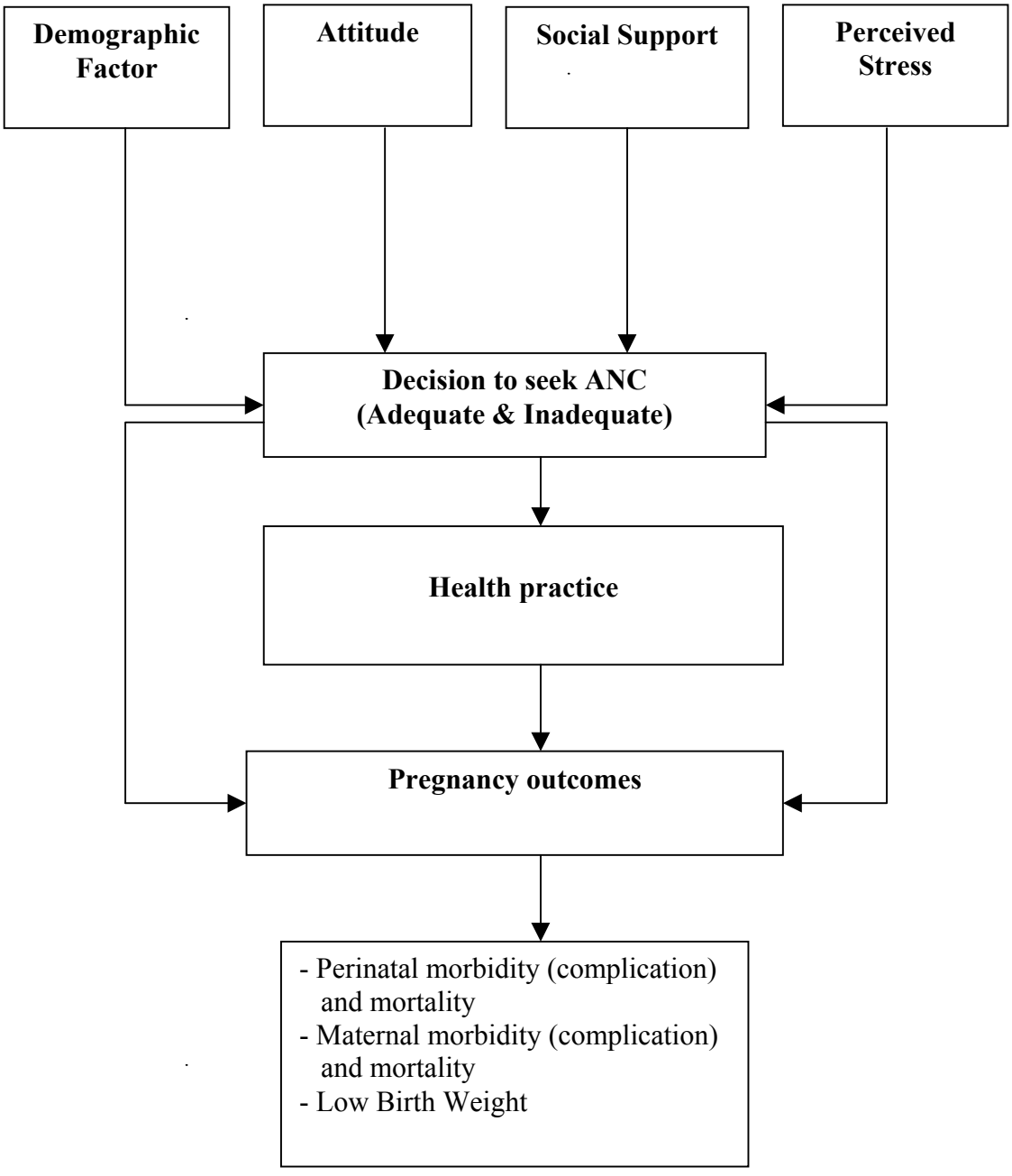

Figure I: Conceptual framework obtained from literature review

According to Pender (1996), health promoting behavior can be evaluated from behavioral outcomes, which are the endpoints or the consequences of health behavior performance. The integration of health promoting behavior into all domains of daily lifestyle will lead to the personal health. Pender (2001) proposes the Health-Promoting Lifestyle Profile II, stating the following six domains of health practice that a person should conduct to maintain healthy condition:

1. Health responsibility refers to a person's lifestyle regarding general health care and the utilization of health service.

2. Nutrition refers to the lifestyle concerning diet.

3. Physical activity refers to the lifestyle concerning the methods and regularity of exercise.

4. Interpersonal relation refers to the lifestyle regarding abilities to develop and to maintain relationship with other people, including the capacity for meeting, having social interaction, or having conversation.

5. Stress management refers to the lifestyle in aspect of rest, relaxation, recreation, and appropriate emotional expression.

6. Spiritual growth refers to the lifestyle concerning activities that generate the sense of satisfactory, contentment, and self-esteem, as well as the awareness of self-worth and life goals.

Pregnant women conducting appropriate health practice should have good pregnancy outcomes, including full-term delivery, healthy baby, and no complications. On the contrary, pregnant women who do not attend prenatal visits thus not receiving information and lacking knowledge of appropriate self-care practice are likely to have undesirable pregnancy outcomes, for example, pre-term delivery, low-birth-weight infant, or unhealthy baby. The conceptual framework of this study is summarized in **Figure II**.

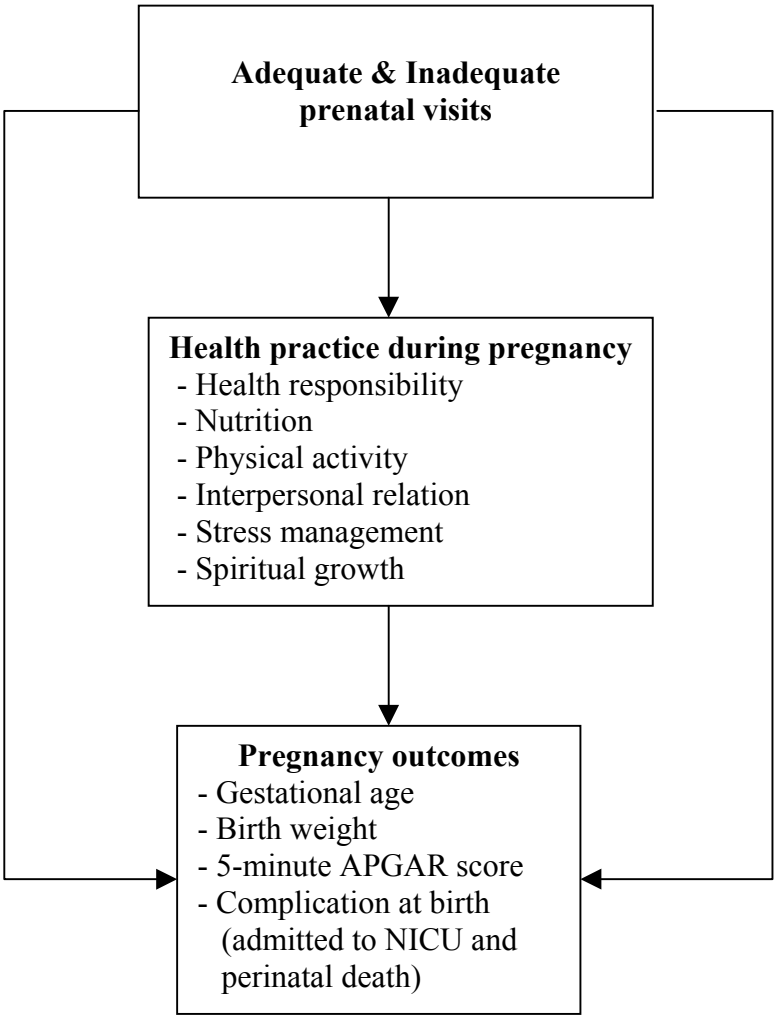

Figure II: Conceptual framework of the study

Research Hypothesis

1. Mothers with adequate prenatal visits have different health practice during pregnancy, comparing with mothers with inadequate prenatal visits.

2. Mothers with adequate prenatal visits have different pregnancy outcomes, for example, gestational age at delivery, birth weight, 5-minute APGAR score, complication at birth (admitted to NICU and perinatal death), comparing with mothers with inadequate prenatal visits.

Scope of the Study

This research was a retrospective study aiming to compare the health practice during pregnancy and pregnancy outcomes of mothers with adequate prenatal visits with those of mothers with inadequate prenatal visits. The population of the study was postpartum women receiving medical care at Taksin Hospital.

Definition of Terms

Prenatal visits refer to the receptions of medical service and advice about self-care during pregnancy, in which pregnant women are diagnosed and treated for the prevention of possible disorders and complications during pregnancy. Pregnant women are taught how to care for themselves to be health. They may have prenatal visits at any medical centers but every visit should be documented in their prenatal records.

- **Adequate prenatal visits** refer to the prenatal visits of which the first visit is before the 24th week of pregnancy and the total number of prenatal visits throughout the period of pregnancy is not less than four (Ministry of Public Health, 1992).

- Inadequate prenatal visits refer to the prenatal visits of which the mothers attend the first prenatal visit after the 24th week of pregnancy and/or the total number of prenatal visits was less than four, including no prenatal visit at all.

Health practice refers to pregnant women health activities regarding physical, mental, emotional, social, and spiritual aspects. The health practice during pregnancy in this study was assessed with the health practice questionnaire, investigating the woman's lifestyle in six domains, comprising the following:

1. Health responsibility refers to health care practice for the prevention of possible harm to one's health, e.g. learning or obtaining knowledge about health, self-caring, observing physical disorders, and the utilization of health service.

2. Nutrition refers to the health practice concerning dietary habits, reception of advice about diet, and promotion of nutritious diet such as having diet with all five groups of essential nutrients at appropriate amount and proportion, or avoiding alcoholic drinks.

3. Physical activity refers to the performance of daily activities during pregnancy that involves muscular movement, including the maintenance of physical balance. The physical activity includes work activity and exercise.

4. Interpersonal relation refers to the development of good relationship with other people, leading to beneficial support, e.g. the support for problem solving or coping with stress.

5. Stress management refers to daily practice for relieving stress, including having a rest, recreational activity, and appropriate emotional expression.

6. Spiritual growth refers to the performance of various activities with the sense of contentment and self-esteem, as well as the awareness of self-worth and life goals.

Pregnancy outcomes refer to the health condition of the baby of that pregnancy within the first 24 hours after birth. The outcomes were assessed from the following measures:

1. Gestational age at delivery refers to the duration from the first day of the last menstruation to the day of birth, expressed in weeks (calculated from the total number of days divided by seven; the extra number of more than three days was counted as a week and of three days or less was not included). Gestational age can be assessed with L.M.P., ultrasonography, or Ballad score.

2. Birth weight refers to the baby's weight in grams after cutting the umbilical cord. Regarding the birth weight, newborn babies are classified as follows:

2.1 Normal birth weight infant refers to the newborn baby with birth weight between 2,500–3,999 grams.

2.2 Low birth weight infant refers to the newborn baby whose birth weight is lower than 2,500 grams, including premature infants – i.e. those with gestational age less than 37 weeks at birth (World Health Organization, 1980).

3. 5-minute APGAR score refers to the assessment of newborn baby from 5 signs and symptoms comprising skin color, pulse, respiration, muscular strength, and response to stimuli. Each parameter is scored two points thus the total APGAR score ranges between 0 to 10 and the results are classified into two groups, as follows:

3.1 Normal APGAR score ranges between 7 and 10. The baby with APGAR score in this range requires usual baby care.

3.2 Low APGAR score ranges between 0 and 6. The baby with low APGAR score is unhealthy and is at risk of morbidity and/or mortality thus requiring special neonatal care.

4. Complication at birth refers to the morbidity the babies face after birth that needs intensive care cause their lives.

Expected outcomes and Benefits

The results of this study can be used as information for staff nurses in the developmeny of nursing care plan for pregnant woman in prenatal service.

CHAPTER II
LITERATURE REVIEW

This descriptive research was a retrospective study, aiming to compare health practice during pregnancy and pregnancy outcomes of mothers with adequate prenatal visits and those with inadequate prenatal visits at Taksin Hospital. The review of related literature and research papers presented in this chapter includes the following topics: importance of prenatal visits, health practice of mothers with adequate and inadequate prenatal visits, and pregnancy outcomes of mothers with adequate and inadequate prenatal visits.

Importance of prenatal visits

Pregnancy is not an illness; however, it induces physical, psychological, emotional, and social changes to pregnant women. Hence it is a life crisis, as well as a significant process of development into adulthood (Mercer, 1985). During pregnancy, women are at risk of complications that can be health hazards to themselves and the babies. Appropriate health practice during pregnancy can prevent and reduce risks of complications and a practice that is generally accepted as an appropriate means to maintain healthy pregnancy is having prenatal visits (Jenzen, Benson & Bobak, 1981; Hall, 1981). During prenatal visits, the pregnant woman is diagnosed and she will receive prenatal care for prevention and treatment of any complications at early stage of pregnancy from physicians and other health care professionals. As a consequence, the mother and the baby will be in healthy condition throughout the period of pregnancy, delivery, and post–delivery (Wren, 1985). Moreover, the pregnant woman and her family will receive instructions about health practice through the period of pregnancy to after childbirth. Prenatal visits also help pregnant women and their husbands to adjust and prepare for the upcoming parental role. The women and their husbands will receive support in their learning about child care, have opportunities to enquire and ask for more advice concerning pregnancy, childbirth, and postpartum

care. Thus, the parents will be less anxious and the parents–child bond will be strengthened as a result (Paosawasdi, et al., 1982).

Pregnancy is dynamic and a pregnant woman may experience either physical or mental changes. Pregnant women and the fetuses, therefore, may have disorders at any stage of labor–pregnancy, delivery, or post–delivery. During prenatal visits, pregnant women will receive medical care for the prevention and treatment of possible disorders. The time of the first prenatal visit and the total number of prenatal visits need to be taken into consideration. A woman with normal pregnancy should have first prenatal visit in the first 6–8 weeks of pregnancy and should regularly attend prenatal visits until delivery (Cunningham, 1997). Appropriate intervals for prenatal visits are: once every four weeks from the first visit until the 28^{th} week of pregnancy; once every two weeks during the 28^{th}-36^{th} week of pregnancy; and every week after the 36^{th} week of pregnancy (Cunningham, 1997).

During prenatal visits, a pregnant woman will receive prenatal care from obstetricians or other health care providers, as listed below (Benson & Anbernoll, 1995; O-prasertsawasdi, et al., 1997).

1. History–taking
2. Physical examination, gestational assessment, and pelvic examination
3. Laboratory examination
4. Diagnosis and management plan
5. Regular appointment for prenatal care
6. Health promotion and drug prescription
7. Health education
8. Evaluation of the outcomes of prenatal care

History–taking

History-taking during pregnancy is essential and significant information must be thoroughly enquired with complete details to confirm pregnancy and to accurately detect possible problems for further planning of appropriate prenatal care. Information that should be obtained in history–taking includes the following:

1. Personal history, including age, occupation, education, economic status, family income, marital status, family pattern, attitude toward pregnancy, improper belief, and use of drugs and addictive substances. Personal history helps in speculating possible risks to pregnancy and in considering appropriate advice or instruction for each individual.

2. Family history, including history of genetic or communicable disease in the family. Such diseases, for example thalassemic anemia, hypertension, diabetes mellitus, neurotic disorders, German measles, tuberculosis, or hepatitis, may have effects on pregnancy. History of multiple pregnancies in the family also indicates possible incidence in current pregnancy.

3. History of menstruation. Information about the woman's menstrual cycle is significant because it helps in calculating the gestational age and the expected delivery date. The information includes the first day of the last menstrual period and the usual menstrual cycle.

4. History of birth control, including the use of contraceptive hormones by injection. Contraceptive hormones may deregulate the menstrual cycle or cause menstrual disruption, leading to miscalculation of gestational age or of the expected delivery date. Therefore, history of birth control is important and needs to be taken into consideration when assessing pregnancy, gestational age, or expected date of birth. The information also reveals the woman's attitude toward birth control thus giving health care providers some idea about the advice or instruction on postpartum birth control for the woman.

