

**EFFECTIVENESS OF COMPUTER ASSISTED INSTRUCTION
(CAI) ABOUT BREASTFEEDING DURING THE EARLY
STAGES OF LABOUR ON KNOWLEDGE AND
BREASTFEEDING BEHAVIOR IN PRIMIPAROUS
ADOLESCENT MOTHERS**

The logo of Mahidol University is a large, circular emblem in the background. It features a central golden stupa-like structure with a flame-like base, set against a light blue circular field. The emblem is surrounded by a golden border containing Thai script. The name 'WATTANA NANTHAKASIKORN' is printed in black, bold, uppercase letters across the center of the emblem.

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**A THESIS SUBMITTED IN PARTIAL FULLFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF NURSING SCIENCE
(MATERNAL AND NEWBORN NURSING)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**

2008

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ACKNOWLEDGEMENTS

I would like to express my sincere gratitude and deep appreciation to my major advisor, Assistant Professor Dr. Yaowalak Serisathien, for her kind guidance, valuable advice, supervision, and encouragement throughout the study. I am also extremely grateful to my co-advisor, Assistant Professor Dr. Ameporn Ratinthorn and Associate Professor Pharuhas Chanprapaph, for their constructive comments, support and presence which made my endeavor achievable. I am equally grateful to Associate Professor Pornsri Sriussadaporn and Assistant Professor Dr. Ratsiri Thato, for her valuable comments and guidance in the capacity of my co-advisor.

Many thanks also goes to the experts who kindly examined this research instrument for validity, valuable suggestions and comments. I am deeply indebted to Lect. Naiyana Khadking for her guidance in the formation of the computer assisted instruction and for offering spiritual support. I am extremely grateful to Mrs. Patcharin Saleepalin, Head and staffs of the Labour Ward, who have always provided me with support and encouragement which facilitated all of the processes regarding my graduate studies.

Further, heartfelt thanks go to the director of Siriraj Hospital as well as the Head and staffs of the Postpartum Unit for helping to facilitate data collection. Most importantly, I would like to thank all of the adolescent mothers participating in this study who greatly contributed to the accomplishment of the research objectives.

I would like to express deepest gratitude to all of my teachers for providing my education. Finally, I am grateful to my parents, my husband, my dear son, and my friends for their continued love and support. I especially thank them for the encouragement and understanding they have given me throughout my study.

Wattana Nanthakasikorn

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ABSTRACT

This research was a pretest-posttest control group design aimed at investigating the effectiveness of computer assisted instruction (CAI) about breastfeeding during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers. The sample composed of 50 primiparous adolescent mothers who gave birth and received antenatal care at Siriraj Hospital. The sample was selected by simple random sampling and divided into experimental and control groups, with 25 subjects in each group. The samples in the control group received only routine nursing care, whereas those in the experimental group participated in CAI about breastfeeding in combination with routine nursing care. Data were collected by a Personal Data Questionnaire, the Knowledge of Breastfeeding Questionnaire and the Breastfeeding Behavior Observation form. The data obtained was then analyzed by independent samples t-test.

The findings showed that the mean posttest knowledge of breastfeeding scores in the experimental group after CAI was higher than the pretest scores before CAI at a statistically significant level ($P < .001$). Furthermore, the mean knowledge of breastfeeding scores in the experimental group was higher than those who received only routine nursing care, at a statistically significant level ($P < .001$). Finally, the mean of breastfeeding behavior scores in the experimental group was higher than those who received only routine nursing care, at a statistically significant level ($P < .001$).

The results suggest that nurses in the labour room who are involved in breastfeeding promotion should apply this CAI to continuously promote successful breastfeeding in adolescent mothers during early labour and through the postpartum period.

KEY WORDS: COMPUTER ASSISTED INSTRUCTION / KNOWLEDGE /
BREASTFEEDING BEHAVIOR / ADOLESCENT MOTHERS

115 pp.

ประสิทธิผลของบทเรียนคอมพิวเตอร์ช่วยสอน (ซีเอไอ) เรื่อง การเลี้ยงลูกด้วยนมแม่ ระหว่างรอคลอดระยะแรก ต่อความรู้และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นครรภ์แรก
(EFFECTIVENESS OF COMPUTER ASSISTED INSTRUCTION (CAI) ABOUT BREASTFEEDING DURING THE EARLY STAGES OF LABOUR ON KNOWLEDGE AND BREASTFEEDING BEHAVIOR IN PRIMIPAROUS ADOLESCENT MOTHERS)

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บทคัดย่อ

การวิจัยครั้งนี้เป็นการวิจัยกึ่งทดลองแบบทดสอบก่อนและหลังชนิคมกลุ่มควบคุม เพื่อศึกษาประสิทธิผลของบทเรียนคอมพิวเตอร์ช่วยสอน (ซีเอไอ) เรื่อง การเลี้ยงลูกด้วยนมแม่ ระหว่างรอคลอดระยะแรก ต่อความรู้และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นครรภ์แรก กลุ่มตัวอย่างเป็นมารดาวัยรุ่นครรภ์แรกที่พักครรภ์และคลอดบุตรที่โรงพยาบาลศิริราช จำนวน 50 ราย แบ่งเป็นกลุ่มควบคุม 25 ราย และกลุ่มทดลอง 25 ราย เลือกกกลุ่มตัวอย่างโดยวิธีการสุ่มตัวอย่างแบบง่าย โดยกลุ่มควบคุมได้รับการพยาบาลตามปกติ และกลุ่มทดลองได้รับบทเรียนคอมพิวเตอร์ช่วยสอนร่วมกับการพยาบาลตามปกติ เก็บรวบรวมข้อมูลโดยใช้แบบสัมภาษณ์ข้อมูลส่วนบุคคล แบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ และแบบสังเกตพฤติกรรมการให้นมแม่ วิเคราะห์ข้อมูลโดยใช้การทดสอบค่าที

ผลการศึกษาพบว่า มารดาวัยรุ่นในกลุ่มทดลองมีคะแนนเฉลี่ยความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่ ภายหลังการศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนสูงกว่าก่อนการศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนอย่างมีนัยสำคัญทางสถิติ ($P < .001$) มารดาวันรุ่นในกลุ่มทดลองมีคะแนนเฉลี่ยของความรู้และพฤติกรรมเกี่ยวกับการเลี้ยงลูกด้วยนมแม่สูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ($P < .001$)

จากผลการวิจัยครั้งนี้มีข้อเสนอแนะว่า พยาบาลในห้องคลอดที่ให้การดูแลเกี่ยวกับการส่งเสริมการเลี้ยงลูกด้วยนมแม่ สามารถนำสื่อบทเรียนคอมพิวเตอร์ช่วยสอนนี้ไปใช้อย่างต่อเนื่องตั้งแต่ในระยะระหว่างรอคลอดระยะแรก จนกระทั่งหลังคลอด เพื่อช่วยเหลือ สนับสนุน แก่มารดาวัยรุ่นให้ประสบความสำเร็จในการเลี้ยงลูกด้วยนมแม่ต่อไป

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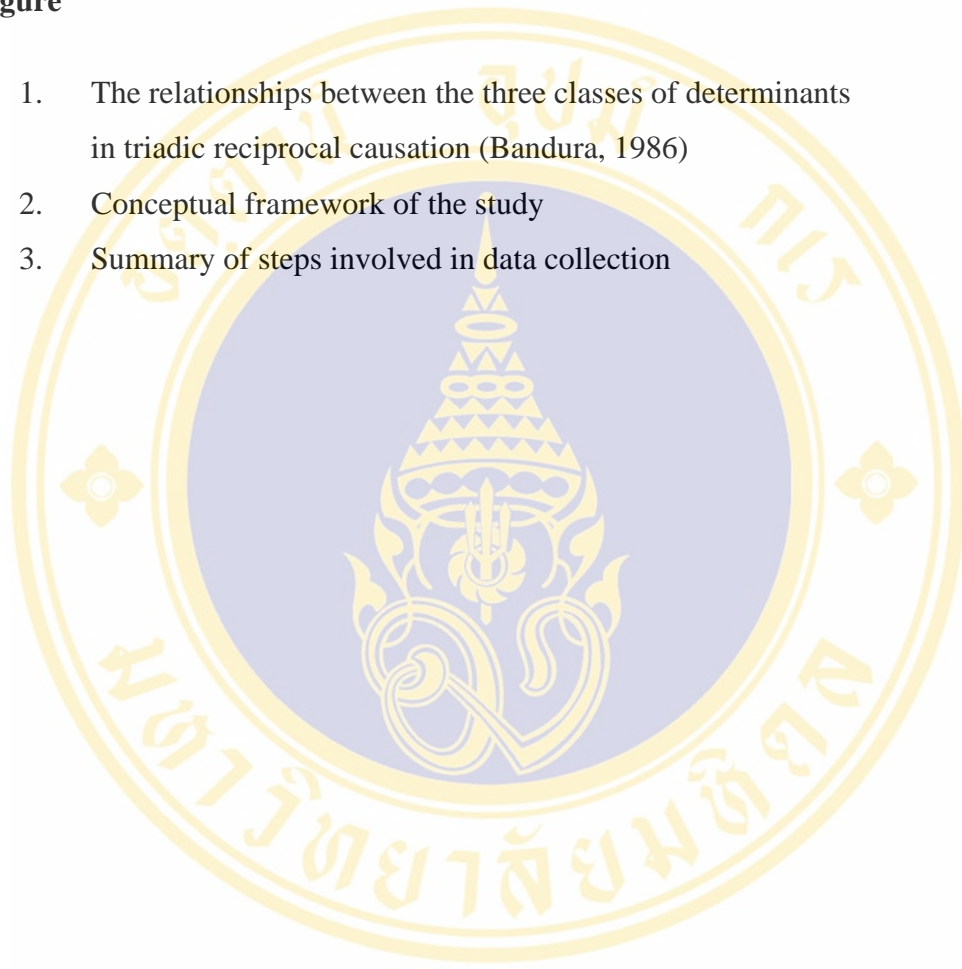
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CHAPTER I

INTRODUCTION

Background and Significance of the study

Breastfeeding is more than just providing food. It is giving the best of everything to the babies. The miracle about breast milk is that its nutrients are always changing to meet the nutritional needs of babies (Littleton & Engebretson, 2005). Breastfeeding offers a quality of life to babies, and the excellent qualities of breast milk enhance the baby's physical, intellectual, emotional and mental growth while providing immunity (WHO & UNICEF, 2003). Most importantly, dairy products cannot replace the love and warmth, close eye-to-eye and skin-to-skin contact of breastfeeding which promotes mother and child bonding and lays the foundation for child development by influencing intelligence quotient (I.Q.), emotional quotient (E.Q.), moral quotient (M.Q.) and adversity quotient (A.Q.) for a successful life (Chattranon, 2003). Furthermore, breastfed babies been found to be more intellectual than babies who are fed by infant formula (Jacobson & Jacobson, 1999). Breastfeeding also prevents many infectious diseases, especially, respiratory and gastro-intestinal tract infections (Beaudry et al., 1995 cited by Spangler, 2000). In addition, breastfeeding holds numerous benefits for mothers e.g. less chance for obesity, reduced risk for postpartum hemorrhage, help to return the uterus back to a normal position, and reduced risk for breast and ovarian cancers (Bocar & Shrago, 1997). Moreover, affection and attachment is formed when mothers hold their own baby during breastfeeding, which helps mothers feel that they have fully experienced maternal duty, which adds to the value of the maternal role as mothers can correctly respond to the needs of their infants.

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend exclusive breastfeeding until 6 months and breastfeeding combined with an appropriate diet until the age of 2 years or beyond (WHO, 2001). In

Thailand, the Department of Health, Ministry of Public Health promoted that no less than 30% of all Thai babies have exclusive breastfeeding for at least 6 months in 2007 (Ministry of Public Health, 2006). However, Thailand is currently indicating downward trends both in terms of percentage and duration of breastfeeding. From the research of the Ministry of Public Health on exclusive breastfeeding in 2006, on 15 percent of babies were exclusively breastfed until 6 months, while only 30 percent of babies received exclusive breastfeeding until they were 4 months-old, which reflected extremely low rates. Despite the tremendous benefits of breastfeeding and widespread breastfeeding campaigns for continued breastfeeding current breastfeeding trends have continued downward. This decrease in breastfeeding may be caused by ignorance and lack of skills (Chantarapat, 1990), distributions of sample infant formula, insufficient breast milk, breast engorgement and cracked nipples (Durongdej, 1998), circumstances that compel women to work outside the home (Sumlitsopak, 1999), maternal age and readiness for pregnancy (Husdisaewee, 1994) as the trend toward live births in the group of adolescents aged 15-19 years old gradually rises. The statistics of the Ministry of Public Health have shown the rates of increase at 31.8 percent in 2000 and 37.9 percent in 2003, respectively (Public Health Statistics, 2005). In Thailand, there are no specific studies on breastfeeding in adolescent mothers, but the trends in this group of mothers leans toward breastfeeding problems. From a study of maternal age, it has been found that adolescent mothers tend to decline breastfeeding and wean by the end of the first week postpartum due to sore nipples (Ineichen, Pierce, & Lawrenson, 1997).

The fact that adolescent mothers have lower breastfeeding rates than mothers in other age groups, incorrect breastfeeding behavior and shorter durations of breastfeeding (Vogel, Hutchison, & Mitchell, 1999) may be due to the adolescent mothers' lack of preparation for motherhood and unwanted pregnancy (Littleton & Engeberson, 2005) which bring on changes in lifestyle when they have babies, thus confronting them with two crises at the same time (Olds, 1988). The first, the developmental crisis stems from adolescent development as adolescents usually think of themselves and do not realize the demands of the others. As a result they cannot appropriately satisfy their babies. At the same time, they are faced with the crisis of changing from teenagers to mothers, which causes adolescent mothers to suffer stress

as they confront the difficulties of deciding about the future for themselves and their children. Conflicts arise as a result of numerous problems (Elsberry & Corrinet, 1986), as these adolescents are suddenly required to take on the responsibilities involved with maternal duties and roles all too soon (Olds, London, & Ladewig, 1994). This, therefore, may be the reason why many adolescent mothers are unprepared to perform the roles and duties of motherhood (Elsberry & Corrinet, 1986). In addition, adolescent mothers are often concerned with their bodies and feel embarrassed to breastfeed their babies in public due to a fear of ruining their image (Dewan et al., 2002). They possess poor breastfeeding attitudes (Kim, 1998; Leffier, 2000) and perceive more problems or barriers to breastfeeding than benefits, which results in inappropriate breastfeeding behaviors such as initiated formula feeding (McCann, Baydar, & Williams, 2007). According to the study of Osotsathien (1990), adolescent mothers had medium to low levels of knowledge on breastfeeding scores. The study of Spear (2006) found that adolescent mothers received little education about breastfeeding both during the prenatal and postpartum periods, all of which had an impact on breastfeeding failure.

Other causes of the short duration of breastfeeding were the inconvenience and lack of knowledge regarding the value of breastfeeding and correct breastfeeding methods, as well as lack of support from health care providers (Inkatawanich, 1995). Furthermore, the adaptation to becoming a mother is not very good in adolescent mothers because first-time motherhood has inexperienced adolescent mothers losing skills and confidence. Thus, adolescent mothers should be taught about the benefits, techniques and general knowledge of breastfeeding. It is believed that if mothers understand more advantages, they will practice more breastfeeding behavior.

According to this information, it seems that adolescent mothers do not comprehend breastfeeding. They do not have any skill and experience. Therefore, adolescent mothers should be supported to learn about breastfeeding in order to be confident in their capability because perception of self efficacy will assure them that they can do such a thing.

Correct breastfeeding education is an important beginning toward breastfeeding success, which will affect the adolescent mothers in the form of both physical and mental preparedness, intention to begin breastfeeding from the moment

of birth and cooperation with subsequent stages. For example, the study of Wiemann, DuBois, and Berenson (1998) found that perceived benefits and educational exposure were associated with breastfeeding in adolescent mothers. Cusson (1985) also found that breastfeeding knowledge was positively related to attitudes in adolescents who were queried about future baby feeding plans.

Assisting adolescent mothers to receive breastfeeding education and appropriate breastfeeding behavior involves a variety of methods. Providing instruction by use of each type of teaching media can arouse interest and provide different learning experiences (Peerawut, 1999). For example, from the study of Bunyaritthiphong (1987) it was found that adolescent mothers who received cartoon books had better breastfeeding practices than adolescent mothers who did not receive this instruction. Furthermore, the study of Keardphan (2002) found that adolescent mothers who participated in a breastfeeding promotion program by having the mothers observe breastfeeding behavior in a video had higher overall breastfeeding behavior scores than the adolescent mothers who received only routine nursing care. Moreover, from the study of Kim (1998) it was found that instructing adolescent mothers by use of a video on breastfeeding was more effective than using a book. Furthermore, adolescents who were exposed to more breastfeeding role models were more likely to choose breastfeeding (Wiemann et al., 1998)

Current advances in computer technology have led to greater implementation of computers in instruction (Jamornman, 1992 cited in Songraksa, 2001) including the healthcare instruction of patients and their relatives (Jiraphaet, 2001). The development of Computer Assisted Instruction (CAI) involves imparting knowledge to those who study with the objective of enabling learners with different levels of intelligence, readiness or knowledge foundations to achieve the objective of lesson on their own (Peerawut, 1999). Furthermore, computer assisted learning is highly effective in drawing attention and motivating learners to study while enabling them to go back and look at situations or content that they need (Billings, 1986). For example, the study of Suwutho (2002) found CAI to be effective in medical instruction about subjects on how Medical Platyhelminthes could be used as supplemental media for effective instruction while enhancing learning effectiveness. Computer assisted learners have greater satisfaction because they can select the study

content according to their needs and view illustrations that enhance lesson comprehension. Nowadays, computers have come to play a larger part in the lives of adolescents, both in terms of school and free time such as playing games and using the internet.

Through the work experience of the researcher in the Labour Ward at Siriraj Hospital, a work unit that promotes immediate bonding for mothers and babies bonding following delivery in compliance with the Ten Steps to Successful Breastfeeding, the main labour ward follows the principle of the fourth step, which is “Help mothers begin to breastfeed their babies within the first half-hour postpartum or immediately after delivery,” for all mothers who experience no complications by helping the mother breastfeed her baby according to correct methods. Although breastfeeding promotion in the delivery room takes place during a short period of time, it is considered an important point of beginning for breastfeeding. Furthermore, breastfeeding success in the early stages provides motivation for mothers to experience breastfeeding success, even for adolescent mothers who possess no readiness for maternal roles, maintain bad attitudes and receive incorrect knowledge or have previously been instructed by the antenatal unit over a long period of time, failing to review breastfeeding information in order to prepare themselves for breastfeeding immediately after delivery in combination with correct breastfeeding behavior.