5. History of pregnancy and childbirth, including abortion, miscarriage, gestational hypertension, stillbirth, premature birth, gestational complications, pre-and postpartum hemorrhage, delivery of overweight infants–the infants whose birth weight over 4,000 grams, and miscarriage from unknown cause but suspected diabetes. Also, the history of having low–birth–weight infants due to mother's suspected malnutrition should be noted. The history of operative delivery, for example caesarean section or other instrumental deliveries, must be taken. The mother's history of pregnancy and childbirth is important because problems in previous pregnancies may recur thus precaution must be taken to prevent possible health hazards to the mother and the baby.

6. History of past illness, including uterine curettage and uterine surgery. These procedures may cause placenta previa or placenta adherent. A scar on the upper region of the uterus may cause hysterrorhexis during pregnancy and labor. A woman with an injury or a disease of pelvic bones may not be able to have vaginal delivery. Special care should be given to the women reporting history of the following illness in previous pregnancies: nephropathy, hemopathy, psychotic disorders, neurotic disorders, epilepsy, constant headache and sexual transmitted disease, including those with the history of receiving blood transfusion. With special prenatal care, the mother and the baby will be at lower risk of complications during pregnancy and laboring.

7. Present history, including symptomatic changes, use of drugs, and any illness or disease occurring since the first day of the last menstruation.

8. History of fetal movement. The time when the mother fist senses fetal movement is significant as it helps in identifying the gestational age.

Physical examination, gestational assessment, and pelvic examination

1. Physical examination

Every pregnant woman has to undergo physical examination, as well as weight, height, and blood pressure measurement. Every body system, including breasts and nipples, is thoroughly examined. The physical examination is aimed to detect any abnormalities or disease and to confirm that the mother is in healthy condition for the pregnancy.

2. Gestational assessment

A pregnant woman has gestational assessment at every prenatal visit. The assessment is aimed to estimate the size of the uterus in order to confirm the fetal growth. It is also aimed to investigate whether the pregnancy is single or multiple. The fetus' health and position are also checked for making decision about delivery technique and for anticipating the delivery date.

3. Pelvic examination

Pregnant women may have to undergo pelvic examination with the presence of some problems such as vaginal infection or vaginal hemorrhage. In case or uncertain menstrual cycle, pelvic examination may be needed to determine the size of the uterus in the first stage of pregnancy.

Laboratory examination

Laboratory examination helps in confirming the mother's and the baby's condition and in preventing, screening and giving treatment for any disorders or defects without delay. Most laboratory examinations are conducted for additional information, differential diagnosis, or monitoring disease progression. Some examinations are conducted because of the recurrence of abnormality or disorder that may lead to potential hazards.

1. Blood concentration test

Every pregnant woman needs to have blood examination for hemoglobin level (Hb) and hematocrit (Hct) because the incidence of anemia during pregnancy (Hb < 10 gm/dl or Hct < 30%) may lead to serious complications such as slow fetal growth, premature childbirth, or even heart failure in case of severe anemia (Sripojanart, 2000). The mother may be at risk of potential health hazard even with mild postpartum hemorrhage. Blood concentration is usually examined at the first prenatal visit and is examined again at the 28^{th}–32^{nd} week of pregnancy.

2. Urine test

The incidence of urinary tract infection is higher during pregnancy but the symptoms may not present. However, the infection may cause premature childbirth, birth of low-birth-weight infants, or pyelitis; therefore, every pregnant woman should have urine test at the first prenatal visit. Women with gestational hypertension may have proteinuria and those with diabetes may have glycosuria thus pregnant woman should have urine examination for protein and glucose at every prenatal visit.

3. Blood test for syphilis infection

Syphilis is life-threatening for the fetus and it may lead to mortality or congenital defects because the infection can be transmitted from the mother through the placenta. Congenital syphilis is a major cause of perinatal death and is a major health problem in underdeveloped countries. Every pregnant woman, therefore, should have blood examination for syphilis infection.

4. Blood examination for hepatitis B virus.

The examination for hepatitis B virus is important, as it will reveal whether the mother is a host of the virus. Pregnant mothers who are positive for hepatitis B virus can transmit the virus to the babies who may become hosts of hepatitis B virus or may

have hepatitis as a consequence. The newborn baby of mother whose blood test is positive for hepatitis B virus will receive a hepatitis vaccine to prevent being a host or having the disease. Pregnant women generally have blood examination for hepatitis B virus at the first prenatal visit for further plan and proper management.

5. Blood test for HIV infection

In general, a pregnant woman has blood examination for HIV infection at the first prenatal visit and the test will be done again at the 28^{th}–32^{nd} week of pregnancy because it has been found that a woman may be positive for HIV infection at the later stage of pregnancy despite a negative result at the first prenatal visit. Therefore, every pregnant woman should have HIV test twice during pregnancy. However, pregnant women should be explained and have a consultation with physicians before having a blood test for HIV infection and she should be willing to have the test.

6. Examination for blood group and Rh blood type

A pregnant woman should be tested to identify blood group and the Rh blood type. A woman with Rh-negative may have problems concerning the incompatible mother-child blood type, resulting in red blood cell destruction or hemolysis and the baby will have jaundice. In such case, the mother should receive Rh-antibody injection to correct the non-existence of the antigen in the body.

7. Other special examinations

Special examinations include ultrasonography for assessing the fetus' condition, non–stress test, oxygen challenge test, or amniocentesis for chromosomal analysis. Pregnant women will have these examinations only under the indications relating potental hazards to the mother and the baby. The decision about these examinations must be carefully made as they are time–consumption and involve utilization of resources. The results of these examinations have to be considered along with other examinations and clinical features before making decision for further medical management.

Diagnosis and management planning

Pregnancy induces higher risk of illness and mortality than non-pregnant condition. Therefore, the factors that may lead to illness and mortality should be detected for early screening of health risks and abnormalities. Such factors can be detected with the information obtained from history–taking, physical examination, and

laboratory tests. The risks and abnormalities, then, will be screened and pregnant women with high risk will receive efficient and specific prenatal care for their conditions. Pregnant women should be informed about their conditions and should be allowed to participate in determining the prenatal care plan, as their understanding and willingness to cooperate in prenatal management greatly contribute to positive pregnancy outcomes.

Regular appointment

As previously mentioned, pregnancy is a process of physical, psychological, emotional and social changes; however, the changes, either in the mother's condition or in fetal growth, are predictable. Prenatal care or the reception of health advice at the early stage of pregnancy and subsequent regular follow–up is important to the health of pregnant women, their self-care practice, and their preparation for motherhood (Clark, 1979). Pregnant women should regularly attend prenatal appointments so that the physicians can check for any possible complications. In the first seven months of pregnancy, pregnant women should have a prenatal visit every four weeks. During the 7^{th}–9^{th} month of pregnancy, the women should have a prenatal visit every two weeks, and then weekly until the delivery date. Therefore, a pregnant woman should have prenatal visits about 8–10 times throughout the pregnancy (William, 1985). At each visit, the wellness of the mother and the baby must be thoroughly checked and confirmed.

Health promotion and drug prescription

Nutritional condition of the pregnant woman is a significant factor affecting both mother's and baby's health. Sufficient diet, in both terms of amount and nutrients, contributes to the mother's wellness thus leading to the baby's healthiness. Pregnant women with malnutrition may have complications during pregnancy, delivery, and post-delivery such as gestational hypertension, premature birth, fetal growth delay, low–birth–weight infant, etc. Therefore, health care providers should be able to assess the mother's nutritional condition. The assessment index includes the mother's body weight prior to pregnancy and the increase in her body weight at each stage of pregnancy.

Health education

Health status is very important for pregnant women and it has to be promoted to maintain the wellness. Health education for pregnant women attending prenatal visits is a means to promote appropriate health practice, which will lead to healthy condition and reduction in the risk of illness and mortality. It also helps in reducing anxiety from the lack of knowledge and understanding about physical and psychological changes during pregnancy, delivery, and post delivery. Moreover, health education is a way to prepare pregnant women and their families for childbirth and child care, so that they are ready for family life after childbirth. Health education for pregnant women is usually concerned with the following topics:

1. Physical and psychological changes during pregnancy, deliver, and postpartum period

2. Common complications during pregnancy

3. Self-care practice during pregnancy, delivery and postpartum period, including newborn baby care

Evaluation of the outcomes of prenatal care

The outcomes of prenatal care can be evaluated as reviewed below.

1. Body weight of the pregnant woman. The pregnant woman who receives sufficient nutrients should have average increase in body weight approximately 350–400 grams weekly after the first 10 weeks of pregnancy. The average increase in body weight in the second and the third trimester of pregnancy should be about 450 grams per week. Nevertheless, the American Medical Association has suggested that the increased body weight during pregnancy should depend on the Body Mass Index (BMI), which can be calculated from the body weight in kilogram divided by the height (m^2). The women identified as underweight are those with BMI lower than 19.8 kg/m^2 whereas the overweight women are those with BMI higher than 26 kg/m^2 (Cunningham, 1997).

2. Size of the uterus. The uterus should be enlarged in proportion to the stage of pregnancy as listed below (Pritchard & McDonald, 1985).

Gestational age	Position of the top of the uterus
12 weeks	1/3 above the pelvic line
16 weeks	2/3 above the pelvic line
20 weeks	Around the navel level
24 weeks	1/4 above the navel level
28 weeks	2/4 above the navel level
32 weeks	3/4 above the navel level
36 weeks	Slightly under the xiphoid
40 weeks	Lower to 3/4 above the navel level

3. Health risks to the mother and the baby during pregnancy. Complications or unhealthy conditions during pregnancy induce high risk of illness and mortality to the mother and the baby. Several factors contribute to increased risk of illness and mortality, e.g. common medicinal illness that has effects on pregnancy such as diabetes mellitus, heart disease, hypertension, or obstetric disease relating to pregnancy such as gestational anemia, gestational hemorrhage, history of problems in previous pregnancies and deliveries. Other factors include number of pregnancy, marital status, and socioeconomic status.

Health practice of pregnant women

Pregnancy has physical, psychological and social impacts on the pregnant woman and the baby. For the maintenance of wellness in the mother and the baby, which will lead to the highest potentiality of pregnant women, their families, and the societies, Pender suggests that pregnant women should modify their lifestyle in six domains comprising health responsibility, nutrition, physical activity, interpersonal relation, stress anagement, and spiritual growth, as reviewed below (Pender, 1996).

1. Health responsibility. The practice in this domain concerns with personal hygiene care, including health care. The practice includes learning about appropriate behavior and observing changes during pregnancy, as detailed below.

Utilization of health care service. Pregnant women should seek prenatal care and have prenatal visits regularly with physicians or other health care providers. Prenatal care helps the mother and the baby to remain healthy throughout the pregnancy. During prenatal visits, the mothers will receive treatment and management for any abnormalities or conditions that may cause hazards to the pregnancy; and prenatal care also prevents or controls further illness or complications that may be harmful to the mother and the baby (Saunder, 1999). Referring to a study conducted by Wannawong (1985), 31.7 percent of adolescent pregnant women did not have prenatal visits and 23 percent of those having prenatal visits had only one visit and did not comply with the appointment for prenatal care until the delivery date. Prenatal care provides pregnant women with essential information, advice or guidelines for appropriate health promoting practice. A study conducted by Boontanjai (1989) revealed positive correlation between the number of prenatal visits and the gestational age at delivery. Prakobsup (1998) found that 51.4 percent of adolescent pregnant women received advice from physicians and nurses during prenatal visits thus having knowledge and understanding about pregnancy and can conduct appropriate health practice during pregnancy.

Oral hygiene care. In addition to brushing teeth correctly and maintaining general oral hygiene care, pregnant women should have dental check for suspected dental caries from a dentist at the early stage of pregnancy. Chronic disease of gums and mouth such as gingivitis and dental caries may lead to the spreading of infection to other parts of the body through the blood circulation. According to a study conducted by Sawangtuk (1996), 73.5 percent of pregnant women with inadequate prenatal visits did not have dental examination during pregnancy.

Smoking. Smoking during pregnancy causes the decrease in blood and oxygen supply to the fetus because nicotine in cigarette induces vascular constriction in uterine blood vessels. The decrease in blood circulation from the mother results in chronic hypoxia in the fetus, causing delayed fetal growth and small baby size. Thus smoking pregnant women should gradually reduce their smoking in each day until they can finally abstain from smoking. Smoking cessation is highly beneficial for both the woman and the baby. Studies have shown that the mothers' smoking during pregnancy is associated with low-birth-weight infants, depending on the amount of

daily smoke and the frequency of smoking (Dougherty & Jones, 1982; Naeye, 1981; Sappalek, 1983).

Use of drugs and other substances during pregnancy. Some medicines such as tetracycline, chloroquine, quinine, and aspirin can pass from the mother through the placenta to the baby and may cause congenital defects such as deafness, coagulation disorders, or thrombocytopenia which causes hemorrhage problems in the fetus (Hymovich & Chamberlin, 1980). Some drugs may have effects on fetal growth, especially in the first trimester of pregnancy. A study conducted by Sunakorn and associates (1988) demonstrated that the reception of uterine stimulant and antiepileptic drugs during pregnancy was related to the birth of low–birth–weight infants. In addition, the use of addictive substances such as heroine, marijuana, and methadone also is also related to the incidence of low-birth-weight infants (Wongkullapat Snitwong na Ayutthaya, 1987). Therefore, pregnant women should seek medical consultation instead of buying drugs over–the–counter when they are ill.

Prevention of accident. Pregnant women should be careful when using transportation, specifically when sitting on the back seat of a motorbike of which an accident can easily happen (Pillitteri, 1995). The women should take precaution during a long trip or when riding in a car or on a motorbike. They should use low-heel shoes, instead of sandals or slippers, as they may easily slip on flat shoes.

Observation of abnormal symptoms. Pregnant women should know about abnormal symptoms during pregnancy such as vaginal hemorrhage, lower abdominal pain or aching in lower abdomen, headache, blurred vision, heartburn, swollen body parts, decreased movement of the baby, difficult voiding or soring pain when passing urine, or water breaking. A pregnant woman who has any of these symptoms should seek medical consultation immediately, not having to wait until the next prenatal appointment.

2. Nutrition. The practice in this domain involves dietary habit in choosing foods and eating behavior for health promotion. Pregnant women should have diet containing all five groups of essential nutrients and should avoid high-fat diet and preserved foods. They should abstain from alcoholic drinks or drinks containing caffeine and should drink adequate amount of water. During pregnancy, a woman should have food intake for the energy of approximately 2,500–3,000 calories daily

(Worthington–Robert, et al., 1985). A pregnant woman needs more energy than a non-pregnant one by approximately 300 calories daily for body metabolism and movement and for maintaining fetal growth. Pregnant women with malnutrition or insufficient food intake, in both quality and quantity may have nutritional deficiency because the fetus will consume nutrients from the mother's body, leading to nutritional deficiency and the mother will develop omplications during pregnancy easily. For instance, some women may develop gestational hypertension (Reeder, 1983). Studies have found that pregnant women with nutritional deficiency have poor placental growth thus affecting child growth, resulting in a child with low birth weight, low intellectual capacity, poor health, and congenital anormalies, as well as premature birth or stillbirth (Winnick, et al.; Delgard, et al. cited in Moore, 1981). Pregnant women should slightly increase the consumption of carbohydrate or have it at the same amount as fat. They should have fruits that contain high level of vitamin A and vitamin C. They need iron and folate by 1–2 times higher than before the pregnancy, and also need more calcium. Nevertheless, a study conducted by Nirattharadorn (1996) found that 7.9 percent of adolescent pregnant women did not take supplementary vitamins prescribed for them during pregnancy as they thought the medicines would increase their body weight and it would be difficult to reduce the weight after childbirth. Some women reported that they were afraid the baby would be too big and the delivery would be more difficult. The same study also revealed that 6.6 percent of adolescent pregnant women did not increase their protein consumption by two–time higher than before the pregnancy on account of the higher price of meat, in comparing with other foods; in addition, they did not know that the body had increased need for protein during pregnancy. Some pregnant women drink whiskey, beer, or wine, etc. because of the popularity of the drinks. These drinks have effects on the mother's and the baby's health, leading to malnutrition and poor health, because ethanol in alcoholic drinks interferes intestinal absorption of water and electrolytes; therefore, pregnant women who have alcoholic drinks are at risk of miscarriage or having babies with congenital defects or low birth weight (Ziegel, et al., 1984). This is supported by studies conducted by Sunakorn and associates (1988) and Little and associates (1980), which found that the babies of mothers who had alcoholic drinks during pregnancy had lower average birth weight than those whose mothers did not have alcoholic drinks during pregnancy. Tea, coffee,

and drinks containing stimulating substances should also be avoided during pregnancy as these drinks contain addictive substances and stimulate blood circulation; thus, in addition to having no benefits to the body, these drinks also cause palpitation and insomnia. Previous studies have shown that pregnant women who regularly drink coffee are at higher risk of having babies with congenital defects than those who do not drink coffee during pregnancy (Brooten & Jordan, 1983; Grossier cited in Arronson, et al., 1984).

3. Physical activity. The practice in this domain promotes physical strength in pregnant women. It includes general daily activities such as doing house chores, walking up and down the stairs instead of using elevators, etc. Pregnant women should participate in activities that promote muscular movement, physical capacity, and maintenance of body balance while changing positions. For physical exercise, pregnant women should have the exercise that induces relaxation and bowl movement to prevent constipation or muscular stiffness. Exercise also helps pregnant women to sleep better thus having sufficient rest. Pregnant women who have inappropriate physical activity may have poor muscular strength and the body muscles are not well prepared for the increasing body weight and for childbirth. As a result, the women may have severe backache or ache around waist level during pregnancy (Charoenpanich, 1996). A suitable exercise for pregnant women is walking outdoor in the environment of clean and refreshing air for 30 minutes daily (Intraprasert, 1987). Physical exercise for pregnant women to relive discomfort and to prepare for childbirth should not be too strenuous and the women should not have too much exercise. It is found that pregnant women usually lack knowledge and understanding about exercise. A study conducted by Taoprasert (1986), for example, shows that fairly large number of pregnant women believed that doing a lot of housework would ease their labor. In fact, however, too many strenuous activities and insufficient rest have impacts on fetal growth and may result in poor development of the baby (Kanchnasthiti, 1985).

4. Interpersonal relation or interpersonal support. The practice in this domain is concerned with the relation or interaction with other people or other significant ones for supportive benefits in various aspects such as information sharing, problem solving, or stress reducing. The relationship between pregnant women and

other significant ones, specifically their husband, is a significant factor that can indicate the success of their maternity. Pregnant women who do not receive sufficient love, warmth, and care from their husbands and other significant ones do not have spirits and resources to encourage appropriate health promoting practice. Moreover, the relation with other people in the society allows pregnant women to express their feelings, making them feel accepted and being members of the society (Hubbard, Muhlenkamp & Brown, 1984). Pregnant women will also be contented with the empathy, help and care that they receive from the other significant ones; as a result, they feel wanted and have self–esteem. These feelings encourage the pregnant women to prepared themselves for maternity and to continue health promoting practice.

5. Stress management. The practice in this domain reflects how pregnant women manage stress e.g. having appropriate emotional expression, sleeping, relaxation, and recreational activity. The women may have activities that prevent physical fatigue. They may maintain the balance between working and relaxing, and may make plan for managing stressful situation. During pregnancy, especially when the delivery date is approaching, physical and psychological rest is important and the women need more rest. They should take a nap after lunch for 30–60 minutes everyday with both feet slightly raised, and should have nighttime sleep for at least eight hours. The women should lie on one side so that the uterus does not press on blood vessels thus not interfering cardiac venous return and increasing blood supply to the kidneys and the placenta (Clark, et al., 1979). Stress management includes the activities for relieving stress and appropriate behavior in relaxing and expressing emotion. According to a study conducted by Kantharaksa (1984), older pregnant women tend to have better mental health than the younger ones because adolescent pregnant women are under stress from unexpected pregnancy and from physical and psychological changes due to pregnancy. Women with the first pregnancy always have swing mood and are irritable and sensitive; as the delivery date is approaching, these women become more anxious and increasingly fear. They fear of childbirth, baby's defects, unhealthy babies, and dangers during childbirth. The stress and anxiety during pregnancy have effect on the mother's heart rate and vascular system thus affecting the baby (Moore, 1981). Stott (cited in Moore, 1981) found that 76 percent of the babies of mothers who were under stress during pregnancy were ill with unknown

causes in the first three years of their life. Norbeck and Tilden (1983) found that stress during pregnancy may lead to low–birth–weight infants, stillbirth, or perinatal mortality. This is consistent with the result of a study conducted by Burnstein and associates, which show that pregnant women with high anxiety are likely to have babies with congenital defects (Burnstein, et al., cited in Clark; Affonso & Harris, 1979). Therefore, pregnant women should relax and have sufficient rest to relieve emotional stress. They should avoid a cramped or crowded area or poor ventilated room as they may easily contact contagious disease. They should relax by listening to the music, reading, watching entertaining program, walking, having a ride, going to a temple, or having meals with friends (Tongsawasdi, 1988).

6. Spiritual growth. The practice in this domain is concerned with spiritual support or belief that induces the sense of comfort and life goals. According to Pender (1996), spiritual growth is the ability to fully develop spiritual potentiality, which can be assessed from one's belief and attitude about the meaning of life, hope, forgiveness, and life after death. For pregnant women, the determination of life goal also depends on their acceptance of pregnancy. The woman who accepts the pregnancy or plans to have the baby will accept the fetus and her physical, psychological and social changes during pregnancy thus she will conduct health behavior for the goal of maintaining good health for herself and for the baby. On the contrary, a woman who does not plan to have the baby and cannot accept the pregnancy will not accept the fetus; she may feel that the pregnancy takes freedom from her life and does not perceive the value of pregnancy. Such pregnant woman, therefore, does not have a health goal for herself and for the baby, does not care about the baby, and may not conduct appropriate behavior during pregnancy.

Health practice in the six domains above is important because it induces good health to both the mother and the baby. Appropriate health practice during pregnancy can prevent illness or complications and the pregnant woman will remain healthy throughout the pregnancy.

Limtoprasert (1991) studied the correlation between self-care practice of pregnant women and perception of pregnancy and found positive correlation between the number of prenatal visits and self-care practice of pregnant women. This finding agrees with that of a study conducted by Pensuwan (1997), which examined the

perception of health status and self–care behavior of mothers with adequate and inadequate prenatal visits. It was found that the self–care behavior during pregnancy of mothers with adequate prenatal visits was significantly better than that of mothers with inadequate prenatal visits at the statistical level .05. Also, Sawangtuk (1996) examined self–care behavior for maintaining health status in pregnant women and found that women with in adequate prenatal visits had self-care behavior at a fairly good level.

Pregnancy outcomes of pregnant women

The health status of the newborn baby is a significant pregnancy outcome. It can be evaluated with APGAR score, birth weight, and gestational age at birth, as detailed below.

Gestational age at delivery. Gestational age is a significant indicator relating to birth weight, as the fetal growth progresses with the advancement of pregnancy until gestational age reaches the delivery date.

Referring to a study conducted by Rewpaiboon (1989), the number of prenatal visits has significantly positive correlation with the gestational age at birth. The mothers who had more prenatal visits tend to carry the pregnancy to longer gestational age. This finding is similar to that of Sangkawasee (1989), which investigated the number of prenatal visits and problems during delivery at Pra-Mongkutklao Hospital and found that mothers who did not have prenatal visits or had few prenatal visits tended to have premature childbirth more than those who have more than 10 prenatal visits at statistically significant level ($p<.05$). This is consistent with a study conducted by Boontanjai (1989), which found positive correlation between prenatal visits and gestational age.

In summary, pregnant women who have prenatal visits will have knowledge and understanding about pregnancy; therefore, they can conduct appropriate health practice during pregnancy, resulting in healthy pregnancy and reduction in the risk of complications during pregnancy, delivery, and post delivery stage as the problems are screened and detected without delay. Therefore, the pregnancy well progresses until the delivery date. Since the baby's health depends on the mother's, healthy condition of the mother will result in healthy baby. The baby then grows up with good physical,

psychological and social development. The researcher of this study, therefore, was interested in examining the health practice during pregnancy and pregnancy outcomes of mothers with adequate and inadequate prenatal visits at Taksin Hospital. The obtained information can be used to make nursing care plan and to develop and improve prenatal care service for the well being of mothers and babies.

Birth weight. The birth weight of a newborn baby indicates the baby's health. Difference in birth weight is important to the health and the survival of the baby after birth. The mortality and cerebral defects are mostly related to birth weight (Berner and Mervyn, 1970). Babies with different birth weights usually have different problems.

The World Health Organization defines low–birth–weight infants as the babies with birth weight below 2,500 grams. These babies require special care for body temperature control, and breathing. It has been reported that low–birth–weight infants are at higher risk of mortality than normal–birth–weight infants by 22 times and the lower the birth weight, the higher the mortality rate. If low–birth–weight infants survive, they are still at higher risk of cerebral and physical defects, comparing with those with normal-birth-weight (Sunakorn, et al., 1988). Moreover, it is also found that two-third of low–birth–weight infants who were dead were aged less than 28 days (William, 1961).

A normal–birth–weight infant is the baby with birth weight between 2,500 and 3,999 grams.

A high–birth–weight infant is the baby with birth weight over 4,000 grams.

Referring to the study of factors affecting the incidence of low–birth–weight infants conducted by Boonyakiat (1981), mothers who did not have prenatal visits are at higher risks of having low–birth–weight infants than mothers who had prenatal visits at statistically significant level ($p<.05$). Tiansawasdi (1981) examined factors relating to pregnancy outcomes in mothers younger than 20 years of age and found that the mothers who did not have prenatal visits were at higher risk of having low-birth-weight infants, comparing with those having prenatal visits. It is also found that the adequacy of prenatal visits, i.e. having first prenatal visit in the first trimester of pregnancy and having compliance with the appointment throughout the pregnancy, is related to the baby's birth weight ($p<.05$). This is consistent with a study conducted by

Areeua (1983), which examined factors affecting baby's birth weight in 200 mothers of low–birth–weight infants at Chulalongkorn Hospital and found significant correlation between the number of prenatal visits and birth weight at the statistical level .01. Mothers who do not have prenatal visits or have less than six prenatal visits during pregnancy is at risk of having low-birth-weight infants by 2.4 times higher, comparing with mothers having seven prenatal visits or more. This is consistent with a study conducted by Kompayak and Nakhapat (1985), which found that mothers of low-birth-weight infants had prenatal visits less than four times, never had prenatal visits, or had prenatal visits at later stage of pregnancy. Likewise, a study on the effect of prenatal visits on the health of mothers and newborn babies at Vajira Hospital conducted by Rewpaiboon (1989) demonstrated positive correlation between the number of prenatal visits and the baby's birth weight ($p<.05$), as mothers with more prenatal visits tended to have babies with higher birth weight.

Pongmetha (1989) studied some factors relating to the mothers that have effect on baby's birth weight and found that mothers who had prenatal visits less than four times and had first prenatal visit after six months of pregnancy tended to have low-birth-weight babies more than mothers in other groups. This finding is consistent with a study conducted by Horsuwansak (1990), which examined the effect of prenatal visits less than four times and other risk factors on the incidence of low-birth-weight infants at Phumipoladuljadej Hospital by comparing the women who had prenatal visits less than four times with those who had prenatal visits four times or more. The researcher found significant effect of prenatal visits less than four times on the incidence of low–birth–weight infants at the statistical level .05. A study on some factors that have effects on the birth weight of babies of adolescent mothers conducted by Boontanjai (1989) found that the number of prenatal visits was significantly related with baby's birth weight at statistical level ($p = .002$).

APGAR score. APGAR score is a common measure for evaluating the condition of a newborn baby. It is measured from five factors regarding the baby's signs and symptoms, as follows:

1. Pulse rate and heart rate: The heart rate higher than 100 bpm is scored 2; less than 100 bpm is 1; and no score for the absence of heart rate.

2. Respiratory effort: A newborn baby with good respiration is scored 2; the baby with irregular breathing is scored 1; and no score for absent breathing.

3. Skin color: A newborn baby who looks generally pink is scored 2; the baby with cyanosis on the tips of their fingers and toes is scored 1; and none for the baby who appear bluish gray or pale all over.

4. Muscle tone or activities: A newborn baby with strong muscle tone and spontaneous movement with flexed arms and legs is scored 2; the baby with very weak or flaccid muscle tone is scored 1; and none for the baby that has no movement.

5. Responsiveness: The baby's response to oral suctioning after birth by coughing, sneezing, and crying is scored 2; mild response to suctioning, i.e. wincing, is scored one; and no response is scored 0.

A newborn baby is assessed for APGAR score at the 1st, 2nd, and 5th minute after birth. The score is given according to signs and symptoms in five features mentioned above. Normal APGAR score, ranging from 7 to10, indicates that the baby is healthy and requires normal childcare. Low APGAR score ranges from 0 to 6, indicating that the baby is unhealthy and is at risk of health dangers and life-threatening conditions thus requiring special childcare. The evaluation with APGAR score is useful for medical care and for making prognosis. Care requirement of each newborn baby is judged from the APGAR score at 1 minute after birth (Paosawasdi, et al., 1982). Nevertheless, signs and symptoms of a newborn baby are not yet stable at 1 minute after birth, thus the APGAR score at 5 minutes after birth is more likely to indicate the baby's chance of survival or mortality better than the APGAR score at 1 minute after birth.

According to a study conducted by Rewpaiboon (1989), which examined the effect of prenatal visits on health of mothers and newborn babies at Vajira Hospital, the number of prenatal visits had positive correlation with 5-minute APGAR score ($p < .05$) thus the babies of the mothers who had more prenatal visits had higher 5–minute APGAR score. This finding is consistent with a study conducted by Suwaree (1988), which examined the effect of biomedical risk factors and psychosocial status of mothers during pregnancy on pregnancy outcome and found that the babies of mothers who did not have prenatal visits tended to have low APGAR score, as the mothers with inadequate prenatal visits tended to have babies with low APGAR score by 1.63

times higher than those who had four prenatal visits or more. Moreover, themothers with inadequate prenatal visits are more likely to have high rates of perinatal morbidity and mortality. Blondel, Dutilh, Delour, and Uzan (1993) found that mother with less than 3 visits had 4.7 percent perinatal death.

CHAPTER III
METHODOLOGY

Research Design

This descriptive research was a retrospective study of postpartum women at Taksin Hospital, aiming to compare health practice during pregnancy and the pregnancy outcome between mothers with adequate prenatal visits and those with inadequate prenatal visits. The study was conducted as detailed below.

Population and Sampling

The population was postpartum women receiving care at the Postpartum Ward of the Obstetric Department, Taksin Hospital.

The sample was composed of 280 postpartum women, selected with purposive sampling method.

Inclusion criteria

The inclusion criteria for the sample are the following:

1. Mothers who had first prenatal visit before 24 weeks of gestational age and had attended prenatal visits regularly for at least four times over the period of pregnancy. The mothers whose characteristics met this criterion were assigned to the group of mothers with adequate prenatal visits, which consisted of 140 women in total.

2. Mothers who had the first prenatal visits after 24 weeks of gestational age and/or had attended prenatal visits less than four times over the period of pregnancy, including those who never had a prenatal visit during pregnancy. The mothers in this group were defined as mothers with inadequate prenatal visits and 140 mothers whose characteristics met this criterion were assigned to this group.

Exclusion criteria

Mothers with the following characteristics were excluded from the study: Mothers whose record of prenatal visits and delivery was incomplete.

Sample size

The size of the sample was calculated with the power analysis of the number of variables in the study in combination with the statistical method for data analysis. This research used Cohen's table for sample size analysis (Cohen, 1988). Hence, the power was determined at 0.8 with the effect size 0.3 (small size) to ensure sufficient number of subjects for the study. The number of mothers with adequate prenatal visits should be equal to that of mothers with inadequate prenatal visits. The sample size was then sought from the table of sample size on the basis of these predefined values. It showed that sample size needed were 138 cased in each group (Cohen, 1988). Thus the sample of this study consisted of 280 postpartum women.

Setting

This study was conducted at the postpartum ward of the Obstetric Department, Taksin Hospital. The hospital, which is affiliated with the Bangkok Administration Office, provides medical service to general public and is a medical training school for medical students, nursing students, and various other health care professionals. The postpartum ward has 55 inpatient beds, divided into 45 beds for general clients and 10 for private rooms. The ward provides 24–hour medical care to mothers and their babies who undergo childbirth of either normal or abnormal labor at Taksin Hospital. The service is provided under the policy of efficiency and equity for all.