Therefore, the researcher is interested in developing instructional media by using computer assisted instruction, which is currently popular, in order to educate primiparous adolescent mothers who are at the latent phase prior to delivery in order to review their knowledge and understanding of the importance and benefits of breastfeeding as both physical and mental preparation for breastfeeding immediately following delivery. Mothers at the latent phase will experience minimal duration and intensity of uterine contractions while cervical dilation less than of 3 centimeters and the range of the sensation of labour pain is defined as an unpleasant feeling of pain in abdomen and back related to the intensity of uterine contractions and cervical dilation at 33-44 millimeters wherein the range of pain distress was operationally defined as the emotional distress related to the sensation of labour pain at 23-39 millimeters, which is the level at which primiparous mothers experience minimal pain and are able

to endure labour pain (Phumdoung, Rattanaparikonn, & Maneechot, 2004) as they are able to rely upon themselves, converse and to pay attention to the environment. Thus, instruction can be provided during this period in order to generate cooperation and participation in decision-making. When the adolescent mothers studied CAI about breastfeeding, they received knowledge, understanding and education about correct and appropriate breastfeeding behavior in order to form good attitudes, appreciate the importance of breastfeeding immediately following delivery, gain confidence and readiness to cooperate with breastfeeding in subsequent feedings and thus be assisted to experience breastfeeding success.

Conceptual Framework

To determine the effectiveness of computer assisted instruction about breastfeeding during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers, the researcher conducted this study by using the conceptual framework of the Social Cognitive Theory of Bandura (1989), who proposed that the way a person acquires and maintains certain behavioral patterns and evaluates behavioral change depends upon the factors of environment, personal factors and behavior, asserting that a person's behavior does not occur or change due to environmental factors only, but must include interpersonal (P) factors such as wisdom, thoughts, feelings, beliefs, self-perception, goals and intentions while further requiring a combination of several Behavioral (B) factors and Environmental (E) factors in Reciprocal determinism as shown in the diagram below:

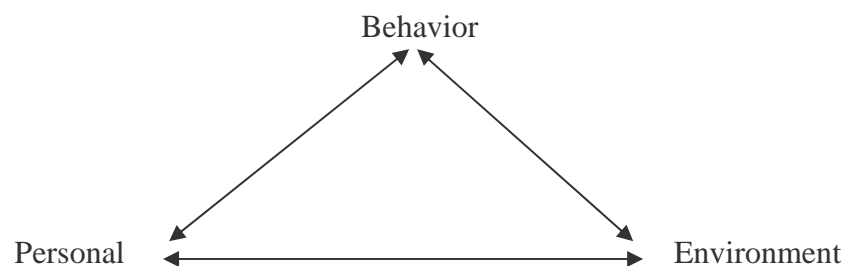


Figure 1: The relationships between the three classes of determinants in triadic reciprocal causation (Bandura, 1986:24)

Studying by use of CAI on breastfeeding was considered an environmental factor that would influence interpersonal factors in terms of thoughts, beliefs, perceptions and knowledge obtained regarding breastfeeding. Thus adolescent mothers would learn by observation of live and symbolic models via supplemental media such as television, videos, handbooks, and cartoons that affected breastfeeding behavioral factors. In addition, according to the principles of CAI, lessons were designed by developing a computer program for educational purposes with the computer as the media for imparting knowledge to learners via multimedia techniques with special characteristics in order to transmit the content in a way that closely resembles actual events, which is effective in drawing attention and motivating learners to study (Billing, 1986). Therefore, CAI about breastfeeding is an environmental factor with an impact on interpersonal factors, which further affects the knowledge and attitudes of learners while developing skills in order to build experience (Jiraphaet, 2001). From the study of Suwutho (2002), it was found that CAI enhanced learning effectiveness with statistical significance as learners can choose the lessons and study according to their own needs in an attractive with illustrations to facilitate comprehension. Therefore, the researcher improved the main concepts of CAI in combination with breastfeeding principles as instructional media for the primiparous adolescent mothers who gained knowledge and understanding as they realized the importance of breastfeeding and possessed readiness to cooperate in breastfeeding, which helped the adolescent mothers practice appropriate breastfeeding behavior leading to breastfeeding success in a process involving correlations between the following variables as shown in the figure below:

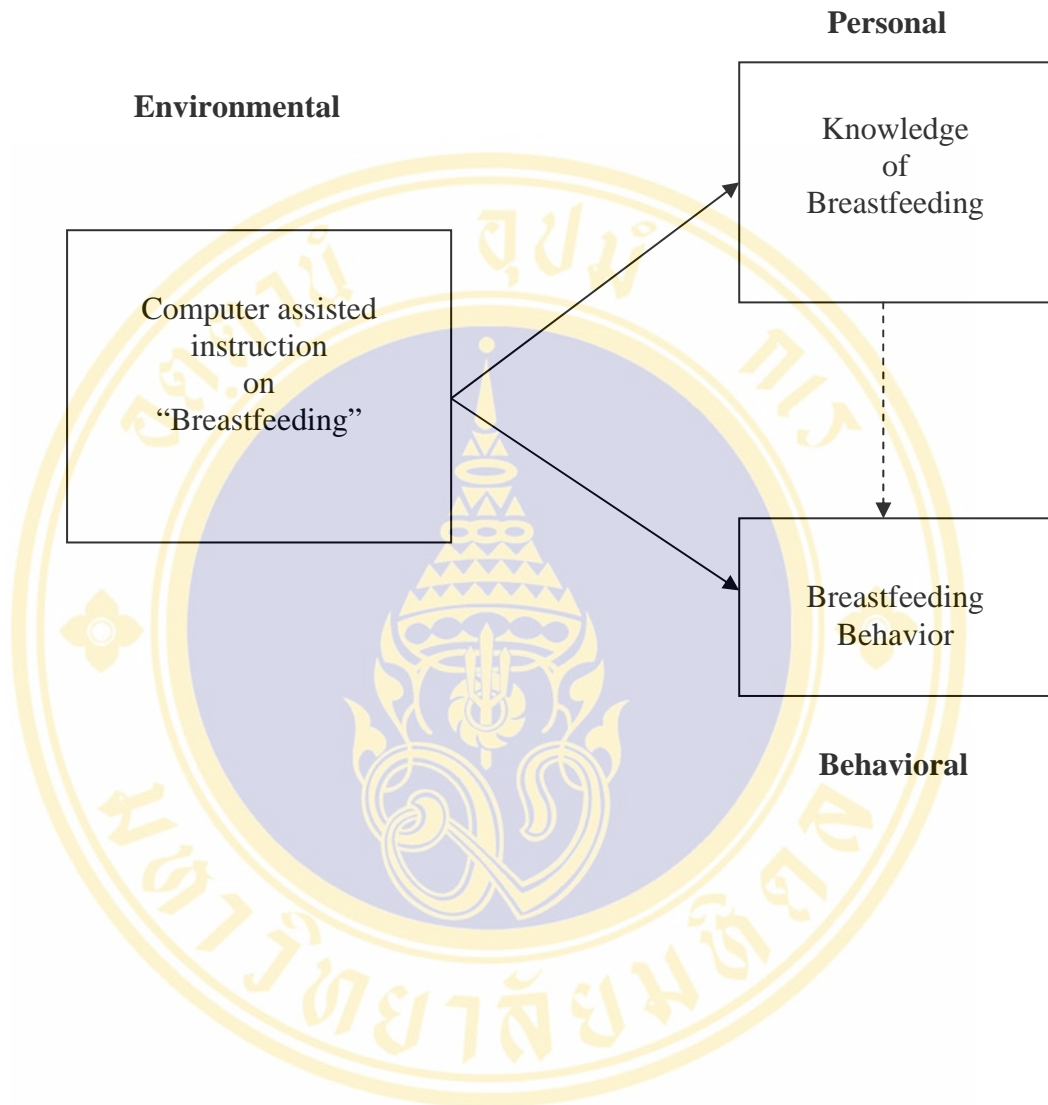


Figure 2 Conceptual Framework of the study

Purposes of the study

1. To compare knowledge of breastfeeding in the primiparous adolescent mothers before and after receiving computer assisted instruction about breastfeeding.
2. To compare knowledge of breastfeeding between the primiparous adolescent mothers who received computer assisted instruction and the primiparous adolescent mothers who received only routine nursing care.
3. To compare breastfeeding behavior between the primiparous adolescent mothers who received computer assisted instruction and the primiparous adolescent mothers who received only routine nursing care.

Hypotheses of the study

1. The primiparous adolescent mothers will have higher knowledge of breastfeeding posttest scores after receiving computer assisted instruction than their pretest scores before receiving computer assisted instruction.
2. The primiparous adolescent mothers who received computer assisted instruction will have higher knowledge of breastfeeding scores than the primiparous adolescent mothers who received only routine nursing care.
3. The primiparous adolescent mothers who received computer assisted instruction will have higher breastfeeding behavior scores than the primiparous adolescent mothers who received only routine nursing care.

Scope of the study

The present research was a study of the effectiveness of computer assisted instruction about breastfeeding during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers. The study was conducted in 50 primiparous adolescent mothers with gestational ages of over 37 weeks, cervical dilations of less than 3 centimeters and labour pain scores of less than 40 points with delivery and postpartum recovery at the Labour Ward, of Siriraj Hospital from January to February of 2008.

Expected Outcomes

1. The research results may be used as a guideline for the development of systems for providing services in units involved with maternal and newborn care in planning for breastfeeding assistance, support and promotion for adolescent mothers to have appropriate breastfeeding education and behavior in order to promote more successful breastfeeding.

2. The research findings may be used as a guideline for providing breastfeeding education to related personnel in order to motivate consideration of the importance of continuous breastfeeding support and promotion for adolescent mothers in the antenatal care, delivery unit and postpartum units in order to provide adolescent mothers with breastfeeding education, appropriate breastfeeding behavior and successful breastfeeding.

3. The findings of the present study may also be used as a guideline for future research conducted to raise awareness regarding breastfeeding and related issues in adolescent mothers.

Definitions of Terms

Computer assisted instruction(CAI) refers to a teaching media on “Breastfeeding” that was prepared by the researcher by using the computer program, Authorware 7, with content on the benefits, techniques and general knowledge of breastfeeding by using the techniques of still and moving pictures with color, sound and tests to evaluate the education received.

Knowledge of breastfeeding refers to the level of breastfeeding knowledge and understanding possessed by the primiparous adolescent mothers in terms of the benefits, methods and general knowledge of breastfeeding by using Knowledge of Breastfeeding Questionnaires for which the researcher used the postpartum knowledge of breastfeeding questionnaire of Masmalai et al. (2001) wherein the content of the questionnaire was modified for clarity and concurrence with the policy of the Ministry of Public Health and appropriate behavior in breastfeeding.

Breastfeeding behavior refers to the practices of the primiparous adolescent mothers regarding breastfeeding, which includes the practices of the adolescent mothers prior to, during and after breastfeeding their babies, and the behaviors of the infants including the behavior of the infants during and after breastfeeding as assessed by using the Breastfeeding Behavior Observation form for which the researcher used the breastfeeding observation questionnaire of Wongwai (1998) in which the content of the questionnaire was adjusted for clarity and concurrence with the policy of the Ministry of Public Health and appropriate breastfeeding behavior.

Routine nursing care refers to regular care performed by nurse in the delivery room during the early stages of labour, delivery and 2 hours after delivery aimed at maternal-infant bonding by assisting mothers with suggestions on how to feed babies by demand and to help mothers initiate breastfeeding their babies within 30-60 minutes after birth.

CHAPTER II

LITERATURE REVIEW

This research studied the effectiveness of computer assisted instruction (CAI) about “Breastfeeding” during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers. Relevant research literature was reviewed under the following topics:

- Adolescent mothers
- Breastfeeding in Adolescent mothers
- Knowledge of Breastfeeding
- Breastfeeding Behavior
- Social Cognitive Theory
- Computer Assisted Instruction (CAI)

Adolescent mothers

Adolescence refers to growth and development into maturity that includes the transformation from childhood to adulthood under the criteria of sexual maturity (Bobak, 1995) and mental development from childhood to adulthood and status changes that depend on the economy to a state of responsibility and self-reliance (Intaraprasert & Taneepanichsakul, 1996). The developmental stages of adolescence are divided into 3 stages: early adolescence from ages 11-13 years old, middle adolescence from ages 14-16 years old and late adolescence from ages 17-19 years old (Piyasin, 1996).

Adolescent development

1. Physical development: Adolescents experience pronounced and rapid physical changes that differ among individuals. Therefore, early adolescents are obsessively concerned with physical changes in image, are more likely to demonstrate wide variations in emotion such as mood swings, confusion, and fear that they will

not be accepted by the people around them. Therefore, they may pay attention to building relationships with same sex peers and the opposite sex, so as to compare themselves with these peers and reassure themselves that their changing physical images are normal and acceptable states. Mid-adolescents will accept these physical changes better and late adolescents will accept these changes well as they become ready to accept the full status of adulthood (Piyasin, 1996).

2. Emotional development: Adolescents tend to exhibit aggressiveness, emotional lability, frequent outbursts, mood swings, sensitivity to their environments, egocentricity and self-centeredness (Novak & Broom, 1995). Furthermore, adolescents may want more freedom, and exhibit concern about self - image (Piyasin, 1996).

3. Social development: Adolescents rely on peer groups for authority, decision-making, and often self-esteem as they struggle for independence from parents and autonomy, enjoy showing other people that they are self-confident, and learn from surroundings and other persons (Piyasin, 1996).

4. Intelligence development: Adolescents are at reasonable ages appropriate for all ability development as they begin to think about the future and make decisions, frequently operating by trial and error without considering consequences, showing eagerness and ability to appreciate the needs and feelings of others, learning to adapt, showing ability to discuss and share ideas with others, learning to solve problems and developing abstract thinking and clearly applying abstract information to their own lives (Piyasin, 1996; Fullar, 1986).

5. Sexual Development: Adolescents are sexually mature and capable of reproduction (Ladewig, 1994).

Therefore, that adolescence is the period of time during which an individual transforms from a child into an adult. It is also a time of great physical, emotional, social and cognitive changes. The changes that occur will affect the adolescent and can be considered a turning point in the change from childhood to adulthood that can also be considered a life crisis.

Adolescent pregnancy

Adolescent pregnancy results in crisis periods for adolescent mothers who are faced with continual confrontation with their predicament (Mercer, 1980). This developmental crisis is a period that happens in the adolescent stage of development. Though pregnant, adolescent mothers continue to exhibit the same needs and behaviors as other teenagers (Elsberry & Corrinet, 1986). At the same time, they will experience crisis due to pregnancy in what is referred to as maturational crisis, causing the mothers to experience stress and difficulty in deciding about the future of both themselves and their unborn babies, including the conflicts involved with the numerous problems that will occur (Elsberry & Corrinet, 1986). Therefore, adolescent mothers are faced with two crises simultaneously and require a great deal of ability for adaptation, especially in terms of maternal roles and duty. Thus, adolescent mothers are prematurely faced with the duties of motherhood (Olds et al., 1994), which may be one reason why adolescent mothers have trouble accepting their pregnancies and the stress performing maternal roles and duties (Elsberry & Corrinet, 1986).

Most adolescent pregnancies are unplanned, unintentional and, therefore, unwanted (Littleton & Engebretson, 2005; Intaraprasert & Taneepanichsakul, 1996). The study of Kulnarit (1987), found that 52% of all adolescent mothers are unready for pregnancy and that adolescent pregnancy will affect physical growth in addition to higher risks for pregnancy complications than mothers over 20 years of age. Complications frequently encountered in teenage pregnancy include anemia, pregnancy-induced hypertension, premature births, prolonged labour, and cephalopelvic disproportion in addition to other conditions (Novak & Broom, 1995; Littleton & Engebretson, 2005; Intaraprasert & Taneepanichsakul, 1996). Adolescent mothers are also prone to postpartum complications such as postpartum hemorrhage and vaginal tearing (Pillitteri, 2003). As for fetal complications, still births, premature delivery and low birth weight are more prevalent in adolescent mothers than older mothers (Kenner & Maclaren, 1993). Essential to the prevention of pregnancy complications is prenatal care from the first trimester and throughout pregnancy.

The unreadiness of adolescent mothers will create anxiety, guilt, feelings of worthlessness, and confusion regarding the events occurring (Clark, Affonso, &

Harris, 1979) as the young mothers are forced to deal with changes never experienced before with a lack of knowledge and feeling that they are trapped with no way out. Adolescent mothers who are unable to confront stress and lack appropriate help will not accept their pregnancies, thinking that being pregnant has lost them their independence, reduced self-value and burdened them with and anxiety about their body image, thus resulting in both mental and emotional changes.

In addition, adolescent mothers will experience transformation to different lifestyles as some are obliged to discontinue their studies temporarily or leave school altogether, causing them to lose relationships with their friends as contact with friends becomes more difficult (Martin & Reeder, 1991). Furthermore, as a result of their discontinued educations, the adolescent mothers have no chance to choose careers, thus leaving them with low salaries and loss of financial stability. Therefore, pregnancy leaves adolescent mothers dependent upon their parents in terms of financial and child care support, causing them further loss of independent lifestyles (Kenner & Maclaren, 1993). Therefore, adolescent mothers are unacceptable their child, causing problem in the relationship between mother and child, and potential problems in practicing inappropriate breastfeeding behavior.

It is evident, therefore, that adolescent mothers are ill-prepared for motherhood, both in terms of physical and emotional maturity. Adolescent mothers generally, think of their own needs first rather than thinking about needs of their babies (Young, 1988) and fail to actively respond to various symptoms exhibited by their babies. As a result, these mothers are unlikely to appropriately respond to the needs of their children (Elsberry & Corrinet, 1986; Ruff, 1987), lack readiness for motherhood, make no child care plans and have no confidence in taking care of the infant when confronted with the responsibility of 24 hours' childcare per day. Thus, adolescent mothers often become bitter and have negative attitudes toward postpartum infant care (Elster, McAnarney, & Lamb, 1983). Chayalak (1988) was found that most adolescent mothers are not prepared to have babies. Therefore, they tend to have mental health problems, anxiety about the baby, difficulty accepting the baby, and practice improper child care behavior, which further causes problems for the baby such as failure to thrive, child abuse and neglect (Cropley, 1986; Littleton & Engebretson, 2005).

Breastfeeding in Adolescent mothers

Breastfeeding is the best way to feed an infant and it is widely accepted that no alimentation is more appropriate for babies than breast milk, because it provides the most perfect food a mother could find. In addition to providing nutrients to satisfy physical needs, breastfeeding affects infant mental development, which is an important basic structure toward physical, mental, intellectual, emotional and social growth and development. Accordingly, the breastfed baby will grow into an adult with a high intelligence, emotional, moral and adversity quotients, thus leading toward future success (Chattranon, 2003).

Breast milk is the only food that cannot be replaced by any other food. Therefore, the WHO and UNICEF recommend exclusive breastfeeding until 6 months and partial breastfeeding combined with appropriate diet until the age of 2 years (WHO, 2001). Unfortunately, current breastfeeding trends have decreased. Donath & Amir (2000) found that adolescent mothers had low rates of breastfeeding and shorter duration (Ineichen et al., 1997). Indications are also that adolescent mothers are a group that would benefit from interest in breastfeeding support as this group holds the potential for continued growth. Studies have shown that adolescent mothers are a group that breastfeeds less than other groups and has rather short breastfeeding durations as can be seen from studies on breastfeeding in groups of mothers of different ages which found that adolescent mothers constitute a group that breastfeeds less than other groups and has shorter breastfeeding durations than older groups of mothers (Vogel et al., 1999) with higher discontinuation rates in the first month period (Spear, 2006). It was further found that these mothers have high discontinuation rates in the first week after delivery (Ineichen et al., 1997), which may be caused by several factors that are obstacles to breastfeeding.