The Out Patient Clinic of the Gynecology–Obstetric Department, Taksin Hospital provides medical services, including prenatal care and medical care for gynecological diseases. The clinic opens every Monday to Friday from 8.00 a.m. to 12.00 a.m. Every pregnant woman attending the clinic receives medical care with standard approach from health care providers, i.e. physicians and nurses. All pregnant women having prenatal visit for the first time will be asked about medical history, including the history of pregnancy, childbirth, illness, and surgery from the past to the present. Nurses then conduct physical assessment including the examination of breasts and nipples. The condition of pregnancy is also thoroughly examined, including calculation of gestational age, fetal examination, fetal engaging part, fetal heart sound, and expected date of delivery. General condition is also assessed, including heart, lung

and thyroid functioning. Laboratory examination is also prescribed, including blood examination, ultrasonography, urine test, and dental check–up. Nurse assistants measure the women's weight, height, and blood pressure. Pregnant women will receive an injection of tetanus vaccine twice. In each prenatal visit, the progress of pregnancy will be followed up and the women with high risk of complications will be screened. Staff nurses provide instruction about self–care and proper practice during pregnancy. The instruction is given in groups in a room specifically prepared for health education. The contents of the lessons include benefits of prenatal visits and compliance with medical appointment, instruction for self–care practice before and after having blood examination, self–care practice during pregnancy including rest and relaxation, general hygiene care, diet for pregnant women, observation of abnormal symptoms, preparation for the childbirth, family planning, breast feeding, and preparation of supplies for the baby. Teaching media such as video, flip chart, model, are used in class, as well as printed materials and brochures. Pregnant women are allowed to ask questions if they have any doubts. Moreover, staff nurses at the clinic also provide individual counseling service. The women with abnormal nipples will be cared for and are occasionally monitored to correct the abnormality throughout the period of pregnancy. Nurses also give advice to women whose results of blood test are abnormal such as those with HIV positive or Syphilis infection. However, 83 percent of the sample had antenatal care at Taksin Hospital. The rest had it at Health Center which provides prenatal care with the same contents as Taksin Hospital except knowledge about exercise. The Health Center turns on exercise VDO for pregnant women on the days that have Antenatal Clinic at the exact time set. So, some pregnant women might see the exercise VDO and the other might not.

Appointments for prenatal care are usually arranged as follows:

– At the gestational age 1–7 months, the pregnant woman is scheduled to have a prenatal visit every four weeks.

– At the gestational age 7–9 months, the pregnant woman is scheduled to have a prenatal visit every two weeks.

– When the pregnancy is older than 9 months, the pregnant woman is scheduled to have a prenatal visit every week until childbirth.

Instrumentation

The research instrument consisted of the Personal Data Interview Form, the Labor and Delivery Data Record, and the Health Practice Questionnaire, as detailed below.

1. The Personal Data Interview Form. The interview was composed of both multiple-choice and fill–in–the–blank questions. The enquiry was concerned with the mother's demographic data and socioeconomic status, including age, education, family income, occupation, marital status, intention for having the baby, sources of information about health practice during pregnancy, prenatal visits, and the husband's personal information such as age and education.

2. The Labor and Delivery Data Record. The data were collected from medical record of the hospital. The collected data included history of pregnancy, prenatal visits, and delivery including gestational age at the first prenatal visit, number of prenatal visits, order of pregnancy and delivery, history of abortion or miscarriage and premature labor, complications during pregnancy, delivery and postpartum period, gestational age at delivery, labor technique, baby's birth weight, and the baby's 5–minute APGAR score.

3. The Health Practice Questionnaire. This questionnaire was adapted from the questionnaires of health promoting behavior in pregnant women developed by Prakorbsup (1998) and Thanormroop (2000), which were modified from the Health Promoting Lifestyle Profile (Walker, Sechrist & Pender, 1987; Pender, 1996). These two questionnaires consisted of 36 questions concerning six domains of health promoting lifestyle. The reliability value of the questionnaire developed by Prakorbsup was 0.84 and of the one developed by Thanormroop was 0.85.

The questionnaire used in this study consisted of 36 question items; among these, 31 items reflected positive practice and 5 items–2, 3, 4, 17, and 19, reflected negative practice. The questions were divided into six domains of health promoting lifestyle, as follows:

– Nutrition 10 items: 1–10

– Health responsibility 5 items: 11–15

– Physical activity 5 items: 16–20

– Interpersonal relation 5 items: 21–25

– Stress management 5 items: 26–30

– Spiritual growth 5 items: 31–36

In the nutrition domain, the response would be selected from the 5–level rating scale. Each level reflected the following responses:

– ‘Never’ meant the respondent never ate that food.

– ‘Once in a while’ meant the respondent had food mentioned in that item only once or twice in a week.

– ‘Sometimes’ meant the respondent had food mentioned in that item for three or four times in a week.

– ‘Often’ meant the respondent had food mentioned in that item for five to six times in a week.

– ‘Regularly’ meant the respondent had food mentioned in that item everyday.

The 5–level rating scale in the health responsibility, physical activity, interpersonal relation, stress management, and spiritual growth domains reflected the following responses:

– ‘Untrue’/ never do meant the statement in that item was not consistent with the respondent’s opinion or feeling, or the respondent never conducted the practice in that item.

– ‘Slightly true’/ once in a while meant the statement in that item was slightly consistent with the respondent’s opinion or feeling, or the respondent conducted the practice in that item once in a while.

– ‘Moderately true’/ sometimes meant the statement in that item was moderately consistent with the respondent’s opinion or feeling, or the respondent conducted the practice in that item sometimes.

– ‘Mostly true’/ often meant the statement in that item was mostly consistent with the respondent’s opinion or feeling, or the respondent often conducted the practice in that item.

– ‘Totally true’/ regularly meant the statement in that item was exactly the same as the respondent’s opinion or feeling, or the respondent regularly conducted the practice in that item.

Scoring criteria. The questionnaire of health practice during pregnancy had statements indicating either negative or positive practice. Therefore, the scoring was dependent on each statement as listed below.

	Statement of positive practice	**Statement of negative practice**
Never/ untrue	1 points	5 points
Once in a while/ slightly true	2 points	4 points
Sometimes/ moderately true	3 points	3 points
Often/ mostly true	4 points	2 points
Regularly/ totally true	5 points	1 points

Measurement of validity and reliability of the instrument

1. Content validity. The interview, the record and the questionnaire of health practice during pregnancy were submitted to a panel of five experts for examining content validity. The panel was composed of:

1) 3 nurse instructors specialized in maternity and newborn nursing;
2) 1 nurse instructor specialized in public health nursing;
3) 1 obstetrician.

After the experts had examined the instrument, the researcher amended the interview, the record, and the health practice questionnaire according to the experts' suggestion.

2. Reliability. The interview, the record and the questionnaire of health practice were tried out with 25 postpartum women at the postpartum ward of Taksin Hospital to examine the clarity of the language and problems in utilizing the instrument. The reliability of the questionnaire of health practice during pregnancy was then calculated with the Cronbach' alpha coefficient, using the following formula (Ruecha, et al., 1997):

$$\alpha = n / n-1 \, [1 - \Sigma Si^2/St^2],$$

where α = coefficient of reliability

n = number of question items

Si^2 = standard deviation of the score of each item

St^2 = standard deviation of the total score.

The coefficient of reliability of the questionnaire of health practice during pregnancy was 0.78.

Data Collection

The researcher conducted the study in the following manner:

1. An introduction letter was requested from the Faculty of Graduate Studies, Mahidol University and was submitted to the Director of Taksin Hospital in order to obtain the permission for collecting data.

2. After receiving permission from the Ethic Committee Board of the Bangkok Metropolitan for collecting data, the researcher introduced herself to the Head of Nursing Department and the Head Nurse of the postpartum ward to inform them about the study details and to ask for cooperation in collecting data.

3. The researcher collected data at Taksin Hospital everyday at 8.00–12.00 a.m. and 1.00–4.00 p.m. until the number of subjects reached the predetermined sample size. Data were collected from March, 2004–June, 2004

4. Data were collected in steps, as follows:

4.1 Identifying the subject. The researcher checked the mothers' characteristics from medical record of postpartum women. After identifying a mother whose characteristics met the inclusion criteria, the researcher approached the subject to introduce herself and to establish rapport. The subject was then informed about the study and was asked to participate in the study. The researcher also gave information sheet with details about the protection of rights of postpartum women (Appendix C).

4.2 When the subject expressed willingness to participate in the study, the researcher asked her to sign a consent letter and invited her to sit in an area that was previously prepared for collecting data.

4.3 The researcher interviewed the subject individually, using the interview for personal information form. After the interview, the researcher informed the subject about how to answer the questionnaire of health practice during pregnancy. While the subject was giving responses to the questionnaire, the researcher would be sitting nearby in case the subject had any doubt about the questionnaire.

4.4 After the subject had finished answering the questionnaire, the researcher checked the completeness of the responses, then thanked the subject for her cooperation in the study.

4.5 The researcher recorded data about the pregnancy and the delivery from medical record of the hospital.

Protection of Human Subjects

This research was conducted with an awareness of the subjects' rights and the mothers made a decision to participate in the study on their own will. After identifying the mothers whose characteristics met the inclusion criteria, the researcher introduced her to the mothers and asked for their participation in the study. The mothers were then informed about the objectives, the benefits, and the risks of the study, as well as the confidentiality of the information and the mothers' rights to participate, or not participate, in the study, including the rights to withdraw from the study at anytime. They were also informed that the refusal to participate or the withdrawal from the study would not have any effects on the medical service they would receive from the hospital. Details about the protection of the rights of postpartum women are presented in Appendix C.

Data Analysis

The obtained data were analyzed with a standard computer program.

1. The Personal Data Interview Form. Data were analyzed with the frequency count method and were calculated and presented in percentages.

2. The Health Practice scores, the gestational ages at delivery, the baby's birth weights and the 5–minute APGAR scores of mothers with adequate and inadequate prenatal visits were calculated for mean values and standard deviation.

3. Means of the Health Practice scores, gestational ages, baby's birth weights and the 5–minute APGAR scores were compared between mothers with adequate prenatal visits and mothers with inadequate prenatal visits, using t–test.

4. The proportion of the babies complication at birth (admitted to NICU and perinatal death) of mothers with adequate and inadequate prenatal visits were compared with χ^2–test.

CHAPTER IV
RESULTS

This study was a descriptive research aiming to compare health practice during pregnancy and the pregnancy outcome between mothers with adequate prenatal visits and those with inadequate prenatal visits. The sample was composed of 280 postpartum women receiving care at the Postpartum Ward of Taksin Hospital. Data were collected with an interview for personal information, record of pregnancy and delivery, and a questionnaire interview about health practice during pregnancy. The obtained data were analyzed and expressed in percentage terms. Results concerning age, income, score of health practice during pregnancy, gestational age at delivery, birth weight, and 5–minute APGAR score were calculated for mean and standard deviation. The characteristics of the two sample groups were then compared, using t-test with interval or ratio data including age, education level, family income, score of health practice during pregnancy, gestational age at delivery, birth weight, and 5–minute APGAR score; and using χ^2–test for grouped data, e.g. marital status, adequacy of income, planning of pregnancy, reception of knowledge, gravidity, parity, type of delivery, complications during pregnancy and delivery, postpartum complications, and complication at birth. The resulted are presented below.

1. Demographic data of the sample

Table 1 Number and percentage of the sample, classified by age, marital status, education level, occupation, family income, adequacy of income, pregnancy planning, knowledge reception, and sources of knowledge.

Characteristics of the sample	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)	
	Number	%	Number	%
Age (years)				
Younger than 20	14	10.0	33	23.6
20-34	116	82.9	96	68.6
35 or older	10	7.1	11	7.8
$\bar{X}_1 = 26.2(5.2)$, $min_1\text{-}max_1 = 17\text{-}43$				
$\bar{X}_2 = 24.4(5.9)$, $min_2\text{-}max_2 = 15\text{-}42$				
Marital status				
Married/ lived with husband	139	99.3	131	93.6
Divorced/ Widowed/ Separated	1	0.7	9	6.4
Education level				
Lower than high-school level	73	52.1	79	56.4
High-school level or higher	67	47.9	61	43.6
Occupation				
Housewife/ unemployed	44	31.5	53	37.8
Employee/ worker	78	55.7	68	48.6
Vendor/ small business trader	9	6.4	13	9.3
Civil servant/ State enterprise official/ company worker	9	6.4	6	4.3

Table 1 Number and percentage of the sample, classified by age, marital status, education level, occupation, family income, adequacy of income, pregnancy planning, knowledge reception, and sources of knowledge (Continued).

Characteristics of the sample	Adequate prenatal visits (n_1 = 140)		Inadequate prenatal visits (n_2 = 140)	
	Number	%	Number	%
Family income per month (baht)				
Less than 5,000	16	11.4	50	35.7
5,000–9,999	80	57.1	66	47.1
10,000–14,999	28	20.0	19	13.6
15,000–19,999	13	9.3	3	2.2
20,000 or more	3	2.2	2	1.4
$\bar{X}_1$ = 9,885(4,440), min_1–max_1 = 3,000–25,000				
$\bar{X}_2$ = 7,700(4,246), min_2–max_2 = 1,300–25,000				
Adequacy of income				
Adequate	90	64.3	76	54.3
Inadequate	50	35.7	64	45.7
Pregnancy planning				
Yes	110	78.6	69	49.3
No	30	21.4	71	50.7
Causes of pregnancy (no plan)				
- Forgot to take contraceptive pills/ injections	28	93.3	65	91.6
- Incorrectly use	-	-	3	4.2
- Change contraceptive techniques	2	6.7	3	4.2

Table 1 Number and percentage of the sample, classified by age, marital status, education level, occupation, family income, adequacy of income, pregnancy planning, knowledge reception, and sources of knowledge (Continued).

Characteristics of the sample	Adequate prenatal visits (n_1 = 140)		Inadequate prenatal visits (n_2 = 140)	
	Number	%	Number	%
Knowledge reception				
Received knowledge	139	99.3	126	90
Never received knowledge	1	0.7	14	10
Sources of knowledge (More than one response could be given)				
Media	89	63.6	55	39.3
Physician	55	39.3	19	13.6
Nurse	116	82.9	65	46.4
Relatives, Friends	84	60	56	40
Experience from previous delivery	56	40	78	55.7
Others	3	2.1	2	2

Referring to Table 1, most subjects in the adequate prenatal visits group were aged between 20–34 years (82.9%). The youngest age in this group was 17 years, the oldest was 43, and the average age of the group was 26.2. For the inadequate prenatal visits group, most of them were aged between 20–34 years (68.6%). The youngest age in this group was 15 years, the oldest was 42, and the average age of the group was 24.4 years. The sample in the adequate prenatal visits group were older than the sample in the inadequate prenatal visits group at a statistically significant level ($t = 2.7$, $p<.01$).

Almost all subjects in the adequate prenatal visits group were married (99.3%). For subjects in the inadequate prenatal visits group, 93.6 percent of them were married. The adequate prenatal visits group had a proportion of married subjects

more than the inadequate prenatal visits group at a statistically significant level (χ^2 = 6.6, p<.05).

More than half of the sample in the adequate prenatal visits group were educated at the level lower than high-school (52.1%). Most subjects in the inadequate prenatal visits group were educated lower than high-school level (56.3%). The proportion of subjects educated lower than high-school level in the adequate prenatal visits group was smaller than that of the inadequate prenatal visits group at an insignificant level (χ^2 = .5, p>.05).

For occupation, most subjects in the adequate prenatal visits group were employees or workers (55.7%), followed by housewives (31.5%). In the inadequate prenatal visits group, most subjects were employees or workers (37.8%), followed by housewives (37.8%).

Most of the sample in the adequate prenatal visits group had monthly family income in the range 5,000–9,999 baht (57.1%), followed by 10,000–14,999 baht (20%), less than 5,000 baht (11.4%), and 15,000 baht or more (11.5%). The lowest monthly income of the subjects in this group was 3,000 baht, the highest income was 25,000 baht, and the average income of the group was 9,885 baht per month. In the inadequate prenatal visits group, most subjects had family monthly income in the range 5,000–9,999 baht (47.1%), followed by lower than 5,000 baht (35.75%), 10,000–14,999 baht (13.6%), and 15,000 baht or higher (3.6%). The lowest monthly income in this group was 1,300 baht, the highest income was 25,000 baht, and the average family income of the group was 7,700 baht per month. The comparison of the average family income of both group with t-test has shown that the average family income of the adequate prenatal visits group was higher than that of the inadequate prenatal visits group at a statistically significant level (t = 4.2, p<.001) (Appendix E).

Most subjects in the adequate prenatal visits group reported having adequate income (64.3%) and more than half of the sample in the inadequate prenatal visits group reported adequate income (54.3%). An examination with χ^2–test has shown an (t = 1.8, p>.05) insignificant higher number of subjects with adequate income in the adequate prenatal visits group, comparing with the inadequate prenatal visits group (χ^2 = 2.9, p>.05).