In Thailand there have previously been no clear studies about the rate of breastfeeding in adolescent mothers. On the other hand, current findings show that breastfeeding continues to experience a declining trend and adolescent mothers are a group that would benefit from paying attention to breastfeeding support because this group of adolescent mothers is constantly growing, has continually exhibited

problems in breastfeeding and possesses several factors that may potentially affect breastfeeding.

Factors affecting to successful breastfeeding in adolescent mothers

Successful breastfeeding and ongoing exclusive breastfeeding for 6 months depends upon various factors, which can be divided into the following 4 categories:

1. Maternal Factors

1.1 Age - adolescent mothers are young and lack emotional maturity; thus, they tend to be egocentric and give priority to responding to their own needs (Yoos, 1985; Young, 1988). Therefore, adolescent mothers cannot fulfill their infant's needs properly, viewing breastfeeding as difficulty, annoying, dissatisfactory, and embarrassing (Kim et al., 2002). From the study of Ryan, Wenjun, and Acosta (2002), it was found that adult mothers breastfeed more than adolescent mothers, and adolescent mothers tend to breastfeed for shorter durations than older mothers (Vogel et al., 1999).

1.2 Lack of breastfeeding knowledge and correct understanding about breastfeeding is an important factor that will help adolescent mothers have confidence in making decisions concerning breastfeeding their babies. Gulick (1982) found that education will further enhance maternal knowledge with regard to breastfeeding. And Baisch et al. (1989) found that most adolescent mothers who intend to breastfeed will have better understanding about breastfeeding than mothers who intend to feed their infants with formula. Furthermore, from the study of Spear (Spear, 2006), it was found that adolescent mothers received little breastfeeding knowledge both during pregnancy and after delivery.

1.3 Negative attitudes about breastfeeding- adolescent mothers usually feel embarrassed to breastfeed in public (Ineichen et al., 1997), view the breast as more of a sexual symbol than a means of feeding a baby (Yoos, 1985) and think that they have inadequate breast milk (Durongdej, 1998). These are the main reasons for discontinued breastfeeding among adolescent mothers. Tarkka, Paunonen, and Laippala (1999) found that mothers who have positive attitudes about

breastfeeding will succeed at longer periods of time than mothers with negative attitudes toward breastfeeding.

1.4 Lack of breastfeeding experience- adolescent mothers do not possess experience or skills in breastfeeding. Therefore, when they experience problems or difficulties in breastfeeding such as inverted nipples, breast engorgement, cracked nipples and no available support or assistance, adolescent mothers may stop breastfeeding (Taveras et al., 2004; Vogel et al., 1999). Mozingo et al. (2000) found that the first time mothers require accurate information with regard to techniques and methods for breastfeeding in addition to substantial assistance in initiating breastfeeding.

1.5 Working outside of the house is the most important reason causing mothers to discontinue breastfeeding as a result of the daily stress of mothers working both in and outside the house (Durongdej, 1998).

2. Baby Factors

2.1 Infants physical disability or illness- physical disabilities affecting suckling such as cleft lips, cleft palate, preterm delivery or low birth weight, will require special treatment and separation from mothers, thus leading to delayed learning to suckle.

2.2 Infants formula milk, water or supplementary foods- infants who receive bottle feeding from the beginning may experience nipple confusion when later breastfed, in which case they will refuse to suckle at the breast which further leads to delayed and inadequate breast milk production for the infant's needs and compelling mothers to decide to terminate breastfeeding (Righard, 1998) or breastfeed their infants for shorter durations (Vogel et al., 1999).

3. Hospital Factors

3.1 Immediate separation of mother and baby after birth, even though the first 30-60 minutes after delivery is an important factor contributing to the beginning of breastfeeding success and leading to longer breastfeeding durations (Haengchaowanich, 2003). Moreover, rooming-in, which keeps mothers with baby around the clock, so that the mothers can see to the babies' needs, also affects the

duration of breastfeeding to be significantly longer than that of mothers and babies who do not rooming-in (Vogel et al., 1999).

3.2 Support and encouragement from hospital staff, especially during the period following delivery when the mothers require accurate information and assistance with the initiation of breastfeeding and advice for breastfeeding problems. As a result, mothers feel confident about breastfeeding. Therefore, adolescent mothers who do not receive help and supportive from hospital staff are a cause for termination of breastfeeding within two weeks after delivery (Mozingo et al., 2000).

4. Environmental Factors

4.1 Advertising of formula milk products - current, advertising and marketing promotion for formula milk products through various media and widespread marketing campaigns particularly the distribution of free formula samples to mothers through hospital staff, exaggerate the benefits of the nutrients that babies will receive from these products. Therefore, these products are influenced changes in attitude and values that cause the mothers to misunderstand that formula feeding is better than breastfeeding. Furthermore, it is evident that mothers who receive free formula samples tend to provide less breastfeeding within the first month after delivery as more of the mothers turn to using either more or less infant formula during the breastfeeding period (Biancuzzo, 2003).

4.2 Social support - support and encouragement from nearby people such as a husbands, parents, relatives and friends who have influence on the mother's breastfeeding will help the mother to experience breastfeeding success (Tarkka et al., 1999).

As a result of these problems, adolescent mothers should receive preparation about breastfeeding in order to possess knowledge, positive attitudes, confidence and correct breastfeeding behavior in order to be successful in breastfeeding with longer breastfeeding durations.

Breastfeeding Policy

The World Health Organization (WHO) and The United Nations International Children's Fund (UNICEF) have jointly conducted campaigns on the Ten Steps to Successful Breastfeeding since 1989. In 1991, the WHO and UNICEF cooperated in evaluating hospitals by a delivery service called the Baby-friendly Hospital Initiative (BFHI) with the objective of ensuring that every baby breastfeed after birth. Thailand launched a similar campaign for breastfeeding in 1991 (Piyaanan, 2005). However, breastfeeding problems such as breast engorgement, cracked nipples, insufficient milk and working outside the home continue to occur, all of which are reasons that compel mothers to cease breastfeeding. Therefore, in order to make breastfeeding successful, relative personnel must cooperate, support and promote breastfeeding by utilizing the Ten Steps to Successful Breastfeeding.

The Ten Steps to Successful Breastfeeding (WHO, 1998; Piyaanan, 2005)

1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.
2. Train all healthcare staff in skills necessary to successfully implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breastmilk, unless medically indicated.
7. Practice rooming-in to keep mothers and infants together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to these groups upon discharge from the hospital or clinic.

Breastfeeding has long term benefits for both infants and families. Therefore, Step 3, “Inform all pregnant women about the benefits and management of breastfeeding”, is an important step, because understanding will enable mothers to see the importance and cooperate initiate to breastfeeding immediately after delivery. Furthermore, Step 4, “Help mothers initiate breastfeeding within a half-hour of birth”, will be practiced in the delivery room by placing the baby on the mother’s chest for skin-to-skin contact. This first touch shared by mother and baby is called “bonding” (Klaus & Kennell, 1982) and is a very important step leading toward love and attachment as the baby has his/her first suckling, that early contact between mother and baby is vital to successful breastfeeding. Early breastfeeding, especially while the infant is quietly alert during the first 30-60 minutes following delivery, will make the infant suckle better than at a later time (MacMullen & Dulsuki, 2002).

The Nurse’s role in supporting breastfeeding

Nurses are healthcare professionals, who work closely with adolescent mothers. Therefore, they are highly significant in supporting breastfeeding by preparing the mothers physically and mentally for the breastfeeding experience. The roles of nurses in supporting breastfeeding are as follows: (Chattranan, 1995; Piyaanan, 2005)

Pregnancy

1. Advise blood tests to detect various diseases affecting babies, both during pregnancy and following delivery. Most importantly, sexually transmitted diseases, especially HIV infection, can be prevented from infecting the baby during the period after delivery by using medical treatment and ceasing to breastfeed the baby.

2. Educate pregnant women on topics such as the benefits of breastfeeding, breastfeeding procedures, and breastfeeding while working outside the house as an important beginning to successful breastfeeding. When the mother has correct breastfeeding knowledge, she will be physically and mentally prepared as breastfeeding willingness becomes breastfeeding ability in the period immediately after delivery.

3. Arrange activities to promote knowledge and understanding for pregnant women and family members such as husbands, the mothers of pregnant women and the husbands' mothers, to enable the people who are close to the pregnant women see the importance of breastfeeding, as they become ready to support, solve problems and offer spiritual support while encouraging breastfeeding.

4. Educate about nutritious foods during pregnancy and breastfeeding. Mothers should choose foods from the five nutritious food groups and as sufficient for the physical needs.

5. Check for abnormalities in the breasts, nipples and areolas such as inverted nipples and offer solution so that the mothers can breastfeed immediately after delivery.

The period immediately after delivery

Mothers should receive natural birth care, and nurses should question the mothers about their willingness to breastfeed, arrange for mothers and babies to be together, build the mother's confidence in breastfeeding and provide the following assistance:

1. When the baby is born overall health status is evaluated by an APGAR score, after which the neonate should be dried and brought for the mother to hold as the mother is invited to rub baby's body and arms.

2. Assess the mother's satisfaction, invite the mother to breastfeed on the delivery bed.

3. Assure the mother that the baby can take and suckle at her nipples, help the mother while she starts to breastfeed baby in order to build confidence and satisfaction in the first breastfeeding success.

4. Quickly breastfeed the baby within 30-60 minutes after delivery, which is a period in which the baby is alert. Encourage bonding between mother and child and suckling to promote early milk flow.

5. Let the baby breastfeed correctly, which include arranging a comfortable position for the mother and baby, and latching the nipple into the baby's mouth correctly while assessing the baby's swallowing and taking the nipple out of the baby's mouth to prevent cracked nipples.

6. After letting the baby breastfeed, bring the baby to be cleaned and physical condition reassessed.

7. Soft diet or beverages should be offered to the mother (when available).

The period after delivery

1. The baby should “room-in” with the mother all of the time, so mothers can provide frequent breastfeeding in response to infant demands without any time delay. Nurses should help the mother during breastfeeding, so mothers will have confidence and satisfaction.

2. Offer no water, infant formula or food to the baby after delivery.

3. After delivery, continually educate the mother about breastfeeding and give special care to mothers with problems, providing advice and encouragement to help them build breastfeeding confidence.

Knowledge of Breastfeeding

Education is an important beginning to successful breastfeeding and mothers who have accurate knowledge about breast milk will possess physical, emotional and mental readiness to increase willingness and determination to breastfeed. Then initiate breastfeeding babies immediately after delivery and cooperating with breastfeeding in the next period. New mothers should the following knowledge and information regarding breastfeeding benefits and appropriate breastfeeding behavior:

Benefits of breastfeeding

Breast milk is the best food for babies and the only kind of food in the world that meets all of babies’ nutritional needs for propoerte growth. No other food has been developed as a substitute equivalent to breast milk. Moreover, the benefits of breastfeeding can be classified into benefits for mothers, families, and babies as follows:

Benefits to mothers and family

1. Breastfeeding is convenient and cost-saving as it is naturally prepared for babies. Therefore, breast milk does not require time to prepare and breastfeeding

mothers can feed their babies anytime and anywhere. In term of cost benefits, the family does not have to spend money for formula milk, which is expensive. Healthwise, breastfed babies are healthy and do not easily become ill, thus saving health care costs (Chattranon, 1995).

2. Breastfeeding reduces the risk of postpartum hemorrhage and helps return the uterus to a normal position because the suckling of babies in the period immediately after delivery will continually stimulate the release of oxytocin hormone to trigger uterine contractions more strongly and frequently, thus reducing the risks of postpartum hemorrhage and returning the uterus to a normal state more quickly (Chua et al., 1994).

3. Breastfeeding helps mothers return to pre-pregnancy shape because the body utilized fat that was stored during pregnancy for milk production during breastfeeding which requires 300-500 calories per day. Therefore, breastfeeding helps the body weight to gradually reduce at a rate of 0.6-0.8 kilograms per month and mothers return to pre-pregnancy shape more quickly (Dewey et al., 1993 cited in Spangler, 2000).

4. Breastfeeding reduces the risks of osteoporosis. Although the mothers may suffer bone degeneration and mothers have slightly thinner bones during pregnancy and the breastfeeding period this bones mass will return to normal and may be even denser than before as breastfeeding helps stimulate calcium absorption. Also, after having breastfed babies, the level of the parathyroid hormone and vitamin D (Calcitrol) in the blood are higher than before. In the long run, therefore, mothers who have breastfed have lower risks for osteoporosis than mothers who have formula fed (Sutaswoorawoot, 2005).

5. Breastfeeding reduces the risks of breast, endometrial and ovarian cancers. Mothers who breastfeed their babies for long periods of time are at lower risks for cancer than mothers who breastfeed their babies for a short time (Siskind et al., 1997).

6. Breastfeeding provides a natural method for birth control (Lactational amenorrhoea method). During breastfeeding, the babies' suckling will stimulate the hypothalamus to inhibit the release of prolactin inhibiting factor (PIF), thus resulting in higher levels of the prolactin hormone, which in turn inhibits ovarian function and

ovulation during the first 6 months following delivery if the mother breastfeeds the baby exclusively. This natural method of birth control helps prevent pregnancy wherein the pregnancy rate in breastfeeding mothers is as low as 0.45-0.9% (Diaz et al., 1991 cited in Piyaanan, 2005). However, although this natural birth control method is fairly effective, its efficiency is uncertain because the prolactin hormone is related to mothers who provide regular and complete breastfeeding. (Ontrakarn, 2001)

7. Breastfeeding psychologically affects the mother-child relationship as mothers interact with babies by skin-to-skin contact, which results in stronger bonding and attachment between mothers and babies. The oxytocin hormone released during breastfeeding is believed to be a stimulant of maternal behavior that compels mothers to care for their babies and reminds them of maternal roles and duties regarding breastfeeding as they understand and correctly respond to their babies' needs. The babies will be confident and trust their mothers, which is an important foundation for building human relationships (Chattranon, 2003). In addition, mothers realize their own self esteem through successful breastfeeding.

Benefits for infants

1. Breast milk provides all of the nutrients that are essential for physical and cerebral growth because breastmilk contains sufficient and complete amounts of nutrients as well as hormones, enzymes and growth factors in proportions that most adequately supply the infant's needs (McKinney et al., 2000). These essential components help in growth development and certain functions of some systems (Chattranon, 1995) as well as growth and development of the brain, intelligence, and emotions. Breastmilk is different from formula in that the milk composition changes continually to suit the infant's needs (Littleton & Engebretson, 2005).

2. Breast milk enhances specific immunologic protection and resistance to disease while containing an abundance of compounds that act against infection and enhance immune responses against infection and disease. Thus the breastfed baby is healthy and strong while the risk of catching viral, bacterial, or fungal diseases such as respiratory diseases, pneumonia, diarrhea, and gastrointestinal diseases, etc. are reduced. Therefore, breastfed babies are at lower risk for illness than babies who are formula fed (Beckholt, 1990).

3. Breastfeeding reduces risks for allergic disease because breast milk does not contain the allergens found in cow's milk that cause allergic reactions in the gastrointestinal, skin and respiratory systems. Moreover, breastfeeding can directly prevent allergic disease because infants do not receive foreign bodies which may activate allergic responses and allergens are not absorbed from the intestines to the body. Moreover the effect of Secretory IgA in breastmilk can reduce the risk of allergic diseases, especially in the first three months of breastfed infants (Sawaddiworn, 2005).

4. Breastfeeding reduces the incidence of obesity because breast milk contains nutrients at appropriate amounts for babies. Therefore, breastfed babies can control feeding on their own by ceasing to suckle when they are full. On the other hand, bottle fed babies may be encouraged to finish the milk at each feeding, even though the baby is full, thus resulting in overfeeding and leading to obesity (Olds et al., 1994).

5. Breastfeeding promotes the development of a baby's jaws and reduces the incidence of disorderly dental growth. In comparison with bottle feeding, breastfeeding is more difficult for babies because more energy is required for sucking. Thus, the babies are required to move the jaws regularly and this movement results in complete development of jaw structure, which allows teeth to grow in an orderly manner. Finally, this immune protection also inhibits bacterial growth, which is the cause of dental decay (Sawaddiworn & Ungchoosak, 2003).

7. Breastfeeding provides the foundation for the baby's mental and emotional development. While the mother holds the baby during breastfeeding, the contact between mother and baby helps develop love and attachment. The baby feels warmth, secure and happy, which leads to confidence and trust in the mother and becomes the foundation of human relationships with others while also leading to having good interaction with other people in society (Chattranon, 2003).

Thus, breastfeeding is important to both mother and baby's physical, mental, emotional, and social health. Breast milk is the best and most suitable natural food for the baby as it remains the only food irreplaceable by any other foods on earth. Therefore, adolescent mothers should pay attention to breastfeeding promotion, so

they can acquire knowledge, understanding and appropriate breastfeeding behavior in order to have successful breastfeeding experiences.

Initiation Post-delivery Breastfeeding

Research has revealed that a newborn can see, hear, taste and feel with senses that are ready to be stimulated. In order for newborns to have the best development and growth, they should be left with the mother and trained to breastfeed as soon as possible. Therefore, nurses should help primiparous adolescent mothers who breastfeed for the first time to do so correctly in order to stimulate the milk production and sufficient amounts of milk for the baby. The care of the infant during the first 2-3 days of life and how the infant is fed have a very strong influence on a mother's breastfeeding performance. This requires adherence 3 principles: early, frequent and correct suckling.

Early suckling - Infants should be brought to suckle breast milk as soon as possible after delivery. The WHO and UNICEF recommend that infants should have the opportunity to suckle breast milk within half an hour after birth (WHO, 1998) because this period of time is when infants are most quietly alert and mothers and infants are responsive to each other. Thus, early suckling will promote the suckling reflex (Righard & Alade, 1992). Moreover, the period immediately after delivery constitutes a maternal sensitive period, thus enhancing the effects of infant suckling during this period with provide both mother and infant with an opportunity to learn and experience breastfeeding with the skin-to-skin contact as the mother holds the baby to breastfeed. This will enhance both love and bonding, which are important ingredients in breastfeeding success (Piyaanun, 2005; Biancuzzo, 2003).

Frequent suckling – Mothers should receive assistance at providing frequent breastfeeding in response to infant demands without any time limits and this requires “rooming-in” or “bedding-in”. Frequent suckling stimulates lactation as the production of the prolactin hormone is released into blood circulation at constantly high levels. When infants begin to suckle, the level of prolactin gradually rises to its highest level within 10-60 minutes before gradually decreasing to a normal level at approximately 3 hours (Ontrakarn, 2001). Therefore, frequent suckling at least every 2-3 hours or 10-12 times per day, or at least 9 times a day, in order to stimulate a sufficient amount of milk and early lactation. Moreover, frequent suckling helps to

reduce infant jaundice due to the fact that colostrum performs a natural laxative effect which aids in the excretion of meconium and results in the reduction of jaundice (Gartner, 1987 cited in Chattranon, 1995).