The majority of the sample in the adequate prenatal visits group had pregnancy planning (78.6%) whereas less than half of the sample in the inadequate prenatal visits group had pregnancy planning (49.3%). The comparison with χ^2–test has shown that the proportion of women who had pregnancy planning is the adequate prenatal visits group is higher than the corresponding number in the inadequate prenatal visits group at a statistically significant level ($\chi^2 = 26.0$, $p<.001$). The subjects who did not have pregnancy planning in both groups reported that they were pregnant because they forgot to take contraceptive pills or contraceptive injection (93.3% and 91.6%, respectively) and the rest of them got pregnant due to misunderstanding about contraceptive devices or changing of contraceptive techniques.

Table 1 has shown that 99.3 percent of the subjects in the adequate prenatal visits group and 90 percent of the sample in the inadequate prenatal visits group had received knowledge during pregnancy. The examination with χ^2–test has shown that the proportion of the subjects who received knowledge during pregnancy in the adequate prenatal visits group was larger than the corresponding proportion in the inadequate prenatal visits group at a statistically significant level ($\chi^2 = 11.9$, $p<.01$).

The sample in the adequate prenatal visits group reported receiving knowledge during pregnancy from nurses most (82.9%), followed by the media (63.6%); the rest of them received knowledge during pregnancy from friends and relatives, previous delivery, and physicians (60%, 40%, and 39.3%, respectively). The sample in the inadequate prenatal visits group reported receiving knowledge from previous delivery mostly (55.7%), followed by nurses (46.4%); the rest of them received knowledge from friends and relatives, media, and physicians (40%, 39.3%, and 13.6%, respectively).

Table 2 Number and percentage of the husbands of the sample, classified by age and education level.

Characteristics of the sample's husband	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)	
	Number	%	Number	%
Age (years)				
Younger than 20	3	2.1	11	7.8
20–34	110	78.6	102	72.9
35 or older	27	19.3	27	19.3
$\bar{X}_1 = 29.9(6.7)$, min_1–$max_1 = 17$–72				
$\bar{X}_2 = 28.2(7.7)$, min_2–$max_2 = 17$–58				
Education level				
Lower than high–school level	72	51.4	74	52.9
High-school level or higher	68	48.6	66	47.1

Data in Table 2 have shown that most husbands of the sample in the adequate prenatal visits group were aged between 20–34 years (78.6%), followed by 35 years or older (19.3%) and younger than 20 (2.1%). The youngest age of the husbands was 17 years, the oldest was 72, and the average age of the husbands in this group was 29.9 years. The husbands of the sample in the inadequate prenatal visits group were mostly aged between 20–34 years (72.9%), followed by 35 years or older (19.3%) and younger than 20 years (7.8%). The youngest age of the husbands in this group was 17 years, the oldest was 58 years, and the average age was 28.2 years. The comparison of the average age of the two groups with t-test has shown that the husbands of the sample in the adequate prenatal visits group were older than those of the inadequate prenatal visits group at a statistically insignificant level ($t = 1.9$, $p>.05$).

More than half of the husbands of the sample in the adequate prenatal visits group were educated at the level lower than high–school (51.4%) and the rest of them were educated at high–school level or higher. For husbands of the subjects in the

inadequate prenatal visits group, 52.9 percent of them were educated at the level lower than high-school and the rest of them were educated at high-school level or higher. The comparison of these results with χ^2–test has demonstrated that the proportion of husbands educated lower than high–school level in the adequate prenatal visits group was smaller than the one in the inadequate prenatal visits group at a statistically insignificant level ($\chi^2 = .1$, $p>.05$).

Table 3 Number and percentage of the sample, classified by gravidity, parity, type of delivery, complications during pregnancy, delivery, and postpartum complications.

Characteristics of the sample	Adequate prenatal visits (n_1 = 140)		Inadequate prenatal visits (n_2 = 140)	
	Number	%	Number	%
Gravidity				
Primigravida	56	40	48	34.3
Multigravida	84	60	92	65.7
Parity				
Primipara	75	53.6	56	40
Multipara	65	46.4	84	60
Type of delivery				
Normal	119	85	123	87.9
Obstetrical operation	21	15	17	12.1
Complications during pregnancy				
Yes	16	11.4	55	39.3
No	124	88.6	85	60.7
Complications during delivery				
Yes	14	10	10	7.1
No	126	90	130	92.9
Postpartum complications				
Yes	2	1.4	3	2.1
No	138	98.6	137	97.9

Table 3 has shown that the sample In the adequate prenatal visits group, 40 percent of the sample had primigravida and 34.3 percent of the sample in the

inadequate prenatal visits group were first-time pregnant. The examination with χ^2–test has shown that the adequate prenatal visits group had a larger proportion of primigravida than the inadequate prenatal visits group at a statistically insignificant level ($\chi^2 = .9$, $p>.05$).

More than half of the sample in the adequate prenatal visits group had first delivery (53.6%); in the inadequate prenatal visits group, 40 percent of the sample had first delivery. The examination with χ^2–test has shown that the adequate prenatal visits group had a larger proportion of first delivery than the inadequate prenatal visits group at a statistically significant level ($\chi^2 = 5.2$, $p<.05$).

For type of delivery, 85 percent of the sample in the adequate prenatal visits group had normal labor; in the inadequate prenatal visits group, 87.9 percent had normal labor. The comparison between the two groups with χ^2–test has shown an insignificant larger proportion of normal labor in the inadequate prenatal visits group ($\chi^2 = .5$, $p>.05$).

During pregnancy, 11.4 percent of the sample in the adequate prenatal visits group and 39.3 percent of the sample in the inadequate prenatal visits group had complications, comprising anemia, twins, preterm, pyelonephritis, PIH, PROM, fetal distress, Gestational DM class A_2, and hypertension. Two pregnant women in the adequate prenatal visits group was admitted during pregnancy due to PROM and Gestational DM class A_2 and a pregnant women in the adequate prenatal visits group was admitted due to PROM. The examination with χ^2–test has shown that, in comparison with the adequate prenatal visits group, the sample in the inadequate prenatal visits group had a larger proportion of complications during pregnancy at a statistically significant level ($\chi^2 = 28.7$, $p<.001$).

In the adequate prenatal visits group, 10 percent of the sample had complications during delivery whereas 7.1 percent of the sample in the inadequate prenatal visits group had such complications. The complications were placenta accreta, prolonged labor, PROM, hypertension, CPD and breech position. The examination with χ^2–test has shown that the proportion of subjects with complications during delivery in the adequate prenatal visits group was larger than the inadequate prenatal visits group at a statistically insignificant level ($\chi^2 = .7$, $p>.05$).

Postpartum complications, comprising PPH and severe sepsis, were found in 1.4 percent of the sample in the adequate prenatal visits group and in 2.1 percent of the inadequate prenatal visits group. The comparison of the two groups with χ^2–test has shown a larger proportion of subjects with postpartum complications in the inadequate prenatal visits group at a statistically insignificant level ($\chi^2 = .2$, $p>.05$).

2. Health practice during pregnancy

Table 4 Mean and standard deviation of the score of health practice during pregnancy, classified by each domain of health promoting lifestyle and overall health practice.

Health practice during pregnancy	Possible Score	Adequate prenatal visits ($n_1 = 140$) $\bar{X}$(SD)	Inadequate prenatal visits ($n_2 = 140$) $\bar{X}$(SD)	t–test
–Health responsibility	5–25	18.4(2.9)	15.9(3.4)	6.3***
–Nutrition	10–50	42.2(4.3)	36.9(5.9)	8.4***
–Physical activity	5–25	17.9(3.4)	17.3(3.3)	1.8^{NS}
–Interpersonal relation	5–25	19.8(3.5)	17.7(4.0)	4.7***
–Stress management	5–25	21.5(4.4)	19.8(4.8)	3.1**
–Spiritual growth	6–30	25.3(3.4)	23.0(4.2)	5.1***
Overall health practice	36–180	145.2(15.4)	130.6(17.9)	7.3***

**p<.01; ***p<.001; NS = Non–significance (p>.05)

Referring to Table 4, the average score of overall health practice was 145.2 in the adequate prenatal visits group and 130.6 in the inadequate prenatal visits group. The comparison of these scores with t–test has shown that the average score of overall health practice of the adequate prenatal visits group was higher than the score of the inadequate prenatal visits group at a statistically significant level ($t = 7.3$, $p<.001$).

For each domain of health practice, it was found that the average scores of the sample in the adequate prenatal visits group was higher than the corresponding scores of the inadequate prenatal visits group in aspects of health responsibility, nutrition, interpersonal relation, stress management, and spiritual growth ($t = 6.3$, $p<.001$; $t = 8.4$, $p<.001$; $t = 4.7$, $p<.001$; $t = 3.1$, $p<.01$; $t = 5.1$, $p<.001$, respectively). Only in the physical activity domain that the average score of the adequate prenatal visits group was higher than the inadequate prenatal visits group at an insignificant level.

Table 5 Mean and standard deviation of the gestational age at delivery, birth weight, and 5–minute APGAR score.

Pregnancy outcome	Adequate prenatal visits ($n_1 = 140$) $\bar{X}$(SD)	Inadequate prenatal visits ($n_2 = 140$) $\bar{X}$(SD)	t–test
Gestational age at delivery	38.4(1.9)	37.2(3.3)	3.7***
Birth weight	3015.6(511.7)	2894.3(540.1)	1.9^{NS}
5-minute APGAR score	9.8(0.4)	9.8(0.9)	0.9^{NS}

***p<.001; NS = Non-significance (p>.05)

Table 5 demonstrates that the sample in the adequate prenatal visits group and in the inadequate prenatal visits group delivered the babies at the average age of 38.4 weeks and 37.2 weeks, respectively. The comparison of the average gestational ages at delivery of the two groups with t-test revealed that the average gestational age at delivery of the adequate prenatal visits group was older than the corresponding result of the inadequate prenatal visits group at a statistically significant level ($t = 3.7$, $p<.001$).

The average birth weight of the infants from the adequate prenatal visits group and the inadequate prenatal visits group was 3,015.6 and 2,894.3 grams, respectively. The comparison with t-test has revealed insignificant difference between the two groups ($t = 1.9$, $p>.05$).

The average 5-minute APGAR score of the infants from the adequate prenatal visits group and the inadequate prenatal visits group was 9.8 and 9.8, respectively. The comparison of these results with t-test has demonstrated insignificant difference between the two groups ($t = .9$, $p>.05$).

Table 6 Number and percentage of the sample, classified by gestational age at delivery, birth weight, and 5–minute APGAR score and complication at birth (admitted to NICU and perinatal death).

Pregnancy outcome	Adequate prenatal visits (n_1 = 140)		Inadequate prenatal visits (n_2 = 140)		χ^2–test
	Number	%	Number	%	
Gestational age at delivery (weeks)					8.9, p<.01
Pre-term delivery (< 37)	15	10.7	34	24.3	
Term delivery (37 or more)	125	89.3	106	75.7	
Birth weight (grams)					.7, p>.05
LBW (< 2,500)	20	14.3	25	17.9	
Normal (2,500 or more)	120	85.7	115	82.1	
5–minute APGAR score					1.0, p>.05
Unhealthy (< 7)	-	-	1	0.7	
Healthy (7 or more)	140	100	139	99.3	
Complication at birth (admitted to NICU and perinatal death)					8.1, p<.05
Yes	2	1.4	7	4.3	
No	138	98.6	133	95.7	

Table 6 showed that 10.7 percent of the subjects in the adequate prenatal visits group and 24.3 percent of the sample in the inadequate prenatal visits group had pre-term_delivery. The examination with χ^2–test has shown that the proportion of the subjects who had pre-term delivery in the adequate prenatal visits group was lower than the corresponding proportion in the inadequate prenatal visits group at a statistically significant level ($\chi^2 = 8.9$, p<.01).

Of all the subjects, 14.3 percent of the adequate prenatal visits group and 17.9 percent of the inadequate prenatal visits group had low birth weight (LBW). The examination with χ^2–test has shown that the proportion of the subjects who had low

birth weight in the adequate prenatal visits group was lower than the one in the inadequate prenatal visits group at a statistically insignificant level ($\chi^2 = .7$, $p>.05$).

A hundred percent of the subjects in adequate prenatal visits group and 99.3 percent of the sample in the inadequate prenatal the visits group had the 5–minute APGAR score 7 or more. The examination with χ^2–test has shown that the proportion of the subjects who had the 5–minute APGAR score 7 or more in the adequate prenatal visits group was higher than the one in the inadequate prenatal visits group at a statistically insignificant level ($\chi^2 = 1.0$, $p>.05$).

In the adequate prenatal visits group, 1.4 percent of the neonates had complications needed intensive care whereas 4.3 percent of the neonates in the inadequate prenatal visits group had such complications. The result of χ^2–test has shown that the neonates of the inadequate prenatal visits group had a larger proportion of complications needed intensive care than the one in the adequate prenatal visits group at a statistically significant level ($\chi^2 = 8.1$, $p<.05$).

CHAPTER V
DISCUSSION

This research is a comparative study of health practice during pregnancy and the pregnancy outcomes in mothers with adequate prenatal visits and those with inadequate prenatal visits. The sample was composed of 280 postpartum women receiving care at the Postpartum Ward of Taksin Hospital. Among these, 140 women were mothers with adequate prenatal visits who had their first prenatal visit before 24 weeks of gestational age and attended prenatal visits regularly for at least four times over the period of pregnancy. The other 140 women were mothers with inadequate prenatal visits who had their first prenatal visits after 24 weeks of gestational age and/or attended prenatal visits less than four times over the period of pregnancy or never attended a prenatal visit during pregnancy. The results of this study are discussed in accordance with the hypothesis of the study, as detailed below.

Hypothesis 1: Mothers with adequate prenatal visits and mothers with inadequate prenatal visits have different health practice during pregnancy.

The results of this study reveal that mothers with adequate prenatal visits group achieved an average score of health practice higher than the mothers with inadequate prenatal visits group at a statistically significant level at $p<.001$ ($\bar{X}$ = 145.2, SD = 15.4 and $\bar{X}$ = 130.6, SD = 17.9, respectively; Table 4) Further investigation on each domain of lifestyle shows that the mothers with adequate prenatal visits demonstrated better health practice concerning nutrition, health responsibility, interpersonal relation, stress management, and spiritual growth, in comparison with mothers with inadequate prenatal visits or no prenatal visits. This is probably because mothers who had adequate prenatal visits in this study received knowledge about self practice during pregnancy from doctors and nurses for 3-4 times during the prenatal visits. The provided knowledge and information included dietary, rest and relaxation, general hygiene care, and observation of abnormal symptoms. The reception of knowledge

and advice leads to the person's perception and results in health practice (Rosenstock cited in Becker, 1974). This is consistent with a study conducted by Supannatas (1987), which found that a key motivation for appropriate health practice is one's knowledge and understanding and the anticipation of future outcomes: the more knowledge a person has gained, the more likely he or she will perform the related health practice. Characteristics of the sample might also account for the results of this study. The average age of mothers with adequate prenatal visits was significantly higher than that of mothers with inadequate prenatal visits $\bar{X}$ = 26.2 (5.2) and $\bar{X}$ = 24.4 (5.9) respectively ($p<.01$). The classification of sample into age groups shows that 10 percent of mothers with adequate prenatal visits were in adolescent age whereas 23.6 percent of mothers in the inadequate prenatal visits group were adolescents. The analysis of demographic data also reveals that, in comparison with mothers in the inadequate prenatal visits group, the mothers with adequate prenatal visits had higher average monthly income and higher percentages of married status, pregnancy planning, and primiparity at a statistically significant level ($p<.05$, $p<.001$, and $p>.05$). Age may account for better health practice in older women, as it is a personal factor influential to one's feeling and opinion toward health promoting behavior (Pender, 1996). Whilst getting older, individuals undergo critical circumstances, gain experiences, have developments, and achieve maturity; thus older people are likely to have increased ability in thinking, considering, making decision, and coping with problems (Lazarus & Folkman, 1984). Individuals with increased maturity tend to make a better choice and decision concerning health care, in comparing to the performance at younger age (Orem, 1980). This result is in accord with a study conducted by Opassiriwit (1988), which found that older pregnant women performed better self-care than the younger ones. Boonsom (1997) also found that pregnant women older than 35 years of age demonstrated better health promoting behavior than those who were younger than 20 years old. However, the result is inconsistent with a study conducted by Limtoprasert (1991), which found insignificant correlation between age and self-care practice in pregnant women.