Correct suckling – Correct suckling is extremely important as it aids in the prevention of a number of problems such as inadequate breast milk, delayed lactation, sore nipples, etc., which may occur as a result of incorrect suckling. Therefore, the infant must be latched on correctly. The following tips may be offered to promote correct suckling; the mother should let her nipple gently brush the lower lip of her infant because doing so will stimulate the rooting reflex, and cause the infant to open its mouth widely. The mother must then quickly move her baby's head toward the nipple while inserting the nipple into the infant's mouth as deeply as possible until its lip and gums latch onto the areola and its mouth covers the whole areola. While sucking, the baby will move its gums in and out on the nipple base in order to express the milk into its mouth. As the baby begins to suckle, the nipple and areola will protrude onto the baby's tongue and be pushed towards the roof of the baby's mouth. If the nipple is swallowed deeply enough, it will stimulate the area joining the hard and soft parts of the roof of the mouth, which is the area where the suckling reflex responds most vigorously. The baby's tongue beneath the areola and the nipple also helps express the milk into the mouth. If the infant fails to latch onto the nipple deeply enough, the gums will press on the nipple and the infant will forcefully lick the front of the nipple which results in soreness or cracked nipples. Therefore, correct latching onto the breast and correct suckling will allow infants to receive sufficient amounts of breast milk i.e. as lactation is frequently stimulated, the mother will produce an adequate milk supply.

In taking care of adolescent mothers in order to promote breastfeeding behaviors by using these 3 principles, the mothers must receive care that helps prevent stress or anxiety because these factors will affect the oxytocin hormone release, which influences breast milk supply. In addition, creating confidence and satisfaction in breastfeeding while letting husbands, parents, relatives and friends support and encourage the mother will also contribute to successful breastfeeding among adolescent mothers.

Breastfeeding Behavior

Breastfeeding behaviors are not overly complicated. If the teenage mother learns the correct techniques in breastfeeding, she will be able to feed her baby with convenience and satisfaction. The correct techniques in breastfeeding behavior can be summarized as follows (Bobak & Jensen, 1993; London et al., 2003):

Before breastfeeding

1. The mother should clean her hands with water and soap, then dry them before each breastfeeding.
2. The mother should sit or lay down in a position that is comfortable for breastfeeding.

In sitting positions, the mother should sit upright and have support at the back with a pillow or cushion on her lap. Her feet should be able to reach the floor, or use a footstool beneath her feet to help maintain good posture.

In lying down positions, the mother should lay on her side with a pillow under her head. There should also be a pillow for back support to prevent back pain.

3. Hold the baby on the side facing the mother. The baby's head and body should be in good alignment with the head raised slightly higher than the body. Move the baby until its abdomen is close to that of the mother. Let the baby's mouth be at the same level as the mother's nipple.

Breastfeeding Positions

1. **Sitting position** - there are 3 sitting positions:

1.1 Cradle position. Hold the baby lay with its face turning toward the mother and put the baby on the mother's lap with a pillow underneath so that the baby can latch on to the nipple deeply enough and so that its nose does not press against the breast. The mother should hold the baby with the arm on the same side as the breast, the baby's head in the crook of the mother's elbow and with the mother's hand to support the baby's body. Move the baby until its abdomen is close to that of the mother, and its mouth is aligned with the nipple. The baby's head and body should be in alignment with the head raised slightly higher than the body.

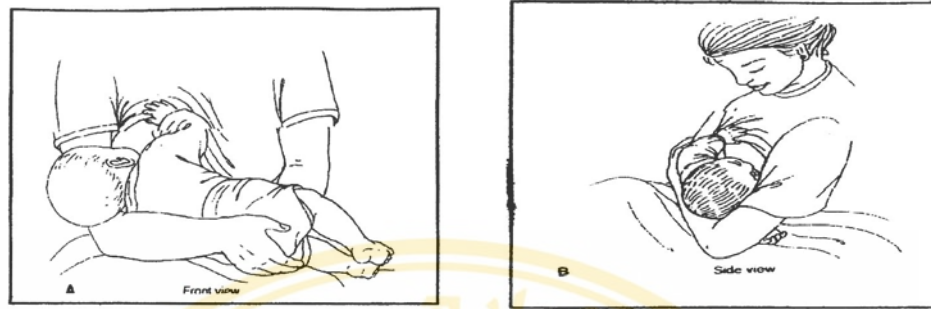


Illustration 1 - Cradle position

Source: London, M.L., Ladewig, P.W., Ball, J.W., Bindler, R.C. (2003). *Maternal-newborn & Child nursing: Family center care*. New Jersey: Jolie Levin Alexander. p. 594.

1.2 Modified cradle or Cross cradle position. Hold the baby with its face and body turning toward the mother whose hand is supporting its neck. Lay the baby's body across the mother's lap with a pillow to support the baby. The mother should hold the baby with the opposite arm from the breast. Use the other hand to hold the breast and insert the nipple into the baby's mouth. Move the baby until its abdomen is close to the mother's and the baby's mouth is level with the mother's nipple. The baby's head and body should be in alignment with the head slightly higher than the body.



Illustration 2 - Modified cradle or Cross cradle position

Source: London, M.L., Ladewig, P.W., Ball, J.W., Bindler, R.C. (2003). *Maternal-newborn & Child nursing: Family center care*. New Jersey: Jolie Levin Alexander. p. 594.

1.3 Football position. Hold the baby on the same side of the arm as the breast. Lay the baby half on the back and half on the side on the pillow next to the mother with the baby's toes pointing to the mother's back. Use one hand to support the baby's neck and head and hold the baby's body close to the mother's side. This position is suitable for mothers with large breasts, mothers who have twins, Caesarean section, or cracked nipples.

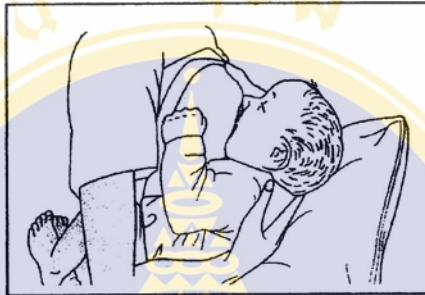


Illustration 3 - Football position

Source: London, M.L., Ladewig, P.W., Ball, J.W., Bindler, R.C. (2003). *Maternal-newborn & Child nursing: Family center care*. New Jersey: Jolie Levin Alexander. p. 594.

2. Side-lying position. The mother and baby lie on the side, facing each other with the mother's head raised high as she holds the baby with the same side of the arm as the breast. The baby's head is on the mother's elbow with a small pillow or a roll of towel to support the baby's back.



Illustration 4 - Side-lying position

Source: London, M.L., Ladewig, P.W., Ball, J.W., Bindler, R.C. (2003). *Maternal-newborn & Child nursing: Family center care*. New Jersey: Jolie Levin Alexander. p. 594.

During breastfeeding

1. Hold the breast and insert the nipple into the baby's mouth. The mother should hold the breast with the thumb on the upper side of the breast as the remaining 4 fingers support the breast from beneath with all fingers slightly away from the areola. Adjust the fingers along the baby's mouth line.

2. In latching on, help the baby to latch on correctly by letting the nipple gently brush against the baby's lower lip to stimulate the baby's rooting reflex. The mother should wait until the baby turns toward the breast with the mouth open-wide. The mother must move the baby's head quickly and gently towards the nipple as she inserts the nipple into the baby's mouth to encompass the areola. Notice that the upper gum is pressing on the areola, the nose is touching the breast, the upper and lower lips are open wide and do not curl under, the chin touches the breast, the cheeks are full and rounded when suckling against the mother's breast.

3. During correct breastfeeding, the cheek will not be depressed. There is not loud noise during the suckling, except for the quiet sound of swallowing.

4. During breastfeeding, the mother ought to see the baby's face and talk to the baby, making eye-to-eye contact between the mother and the baby to stimulate attachment (Klaus & Kennell, 1982) because the baby can see, hear, smell, feel, and

taste from the time of birth, thus, making the baby ready to stimulate for optimal infant development and growth.

5. The baby should be breastfed according by demand until full when it will release the nipple. Nevertheless, the feeding from each breast should not be less than 10-15 minutes so that prolactin and oxytocin releases are sufficiently stimulated. The baby should be awakened when falling asleep during suckling wherein the mother presses the thumb gently on top of the breast to stimulate the baby to continue breastfeeding.

6. Let the baby feed on both breasts by consuming the lion's share of the milk from one breast at a time.

7. When the mother wishes to remove the nipple from the baby's mouth, she should push a finger into to the baby's chin or insert a finger into the corner of the baby's mouth between the gums so the baby will opens its mouth to prevent cracking.

After Breastfeeding

1. Before the mother lets the baby feed on the other breast, or before the baby is full from breastfeeding, the mother should burp the baby to eliminate of air and relieve uncomfortable pressure in the stomach from swallowing a little air while breastfeeding. This can be done by holding the baby in a sitting position in the mother's lap and supporting the baby's head and back with one hand and the chin and front with the other. Or hold the baby upright with the head on the mother's shoulder and chest against the mother with one arm supporting the baby's bottom. Then wait 1-2 minutes for the milk to flow completely into the stomach. Burping noises may or may not be heard.

2. After burping, lay the baby in the right side position, which can help the milk to flow into the intestines better and prevent vomiting and gagging.

3. The baby will not need water following breastfeeding because about 87% of human milk is water. In addition, after breast milk is digested, there is little waste that passes though the baby's kidneys (Brostrom, 1981). Breast milk also has lactoferin, which can stop the growth of *Candida albicans* and *E. coli* (Lowrence, 1994). Therefore, the baby who has breastfed exclusively will have no fungi in the oral cavity and little chance of diarrhea.

4. The mother should let the baby breastfeed exclusively without any formula or other foods because babies who feel full on other formula or food will not breastfeed, thus inhibiting breast milk production and resulting in smaller amounts of milk. During the first 2-3 days after birth, there is only a small amount of colostrum and this makes some mothers feel that it is not enough for the baby. Then mixed milk or other food is given. In reality, however, babies who are born at full term will have plenty of water and energy reserved in their bodies for the first 2-3 days following delivery. Thus, within this time the baby does not require water or other food. Finally, the breast milk supply will gradually increase as lactation initiated to constantly fulfill the baby's needs. For these reasons and more all babies should be exclusively breastfed during the first 6 months of life.

5. After breastfeeding the baby, the mother should express a little breast milk to rub the nipple and let the nipple dry. Then, the mother should wear a suitable brassiere to provide adequate breast support at all times to prevent sagging.

6. After breastfeeding, the mother should drink at least 1 glass of liquids such as milk, fruit juice, or water.

7. After breastfeeding, the hindmilk should not be expressed because it is the posterior portion which gives more nutrients and more energy than foremilk. However, if the mothers suffer from breast engorgement, some of the milk can be expressed to relieve the uncomfortable feeling.

8. Babies should be allowed to breastfeed as often as they need during the day and night. If the baby sleeps over 2-2½ hours in the first 2-3 days after delivery, the mother should awaken her infant. Once the milk supply has been firmly established, the baby will not require as many feedings as before. However, babies who sleep more than 3 hours should be awakened for breastfeeding.

9. At the time of the next feeding, the mother should begin with the breast used last, because the baby will suck harder on the first breast offered i.e. if the mother used the right breast last during one feeding, she should begin with the right breast at the next feeding. However, in cases where the baby's hunger is satisfied on one side, the other side should be for the next feeding.

It is certain that breastfeeding is extremely beneficial to both mothers and babies, and that breastfeeding procedures are not overly complicated. Therefore,

successful promotion of breastfeeding in adolescent mothers should be supported, so that they can learn about breastfeeding in order to understand appropriate breastfeeding behavior and build confidence in breastfeeding capability. The researcher believes that adolescent mothers who received instruction by using Social Cognitive Theory will be capable of breastfeeding properly and for longer duration.

Social Cognitive Theory

Social cognitive theory was developed by Albert Bandura (Bandura, 1986), who proposes that a person's behavior occurs as a result of inner majors and environment, or correlations between the following 3 factors:

1. Interpersonal (P) - seeking the cause of human behavior in dispositional sources in the form of instincts, drives, traits, wisdom, thoughts, feelings, beliefs, self-perception, goals, intentions, and other motivational forces within the individual.
2. Behavior condition (B) - knowledge and skill to perform a given behavior
3. Environmental (E) - study and theorize about how behavior is controlled by situational influences. There are social and physical environments wherein social environments include family members, friends and colleagues; physical environment is the size of room, temperature, environment and setting, which provide the framework for understanding behavior.

This correlation between 3 factors is an interlocking system wherein each factors is up to the environment e. g. sometimes the environment affects behavior more than internal person, and sometimes internal person affects behavior more than the environment. In this kind of relationship, factors influence one another bi-directionally (Reciprocal determinism).

A person's behavior can be caused by other factors such as social learning, thinking, emotions, and expectations that may be direct or indirect experience. Humans learn about relationships between events, and this will become beliefs that affect human behavior. Humans often use the environment and experience conditions or outcomes of behavior as reasons for deciding to continue practicing that behavior. It can be assumed, therefore, that behavior is up to social learning in conditions. Thus, behavioral studies should analyze conditions and stimulants that influence a person's behavior as this will add to displays of behavior in that person.

In providing instruction by use of each type of teaching media, it is environmental conditions that affect the internal person trigger learning. Most people learn from observational learning or modeling, which can be divided into live models and symbolic models by using the media such as television, handbooks, and cartoons wherein the learners can acquire cognitive skills and new patterns of behavior by observing the performance of others. Observational learning or modeling is shown most clearly when models exhibit novel patterns of thought or behavior which learners did not already possess but which, following observational learning, they can produce in similar form. Observational learning is governed by the following four constituent processes:

1. **Attentional Processes:** The learner cannot learn much by observation unless they attend to, and accurately perceive, the relevant aspects of the modeled activities. Attentional processes determine what is selectively observed in the profusion of modeling influences and what information is extracted from ongoing modeled events. Selective attention is, therefore, one of the crucial subfunctions in observational learning. A number of factors influence the exploration and perception of what is modeled in the social and symbolic environment. Some of these relate to the cognitive skills and other attributes of the learners. Others concern the properties of the modeled activities themselves. Still others pertain to the structural arrangements of human interactions, which largely determine the types of models available for observation.

2. **Retention Processes:** The learner cannot be greatly influenced by observation of modeled activities if they do not remember them. In order for observers to profit from the behavior of others, when they are no longer present to provide direction, the modeled information must be represented in memory in symbolic form. Through the medium of symbols, transitory modeling experiences can be maintained in permanent memory. Observational learning and retention are aided by symbolic transformations because they carry a great deal of information in an easily remembered form. After modeled activities have been converted into images and readily utilizable verbal symbols, these conceptions function as guides for subsequent action. Representational guidelines play an especially influential role in early phases of response acquisition. After a given behavior pattern has been

repeatedly performed, it eventually becomes so routinized that it can be enacted smoothly and automatically without requiring representational guidance.

3. **Production Processes:** The third component of modeling involves converting symbolic conceptions into appropriate actions. To understand representation guidance of enactments requires the analysis of the conceptual-motor mechanism of performance. Behavioral production is achieved by organizing response spatially and temporally in accordance with the conception of the activity.

4. **Motivational Processes:** People do not enact everything they learn. They may acquire and retain the capabilities to execute modeled activities adeptly but rarely or never perform them. Discrepancies between learning and performance are most likely to arise when acquired behavior has little functional value or carries high risk of punishment. When positive incentives are provided, observational learning, which has previously remained unexpressed, is promptly translated into action. Performance of observationally learned behaviors is influenced by three sources of incentives: direct, vicarious, and self-produced. People are more likely to exhibit modeled behavior if it results in valued outcomes than if it has unrewarding or punishing effect.

Therefore, Social Cognitive Theory is related to contribution that move the learner toward learned behavior from observational learning or modeling wherein they carry a great deal of information and properties or behaviors as revealed in the following studies:

Boonyarittipong (1987) revealed that teenage mothers who received education by reading cartoons achieved better breastfeeding practice than mothers who did not receive education.

Keardphan (2002) discovered that teenage mothers who received breastfeeding promotional programs and watched videos on breastfeeding behaviors had higher overall breastfeeding behavior scores than those mothers who received only routine nursing care.

Through the use of video instruction media, Siriwattanametanon (2002) found that primiparous mothers had higher breastfeeding scores and longer breastfeeding durations than the mothers who received only routine nursing care.

Thus, it can be seen that the utilization of educational media can attract attention and provide different learning experiences as it helps teach learners in the

place of a live instructor as they acquire understanding, skills and experience (Peerawut, 1999).

Modern technology is developing at a fast pace and information technology now plays a significant role in the education field as it helps people learn. Electronic media such as television, video, and computer can help learners who are spread out in various areas to acknowledge and learn about news and information widely and thoroughly. People who own a computer can study by themselves by using programmed instruction. Today, Thailand is in an age of information technology as its people begin to realize the importance of life-long learning. Learning through various media, especially computers, is now widely popular and it is predicted that electronic media will play an even more significant role in the field of education in the future as tendencies develop toward instruction without teachers (Kammanee, 2002).

Computer Assisted Instruction (CAI)

The development of computer technology enables wider use of computers in educational fields in terms of research, study, administration, learning and teaching. CAI or Computer Assisted Instruction, is one media for instruction which uses the capability of computers to present the subject matter or knowledge which is similar to actual classroom instruction in the class (Lauwhajratsang, 1998)

CAI is a feature of computers in transferring content with the objective of allowing people with differences, whether in terms of intelligence, readiness, or basic knowledge, to learn and achieve the lesson objectives by their own ability (Peerawut, 1999). CAI is effective in drawing the learner's attention and stimulates the learner so he has the desire to learn through the use of multimedia, which has a special characteristic in conveying the content to resemble reality. CAI allows the learner see messages, graphics, still images, moving pictures, colors and sounds while further allowing the learner to go back and review any part of the lesson as necessary (Billings, 1986).

CAI can solve the problem of limited time for learning and insufficient number of instructors. Therefore, CAI represents a technological advance aimed at improving educational effectiveness, value and comprehension of various subjects

while being an educational media for patients, relatives and the public in general. CAI is currently designed to provide teaching advancement that not only affects the knowledge and attitudes of the learner, but is also capable of developing skills and creating experiences as well (Jiraphaet, 2001).

Types of Computer Assisted Instruction

Most educational expertise has classified CAI into 5 categories as follows (Billings, 1986; Peerawut, 1999; Roodpothong, 2001):

1. Tutorial Instruction: The objective of tutoring instruction CAI is to presenting the lesson content to learners. The lesson content can be new knowledge or a review of old lesson content with a practical exam at the end of the lesson for testing the understanding of the learner.

2. Drill and Practice: The objective of Drill and Practice CAI is to make learners practice after they have studied the lesson. This CAI content is concentrates on knowledge practice and helps the learner to apply the knowledge and principles learned to do the practice exam.

3. Simulation: The objective of Simulation CAI is to make learners practice in learner simulations that closely resemble reality. The learner will practice assessing the situation, solving the problem, making decisions and interactive responses. This CAI will provide assistance for learner to make decisions and witness the results of their decisions.

4. Instructional Games: The objective of instructional games CAI is also to make the learners practice, but with a funnier, more exciting and more challenging presentation. There are usually game rules and it is the competition for triumph that leads to learning, perhaps in the form of cooperation in solving problems as a group, or by team work.

5. Test: The objective of test CAI is to evaluate knowledge, skills or attitudes. The benefit of this CAI is immediate feedback for learners.