The average monthly income of mothers in the adequate prenatal visits group was significantly higher than the average income of those in the inadequate prenatal visits group $\bar{X}$ = 9,885 (4,400) and $\bar{X}$ = 7,700 (4,246) respectively ($p<.001$). This is

probably because pregnant women with higher family income have more opportunities to perform appropriate health practice, as incomes or economic status is a resource that is influential to basic needs responses and improved lifestyle (Orem, 1985; Edelman & Mandle, 1990). Persons with good socioeconomic status have more opportunities to seek beneficial resources and facilities for self-care, such as sufficient nutrients and access to health care service, comparing to those with poor socioeconomic status (Pender, 1996). Pregnant women with poor economic status have limitations in seeking service for health promotion or health care and are concerned about earning family income, especially when they are pregnant because the pregnancy leads to an increase in expenses for food, clothes, transportation for prenatal visits, etc. A study conducted by Prapapen Suwan (1997) has shown that family income is an indicator of self-care ability. Similarly, Wayuhuad (1993) and Nirattharadorn (1996) found positive correlation between income and health promoting behavior in adolescent pregnant women. However, Suppawithitwattana (1990) found no relationship between family income and health promoting behavior in adolescent pregnant women and Boonsom (1997) found that pregnant women with different incomes demonstrated no differences in overall health promoting behavior.

Mothers in the adequate prenatal visits group had married status at a significantly higher frequency than those in the inadequate prenatal visits group at a statistically significant level at $p<.05$ (99.3% as opposed to 93.6%, respectively; Table 1) It is reported that during pregnancy the husband is the most significant source of social support because he is the closest and the most trusted person to the pregnant woman (Liberman, 1986). This is due to the fact that husband-wife relationship is usually based on intimacy, love and commitment, mutual understanding, sharing, and interdependence; therefore, social support from the spouse is substantially significant and efficient. It is of high value for living together and highly influential to physical, as well as mental, health of each other (Brown, 1986). Referring to Liese (1989), pregnant women who live with husbands receive emotional, tangible, and financial support thus they tend to have positive psychological adaptation whereas those who do not live with husbands receive less social support and suffer stress during pregnancy. This is consistent with the result of a study conducted by Wayuhuad (1993), which found that pregnant women who lived with spouse demonstrated better health

promoting behavior than those who were divorced, widowed, or separated. Thamganma (1997) also found that pregnant women with high risk who receive support from the husbands perform appropriate health promoting behavior. According to Tilden (1983 cited in May & Mahlmeister, 1994), single or divorced pregnant women usually present difficulties in making a decision concerning pregnancy continuation because of the lack of support from spouse, leading to stress and indecision about the revelation of their pregnancy. Nevertheless, this result is inconsistent with a study conducted by Suppawithitwattana (1990), which indicates that adolescent pregnant women with different marital status demonstrated no difference in health practice.

Mothers in the adequate prenatal visits group had planned pregnancy at a higher percentage than those in the inadequate prenatal visit group at a statistically significant level at $p<.001$ (78.6% and 49.3%, respectively; Table 1). This is probably because the intention to have a baby affects health promoting behavior of pregnant women (Neeson & May, 1986; Cohen, Kenner & Hollings, 1991). Individuals who want to have a baby naturally wish healthiness for the fetus, thus seeking prenatal care and attending prenatal visits regularly. During prenatal visits, pregnant women receive advice from doctors and nurses and gain knowledge and understanding about pregnancy, leading to appropriate health practice during pregnancy with an expectation of delivering a healthy baby. On the contrary, unintended pregnant women may not accept their pregnancy and do not perform appropriate health practice during pregnancy. They may have delayed prenatal visits or may not have prenatal visits at all; as a result, these pregnant women may not receive treatment for pregnancy complications and do not receive suggestion about appropriate health practice during pregnancy (Martha & Martha, 1990). This result is consistent with the study conducted by Wannawong (1985), which found that intention to have a baby is an influential factor for mothers' interest in the fetus and self care during pregnancy. Prakorbsup (1998) found positive correlation between pregnancy planning and health promoting behavior. However, Nirattharadorn (1996) found that pregnancy planning has very low level of correlation with the health promoting behavior of adolescent pregnant women and it cannot be used as a co-predictor of health promoting behavior.

The percentage of mothers with primiparity in the adequate prenatal visits group is significantly higher than the percentage in the inadequate prenatal visits group (53.6% in the first group comparing to 40.0% in the latter group; Table 3) at a statistically significant level at $p<.05$. This is probably due to the fact that the pregnant women with the first born infant do not have a role model and lack experience in pregnancy thus they are more interested in and more careful with health promoting behavior, comparing to those with successive pregnancy. This finding is consistent with a study conducted by Kantharaksa (1984), which showed that pregnant women with different orders of pregnancy present different self-care practice concerning health status. However, the finding is not in accord with Boonthup's study (1991), which found no difference in self-care ability of women with primiparity and of those with multiparity

Results in each domain of health practice are discussed below.

1. Health responsibility

Mothers with adequate prenatal visits demonstrated better health practice concerning health responsibility than those with inadequate prenatal visits at a statistically significant level at $p<.001$ ($\bar{X} = 18.4$, SD = 2.9 in the adequate prenatal visits group and $\bar{X} = 15.9$, SD = 3.4 in the inadequate prenatal visits group; Table 4). This may be due to the age of the sample, as most mothers in the adequate prenatal visits group were older than 20 years of age (82.9%), thus they were mature individuals as age could be an indicator of maturity at a certain level. Older individuals are more likely to have better ability in learning, problem-solving, decision-making, and self-control, as well as evaluating the outcome of their action and performing various living skills (Schuster & Ashburu, 1992; Ladewig, et al., 1994). Therefore, older pregnant women are more capable in thinking, considering, and making decision about health promoting behavior concerning prenatal care and follow-up visits. In addition, most pregnant women in the adequate prenatal visits group had primiparity and had planned the pregnancy thus they were pleased and excited with the pregnancy and were interested in receiving prenatal care to ensure healthy progress of pregnancy.

2. Nutrition

Mothers with adequate prenatal visits expressed significantly higher level of health practice concerning nutrition in comparison with those with inadequate prenatal visits ($\bar{X}$ = 42.2, SD = 4.3 in the first group, comparing to $\bar{X}$ = 36.9, SD = 5.9 in the latter group; Table 4) at a statistically significant level $p<.001$. This is probably because the mothers with adequate prenatal visits received suggestions from health care professionals and from informative media in the hospital that promote appropriate nutritional behavior among pregnant women by encouraging them to have diets consisting of necessary nutrients. The mothers' reception of knowledge and suggestion from health care staff and the media led to appropriate performance of health practice in nutritional aspect. Moreover, the mothers with adequate prenatal visits already had interest and care for their health condition; therefore, they were likely to apply the received knowledge to their health practice more than the mothers with inadequate prenatal visits. In addition, the mothers with adequate prenatal visits had their pregnancy planned more than those with inadequate prenatal visits. Referring to a study conducted by Prakorbsup (1998), adolescent pregnant women who had planned pregnancy demonstrated better health practice concerning nutrition, in comparison with those with unplanned pregnancy.

3. Physical activity and exercise

Mothers with adequate prenatal visits demonstrated higher level of health practice concerning physical activity and exercise, in comparison to those with inadequate prenatal visits at a statistically insignificant level at $p>.05$ ($\bar{X}$ = 17.9, SD = 3.4 in the first group, comparing to $\bar{X}$ = 17.3, SD = 3.3 in the latter group; Table 4). This finding indicates that physical activity and exercise during pregnancy of mothers with adequate prenatal visits was not different from that of mothers with inadequate prenatal visits. This result may be associated with the information provided from Taksin Hospital to pregnant women, which does not include the topic concerning physical activity and exercise; thus mothers in the two groups did not demonstrate any difference in their health practice in this domain. Referring to Rosenstock, the reception of advice and information has effects on persons' perception and leads to practice (Rosenstock cited in Becker, 1974). This statement is supported by Supanthas' study (1987), which found that the key motivation for appropriate health

practice is knowledge and understanding about that issue in addition to the anticipation of future outcomes.

4. Interpersonal relation

Mothers with adequate prenatal visits demonstrated better health practice concerning interpersonal relation than those with inadequate prenatal visits at a statistically significant level at $p<.001$ ($\bar{X}$ = 19.8, SD = 3.5 in the first group, comparing to $\bar{X}$ = 17.7, SD = 4.0 in the latter group; Table 4). Good interpersonal relation leads to the reception of social support in aspects of emotion and others. As a result, the pregnant women are able to cope with stress during pregnancy and can maintain physical and mental health with care for the baby's, as well as their own, health condition. Reece (1991) investigated social support in 91 first-time pregnant women who were older than 35 years of age and found that the reception of social support from husband and family members could reduce stress during pregnancy and in postpartum stage. Social support enables the women to have appropriate adaptation and proper health practice (Gore, 1978; Wortman, 1984; Cohen & Wills, 1985; Berkman, 1985). In another study, Meisenhelder (1986) found that a husband was a significant person who has an influence on wife's self-esteem and self-confidence. The high self-esteem and self-confidence of pregnant women would bring an appropriate interpersonal relationship.

5. Stress management

Mothers with adequate prenatal visits demonstrated better health practice concerning stress management than those with inadequate prenatal visits at a statistically significant level at $p<.01$ ($\bar{X}$ = 21.5, SD = 4.4 in the first group, comparing to $\bar{X}$ = 19.8, SD = 4.8; Table 4). This could be explained from the marital status of the sample, as higher percentage of the mothers with adequate prenatal visits were married, comparing to the percentage of mothers in the inadequate prenatal visits group. Therefore, the mothers in the first group were more likely to receive mental support, love, and help in various ways from the husbands, leading to effective stress management. On the contrary, the pregnant women who did not live with the husbands tended to have more stress. In addition, only 10 percent of the mothers in the adequate prenatal visits group were adolescents, comparing to 23.6 percent in the other group. Adolescent pregnant women do not have much life experience thus they are not able to

cope with stress as well as adult pregnant women and need more help, advice, and support. It is also found that the mothers in the adequate prenatal visits group had average income higher than those in the other group. Income is a significant factor for living. Inadequate family income may cause conflicts in family, leading to poor health care. This result is consistent with a study conducted by Brown (1986), which shows that support from spouse and stress are good predictors of health status. Liese (1989) also found that pregnant women who lived with their husbands would receive emotional, financial, and tangible support thus having positive psychological adaptation whereas pregnant women who did not live with the husbands received low level of social support, resulting in stress during pregnancy.

6. Spiritual growth

Mothers with adequate prenatal visits demonstrated better health practice concerning spiritual growth than those with inadequate prenatal visits at a statistically significant level at $p<.001$ ($\bar{X} = 25.3$, SD = 3.4 in the first group, comparing to $\bar{X} = 23.0$, SD = 4.2 in the latter group; Table 4). This could be explained from the results showing that 78.6 percent of the mothers with adequate prenatal visits had planned the pregnancy or intended to have the baby, whereas the corresponding number was only 49.3 percent in the inadequate prenatal visits group. With their intention to have the baby, the pregnant women felt pleased and happy with their pregnancy and had life goals. These reactions indicated their want of the baby and positive thinking about the baby. Moreover, their attendance of prenatal visits also reflected their positive feeling toward pregnancy. This finding is consistent with the results of studies conducted by Prakorbsup (1998) and Tanormroop (2000), which found fairly good level of health practice in pregnant women. Moreover, higher percentage of the mothers with adequate prenatal visits were married, comparing to mothers in the inadequate prenatal visits group; therefore, they might received more love and empathy from the husbands, who shared responsibilities of having the baby with them. Consequently, the women in this group felt highly spirited and had positive feeling toward themselves and other people.

Hypothesis 2: Mothers with adequate prenatal visits and mothers with inadequate prenatal visits have different pregnancy outcomes, i.e. gestational age at delivery, birth weight, 5-minute APGAR score, neonatal complication, and perinatal death.

1. Gestational age at delivery

The results reveal that the average gestational age at delivery of mothers with adequate prenatal visits was longer than that of the mothers with inadequate prenatal visits ($\bar{X}$ = 38.4 and $\bar{X}$ = 37.2, respectively) at a statistically significant level (t = 3.7, p<.001).

This could be explained from the better health practice of the mothers with adequate prenatal visits, which might lead to older period of pregnancy. Moreover, mothers with adequate prenatal visits were married, had higher family income, and had planned pregnancy at higher percentages than mothers in the inadequate prenatal visits group. These factors might contribute to lower level of stress. The husbands would provide the pregnant women with physical and mental support thus the women had improved stress coping, stable moods, and raised spirit due to the sense of having a reliable supporter, as well as the sense of self-worth and self-confidence. As a result, the women had motivation for health practice. High incomes enable individuals to answer to basic needs and to seek facilities better than those with low incomes. Moreover, adequate incomes can reduce mental and emotional stress. Despite an increase in expenses because of pregnancy, families with higher incomes tend to suffer less stress. For planned pregnancy, the mothers feel pleased and happy with the expected pregnancy, causing normal physical functions. Therefore, the pregnancy well proceeds, leading to longer gestational age at delivery, comparing to the results of mothers with inadequate prenatal visits. This finding of longer gestational age at delivery in mothers with adequate prenatal visits is consistent with the result of a study conducted by Boontanjai (1989), which found positive correlation between the number of prenatal visits and the gestational age at delivery.

2. Birth weight

This study found that the average birth weight of the babies whose mothers had adequate prenatal visits was higher than that of the babies whose mothers had

inadequate prenatal visits ($\bar{X}$ = 3015.6 and $\bar{X}$ = 2894.3, respectively) at a statistically insignificant level (t = 1.9, p>.05).

This could be explain from the finding that 60 percent of mothers in the inadequate prenatal visits group had successive pregnancy, as opposed to 46.4 percent of mothers with adequate prenatal visits. Women with successive pregnancy generally have higher BMI than those with first-time pregnancy, who are more likely to have nutritional storage in the body as evidenced in higher birth weight in successive infants, comparing to the birth weight of the first child. This result is in accord with a study conducted by Pongmetha (1989), which found lower birth weight in first-time mothers' infants comparing to the infants of successive pregnancies. Boontanjai (1989) also found that the order of pregnancy has significant correlation with birth weight. This reason may account for insignificant difference in the average birth weights of infants from mothers in both groups of this study.

The result of this study is consistent with Jiamamornrat's study (1998), which did not find any significant difference in the birth weights of infants whose mothers had at least four prenatal visits and of those whose mothers had less than four prenatal visits. However, it is not consistent with a study conducted by Chumnijarakiz (1988) who found that lack of prenatal care or having less than four or equal to four visits increases the mother's risk of low birth weight by 2.3 and 1.6 times, respectively. Pimjaipong and associates (1988) also found that the average birth weight of infants whose mothers had at least four prenatal visits was significantly higher than the average birth weight of babies whose mothers had prenatal visits less than four times.

3. 5-minute APGAR score

This study found no difference between the average 5-minute APGAR score of infants of mothers with adequate prenatal visits and the corresponding score of infants of mothers with inadequate prenatal visits ($\bar{X}$ = 9.8 in both groups; t = 0.9, p>.05).

This result may be due to insignificant difference in the birth weights of the infants of mothers in both groups, thus similar health status of the infants. Moreover, the mothers in this study lived in urban area and they should be able to have self-care during pregnancy at a certain level, resulting in no difference in the infants' health status.

4. Complication at birth (admitted to NICU and perinatal death)

This study found that the neonates of the mothers with inadequate prenatal visits had significantly higher complication at birth than those of the ones with adequate prenatal visits (χ^2 = 8.1, p<.05). The result could be explained that the mothers with adequate prenatal visits had enough information and advice from health personnels to self-care and promote their health. They could have early detection of some health deviation and could be treated earlier than those with inadequate prenatal visits. This leaded both the mothers and their babies in adequate prenatal visits were more healthier and had less complication at birth than those with inadequate prenatal visits.

CHAPTER VI
CONCLUSION

Summary of the Study

This study is a descriptive research aiming to compare health practice during pregnancy and pregnancy outcomes of mothers with adequate prenatal visits with those of mothers with inadequate prenatal visits. The research framework was on literature review.

The sample of this study was composed of 280 postpartum women receiving care from the Postpartum Ward, Taksin Hospital from March to June 2004, selected with purposive sampling method on the basis of inclusion criteria previously determined by the researcher.