Benefits of Computer Assisted Instruction

CAI is beneficial to both learners and instructors as follows (Billings, 1986; Lauwhajaratsang, 1998; Peerawut, 1999):

Benefits for learners

1. Individualized instruction: CAI is a personal educational media, focusing on the learner's needs, which is important in consideration of the variability among learners and different learning capacities to receive help according to the learner's needs in order to achieve learning objectives. The learners can use CAI to study individually at times and places convenient for the learners.

2. Time efficiency and effectiveness: CAI saves learning time, learning time can be decreased and CAI is effective as lecture in presenting instruction, but reduces instruction time. When compared with other types of instruction (lecture or textbook), CAI is effective and more efficient.

3. Emphasis on teaching-learning principles: well-designed CAI is based on current research about how individuals learn. Each lesson has defined instructional specifications with identified learning outcomes. Evaluation is an integral component of instruction and changes in learner behavior can be documented after CAI use.

4. Development of decision-making skills: CAI lessons assist learners to master decision-making and problem-solving skills in safe environments in which learners can make choices or complete all steps of a process in a time-limited, setting that gives learners the opportunity to explore alternative courses of action as they discover effective solutions to problems and their own problem-solving style.

5. Mediation of instruction: CAI is ability to present instruction in a variety of ways to each learner. CAI can gain learners' attention, present objectives, provide stimuli, present instruction, give feedback, select learning sequences, and perform evaluation.

6. Interactivity: CAI is an active form of learning i.e. the learner can interact with the instruction by making choices and responding to feedback. Unlike lectures, passive movies or videotapes, CAI will guide the learner into the instructional process.

7. Learner control: When using CAI, the learner usually has control over the lessons. The learner can choose what, how and when to learn. The advantage for the learner is ability to vary the pace and the time spent with the instructional material. These options are not available in lectures or continuing education workshops.

8. Immediate feedback: CAI lessons have the potential for giving the learner immediate feedback as needed. The learner interacts with the content and is informed quickly of correct or incorrect understanding wherein rationale can also be included. Feedback given in CAI is nonjudgmental and the learner is not embarrassed by making mistakes.

9. Attitude improvement: CAI is the medium of instruction that improves attitudes toward the learner. The improved attitude may be a result of confidence and competence obtained by mastery of content.

10. Accessibility: CAI is becoming an accessible medium of instruction. As computers are located near learners, more learners have access to quality instruction provided by CAI courseware. The learner saves travel time and expense in attending a course or continuing education offerings.

11. Privacy: Learning can occur in private with decreased pressure from peers or instructors.

Benefits to the instructor

1. CAI will solve the problem of instructor shortages, or lack of instructors, with expertise in various subjects, because it can continually rely on the knowledge inside to be available for learners in suitable times and different places, or for individual self-study, without wasting time.

2. CAI can save the time spent teaching.

3. CAI is an opportunity to create new an innovation for academic courses and educational material.

4. CAI will be added for serving the learner's needs, which motivates learning and results in better comprehension.

5. CAI can be used as a media for hazardous subjects by stimulating a situation in order to practice skills, solve problems and experience learning.

6. CAI can be used to build teaching standards.

7. CAI is a media that shows a sequence of events clearly and in slow motion.

Principles for Computer Assisted Instruction Design

Designing computer tutorials is an important step with a great impact on the lesson wherein the instructor should consider how to design the lesson, simplify the content, make it fun to follow, replace text with interesting activities, create illustrations that magnify words, and put words into narrative. Furthermore, the design has to draw the attention of the learner. The design of CAI lessons performed according to the 9 teaching principles of Gagne are as follows: (Roodphothong, 2001).

1. Gain attention

Learners should be motivated in their attention to learn the lesson by the use of pictures, colors and sound or various material compositions, which should be relevant to the content, illustrate the title of lessons and be well-designed to attract the attention of learners. Lesson designs are based on the following principles:

1.1 Using suitable graphics that are relevant to the contents, large in size and easy for learners to understand.

1.2 The graphics should indicate the title of the lesson and remain upon the screen until the learner clicks on the keyboard or mouse.

1.3 Graphics must be relevant to the content and suitable for the learner.

1.4 Motion pictures or other technique can be used to help show motion. However, these pictures should be short and simple.

1.5 Color should be used, especially green, red and blue or other colors that contrast with the background, to enhance clarity.

1.6 The sounds included in the lesson must correspond with the graphics and content.

2. Specify objectives

Specifying the lesson objectives is an important matter for briefly informing the learners about the framework of the content. The principles of specifying objectives are as follow:

2.1 Using short and simple words.

2.2 Avoid using words that are not widely known or difficult words.

2.3 Avoid specifying too many objectives.

2.4 After learning, the learner should know what can be applied.

2.5 If there are numerous topics after informing of the broad objectives, the format should be menu for selection, followed by specific objectives in each lesson.

2.6 Easy, but interesting graphics and sounds that correspond with the lesson objectives should be used.

2.7 Specifying objectives for each topic on the screen is a good technique.

3. Activate prior knowledge

In receiving new knowledge, the learner does not need to be tested to activate prior knowledge. To repeat the prior knowledge is probably to stimulate the learner to reflect on prior lessons which will depend upon suitable content according to the following steps which should be considered at this step of lesson designs:

3.1 The learner should not be expected to possess equal amounts of previous basic knowledge on the content. Therefore, tests or reviews should be used to activate previous knowledge for the learner to repeat or prepare for new knowledge.

3.2 Proportional tests or reviews should be considered substantial.

3.3 Consideration should be given to letting the learner repeat and study for further knowledge any time.

3.4 If there are no tests of previous knowledge, the instructor should find a way to stimulate learners to think of subjects already studied or gained from their experience.

3.5 Stimulating the learner to think in retrospect can be interesting when the content is accompanied by pictures and words.

4. Present new information

Presenting pictures that are related to the content in combination with short and easy captions or words will improve comprehension and lesson retention

more than words or reading because pictures will make acceptance of the abstract easier. In presenting interesting new information the following should be considered:

- 4.1 Use of pictures, especially to accompany important content.
- 4.2 Use of charts, diagrams, graphs, legends or comparative images.
- 4.3 For presentation of difficult and complicated content, cues must be used for important topics, which include underlines, layouts, or flashing and background color changes.
- 4.4 Avoid using graphics that are difficult to understand and using multimedia should be suitable with the content both in quantity and quality as well as the capability of the learner must also be considered.
- 4.5 Organize the format, so it looks inviting. Extensive content should be divided into clusters.
- 4.6 Use words and samples that are easy to understand and suitable for the learner.
- 4.7 Use no more than 3 colors in each frame (including background color). The color should not be changed too often, especially the main colors of the text.

5. Guide learning

Learners will have good retention of the lesson content if the system of content presentation is combined with prior experience or knowledge of the learner.

The responsibility of CAI designers is to use strategy to stimulate the learner to activate prior knowledge to study in order to accept new knowledge. Also, the designer should try to clarify new knowledge as much as possible. The following should be considered for guide learning:

- 5.1 Illustrate for learners to consider related content and accept that sub-content is related to the main content.
- 5.2 Illustrate the relationship between the learners' new and old knowledge or event in past experience.
- 5.3 Differentiate samples to clearly explain new content.
- 5.4 Provide wrong samples to compare with correct samples.
- 5.5 Tangible samples should be used for presentation of difficult content.

5.6 Stimulate learners to remember previous knowledge and experience.

6. Elicit responses

CAI has more comparative advantages than VTR, movies, slides or other communication media which are non-interactive because the learner can have more activities such as recommendation, selection activity selection or interactivity. Therefore, the effect of eliciting response is more efficient for the learner who can participate in thinking or activities related to the content. To enhance retention, therefore, the learner should be allowed to participate in activities at various stages by designing as follows:

- 6.1 Let the learner have a chance to interact in any way throughout the lesson.
- 6.2 Let the learner have opportunities to type letters or short messages accordingly.
- 6.3 Ask questions at intervals as appropriate.
- 6.4 Stimulate thoughts and imagination with questions.
- 6.5 Don't ask too many questions at one time or one question with multiple answers. If necessary, provide choices to be selected for the answer.
- 6.6 The questions, learner's responses and feedback should be shown in the same frame.

7. Provide feedback

CAI lessons will stimulate the interest of the learner when challenged with clear objectives in addition to feedback to inform learners how far they are from the target of the lesson. Furthermore, the feedback provided should be positive pictures, especially if the pictures are relevant to the lesson content and can help arouse interest. The principles for providing feedback should be as follows:

- 7.1 Give immediate feedback after the learner has responded.
- 7.2 Reveal correct answers to the learner after 1-2 incorrect answers.
- 7.3 Show the questions, answers and feedback in the same frame.
- 7.4 Using simple pictures related to the content, avoid exaggerated feedback when the learner makes mistakes.

7.5 Graphic images unrelated to the content may be used when related pictures cannot be provided.

7.6 Use high tones for correct answer and low tones for incorrect answer.

7.7 Use scores or pictures to inform of proximity to the objective.

7.8 Use feedback sampling in order to build interest.

8. Assess performance

Tests are essential either during the course of CAI, or at the end of the instruction because testing provides a chance for the learner to perceive by other means than lesson evaluation while enhancing retention of the content. Therefore, tests should be set by the respective objectives. Some suggestions for test design are as follows:

8.1 Test should meet test/lesson objectives.

8.2 Questions, answers and feedback should always be in the same frame.

8.3 Avoid typing long answers, except in typing tests.

8.4 Let the learner answer only once for each question. If a particular question has more sub-questions, change these into several different questions.

8.5 Inform the learner about how to answer e. g. other choices such as a “Help” option.

8.6 Accuracy and reliability must always be considered.

8.7 Pictures, rather than writing alone, should be used for suitable composition.

8.8 It is not appropriate to call an answer wrong if the answer is unclear, miss-typed, misspaced or uses a small font instead of a large font. In such cases the learner should be allowed to answer again rather than being deemed incorrect.

9. Promote retention and transfer.

This summary of the main issues includes various recommendations for the learner to review or asks some questions before the lesson is completed. The instructor should have suggestions for advance knowledge or additional research for further learning. Some considerations for this part of the design are as follows:

9.1 Learners should be informed that prior knowledge or experience is related to the advance knowledge.

9.2 Review important concepts in conclusion.

9.3 Recommend situations in which the advance knowledge can be utilized.

9.4 Inform learners of knowledge resource that can be continually useful.

CAI designs should be aimed at making the learner feel as close to direct instructions from a teacher as possible by modifying formal methods to cope with current computer performance. The 9 design principles CAI do not necessarily have to be classified in order or entirety as they mainly depend upon the presentation techniques and the content of the lesson (Roodpothong, 2001).

The use of CAI generally adds value to the lesson when used correctly and follows the characteristics of the lesson content. In the mean time, CAI that is used without following the content or is unsuitable for the learner's nature will be worthless (Peerawut, 1999). CAI usually has an advantage over other teaching media in terms of drawing attention because modern technology is implemented in the production procedures.

Research results that are related to using computer assisted medical instruction

The researcher remains unable to find research related to the use of CAI in teaching health education to patients. However, it was found that there have been studies about using computer assisted instruction widely in teaching, as following:

Panpinij (1998) studied "Effectiveness of using computer assisted instruction (CAI) for self-studying of Pharmacy student from the second year Major Biotechnology, Department of Diagnostic Pharmacology, Faculty of Pharmacy, Mahidol University", finding that the comparison of post-test scores of the students who had studied with CAI were significantly higher than the other students who had only studied with academic documents, and the students had positive opinion to CAI.

Songraksa (2001) studied “Effectiveness of using computer assisted instruction (CAI) in fifth year medical students in subject of spinal injury, Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University”, finding that CAI improved learning effectiveness significantly at P-value 0.05 while the comparison of retention between textbook learning and CAI were not significantly different. The students had positive opinions toward CAI e.g. the practice exercises helped them to better understand the lessons, attractive presentations, beautiful illustrations, video clips and motion pictures made the lesson more attractive and easy to understand.

Kongsamai (2001) studied “Evaluation of computer assisted instructional (CAI) program for pharmacology laboratory”, finding that the learners had positive opinions that CAI was a useful teaching media and could be used to learn according to their own capability. Most learners gave higher scores to graphics and moving pictures in the lessons than others aspects e.g. real experimentations for learning from CAI. They disagreed with using CAI instead of real experimentations, but felt that this method should be utilized to support real experimentations. It was also found that the total cost of real experimentations is higher than using CAI.

Suwuttho (2002) studied “The effectiveness of using computer assisted instruction(CAI) subject on “Medical platyhelminthes” to support self-studying of the third year medical students, Faculty of Medicine, Siriraj Hospital, Mahidol University”, showing that CAI was effective and increased learning efficiency with statistical significance. The students were satisfied with using the lessons and approved of using them as supplemental knowledge because topics could be selected as needed, presentation and illustrations were attractive, and presentations appropriately enhanced easy comprehension of the content.

Srisamutnak (2002) studied “The effectiveness of using computer assisted instruction (CAI) subjected on “Development in prenatal period” to support self-studying of the third year nursing student, Kuakarun College of Nursing”, finding that CAI successfully improved the effectiveness of study with statistical significance. The students had positive opinions, agreed with the suitability of the presentation method, admired the attractive interface, and appreciated the division of the content into topics that made the lesson more attractive and easy to understand.

Koch and Guice (1989) studied the responses of nursing students to CAI lesson on the subject “A Basic Electrocardiography” as compared to lecture studies. The result showed that there was no significant difference between the two methods i.e. the students in the CAI group had more positive response than the other group, required only 10-32 minutes in the study time as compared to the other group who required approximately 50 minutes or more.

Lowdermilk and Fishel (1991) studied the use of computer assisted instruction to assess the decision-making skills of nursing students in their senior year of bachelor degree studies in nursing. The results showed that the students who had studied with computer assisted instruction had better decision-making skills than students who had not used CAI. Furthermore, these students were able to improve their grades and most felt positively towards CAI.

As a result of the related literary review, the researcher became interested in studying the effectiveness of CAI about breastfeeding on the knowledge and breastfeeding behavior in primiparous adolescent mothers. The mothers' unreadiness to perform their maternal roles, negative attitudes, incorrect knowledge, or previous knowledge received from the antenatal care unit without review on breastfeeding knowledge to prepare for the baby to suckle immediately following delivery and appropriate breastfeeding behavior. The lack of proper breastfeeding instruction sparked an interest, the researcher to develop CAI media for primiparous adolescent mothers in the prenatal period for learning and reviewing knowledge and understanding about the importance and benefits of breastfeeding and how to breastfeed with both physical and mental preparation for breastfeeding after delivery.

Mothers in the early stages of labour will experience minimal duration and intensity of uterine contractions while cervical dilation less than of 3 centimeters and the range of the sensation of labour pain is defined as an unpleasant feeling of pain in abdomen and back related to the intensity of uterine contractions and cervical dilation at 33-44 millimeters wherein the range of pain distress was operationally defined as the emotional distress related to the sensation of labour pain at 23-39 millimeters, which is the level at which primiparous mothers experience minimal pain and are able to endure labour pain (Phumdoung et al. 2004). The mothers' uterine contraction will be widely spaced as the duration of uterine contraction for 15-30 seconds with a

recovery of every 10-15 minutes and low levels of intensity during this phase whereas the final phase are marked by uterine contraction lasting 30-40 seconds each with a frequency of every 5-7 minutes and an intermediate level of intensity. The mothers will not have much labour pain in the early stages, thus enabling them to adapt and endure the stress well. Therefore, they can rely on themselves and respond to the surrounding environment with curiosity, which makes this period the most appropriate for education the mothers about delivery procedures, pain relief and pushing methods as well as breastfeeding knowledge and support for the mothers while breastfeeding immediately following delivery to generate maternal cooperation and participation in decision-making (Supasri, 2003). Adolescent mothers who study the CAI about "Breastfeeding" will learn about appropriate breastfeeding behavior to generate good attitudes as the mothers understand and visualize the importance of breastfeeding immediately after delivery while being armed with confidence and cooperation subsequent breastfeeding which will help adolescent mothers to experience breastfeeding success.

CHAPTER III

METHODOLOGY

Research Design

This research was based on a pre-test post-test control group design with the objective of studying the effectiveness of computer assisted instruction about “breastfeeding” during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers. The research methodology was as follows:

Population and Sampling

The population of this study comprised primiparous adolescent mothers aged 15-19 years with gestational ages of 37 - 40 weeks at the beginning of the study and delivery at Siriraj Hospital.

The sample group was selected by simple random samplings from the population of 50 subjects mentioned above and by inclusion criteria as follows:

Inclusion criteria

1. Normal breasts and nipples.
2. Cervical dilatation less than 3 centimeters and labor pain scores less than 40 points at the beginning of the study.
3. No complications during pregnancy such as heart disease, hypertension, diabetes mellitus, kidney disease, thyroid disease or placenta previa, etc.
4. Ability to read and write.

Exclusion Criteria

The participants were excluded from the study, if they had any of the following criteria:

1. Inability to complete the computer-assisted instruction due to increased labor pain or spontaneous rupture of membranes.
2. Delivery or postpartum complications such as Caesarean section, removal of the placenta or postpartum hemorrhage.
3. Infant complications which required separation from the mother such as birth weights less than 2500 grams, severe birth asphyxia, deficit to breastfeeding such as cleft lip, cleft palate or tongue tie.

Sample size

The sample size was calculated by Power Analysis. Based on Wongwai's study (2001) wherein the mean difference on breastfeeding behavior scores between the experimental control and control groups was used to calculate an effect size (d) (Hunter & Schmidt, 1990) using the following formula:

$$d = (Y_E - Y_C) / S$$

$$S = \sqrt{\frac{(N_E - 1)(S_E)^2 + (N_C - 1)(S_C)^2}{N_E + N_C - 2}}$$

When N_E, N_C = The sample size in the experimental and control groups

Y_E, Y_C = The mean for the experimental and control groups

S_E, S_C = The standard deviation for the experimental and control groups

This calculation yielded the effect size which was a very large effect size of 0.22 at the alpha level of .05 wherein a sample size of less than 10 subjects was required to reach a power of .80. However, the Central Limit Theorem (Mendenhall & Beaver, 1994), which states that the distribution of the sample group will closely resemble a normal curve for studies consisting of more than 25 subjects, was applied in setting the sample size of 25 subjects for this study (Mendenhall & Beaver, 1994). Therefore, the researcher set the population at 50 subjects and then divided into 25 subjects per group for the experimental and control groups in this study. The

experimental group was provided with CAI about breastfeeding while the control group received only routine nursing care.

Setting

Siriraj Hospital is a mother-child friendly hospital that has a policy for supporting breastfeeding by utilizing the Ten Steps to Successful Breastfeeding. The Antenatal care unit offers the services of examination and treatment for abnormalities in the nipples and areola of pregnant women, providing breastfeeding education with content covering the benefits of breastfeeding, prenatal breastfeeding preparation, and overall of breastfeeding with two sessions of breastfeeding education.

The Labour Ward supports breastfeeding by utilizing Step Four of the Ten Steps for Successful Breastfeeding, which is “Help mothers initiate breastfeeding within a half-hour of birth, or immediately following delivery”. When mothers delivery, nurses promote mother-infant bonding by placing the infant on the mother’s chest for skin to skin contact. The mothers are then helped to initiate breastfeeding within 30-60 minutes after delivery wherein the infant is helped to breastfeed correctly within 30-60 minutes for every mother in normal condition. Each mother’s delivery bed is divided with curtains into “rooms” for privacy in a total of 20 rooms. The mothers are educated in breastfeeding their infants to breastfeed by the labour ward staff nurses. The mothers and the healthy infants are referred to the postpartum ward 2 hours after delivery.

The postpartum wards support rooming-in for mothers and infants to be together 24 hours a day and encourages the mothers to breastfeed on the demand of their infants. The mothers are provided breastfeeding education on expressing and storing breast milk and solving breastfeeding problems including a transfer to the Lactation clinic in cases of breastfeeding problems such as tongue tie, inverted nipples, etc.

Data Collection Instruments

1. The instruments for the data collection comprised the following:

1.1 The Computer Assisted Instruction (CAI) about breastfeeding, an educational media that was created by the researcher with steps for creating computer assisted lessons by modifying from the concept of Wongrattanaphiboon (1993), which has following steps.

Step 1: Analysis and synthesis of the content

The content on the benefits of the breastfeeding, techniques and general knowledge on breastfeeding was studied, analyzed and synthesized within the scope of the content to use in the formation of CAI. Then, the researcher specified the objectives of the lesson and the sequence of instruction, dividing the content into main topics and providing the test questions for the mothers to assess their comprehension.

Step 2: Instruction Design

The researcher designated the structure of the presentation as follows:

1. Lesson name, author, theses advisors
2. Behavioral objectives
3. Lesson topics (Main Menu)
4. Content presentation by using presentation techniques such as illustrations, graphics, moving pictures and corresponding colors and sound effects.
5. Testing of the mothers' knowledge with test questions covering the learning scope to test for comprehension by using 10 multiple-choice questions with four choices for each question and results when the mothers responded.

Step 3: Production of the CAI lesson

Design and preparation of various components used for producing the lesson by considering convenient usage, attractiveness, content agreement, content presentation and illustration techniques such as fonts, still pictures, graphics, sound effects and content frames.

Step 4: The formation of the CAI on breastfeeding

The CAI was created with the Authorware 7 program.

Step 5: Assessment and improvement of CAI

“No”, or “I don’t know” answers	scored	0	point
Incorrect Information			
“No” answers	scored	1	point
“Yes” or “No” answers	scored	0	point

The total possible scores for the questionnaire ranged between 0 – 24 points wherein:

Low scores indicated low levels of maternal breastfeeding knowledge.

High scores indicated high levels of maternal breastfeeding knowledge.

2.3 The Breastfeeding Behavior Observation form: The researcher modified the behavior observation form from the breastfeeding behavior observation form of Wongwai (1998) wherein the reliability of the observation form was 0.7. The researcher modified the breastfeeding behavior observation for clarity and concurrence with the policy of the Ministry of Public Health and appropriate breastfeeding behavior.

The breastfeeding behavior observation form contained 17 items on correct information regarding maternal behavior before, during and after breastfeeding with 6 items on the baby’s behavior. Scores were assigned by observing behavior or events that were specified, or positive, behavior of the mother and baby as observable with the following scoring criteria:

Any behaviors or events occurring as specified	scored	1	point.
Any of behaviors not occurring as specified	scored	0	points.

The total score of the observation form ranged from 0 to 23 points wherein:

Low scores indicated low levels of maternal propriety in breastfeeding behavior.

High scores indicated high level of maternal propriety in breastfeeding behavior.

Determining the reliability and validity of the data collection instruments

1. Determining the reliability and validity of the Knowledge of Breastfeeding Questionnaire.

The researcher modified the calculation for the validity of the knowledge of breastfeeding questionnaire from the postpartum knowledge of breastfeeding questionnaire by Masmalai et al. (2001), and submitted the knowledge of breastfeeding questionnaire to the examination of 4 qualified experts including 3 obstetrical nursing instructors and 1 nurse specializing in breastfeeding, to affirm the validity of the content.

The calculation for the reliability of the knowledge of breastfeeding questionnaire was submitted to a trial in 10 adolescent primiparous mothers with similar characteristics to the subjects being studied in the sample group wherein reliability was calculated by Kuder-Richardson Reliability as follows (Reuacha, et al., 1997):

$$\text{KR 20: } r_{tt} = \frac{n}{n-1} \left(\frac{1 - \sum pq}{S_t^2} \right)$$

When r_{tt} = Coefficient reliability

n = number of items on the questionnaire

p = percentage of samples who answered each question correctly

q = percentage of samples who answered each question incorrectly

S_t^2 = fluctuations in the total score

The reliability of the breastfeeding knowledge questionnaire was 0.84.

2. Calculating the validity and reliability value of the Breastfeeding Behavior Observation form.

The calculation of the validity for the Breastfeeding Behavior Observation form was modified by the researcher from the breastfeeding behavior observation form of Wongwai (1998) which was submitted to the same qualified experts who had examined the Breastfeeding Behavior Observation form, after which the researcher made revisions according to the advice of the qualified experts.

After a revision and improvement of the Breastfeeding Behavior Observation form according to the experts' advice, the researcher submitted the Breastfeeding Behavior Observation form to tests for inter-observer reliability wherein the test was conducted by trial with 10 postpartum adolescent mothers who had similar characteristics as the sample group with 2 observers, the researcher and researcher assistant, who were experts in breastfeeding. The inter-observer reliability was calculated by using the following formula (Polit & Hungler, 1991):

$$\text{Percent agreement} = \frac{\text{number of agreement}}{\text{number of agreement} + \text{number of disagreement}} \times 100$$

When number of agreement = number of items that 2 observers observed
in the same way
number of disagreement = number of items that 2 observers observed
in a different way

An estimate percent agreement of at least 80% was considered "good"

The inter-observer reliability of the breastfeeding behavior observation form was 0.89.

Protection of Human Subjects

In conducting this research on the effectiveness of computer assisted instruction about "Breastfeeding" during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers, the researcher protected the human rights of the subjects by introducing herself, explaining the research objectives, data collection and duration of the study. The legal representatives and the subjects read the details of the researcher's explanation which included the patient's rights wherein neither a positive or negative decision to participate would have any effect on hospital service. The subjects were informed of their right to withdraw from the study at any time without giving any reason. After the sample groups had agreed to participate in the research, they were asked to sign consent forms. The subjects

were assured that all data would be kept confidential and presented only as overall data.

Data Collection

The researcher gathered all data by the following procedures:

1. The proposal of the thesis research was submitted for the approval of the Committee on Human Rights Related to Human Experimentation at Siriraj Ethics Committee, Faculty of Medicine Siriraj Hospital, Mahidol University. After receiving the approval, the researcher commenced data collection.

2. The researcher requested an introduction letter from the Faculty of Graduate Studies, Mahidol University to be submitted to the Dean of the Faculty of Medicine Siriraj Hospital for coordination on data collection. After receiving the approval for data collection, the researcher met with the Supervisor of OBGYN nurses, Head Nurses of the Labour and Postpartum Wards to introduce herself, explain the details of the research objectives and the data collection regarding when the data would be collected.

3. The researcher collected data from 08:00 AM to 05:00 PM every day by going to the Labour Ward to select adolescent mothers who had specific characteristics as designated from the prenatal care reports and inpatient records.

4. When the researcher had acquired the sample group with characteristics that matched the specified criteria, the researcher performed simple random sampling in the experimental and control groups, conducting the experimentation until 25 subjects had been acquired for each group (experimental and control) for this study.

5. The researcher conducted the experiment as follows:

5.1 The control group

5.1.1 The researcher introduced herself and formed relationships with the adolescent mothers of the control group. Then readiness was appraised by appearance and labour pain. If the mothers had no labor pain, the researcher explained the objectives, data collection of this study and the human rights protection.

5.1.2 The researcher asked for cooperation to participate in the research. If the mothers were willing to cooperate, they signed the human rights

protection form. For subjects who were younger than 18 years old, the researcher let the legal representative and the subject read the information sheet explaining the research first. For those who were willing to participate, the representative and the subject signed as evidence. For subjects aged 18-19 years old, the researcher provided the information sheet and those who were willing to participate in the study signed consent forms as evidence of their willingness.

5.1.3 If the adolescent mothers did not have labor pain, the researcher would integrate them by using the questionnaire for demographic data, which required 10 minutes.

5.1.4 The researcher allowed the adolescent mothers to answer the knowledge of breastfeeding questionnaires regarding the mother's breastfeeding knowledge prior to conducting the experiment (pretest) with no time limit, but using approximately 20 minutes. When the questionnaire was completed, the researcher examined it for completeness. If the questionnaire was not answered completely, the researcher asked the adolescent mothers to answer verbally. For any adolescent mothers who forgot to answer the questionnaire, the researcher would ask the mothers to fill in the questionnaire once again. If the adolescent mothers were not comfortable about answering the questionnaire, the researcher would not use the data obtained by that analysis or reference and discontinue the study for that particular subject.

5.1.5 The researcher allowed the adolescent mothers to rest on the labour bed as they received routine nursing care and waited for delivery to proceed according to the delivery process. The researcher made an appointment to meet again after delivery.

5.1.6 Immediately after the adolescent mothers had delivered, after birth mother-infant bonding was promoted by placing the infant on the mother's chest for skin-to-skin contact, after which they were helped to initiate breastfeeding within 30-60 minutes after delivery with breastfeeding instructions provided by the labour ward staff nurses.

5.1.7 At 24 hours postpartum, the researcher and the research assistant met with the adolescent mothers at the postpartum ward. In cases wherein 24 hours postpartum fell between 06:00 PM to 07:00 AM, the researcher and the research

assistant postponed the data collection time to prevent disturbing the resting times of the mothers, but not later than 40 hours after the delivery.

5.1.8 The research assistant observed the adolescent mothers behaviors in breastfeeding according to the breastfeeding behavior observation form, which required approximately 60 minutes. The assistant observed in an area nearby where the mothers' breastfeeding behavior could be clearly seen.

5.1.9 After observing breastfeeding behavior, the researcher assessed the adolescent mothers' readiness by having them answer the knowledge of breastfeeding questionnaires in the same manner as same as before conducting the experiment (posttest) with no time limit, but taking approximately 20 minutes. When the questionnaire was completed, the researcher examined it for completeness. If the questionnaire was not answered completely, the researcher requested the participant to complete it. If the sample group forgot to answer any items on the questionnaire, the researcher would ask the adolescent mothers to complete the questionnaire again. If the adolescent mothers were not comfortable about answering the questionnaire, the researcher would not use the data obtained by that analysis or reference and discontinue the study for that particular subject.

5.1.10 Upon completion of the data collection, the researcher thanked the mothers for their participation.

5.1.11 The researcher collected data from the control group consisting of 25 subjects.

5.2 The experimental group

5.2.1 The researcher introduced herself and formed relationships with the adolescent mothers of the experimental group, after which readiness was appraised from appearance and labor pain. If the mothers had no labour pain, the researcher explained the objectives, data collection of this study and the human rights protection.

5.2.2 The researcher asked for cooperation in participating in the research. If the mothers were willing to cooperate, they signed the human rights protection form. For subjects who were younger than 18 years old, the researcher let the legal representative and the subject read the information sheet explaining the

research. For those who were willing to participate, the representative and the subject signed as evidence. For subjects aged 18-19 years, the researcher provided the information sheet and those who were willing to participate in the study signed consent forms as evidence of their willingness.

5.2.3 If the adolescent mothers did not have labor pain, the researcher would integrate them by using the questionnaire for demographic data, which required approximately 10 minutes.

5.2.4 The researcher allowed the adolescent mothers to answer the knowledge of breastfeeding questionnaires regarding the mother's breastfeeding knowledge prior to conducting the experiment (pretest) with no time limit, but requiring approximately 20 minutes. When the questionnaire was completed, the researcher examined it for completeness. If the questionnaire was not answered completely, the researcher would ask the adolescent mothers to answer verbally. For any adolescent mothers who forgot to answer the questionnaire, the researcher would ask the mothers to fill in the questionnaire once again. If the adolescent mothers were not comfortable about answering the questionnaire, the researcher would not use the data obtained by that analysis or reference and discontinue the study for that particular subject.

5.2.5 The researcher let the adolescent mothers study the CAI about "Breastfeeding" on their labour bed without any time limit but using approximately 30 minutes. The researcher sat and kept the participants company, helping the mothers to study the CAI as well as helping and caring when such problems as spontaneous rupture of membranes or the labor pain level was greater than 40 points in which case the researcher would stop immediately and notify the doctors and nurses of the labour ward to help the mothers.

5.2.6 The researcher allowed the adolescent mothers to rest on the labour bed as they received routine nursing care and waited for delivery to proceed according to the delivery process. The researcher made an appointment to meet again after delivery.

5.2.7 When the adolescent mothers had delivered, after birth mother-infant bonding was immediately promoted by placing the infant on the mother's chest for skin-to-skin contact as they were helped initiate breastfeed within

30-60 minutes after delivery with breastfeeding instructions provided by the labor ward staff nurses.

5.2.8 At 24 hours postpartum, the researcher and the research assistant met the adolescent mothers at the postpartum ward. In cases where 24 hours postpartum fell between 06:00 PM to 07:00 AM, the researcher and the research assistant postponed the data collection time to prevent disturbing the resting time of the mothers but not later than 40 hours after the delivery.

5.2.9 The research assistant observed the adolescent mothers behaviors in breastfeeding according to the breastfeeding behavior observation form, taking approximately 60 minutes. The assistant would observe in an area nearby where the mothers' breastfeeding behavior could be clearly seen.

5.2.10 After observing breastfeeding behavior, the researcher assessed the adolescent mothers' readiness by answer the knowledge of breastfeeding questionnaires in the same manner as prior to conducting the experiment (posttest) with no time limit, but taking approximately 20 minutes. When the questionnaire was completed, the researcher would examine it for completeness. If the questionnaire was not answered completely, the researcher requested the participant to complete it. If the sample had forgotten to answer any items on the questionnaire, the researcher would ask the adolescent mothers to complete the questionnaire again. If the adolescent mothers were not comfortable about answering the questionnaire, the researcher would not use the data obtained by that analysis or reference and discontinue the study for that particular subject.

5.2.11 Upon completion of the data collection, the researcher thanked the mothers for their participation.

5.2.12 The researcher collected data from the experimental group consisting of 25 subjects.

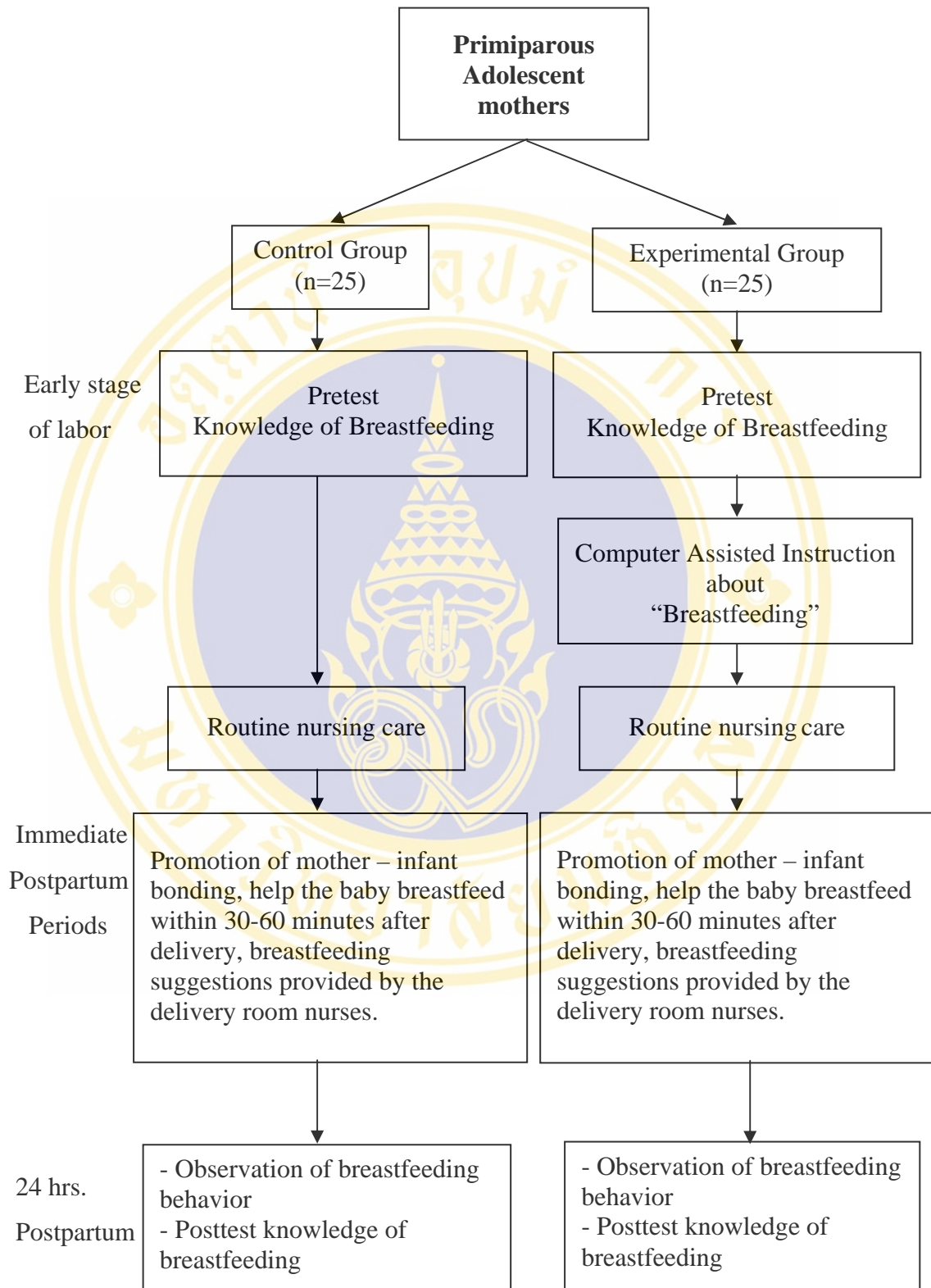


Figure 3 Summary of Steps Involved in Data Collection

Data Analysis

The researcher submitted the data obtained from various records to statistical analysis by a computer program with a significance level of .001 as follow:

1. Frequency distribution and percentage were used to describe demographic data.
2. Comparison on the difference in means of the knowledge of breastfeeding scores before and after the experimentation in the experimental and control groups was performed by paired samples t-test.
3. Comparison on the difference in means of the knowledge of breastfeeding scores before and after experimentation between the experimental and control groups was performed by independent samples t-test.
4. Comparison on the difference in the means of breastfeeding behavior scores between the experimental and control groups was performed by Independent samples t-test.

CHAPTER IV

RESULTS

This study based on a pretest-posttest control group research design was conducted to determine the effectiveness of computer assisted instruction about “breastfeeding” during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers. The sample group was divided into experimental and control groups with 25 subjects in each group. The findings are as follows:

Part 1: The analytical results of the demographic data for the sample group are shown in Table 1.

Part 2: The analytical results of a differential comparison between the experimental and control groups regarding the scores on the knowledge of breastfeeding in primiparous adolescent mothers are shown in Table 2-3.