Research instrument consisted of an interview questionnaire for personal information, record of data concerning the pregnancy and the delivery obtained from the hospital's medical record, and a questionnaire investigating health practice during pregnancy. The confirmed data were analysed with statistical method and data concerning personal information were expressed in percentage terms. Age, income, score of health practice during pregnancy, 5-minute APGAR score, birth weight, and gestational age at delivery were calculated for mean and standard deviation. The characteristics of sample in the adequate and inadequate prenatal visits groups were compared. T-test was used for the comparison of interval or ratio data such as age, education level, family income, health practice during pregnancy, gestational age at delivery, birth weight, and 5-minute APGAR score and χ^2-test was used with group data, including marital status, adequacy of income, pregnancy planning, reception of knowledge, gravidity, parity, type of delivery, complications during and after the delivery, and complication at birth. The correlation between adequacy of prenatal visits and preterm birth, low birth weight, and 5-minute APGAR score at birth (<7) were examined with χ^2-test.

Findings

1. Personal information of the sample

The largest proportion of mothers with adequate prenatal visits were aged between 20-34 years (82.9%), followed by those younger than 20 years old (10%). Almost all the mothers in this group were married (99.3%), 52.1 percent were educated lower than secondary level, and 55.7 percent were employees. For mothers with inadequate prenatal visits, 68.6 percent of them were aged between 20-34 years, followed by younger than 20 years old (23.6%), and 35 years or older (19.3%). The majority of the mothers were married (93.6%), had education lower than secondary level (56.4%), and worked as employees (48.6%).

The comparison of data concerning age, and income with t-test shows higher results in the adequate prenatal visits group in comparison with the inadequate prenatal visits group at statistically significant levels ($p<.01$, and .001, respectively). For marital status, pregnancy planning, gestational age at delivery and complications during pregnancy, data of the two groups were compared with χ^2–test and the results show larger proportion of mothers in the adequate prenatal visits group with married status, planned pregnancy, and first-time pregnancy at statistically significant levels ($p <.05$, .001, .01, and .001 respectively). However, smaller proportion of mothers in the inadequate prenatal visits group had primigravida at a statistically insignificant level ($p>.05$), comparing to mothers in the inadequate prenatal visits group.

The average score of overall health practice during pregnancy of mothers with adequate prenatal visits was 145.2 whereas the corresponding result of the inadequate prenatal visits group was 130.6. The comparison of these results with t-test demonstrated that mothers with adequate prenatal visits had better health practice than those with inadequate prenatal visits at a statistically significant level ($p<.001$).

For each domain of health practice, mothers with adequate prenatal visits demonstrated better practice than those with inadequate prenatal visits in the domain of nutrition, health responsibility, interpersonal relationship, stress management, and spiritual growth at statistically significant level ($p<.001$, .001, .001, .01, and .001, respectively). Nevertheless, the practice concerning physical activity and exercise of mothers in the adequate prenatal visits group was insignificantly better than the practice of those with inadequate prenatal visits ($p>.05$).

The examination of pregnancy outcomes, i.e. gestational age at delivery, infants' birth weight, 5-minute APGAR score and complication at birth, with χ^2-test revealed significantly older gestational age at delivery and complication at birth of mothers with adequate prenatal visits ($p<.001$, and $<.05$ respectively), whereas the average infants' birth weight and 5-minute APGAR score of the two groups were insignificantly different ($p>.05$).

Implication and Recommendations

For nursing practice

1. This study found that the health practice concerning physical activity and exercise of mothers in the adequate prenatal visits group was insignificantly better than the practice of those with inadequate prenatal visits ($p>.05$). Therefore, nurses in prenatal clinics should provide more information about exercise during pregnancy. In addition, nurses should be aware of the importance of health education. Health promoting program may be organized for young pregnant with low income, not living with husband, having multigravida and/ or unintended pregnancy. They should also promote pregnant women's awareness of the importance of prenatal visits so that the women will receive knowledge and apply it to maintain healthy condition during pregnancy.

2. This study found that 14.3 percent of mothers with adequate prenatal visits and 17.9 percent of those with inadequate prenatal visits had infants with birth weight lower than 2,500 gram. These numbers are higher than the target set by the Ministry of Public Health, which aims to decrease the prevalence of infants with birth weight lower than 2,500 gram to less than seven percent. Nurses in prenatal clinics, therefore, should take active role in providing knowledge and advice and in promoting health condition of pregnant women in order to increase the infants' birth weight and to achieve the target set by the Ministry, eventually.

For further studies

There should be experimental research with activities or health promotion programs designed for pregnant women with an objective to promote good pregnancy outcomes.

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APPENDIX

APPENDIX A
LIST OF EXPERTS

There are five experts who have validated the content of research instrument. They are:

1. Asst. Prof. Dr. Dittakarn Boriboonhirunsarn,
Department of Obstetrics and Gynecology, Faculty of Medicine,
Mahidol University
2. Assoc. Prof. Yuwadee Wattananon,
Department of Obstetric and Gynecologic Nursing, Faculty of Nursing,
Mahidol University
3. Assoc. Prof. Sirirat Sukeethorn,
Department of Obstetric and Gynecologic Nursing, Faculty of Nursing,
Mahidol University
4. Asst. Prof. Thitima Jampeerat,
Department of Obstetric and Gynecologic Nursing, Faculty of Nursing,
Mahidol University
5. Dr. Nantawon Suwonnaroop,
Department of Public Nursing, Faculty of Nursing,
Mahidol University

APPENDIX B
PERMISSION OF DATA COLLECTING

เอกสารเลขที่...พ...29.....

เอกสารรับรองโครงการวิจัยในคน

คณะกรรมการพิจารณาและควบคุมการวิจัยในคนของกรุงเทพมหานคร

ขอรับรองว่า

โครงการ : เปรียบเทียบพฤติกรรมสุขภาพในระยะตั้งครรภ์และผลลัพธ์ของการตั้งครรภ์ระหว่างมารดากลุ่มที่ฝากครรภ์ครบและกลุ่มที่ฝากครรภ์ไม่ครบตามเกณฑ์ : กรณีศึกษา โรงพยาบาลตากสิน

โครงการเลขที่ : 0002.47

ชื่อหัวหน้าโครงการ : นางสาวลักขณา อมรประกาศ

สังกัด : โรงพยาบาลตากสิน สำนักการแพทย์ กรุงเทพมหานคร

โครงการได้มาตรฐานทางวิชาการ ไม่ขัดต่อหลักจริยธรรมสากล และเป็นไปตามคำประกาศเฮลซิงกิ

จึงเห็นสมควรให้ดำเนินการวิจัยในขอบข่ายของโครงการที่เสนอได้ ณ วันที่ 16.. กุมภาพันธ์...2547

ลงชื่อ .....

(นายปิตินันท์ ณัฐรุจิโรจน์)

รองปลัดกรุงเทพมหานคร

ประธานคณะกรรมการพิจารณาและควบคุมการวิจัยในคน

ของกรุงเทพมหานคร

APPENDIX C

CONSENT FORM

หนังสือให้ความยินยอมเข้าร่วมในโครงการวิจัย

ทำที่.....

วันที่.....

ข้าพเจ้า.....อายุ.....ปี อยู่บ้านเลขที่.....

ถนน.....หมู่ที่.....แขวง/ตำบล.....เขต/อำเภอ.....จังหวัด.....

ขอทำหนังสือนี้ให้ไว้ต่อหัวหน้าโครงการวิจัยเพื่อเป็นหลักฐานแสดงว่า

ข้อ 1. ข้าพเจ้าได้รับทราบโครงการวิจัยของ (หัวหน้าผู้วิจัยและคณะ).....

เรื่อง.....

.....

ข้อ 2. ข้าพเจ้ายินยอมเข้าร่วมโครงการวิจัยนี้ด้วยความสมัครใจ โดยมิได้มีการบังคับ ชู่เข็ญ หลอกลวงแต่ประการใด และพร้อมจะให้ความร่วมมือในการวิจัย

ข้อ 3. ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยเกี่ยวกับวัตถุประสงค์ของการวิจัย วิธีการวิจัย ประสิทธิภาพความปลอดภัย อาการ หรืออันตรายที่อาจเกิดขึ้น รวมทั้งประโยชน์ที่จะได้รับจากการวิจัย โดยละเอียดแล้วจากเอกสารการวิจัยที่แนบท้ายหนังสือให้ความยินยอมนี้

ข้อ 4. ข้าพเจ้าได้รับการรับรองจากผู้วิจัยว่า จะเก็บข้อมูลส่วนตัวของข้าพเจ้าเป็นความลับ จะเปิดเผยเฉพาะผลสรุปการวิจัยเท่านั้น

ข้อ 5. ข้าพเจ้าได้รับทราบจากผู้วิจัยแล้วว่าหากมีอันตรายใด ๆ ในระหว่างการวิจัยหรือภายหลังการวิจัยอันพิสูจน์ได้จากผู้เชี่ยวชาญของสถาบันที่ควบคุมวิชาชีพนั้น ๆ ได้ว่าเกิดขึ้นจากการวิจัยดังกล่าว ข้าพเจ้าจะได้รับการดูแลและค่าใช้จ่ายในการรักษาพยาบาลจากผู้วิจัยและ/หรือผู้สนับสนุนการวิจัย และจะได้รับค่าชดเชยรายได้ที่สูญเสียไปในระหว่างการรักษาพยาบาลดังกล่าวตามมาตรฐานค่าแรงขั้นต่ำตามกฎหมาย ตลอดจนมีสิทธิได้รับค่าทดแทนความพิการที่อาจเกิดขึ้นจากการวิจัยตามมาตรฐานค่าแรงขั้นต่ำตามกฎหมายและในกรณีที่ข้าพเจ้าได้รับอันตรายจากการวิจัยถึงแก่ความตาย ทายาทของข้าพเจ้ามีสิทธิได้รับค่าชดเชยและค่าทดแทนดังกล่าวจากผู้วิจัยและ/หรือผู้สนับสนุนการวิจัยแทนตัวข้าพเจ้า

ข้อ 6. ข้าพเจ้าได้รับทราบว่า ข้าพเจ้ามีสิทธิจะบอกเลิกการร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการร่วมโครงการวิจัยจะไม่มีผลกระทบต่อการได้รับบริการค่าใช้จ่าย ค่าชดเชยและค่าทดแทนตามข้อ 5 ทุกประการ

ข้อ 7. หัวหน้าผู้วิจัยได้อธิบายเกี่ยวกับรายละเอียดต่าง ๆ ของโครงการ ตลอดจนประโยชน์ของการวิจัย รวมทั้งความเสี่ยงและอันตรายต่าง ๆ ที่อาจจะเกิดขึ้นในการเข้าโครงการนี้ให้ข้าพเจ้าได้ทราบ และตกลงรับผิดชอบตามคำรับรองในข้อ 5 ทุกประการ

ข้าพเจ้าได้อ่านและเข้าใจข้อความตามหนังสือนี้โดยตลอดแล้ว เห็นว่าถูกต้องตามเจตนาของข้าพเจ้า จึงได้ลงรายมือชื่อไว้เป็นสำคัญ พร้อมกับหัวหน้าผู้วิจัยและต่อหน้าพยาน

ลงชื่อ.....ผู้ยินยอม

(.....)

ลงชื่อ..... หัวหน้าผู้วิจัย

(.....)

ลงชื่อ.....พยาน

(.....)

ลงชื่อ.....พยาน

(.....)

หมายเหตุ 1) กรณีผู้ยินยอมตนให้ทำวิจัย ไม่สามารถอ่านหนังสือได้ ให้ผู้วิจัยอ่านข้อความในหนังสือให้ความยินยอมนี้ ให้แก่ผู้ยินยอมให้ทำวิจัยฟังจนเข้าใจดีแล้ว และให้ผู้ยินยอมตนให้ทำวิจัยลงนาม หรือพิมพ์ลายนิ้วหัวแม่มือรับทราบในการให้ความยินยอมดังกล่าวด้วย

2) ในกรณีผู้ให้ความยินยอมมีอายุไม่ครบ 20 ปีบริบูรณ์ จะต้องมีผู้ปกครองตามกฎหมายเป็นผู้ให้ความยินยอมด้วย

APPENDIX D
INSTRUMENTS

แบบสัมภาษณ์ข้อมูลส่วนบุคคล

คำชี้แจง ให้ผู้สัมภาษณ์เติมข้อความที่ได้จากการสัมภาษณ์มารดาหลังคลอดลงในช่องว่าง และทำเครื่องหมาย ✓ ลงใน ( ) ตามที่มารดาหลังคลอดเลือกตอบ

1. ปัจจุบันท่านอายุ……..ปี …….เดือน
2. การศึกษาชั้นสูงสุดของท่านคือ…….
3. รายได้ของครอบครัวประมาณ…….บาท / เดือน
   ( ) พอใช้ ( ) ไม่พอใช้
4. ท่านประกอบอาชีพ
   ( ) รับจ้าง / ลูกจ้าง ( ) ค้าขาย / ธุรกิจขนาดเล็ก ( ) เกษตรกรรม
   ( ) รับราชการ / รัฐวิสาหกิจ / ทำงานบริษัท ( ) ไม่ได้ทำงาน ( ) อื่นๆ (ระบุ)…
5. สถานภาพสมรส
   ( ) คู่ / อยู่กับสามี ( ) หม้าย / หย่า / แยก
6. ท่านตั้งใจที่จะมีบุตรคนนี้หรือไม่
   ( ) ตั้งใจ ( ) ไม่ได้ตั้งใจ เหตุผลเพราะ…….
7. ท่านเคยได้รับความรู้เกี่ยวกับการปฏิบัติตนในระยะตั้งครรภ์หรือไม่
   ( ) ไม่เคย
   ( ) เคย ได้รับจาก (ตอบได้มากกว่า 1 ข้อ)
      ( ) สื่อต่างๆ เช่น วิทยุ โทรทัศน์ หนังสือ วารสาร
      ( ) แพทย์
      ( ) พยาบาล
      ( ) เพื่อน ญาติ
      ( ) อื่นๆ (ระบุ)……..
8. ในการตั้งครรภ์ครั้งนี้ท่านฝากครรภ์หรือไม่
   ( ) ฝากครรภ์
   (ถ้าฝากครรภ์น้อยกว่า 4 ครั้ง) เหตุผลที่ไม่ได้มาตรวจตามนัด เพราะ …….
   ( ) ไม่ฝากครรภ์เลย
      เหตุผลที่ไม่มาฝากครรภ์ เพราะ…….
9. ปัจจุบันสามีของท่านอายุ……..ปี ……..เดือน
10. การศึกษาชั้นสูงสุดของสามีของท่านคือ…….