Part 3: The analytical results of a differential comparison between the experimental and control groups regarding the scores of the breastfeeding behavior in primiparous adolescent mothers are shown in Table 4.

Part 4: The analytical results of the survey in the experimental and control groups regarding the breastfeeding behavior in primiparous adolescent mothers are shown in Table 5.

Part 1: The demographic data of the sample group

Table 1 The number and percentage of the experimental and control groups categorized by age, education, occupation, family income, family type, prenatal knowledge of breastfeeding, planned pregnancy, duration of intention to breastfeed and preferred gender for baby

Sample Characteristics	Experimental Group (N=25)		Control Group (N=25)		χ^2 P-value
	Number	Percentage	Number	Percentage	
Age (years)					
15-16	4	16.0	3	12.0	.914 ^{ns}
17-18	13	52.0	14	56.0	
19-20	8	32.0	8	32.0	
Education level					
Primary school	1	4.0	0	0	.312 ^{ns}
Secondary school	24	96.0	25	100.0	
Occupation					
Household work	14	56.0	15	60.0	.774 ^{ns}
Outside work	11	44.0	10	40.0	
Family income (baht/month)					
<5,000	8	32.0	9	36.0	.904 ^{ns}
5,000-10,000	13	52.0	13	52.0	
>10,000	4	16.0	3	12.0	
Family type					
Nuclear family	5	20.0	7	28.0	.508 ^{ns}
Extend family	20	80.0	18	72.0	

^{ns}P>.05

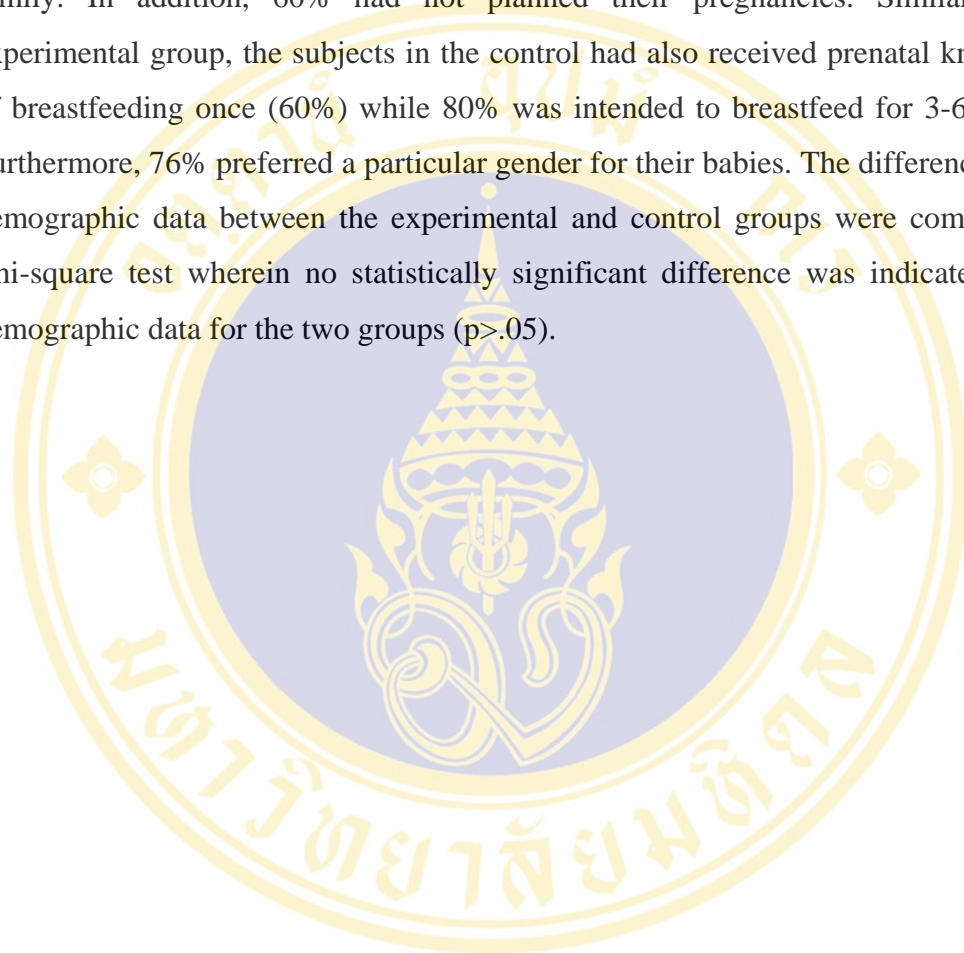
Table 1 The numbers and percentages of the sample categorized by age, education, occupation, family income, family type, prenatal knowledge of breastfeeding, planned pregnancy, duration of intention to breastfeed and preferred gender for baby (continued)

Sample Characteristics	Experimental Group (N=25)		Control Group (N=25)		χ^2 P-value
	Number	Percentage	Number	Percentage	
Planned pregnancy					
Yes	11	44.0	10	40.0	.774 ^{ns}
No	14	56.0	15	60.0	
Prenatal knowledge of breastfeeding					
1 time	17	68.0	15	60.0	.556 ^{ns}
2 times	8	32.0	10	40.0	
Duration of intention to breastfeed					
< 3 month	1	4.0	0	0	.599 ^{ns}
3-6 month	19	76.0	20	80.0	
> 6 month	5	20.0	5	20.0	
Preferred gender for baby					
Yes	16	64.0	19	76.0	.355 ^{ns}
No	9	36.0	6	24.0	

^{ns}P>.05

Table 1 shows that more than half of the subjects in the experimental groups were 17-18 years old (52%) with most education levels indicating completion of secondary school (96%). As for occupation and monthly income, 56% reported household work, and 52% earned a family income of 5,000-10,000 baht per month. For the family type and pregnancy planning, 80% lived with extended family, and 56% had not planned their pregnancies. Moreover, 68% received prenatal knowledge of breastfeeding once, and 76% was intended to breastfeed for 3-6 months.

Furthermore, 64% preferred a particular gender for their babies. With regard to the control group, however, 56% were 17-18 years old and all of the subjects had finished secondary school (100%). Moreover, 60% reported doing household work while 52% earned a family income of 5,000-10,000 baht per month and 72% lived with extended family. In addition, 60% had not planned their pregnancies. Similar to the experimental group, the subjects in the control had also received prenatal knowledge of breastfeeding once (60%) while 80% was intended to breastfeed for 3-6 months. Furthermore, 76% preferred a particular gender for their babies. The differences in the demographic data between the experimental and control groups were compared by Chi-square test wherein no statistically significant difference was indicated in the demographic data for the two groups ($p>.05$).



Part 2: Comparison of scores between the experimental and control groups regarding knowledge of breastfeeding in primiparous adolescent mothers.

Table 2 Comparison of breastfeeding knowledge between the experimental and control groups by independent samples t-test

Knowledge of Breastfeeding	Experimental Group (N=25)		Control Group (N=25)		t	P-value
	\bar{X}	S.D.	\bar{X}	S.D.		
	Pretest	16.72	1.308	16.52		
Posttest	22.84	0.943	17.24	1.268	17.721	.000***

***p<.001

Table 2 shows that the average posttest knowledge of breastfeeding scores following participation in the CAI in the experimental group was 22.84 points, while the average score for the control group, which received only routine nursing intervention was 17.24 points. The results of the independent samples t-test evaluation revealed that the average knowledge of breastfeeding score in the experimental group was significantly higher than that of the adolescent mothers in the control group at the statistical significant level of .001.

Table 3 Comparison of breastfeeding knowledge between pretest and posttest scores in the experimental and control groups by paired samples t-test

Knowledge of Breastfeeding	Pretest		Posttest		t	P-value
	\bar{X}	S.D.	\bar{X}	S.D.		
Experimental Group	16.72	1.308	22.84	0.943	-20.280	.000***
Control Group	16.52	1.447	17.24	1.268	-3.273	

***p<.001

Table 3 shows that the average posttest knowledge of breastfeeding scores following the CAI about breastfeeding for the experimental group was 22.84 points while the average pretest score was 16.72 points, thus indicating that the mean scores of knowledge of breastfeeding in the experiment group was statistically significant different at the .001 level ($t = -20.280$, $P < .001$). Furthermore, the average posttest knowledge of breastfeeding scores following the routine nursing intervention was 17.24 points, while the average pretest was 16.52 points, thus indicating that the mean scores for knowledge of breastfeeding in the control group showed no statistically significant difference.

Part 3: Comparison of scores between the experimental and control group regarding the breastfeeding behavior in primiparous adolescent mothers.

Table 4 Comparison of the differences in mean scores for the breastfeeding behavior and independent samples t-test for the mean scores related to the breastfeeding behavior between the experimental and control groups

Sample Groups	Breastfeeding Behavior			t
	N	\bar{X}	S.D	
Experimental Group	25	19.04	1.136	13.132***
Control Group	25	14.96	1.060	

***p<.001

Table 4 shows that the adolescent mothers of the experimental group who received CAI about breastfeeding had higher average scores (19.04) for breastfeeding behavior than the control group (14.96) who received only routine nursing care. The mean scores of breastfeeding behavior in both groups were different with statistical significance at a level of .001.

Part 4: The analytical results of the survey in the sample group regarding breastfeeding behavior in primiparous adolescent mothers

Table 5 The numbers and percentages of the sample categorized by item regarding the breastfeeding behavior

Breastfeeding Behavior	Experimental Group (N=25)		Control Group (N=25)	
	Number	Percentage	Number	Percentage
	1. Washed hands	0	0	0
2. Comfortable position	9	36.06	24.0	
12. The mother burped her baby	7	28.0	4	16.0
13. The baby was placed in right side position	6	24.0	3	12.0
16. The nipples was Allowed to dry	5	20.0	2	8.0

Table 5 shows that none of the adolescent mothers in the experimental and the control groups washed their hands before breastfeeding their babies (0%). As for their sitting or lying down in a position that was comfortable for breastfeeding, 36% in the experimental group and 24% in the control group complied with this practice. Also, 28% of the mothers burped their babies after breastfeeding in the experimental group and while only 16% of the babies in the control group were burped after breastfeeding. With regard to placing the baby in right side position, 24% of the mothers in the experimental group adhered to this practice while only 12% in the control group were placed in this position. Furthermore, 20% of the mothers in the experimental group expressed a little breast milk to rub around the nipples and let the nipples dry while only 8% in the control group adhered to this practice.

CHAPTER V

DISCUSSION

This research was aimed at studying the effectiveness of computer assisted instruction (CAI) about “Breastfeeding” during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers, the results of which are discussed separately according to the following hypotheses:

Hypothesis 1: The primiparous adolescent mothers will have higher knowledge of breastfeeding posttest scores after receiving computer assisted instruction than their pretest scores before receiving computer assisted instruction.

The results of this study showed that the primiparous adolescent mothers who received CAI about breastfeeding achieved higher posttest knowledge of breastfeeding scores than their pretest scores before receiving CAI at a statistically significant level ($P < .001$; Table 3). This finding supports the hypothesis as can be discussed below:

This showed that studying by using CAI lesson not only increased the mothers’ learning efficiency, but also enabled all the primiparous adolescent mothers to have similar understanding of the lesson content. For example, 100% of the adolescent mothers in the experimental answered correctly that breast milk provides all essential nutrients, to suit an infant’s nutritional needs. Suwuttho (2002), showed that CAI was effective, increased learning efficiency statistically significantly, and appropriately enhanced the presentation for easy comprehension of the content.

According to Bandura (1986), CAI about breastfeeding is considered an environmental factor which will influence interpersonal factors in terms of thoughts, beliefs, perceptions and knowledge obtained regarding breastfeeding. Thus, the adolescent mothers learned by observation learning from both live and symbolic models via supplemental medias such as television, videos, handbooks, and cartoons, that affected breastfeeding knowledge. Observational learning contributed to learned behavior from observational learning or modeling that facilitated the learners in

carrying a great deal of information because CAI had illustrations and captions to explain their components to promote better understanding. This finding agreed with Roodphothong (1995) who had concluded that presentation of illustrations with clear and concise descriptions are the essence of CAI lessons.

It can be concluded, therefore, that the primiparous adolescent mothers should be provided opportunities to use effective educational media in addition to instruction to help build their learning skills. The CAI about breastfeeding is effective and increases the mothers' learning efficiency with statistical significance, even though there was a higher difference in test scores when posttest knowledge of breastfeeding scores were compared with pretest scores.

Hypothesis 2: The primiparous adolescent mothers who received computer assisted instruction will have higher knowledge of breastfeeding scores than the primiparous adolescent mothers who received only routine nursing care.

The results of this study showed that the primiparous adolescent mothers who received the computer assisted instruction about breastfeeding achieved higher knowledge of breastfeeding scores than the primiparous adolescent mothers who received only routine nursing care at a statistically significant level ($P < .001$; Table 2). The finding supports the hypothesis as discussed below:

Since the adolescent primiparous mothers in both groups received knowledge of breastfeeding from prenatal care, the findings concurred with the study of Spear (2006) who found that adolescent mothers received a little knowledge both while pregnant and following delivery, will have better understanding about breastfeeding than mothers who did not. The study of Pongprasobchai et al. (2004) found that education programs significantly contributed to maternal knowledge on breastfeeding after the program ($p < .001$). From the results of this study, it can be concluded that the primiparous adolescent mothers who studied by CAI learning program in addition to routine nursing care had better understanding about breastfeeding than mothers who received routine nursing care only. This may indicate that providing instruction by use of each type of teaching media can arouse interest and provide different learning experiences (Peerawut, 1999). For example, the study of Bunyaritthiphong (1987) found that adolescent mothers who were instructed by

comic books had better understanding and knowledge about breastfeeding than adolescent mothers who did not receive this instruction. Moreover, CAI learning is highly effective in drawing attention and motivating learners while enabling them to go back and look at situations or content as necessary (Billings, 1986). Following the study of Kim (1998), it was found that instructing adolescent mothers by using a video on breastfeeding was more effective than using books. The study of Bunyaritthiphong (1987) found that adolescent mothers who were instructed by comic books had better understanding and knowledge about breastfeeding than adolescent mothers who did not receive this instruction. At the same time, the mothers were able to study by themselves, choose individual learning paces as appropriate for individual learning ability and interact with the program. Therefore, CAI was more effective than routine nursing care alone.

According to Bandura (1986), providing instruction by use of each type of teaching media is environmental conditions affecting the internal person and learning. Observational learning or modeling is shown most clearly when models exhibit novel patterns of thought or behavior which learners can produce in similar form. Following CAI learning program, therefore, the primiparous adolescent mothers learned by observational learning as they acquired cognitive skills and carried a great deal of information in an easily retained form. On the other hand, the mothers who received only routine nursing care were greatly influenced by the observation of modeled activities. They may not remember information while the nurses provided education during prenatal care. Therefore, the primiparous adolescent mothers who received CAI achieved higher knowledge of breastfeeding scores than the primiparous adolescent mothers who received only routine nursing care.

Hypothesis 3: The primiparous adolescent mothers who received computer assisted instruction will have higher breastfeeding behavior scores than the primiparous adolescent mothers who received only routine nursing care.

The results of this study showed that the primiparous adolescent mothers who received the computer assisted instruction about breastfeeding achieved higher breastfeeding behavior scores than the primiparous adolescent mothers who received

only routine nursing care at a statistically significant level ($P < .001$; Table 4). This finding supports the hypothesis as discussed below:

Firstly, the primiparous adolescent mothers' lack of knowledge and understanding in breastfeeding is behavior acquired by learning, and observational learning can help the mothers gain the knowledge and skills in breastfeeding that will lead them to develop capable breastfeeding behavior. According to Keardphan's study (2002), the adolescent mothers who watched videos on breastfeeding behavior had higher breastfeeding behavior scores than those mothers who did not.

Therefore, the researcher used an appropriate teaching approach to develop knowledge and ability in breastfeeding for the mothers in the experimental group. It was expected that the information, knowledge, and skills they learned would support the mothers in the experimental group in deciding about desirable self and infant care.

Furthermore, the model in CAI showed clear and simple breastfeeding behavior that was useful and could easily be imitated, so the mothers in the experimental group were more intent upon observing the model. Presenting a model can change the thinking processes of a person who can learn or adjust incorrect ideas. By watching a similar model, the observers gained confidence that such behavior is appropriate and felt that they could do the same (Iamsupasit, 2000). Therefore, observing breastfeeding behavior from CAI was beneficial for the mothers in program. It also encouraged positive attitudes toward breastfeeding and the model's behavior enabled the observers to learn and retain the behavior more effectively (Bandura, 1986). In providing instruction by use of each type of teaching media, environmental conditions affect internal persons and learning as most people learned from observational learning which is divided into live models and symbolic models by using medias such as television, handbooks, and cartoons. The learners can acquire cognitive skills and new pattern of behavior by observing the performance of others. This finding was in agreement with Songraksa (2001) who found that CAI helped the observers understand. Thus, CAI enhanced the confidence of the mothers in the experimental group in developing appropriate breastfeeding behavior.

Secondly, CAI was highly effective in drawing attention, motivating and enabling learners to view situations or content on breastfeeding more effectively than who received routine nursing care only. Therefore, CAI about "Breastfeeding"

affected the knowledge and attitudes of learners who developed skills to build experience in breastfeeding (Jiraphaet, 2001), such as expressing a little breast milk to rub around the nipples and letting the nipples dry (20.0 % in the experimental group as compared to only 8.0 % in the control group) and laying the baby in the right side position (24.0 % in the experimental group and 12.0 % in the control group). It is evident, therefore, that the mothers who received CAI could learn appropriate breastfeeding behavior more effectively than those who did not. In the study of Suwuttho (2002) it was found that CAI enhanced learning effectiveness with statistical significance, and appropriate presentation to enhance easy to comprehension of the content. The learners were able to select the information they studied according to their own needs and the style was attractive with illustrations to facilitate comprehension. Following the study of Songraksa (2001) it was found that learning by CAI improved learning effectiveness with statistical significance wherein learners had positive feelings and maintain the opinion that the end of the content exercises helped them to better understand the content adorned with attractive presentations. Furthermore, the graphics, videos, and motion pictures made the lesson interesting while improving comprehension. Therefore providing instruction by use of each type of teaching media can arouse interest and provide different learning experiences (Peerawut, 1999). For example, the study of Bunyarithipong (1987) found that adolescent mothers who were instructed by comic books had better breastfeeding practices than adolescent mothers who did not received this instruction. Furthermore, the study of Keardpan (2002) found that adolescent mothers who participated in a breastfeeding promotion program by having the mothers observe breastfeeding behavior in a video had higher overall breastfeeding behavior scores than the adolescent mothers who received only routine nursing care.

Thirdly, in order to educate primiparous adolescent mothers who are at the early stages of labour should be aimed at reviewing their knowledge and understanding of the importance and benefits of breastfeeding as both physical and mental preparation for breastfeeding immediately following delivery. Mothers at the early stages of labour will experience infrequent uterine contractions and cervical dilation of less than 3 centimeters as per vaginal examinations, while labour pain sensation scores are lower than 40 points, This the level at which primiparous mothers

experience minimal pain that is endurable (Phumduang, et al., 2004). At this stage of labour, they are able to rely upon themselves, engage well in conversation and have an understanding of the environment, so education can be provided in order to generate cooperation and participation in decision-making (Supasri, 2003) at this time. When the adolescent mothers studied CAI about “Breastfeeding” they gained knowledge, understanding, and learning about correct and appropriate breastfeeding behavior as they were able to realize the importance of having their infants breastfeed immediately following delivery with confidence and readiness to cooperate with breastfeeding in subsequent feedings, which will helped the adolescent mothers experience breastfeeding success.