แบบบันทึกข้อมูลการตั้งครรภ์และการคลอด

ประวัติการตั้งครรภ์ และการคลอด

1. ฝากครรภ์ครั้งแรกเมื่ออายุครรภ์……สัปดาห์
   จำนวนครั้งของการฝากครรภ์…….. ครั้ง
2. การตั้งครรภ์ครั้งนี้เป็นครรภ์ที่…… การคลอดครั้งนี้เป็นครั้งที่……
3. ประวัติการแท้งบุตร
   ( ) ไม่มี ( ) มี จำนวน……ครั้ง
4. ประวัติการคลอดก่อนกำหนด
   ( ) ไม่มี ( ) มี จำนวน……ครั้ง
5. ภาวะแทรกซ้อนในขณะตั้งครรภ์
   ( ) ไม่มี ( ) มี (ระบุ)……
6. ภาวะแทรกซ้อนในระยะคลอด
   ( ) ไม่มี ( ) มี (ระบุ)……
7. ภาวะแทรกซ้อนในระยะหลังคลอด
   ( ) ไม่มี ( ) มี (ระบุ)……
8. อายุครรภ์เมื่อคลอด……สัปดาห์
9. วิธีการคลอด
   ( ) NL ( ) V/E
   ( ) F/E ( ) C/S
10. น้ำหนักทารกแรกเกิด……กรัม
11. คะแนนสภาพทารกแรกเกิด (APGAR score) นาทีที่ 5 เท่ากับ ……คะแนน
12. ภาวะแทรกซ้อนของทารกเมื่อคลอด (ทารกได้รับการรักษาใน NICU และทารกตายปริกำเนิด)
    ( ) ไม่มี ( ) มี (ระบุ)……

แบบสอบถามพฤติกรรมสุขภาพในระยะตั้งครรภ์

คำชี้แจง แบบสอบถามชุดนี้ประกอบด้วยข้อคำถามจำนวน 36 ข้อ ขอให้ท่านพิจารณาว่าในระยะตั้งครรภ์ (3 เดือนสุดท้ายก่อนคลอด) ท่านได้ปฏิบัติกิจกรรมด้านสุขภาพตามข้อความนั้นๆ มากน้อยเพียงใด กรุณาตอบแบบสอบถามตามความเป็นจริง คำตอบของท่านไม่มีถูกหรือผิด และจะสรุปออกมาเป็นส่วนรวม เพื่อนำไปเป็นแนวทางในการวางแผนการให้บริการการฝากครรภ์ให้มีคุณภาพดียิ่งขึ้น

โปรดอ่านข้อความแต่ละข้อแล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความเป็นจริงตามความรู้สึก ความคิดเห็น หรือการปฏิบัติของท่านมากที่สุด ขอให้ท่านเลือกตอบเพียงคำตอบเดียว และกรุณาตอบทุกข้อ การเลือกตอบจะถือเกณฑ์ ดังนี้

การปฏิบัติตนด้านโภชนาการ การเลือกตอบจะถือเกณฑ์ ดังนี้

ไม่เคยปฏิบัติเลย หมายถึง ท่านไม่เคยรับประทานอาหารตามข้อความนั้นๆ เลย

ปฏิบัตินานๆ ครั้ง หมายถึง ท่านรับประทานอาหารตามข้อความนั้นๆ เพียง 1-2 วัน ในหนึ่ง สัปดาห์

ปฏิบัติเป็นบางครั้ง หมายถึง ท่านรับประทานอาหารตามข้อความนั้นๆ เพียง 3-4 วัน ในหนึ่งสัปดาห์

ปฏิบัติบ่อยๆ หมายถึง ท่านรับประทานอาหารตามข้อความนั้นๆ เพียง 5-6 วัน ในหนึ่ง สัปดาห์

ปฏิบัติเป็นประจำ หมายถึง ท่านรับประทานอาหารตามข้อความนั้น ทุกวัน

ตัวอย่าง

ข้อความ	ไม่เคยปฏิบัติเลย	ปฏิบัติ 1-2 วันต่อสัปดาห์	ปฏิบัติ 3-4 วันต่อสัปดาห์	ปฏิบัติ 5-6 วันต่อสัปดาห์	ปฏิบัติทุกวัน
1. ฉันรับประทานอาหารครบ 3 มื้อ					✓
2. ฉันรับประทานไข่		✓			

ข้อความ	ไม่เคยปฏิบัติเลย	ปฏิบัติ 1-2 วันต่อสัปดาห์	ปฏิบัติ 3-4 วันต่อสัปดาห์	ปฏิบัติ 5-6 วันต่อสัปดาห์	ปฏิบัติทุกวัน
1. ฉันรับประทานอาหารประเภทข้าว หรือแป้ง เนื้อสัตว์ ผัก และผลไม้ ได้ครบถ้วน					
…….					
10. ฉันรับประทานวิตามิน และยาบำรุงในขณะตั้งครรภ์ ตามคำแนะนำของแพทย์หรือพยาบาล					

การปฏิบัติตนด้านความรับผิดชอบต่อสุขภาพ ด้านการทำกิจกรรมและการออกกำลังกาย ด้านสัมพันธภาพระหว่างบุคคล ด้านการจัดการกับความเครียด และด้านพัฒนาการทางจิตวิญญาณ การเลือกตอบจะถือเกณฑ์ดังนี้

ไม่เป็นจริงเลย หมายถึง ข้อความในประโยคนั้นไม่ตรงกับความรู้สึก หรือความคิดเห็น ของท่านเลย หรือท่านไม่เคยปฏิบัติเลย

เป็นจริงเล็กน้อย หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึก หรือความคิดเห็นของท่านเล็กน้อย หรือท่านปฏิบัตินานๆ ครั้ง

เป็นจริงปานกลาง หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึก หรือความคิดเห็นของท่านเพียงครึ่งหนึ่ง หรือท่านปฏิบัติเป็นบางครั้ง

เป็นจริงส่วนมาก หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึก หรือความคิดเห็นของ ท่านเป็นส่วนมาก หรือท่านปฏิบัติเป็นส่วนมาก

เป็นจริงมากที่สุด หมายถึง ข้อความในประโยคนั้นตรงกับความรู้สึก หรือความคิดเห็นของท่านมากที่สุด หรือท่านปฏิบัติเป็นประจำ

ตัวอย่าง

ข้อความ	ไม่เป็นจริงเลย/ไม่เคยปฏิบัติเลย	เป็นจริงเล็กน้อย/ปฏิบัตินานๆ ครั้ง	เป็นจริงปานกลาง/ปฏิบัติบางครั้ง	เป็นจริงส่วนมาก/ปฏิบัติบ่อยๆ	เป็นจริงมากที่สุด/ปฏิบัติเป็นประจำ
1. ฉันมาตรวจครรภ์ตามนัด				✓	
2. ฉันออกกำลังกาย					✓

ข้อความ	ไม่เป็นจริงเลย/ไม่เคยปฏิบัติเลย	เป็นจริงเล็กน้อย/ปฏิบัตินานๆ ครั้ง	เป็นจริงปานกลาง/ปฏิบัติบางครั้ง	เป็นจริงส่วนมาก/ปฏิบัติบ่อยๆ	เป็นจริงมากที่สุด/ปฏิบัติเป็นประจำ
11. ฉันหาความรู้เกี่ยวกับการดูแล สุขภาพจากการอ่านหนังสือ ดูโทรทัศน์ หรือสอบถามจากคนที่รู้เรื่อง					
……..					
36. ขณะตั้งครรภ์ฉันยึดหลักปฏิบัติตามคำสอนทางศาสนา เช่น ถือศีล 5 (ศาสนาพุทธ) รักเพื่อนมนุษย์ เหมือนรักตนเอง (ศาสนาคริสต์) หรือ ยึดหลักฟัลด์ดูร (ศาสนาอิสลาม)					

APPENDIX E
ADDITIONAL FINDING

Table 7 Number and percentage of the sample and the husbands of the sample classified by age and income.

Characteristics of the sample	Adequate prenatal visits ($n_1 = 140$) $\bar{X}$(SD)	Inadequate prenatal visits ($n_2 = 140$) $\bar{X}$(SD)	t–test
Age (years)	26.2(5.2)	24.4(5.9)	2.7 **
Age of husband (years)	29.9(6.7)	28.2(7.7)	1.96 NS
Family income per month (baht)	9,885(4,440)	7,700(4,246)	4.2 ***

**p<.01; ***p<.001; NS = Non–significance (p>.05)

Table 8 Number and percentage of the sample, classified by marital status, education level, adequacy of income, pregnancy planning, knowledge reception, gravidity, parity, type of delivery, complications during pregnancy, delivery, and postpartum complications.

Characteristics of the sample	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)		χ^2 –test
	Number	%	Number	%	
Marital status					6.6, p<.05
Married/ lived with husband	139	99.3	131	93.6	
Divorced/ Widowed/ Separated	1	0.7	9	6.4	
Education level					.5, p>.05
Lower than high-school level	73	52.1	79	56.4	
High-school level or higher	67	47.9	61	43.6	
Adequacy of income					2.9, p>.05
Adequate	90	64.3	76	54.3	
Inadequate	50	35.7	64	45.7	
Pregnancy planning					26.0, p<.001
Yes	110	78.6	69	49.3	
No	30	21.4	71	50.7	
Knowledge reception					11.9, p<.01
Received knowledge	139	99.3	126	90	
Never received knowledge	1	0.7	14	10	

Table 8 Number and percentage of the sample, classified by marital status, education level, adequacy of income, pregnancy planning, knowledge reception, gravidity, parity, type of delivery, complications during pregnancy, delivery, and postpartum complications (Continued).

Characteristics of the sample	Adequate prenatal visits (n_1 = 140)		Inadequate prenatal visits (n_2 = 140)		χ^2 –test
	Number	%	Number	%	
Gravidity					.98, p>.05
Primigravida	56	40	48	34.3	
Multigravida	84	60	92	65.7	
Parity					5.2, p<.05
Primipara	75	53.6	56	40	
Multipara	65	46.4	84	60	
Type of delivery					.5, p>.05
Normal	119	85	123	87.9	
Obstetrical operation	21	15	17	12.1	
Complications during pregnancy					28.7, p<.001
Yes	16	11.4	55	39.3	
No	124	88.6	85	60.7	
Complications during delivery					.7, p>.05
Yes	14	10	10	7.1	
No	126	90	130	92.9	
Postpartum complications					.2, p>.05
Yes	2	1.4	3	2.1	
No	138	98.6	137	97.9	

Table 9 Mean and standard deviation of the score of health practice during pregnancy, classified by each item of health promoting lifestyle.

Health practice during pregnancy	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)	
	$\bar{X}$	SD	$\bar{X}$	SD
1. ฉันรับประทานอาหารประเภทข้าว หรือแป้ง เนื้อสัตว์ ผัก และผลไม้ ได้ครบถ้วน	4.09	1.04	3.70	1.26
2. ฉันดื่มชา กาแฟ โค้ก เป๊ปซี่ หรือ เครื่องดื่มบำรุงกำลัง	3.99	1.04	3.56	1.30
3. ฉันดื่มเครื่องดื่มที่มีแอลกอฮอล์	4.94	.31	4.87	.51
4. ฉันรับประทานอาหารมันๆ หรือ อาหารรสหวานๆ เช่น ข้าวขาหมู เม็ดขนุน ทองหยอด	3.70	.96	3.61	1.07
5. ฉันรับประทานอาหารประเภท เนื้อสัตว์ นม ถั่ว ไข่ เพิ่มขึ้น ในขณะ ตั้งครรภ์	3.89	1.11	3.19	1.21
6. ฉันรับประทานผัก และผลไม้เพิ่มขึ้น ในขณะตั้งครรภ์	3.79	1.07	3.49	1.18
7. ฉันดื่มน้ำอย่างน้อยวันละ 8 แก้ว	4.43	1.04	3.84	1.30
8. ฉันดื่มนมอย่างน้อยวันละ 2 แก้ว	3.99	1.25	3.09	1.37
9. ฉันรับประทานอาหารเช้า	4.69	.77	4.40	1.18
10. ฉันรับประทานวิตามิน และยาบำรุง ในขณะตั้งครรภ์ ตามคำแนะนำของ แพทย์ หรือพยาบาล	4.65	.79	3.16	1.73

Table 9 Mean and standard deviation of the score of health practice during pregnancy, classified by each item of health promoting lifestyle (Continued).

Health practice during pregnancy	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)	
	$\bar{X}$	SD	$\bar{X}$	SD
11. ฉันหาความรู้เกี่ยวกับการดูแล สุขภาพจากการอ่านหนังสือ ดูโทรทัศน์ หรือสอบถามจากคนที่รู้เรื่อง	3.43	.98	2.93	1.09
12. ฉันสังเกตการเปลี่ยนแปลงของร่างายในขณะตั้งครรภ์ เช่น ขนาดครรภ์ ขนาดเต้านม หรือการดิ้นของลูก	4.45	.75	4.08	1.00
13. ฉันคอยสังเกตอาการผิดปกติ ที่อาจเกิดขึ้นในขณะตั้งครรภ์ เช่น มีเลือดออกมีน้ำเดิน ลูกดิ้นน้อยลง	4.45	.89	3.78	1.24
14. ฉันไปตรวจสุขภาพฟันกับทันตแพทย์ในขณะตั้งครรภ์	1.78	1.25	1.47	1.00
15. ขณะตั้งครรภ์เมื่อฉันลุกขึ้นยืน เดิน หรือนั่ง ฉันจะเปลี่ยนท่าทางด้วยความระมัดระวัง	4.26	1.03	3.70	1.20
16. ฉันออกกำลังกาย เช่น เดิน ว่ายน้ำ หรือออกกายบริหารวันละ 20-30 นาที	2.70	1.34	2.31	1.29
17. ฉันเต้นแอโรบิค หรือทำงานหนัก	4.51	1.01	4.34	1.19
18. ฉันนอนหลับสนิทเพียงพอคืนละ 7-8 ชั่วโมง	3.78	1.20	3.67	1.18
19. ฉันทำงานโดยนั่ง หรือยืนอยู่ในท่าเดียวนานๆ	3.46	1.31	3.30	1.46
20. ขณะตั้งครรภ์ฉันได้นั่งหรือนอนพักในเวลากลางวันประมาณ ครึ่งถึงหนึ่งชั่วโมง	3.54	1.39	3.64	1.39

Table 9 Mean and standard deviation of the score of health practice during pregnancy, classified by each item of health promoting lifestyle (Continued).

Health practice during pregnancy	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)	
	$\bar{X}$	SD	$\bar{X}$	SD
21. ในขณะตั้งครรภ์ ฉันและสามีพูดคุยเกี่ยวกับลูกที่จะเกิดมา	4.21	.99	3.47	1.29
22. ในขณะตั้งครรภ์ สามีและสมาชิกในบ้านเต็มใจที่จะให้ความช่วยเหลือฉัน	4.40	.93	3.98	1.08
23. ในขณะตั้งครรภ์ สามีและสมาชิกในครอบครัวแสดงความห่วงใยฉัน	4.41	.83	3.91	1.06
24. ในขณะตั้งครรภ์ เพื่อนๆ ให้ความเอาใจใส่ และดูแลฉัน	3.50	1.10	3.09	1.20
25. ในขณะตั้งครรภ์ ฉันแสดงความรักและเอาใจใส่ผู้อื่น	3.26	.99	3.21	1.05
26. ในขณะตั้งครรภ์ ฉันมีเวลาเป็นส่วนตัวที่จะทำในสิ่งที่ตัวเองอยากทำ	3.23	1.20	2.99	1.17
27. ในขณะตั้งครรภ์ ฉันปรับความเข้าใจและประนีประนอมเมื่อมีปัญหา หรือขัดแย้งกับผู้อื่น	3.31	1.13	30.4	1.30
28. ในขณะตั้งครรภ์ เมื่อฉันต้องการความช่วยเหลือ ฉันสามารถขอความช่วยเหลือจากคนในครอบครัว หรือเพื่อนได้	3.99	.93	3.59	1.26
29. ในขณะตั้งครรภ์ เมื่อฉันมีเรื่องไม่สบายใจ ฉันจะมีวิธีการผ่อนคลาย เช่น พูดระบายความรู้สึกให้คนใกล้ชิดฟัง หรือฟังเพลง หรือดูโทรทัศน์	4.06	.94	3.78	1.13

Table 9 Mean and standard deviation of the score of health practice during pregnancy, classified by each item of health promoting lifestyle (Continued).

Health practice during pregnancy	Adequate prenatal visits ($n_1 = 140$)		Inadequate prenatal visits ($n_2 = 140$)	
	$\bar{X}$	SD	$\bar{X}$	SD
30. ในขณะตั้งครรภ์ ฉันแบ่งเวลาระหว่างการทำงานกับการพักผ่อนให้เหมาะสม เพื่อไม่ให้เหนื่อยล้าเกินไป	3.64	1.15	3.41	1.22
31. ในขณะตั้งครรภ์ ฉันมีเป้าหมายในชีวิต เช่น การทำงาน เก็บเงิน เลี้ยงลูก	4.33	.84	4.09	1.07
32. ในขณะตั้งครรภ์ ฉันรู้สึกพอใจในสภาพที่เป็นอยู่	3.87	.97	3.43	1.18
33. ขณะตั้งครรภ์ ฉันทำจิตใจให้สดชื่นแจ่มใสเพื่อสุขภาพของฉัน และลูกในท้อง	4.19	.89	3.70	1.15
34. ขณะตั้งครรภ์ ฉันมีความสุขกับการที่จะได้เป็นแม่ของลูก	4.70	.61	4.18	.98
35. ขณะตั้งครรภ์ ฉันตั้งใจจะทำสิ่งที่ดีที่สุดให้กับลูก	4.70	.60	4.43	.80
36. ขณะตั้งครรภ์ฉันยึดหลักปฏิบัติตามคำสอนทางศาสนา เช่น ถือศีล 5 (ศาสนาพุทธ) รักเพื่อนมนุษย์ เหมือนรักตนเอง (ศาสนาคริสต์) หรือ ยึดหลักฟัลด์ดูร (ศาสนาอิสลาม)	3.55	1.13	3.19	1.22

BIOGRAPHY

NAME	Miss. Luckana Amornprakas
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