With reference to the aforementioned reasons, the primiparous adolescent mothers in the experimental group had higher knowledge of breastfeeding scores, and higher breastfeeding behavior scores than the control group. Therefore, it may be concluded that CAI about “Breastfeeding” in this study was effective in the promotion of knowledge and breastfeeding behavior.

CHAPTER VI

CONCLUSION

Summary of the study

This study was based on a pretest-posttest control group research design with the objective of studying the effectiveness of computer assisted instruction (CAI) about breastfeeding during the early stages of labour on knowledge and breastfeeding behavior in primiparous adolescent mothers. The study was conducted on 50 primiparous adolescent mothers with gestational ages over 37 weeks, cervical dilation less than 3 centimeters and labour pain scores of less than 40 points with delivery and postpartum recovery at the Labour Ward of Siriraj Hospital in which the subjects were selected by simple random sampling on the basis of similar characteristics. The recruited primiparous adolescent mothers were then assigned to experimental and control groups of 25 subjects each wherein the primiparous adolescent mothers in the control group received only routine nursing care and the primiparous adolescent mothers in the experimental group participated in a CAI about “Breastfeeding” designed by the researcher in combination with routine nursing care.

Data was collected from the records on personal data regarding delivery, the knowledge of breastfeeding questionnaire and the breastfeeding behavior observation form. The data obtained was then analyzed by independent samples t-test to examine the differences of the means of breastfeeding knowledge and breastfeeding behavior scores between the experimental and control groups.

Research findings

1. The mean posttest knowledge of breastfeeding scores after receiving the computer assisted instruction was higher than the pretest scores before receiving computer assisted instruction at a statistically significant level of .001 (Table 3).

2. The mean knowledge of breastfeeding scores in the primiparous adolescent mothers who received the computer assisted instruction was significantly higher than that of the primiparous adolescent mothers who received only routine nursing care at a statistical significant level of .001 (Table 2).

3. The mean of breastfeeding behavior scores in the primiparous adolescent mothers who received the computer assisted instruction was significantly higher than that of the primiparous adolescent mothers who received only routine nursing care at a statistical significant level of .001 (Table 4).

Implication and Recommendation

This study found that the primiparous adolescent mothers who participated in the CAI about breastfeeding demonstrated higher scores of breastfeeding knowledge and breastfeeding behavior in comparison to the primiparous adolescent mothers who received routine nursing care only. Therefore, according to the findings of this study, the following recommendations have been stated below:

Nursing Practice

1. Nurses working in the delivery room should disseminate breastfeeding knowledge by using computer assisted instruction for the mothers during the early stages of labour in order to promote successful breastfeeding.
2. Nurses working in the Obstetrics Department should be trained to produce and use this method to promote maternal and infant health.

Further Research

1. Studies on the effects of computer assisted instruction program on breastfeeding behavior should be conducted in adolescent mothers at 1 and 6 months postpartum.
2. Comparison studies should be performed on the satisfaction of adolescent mothers following both computer assisted instruction and routine nursing care only.

3. Comparison should be conducted on the duration of breastfeeding between adolescent mothers who receive computer assisted instruction and adolescent mothers who receive only routine nursing care.



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APPENDIX A

LIST OF EXPERTS

The validity of research instruments was assessed by five consulting experts :

1. Assistant Professor Dr. Nittaya Sinsuksai
Nursing Inspector of Obstetric and Gynecological Department
Faculty of Nursing, Mahidol University
2. Lect. Dr. Achara Masmalai
Nursing Inspector of Obstetric and Gynecological Department
Faculty of Nursing, Mahidol University
3. Lect. Naiyana Khadking
Nursing Inspector of Obstetric and Gynecological Department
Faculty of Nursing, Mahidol University
4. Lect. Dr. Vorawan Vanicharoenchai
Innovation, Educational Technology, Information and
Communication Center
Faculty of Nursing, Mahidol University
5. Miss. Thidaratana Wongvisutdhi
Registered Nurse, Lactation Clinic
Siriraj Hospital

APPENDIX B

THE COMMITTEE ON HUMAN RIGHTS RELATED TO HUMAN EXPERIMENTATION MAHIDOL UNIVERSITY

2 ถนนพหลโยธิน 2 PRANNOK Rd.
บางกอกน้อย BANGKOKNOI
กรุงเทพฯ 10700 BANGKOK 10700



Tel. (662) 4197000 ต่อ 6405-6
FAX (662) 4197000 ต่อ 6405

Siriraj Ethics Committee

Certificate of Approval

COA no.SI 503/2007

Protocol Title : Effectiveness of computer assisted instruction about breastfeeding on knowledge and breastfeeding behaviors in primiparous adolescent mothers.

SiEC number : 492/2550(EC3)

Principal Investigator/Affiliation : Mrs. Wattana Nanthakasikom / Obstetric and Gynecological Nursing Division
Faculty of Medicine Siriraj Hospital, Mahidol University

Research site : Faculty of Medicine Siriraj Hospital

Approval includes :

1. EC Submission form
2. Proposal
3. Participant information sheet
4. Informed consent form
5. Questionnaire

Approval date : December 27, 2007

Expired date : December 26, 2008

This is to certify that Siriraj Ethics Committee is in full Compliance with International Guidelines For Human Research Protection such as Declaration of Helsinki, The Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

Prof. Jariya Lertakyamane, M.D.
Chair Person

January 17, 2008
.....
date

(Clin. Prof. Teerawat Kulthanan)
Dean of Faculty of Medicine Siriraj Hospital

January 21, 2008
.....
date

APPENDIX C

CONSENT TO PARTICIPATE IN RESEARCH STUDY

Consent to Participate in Research Study (Age < 18 years)

เอกสารชี้แจงผู้เข้าร่วมการวิจัย
สำหรับผู้แทนโดยชอบธรรม

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัยให้ช่วยอธิบายจนกว่าจะเข้าใจดี เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อ โครงการ ประสิทธิผลของการใช้บทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ต่อความรู้และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นครรภ์แรก

ชื่อผู้วิจัย นางวัฒนา นันทกสิกร
นักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต
สาขาการพยาบาลมารดาและทารกแรกเกิด
คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

สถานที่วิจัย ห้องคลอดสามัญและหอผู้ป่วยหลังคลอดสามัญ โรงพยาบาลศิริราช

ผู้ให้ทุน -

โครงการวิจัยนี้จัดทำขึ้นเพื่อศึกษาเปรียบเทียบความรู้เรื่องการเลี้ยงลูกด้วยนมแม่และพฤติกรรมการให้นมแม่ในกลุ่มมารดาวัยรุ่นครรภ์แรกที่ศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” กับกลุ่มที่ได้รับการพยาบาลตามปกติ ซึ่งมีประโยชน์ที่คาดว่าจะได้รับจากการศึกษาครั้งนี้คือ การนำผลการวิจัยมาใช้เป็นแนวทางปรับปรุงการให้ความรู้และช่วยเหลือมารดาวัยรุ่นในการเลี้ยงลูกด้วยนมแม่ เพื่อส่งเสริมการเลี้ยงลูกด้วยนมแม่ให้ประสบความสำเร็จยิ่งขึ้นต่อไป

เด็กในปกครองของท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เพราะเป็นมารดาวัยรุ่นครรภ์แรก อายุระหว่าง 15-17 ปี มีอายุครรภ์ 37 สัปดาห์ขึ้นไป ฝากครรภ์และคลอด ณ โรงพยาบาลศิริราช ไม่

มีภาวะแทรกซ้อนในระยะตั้งครรภ์ การวิจัยนี้จัดทำเพื่อให้ความรู้เรื่องการเลี้ยงลูกด้วยนมแม่และช่วยเหลือมารดาให้มีพฤติกรรมกาให้นมแม่ที่ถูกต้อง ซึ่งเป็นการส่งเสริมให้มารดาวัยรุ่นประสบความสำเร็จในการเลี้ยงลูกด้วยนมแม่ โดยมีผู้เข้าร่วมการวิจัยทั้งสิ้น 50 คน ระยะเวลาที่เก็บข้อมูลประมาณเดือนมกราคม – มีนาคม 2551

เมื่อเด็กในปกครองของท่านเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะแบ่งผู้เข้าร่วมการวิจัยออกเป็น 2 กลุ่ม โดยวิธีการสุ่มด้วยวิธีการจับสลาก คือ กลุ่มศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” และกลุ่มที่ได้รับการพยาบาลตามปกติ แต่ละกลุ่มจะได้รับการปฏิบัติดังนี้

- กลุ่มศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ผู้วิจัยจะให้เด็กในปกครองของท่านตอบแบบสอบถามความรู้เรื่องการเลี้ยงลูกด้วยนมแม่ครั้งที่ 1 หลังจากนั้นจะศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ในระยะรอคอย ในระยะนี้เด็กในปกครองของท่านจะมีอาการเจ็บครรภ์เล็กน้อย ซึ่งถ้ามีอาการเจ็บครรภ์มากหรือมีน้ำเดินจะยุติการศึกษาบทเรียนทันที หลังจากจบบทเรียน เด็กในปกครองของท่านจะรอให้การคลอดดำเนินไปตามกระบวนการคลอด และการดูแลของแพทย์และพยาบาลในหน่วยห้องคลอด เช่นเดียวกับผู้คลอดทั่วไป

- กลุ่มที่ได้รับการพยาบาลตามปกติ ผู้วิจัยจะให้เด็กในปกครองของท่านตอบแบบสอบถามความรู้เรื่องการเลี้ยงลูกด้วยนมแม่ครั้งที่ 1 หลังจากนั้นเด็กในปกครองของท่านจะรอให้การคลอดดำเนินไปตามกระบวนการคลอดและการดูแลของแพทย์และพยาบาลในหน่วยห้องคลอดเช่นเดียวกับผู้คลอดทั่วไป

ในระยะหลังคลอดกลุ่มศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” และกลุ่มที่ได้รับการพยาบาลตามปกติ จะได้รับการส่งเสริมสัมพันธภาพระหว่างมารดาและบุตรหลังคลอดทันที การช่วยเหลือให้บุตรดูดนมแม่ภายใน 30-60 นาทีหลังคลอด ผู้วิจัยจะเก็บรวบรวมข้อมูลโดยการสังเกตพฤติกรรมกาให้นมแม่และให้เด็กในปกครองของท่านตอบแบบสอบถามความรู้เรื่องการเลี้ยงลูกด้วยนมแม่ครั้งที่ 2 ภายหลังจากคลอดแล้วอย่างน้อย 24 ชั่วโมง

ความเสี่ยงที่อาจจะเกิดขึ้นเมื่อเข้าร่วมการวิจัย การศึกษาครั้งนี้เป็นการศึกษาความรู้เรื่องการเลี้ยงลูกด้วยนมแม่และพฤติกรรมกาให้นมแม่ในมารดาวัยรุ่นที่ศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” และมารดาวัยรุ่นที่ได้รับการพยาบาลตามปกติ ซึ่งไม่ก่อให้เกิดภาวะแทรกซ้อนและผลกระทบบางอย่างแก่มารดาและทารก ในระหว่างทำการศึกษาวิจัยจะมีแพทย์และพยาบาลดูแลอย่างใกล้ชิด หากมีอาการผิดปกติเกิดขึ้น เด็กในปกครองของท่านจะได้รับการดูแลช่วยเหลือทันที

หากเด็กในปกครองของท่านไม่เข้าร่วมในโครงการวิจัยนี้ เด็กในปกครองของท่านก็จะได้รับการบริการและการดูแลรักษาจากแพทย์และพยาบาลตามวิธีการที่เป็นมาตรฐาน ผู้เข้าร่วมการวิจัยนี้จะไม่ได้รับค่าตอบแทนใดๆ และไม่มีค่าใช้จ่ายพิเศษใดเพิ่มไปจากปกติ

หากมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับกรวิจัยหรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยสามารถติดต่อกับนางวัฒนา นันทกสิกร โทรศัพท์ (02) 419-7000 ต่อ 4640-1 หรือ 086-538-4803 ได้ตลอดเวลา

หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่ปิดบัง

ข้อมูลส่วนตัวของเด็กในปกครองของท่านจะถูกเก็บรักษาไว้ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของเด็กในปกครองของท่านเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้แทนโดยชอบธรรมหรือเด็กในปกครองของท่านมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้จะไม่ผลกระทบต่อกรบริการและการรักษาที่สมควรจะได้รับแต่ประการใด

หากเด็กในปกครองของท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านจะสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมการวิจัยในคนทราบได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน ตึกอคูยเดชวิกรม ชั้น 6 ร.พ. ศิริราช

โทรศัพท์ (02) 419-6405-6 FAX (02) 419-6405

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ.....ผู้แทนโดยชอบธรรม / วันที่.....

(.....)ความเกี่ยวข้อง.....

ลงชื่อ.....ผู้เข้าร่วมการวิจัย / วันที่.....

(.....)

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย

วันที่..... เดือน..... พ.ศ.....

ข้าพเจ้า อายุ.....ปี อาศัยอยู่บ้านเลขที่.....

ถนน ตำบล อำเภอ

จังหวัด รหัสไปรษณีย์ โทรศัพท์

ขอแสดงเจตนายินยอมให้เด็กในปกครองของข้าพเจ้าเข้าร่วมโครงการวิจัยเรื่อง ประสิทธิภาพของการใช้บทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ต่อ ความรู้ และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นครั้งแรก

โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับการวิจัย รวมทั้งแนวทางการดูแลช่วยเหลือ โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจง ผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจให้เด็กในปกครองของข้าพเจ้าเข้าร่วมโครงการวิจัยนี้

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยขึ้นกับเด็กในปกครองของข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับ นางวัฒนา นันทกสิกร ได้ตลอดเวลาที่หมายเลขโทรศัพท์ (02) 419-7000 ต่อ 4640-1 หรือ 086-538-4803

หากเด็กในปกครองของข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจง ผู้เข้าร่วมการวิจัย ข้าพเจ้าจะสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทนได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน ตึกอศุขยเดชวิกรม ชั้น 6 ร.พ. ศิริราช โทรศัพท์ (02) 419-6405-6

ข้าพเจ้าได้ทราบถึงสิทธิที่ข้าพเจ้าจะได้รับข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อค่าบริการและการรักษาพยาบาลที่เด็กในปกครองของข้าพเจ้าจะได้รับต่อไปในอนาคตและยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของเด็กในปกครองของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ..... ผู้แทนโดยชอบธรรม / วันที่.....

(.....) ความเกี่ยวข้อง.....

ลงชื่อ..... ผู้เข้าร่วมการวิจัย / วันที่.....

(.....)

ลงชื่อ..... ผู้ให้ข้อมูลและขอความยินยอม / ผู้วิจัย

(.....)

ในกรณีผู้แทนโดยชอบธรรมอ่านหนังสือไม่ออก ผู้ที่อ่านข้อความทั้งหมดแทนผู้แทน
โดยชอบธรรมคือ..... จึงได้ลงลายมือชื่อไว้เป็นพยาน

ลงชื่อ..... พยาน / วันที่.....

(.....)



Consent to Participate in Research Study (Age 18-19 years)**เอกสารชี้แจงผู้เข้าร่วมการวิจัย**

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัย ให้ช่วยอธิบายจนกว่าจะเข้าใจดี เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการ ประสิทธิภาพของการใช้บทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ต่อความรู้และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นครรภ์แรก

ชื่อผู้วิจัย นางวัฒนา นันทสิทธิ์
นักศึกษาลัทธิศาสตร์พยาบาลศาสตรมหาบัณฑิต
สาขาการพยาบาลมารดาและทารกแรกเกิด
คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

สถานที่วิจัย ห้องคลอดสามัญและหอผู้ป่วยหลังคลอดสามัญ โรงพยาบาลศิริราช

ผู้ให้ทุน -

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาเปรียบเทียบความรู้เรื่องการเลี้ยงลูกด้วยนมแม่และพฤติกรรมการให้นมแม่ในกลุ่มมารดาวัยรุ่นครรภ์แรกที่ศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” กับกลุ่มที่ได้รับการพยาบาลตามปกติ ซึ่งมีประโยชน์ที่คาดว่าจะได้รับการศึกษาครั้งนี้คือ การนำผลการวิจัยมาใช้เป็นแนวทางปรับปรุงการให้ความรู้และช่วยเหลือมารดาวัยรุ่นในการเลี้ยงลูกด้วยนมแม่ เพื่อส่งเสริมการเลี้ยงลูกด้วยนมแม่ให้ประสบความสำเร็จยิ่งขึ้นต่อไป

ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เพราะเป็นมารดาวัยรุ่นครรภ์แรก อายุระหว่าง 18-19 ปี มีอายุครรภ์ 37 สัปดาห์ขึ้นไป ฝากครรภ์และคลอด ณ โรงพยาบาลศิริราช ไม่มีภาวะแทรกซ้อนในระยะตั้งครรภ์ การวิจัยนี้จัดทำเพื่อให้ความรู้เรื่องการเลี้ยงลูกด้วยนมแม่และช่วยเหลือมารดาให้มีพฤติกรรมการให้นมแม่ที่ถูกต้อง ซึ่งเป็นการส่งเสริมให้มารดาวัยรุ่นประสบความสำเร็จในการเลี้ยงลูกด้วยนมแม่ โดยมีผู้เข้าร่วมการวิจัยทั้งสิ้น 50 คน ระยะเวลาที่เก็บข้อมูลประมาณเดือนมกราคม – มีนาคม 2551

เมื่อท่านเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะแบ่งผู้เข้าร่วมการวิจัยออกเป็น 2 กลุ่ม โดยวิธีการสุ่มด้วยวิธีการจับสลาก คือ กลุ่มศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” และกลุ่มที่ได้รับการพยาบาลตามปกติ แต่ละกลุ่มจะได้รับการปฏิบัติดังนี้

- กลุ่มศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ผู้วิจัยจะให้ท่านตอบแบบสอบถามความรู้เรื่องการเลี้ยงลูกด้วยนมแม่ครั้งที่ 1 หลังจากนั้นท่านจะศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ในระยะรอคลอด ในระยะนี้ท่านจะมีอาการเจ็บครรภ์เล็กน้อย ซึ่งถ้ามีอาการเจ็บครรภ์มากหรือมีน้ำเดินจะยุติการศึกษาบทเรียนทันที หลังจากจบบทเรียน ท่านจะรอให้การคลอดดำเนินไปตามกระบวนการคลอดและการดูแลของแพทย์และพยาบาลในหน่วยห้องคลอดเช่นเดียวกับผู้คลอดทั่วไป

- กลุ่มที่ได้รับการพยาบาลตามปกติ ผู้วิจัยจะให้ท่านตอบแบบสอบถามความรู้เรื่องการเลี้ยงลูกด้วยนมแม่ครั้งที่ 1 หลังจากนั้นท่านจะรอให้การคลอดดำเนินไปตามกระบวนการคลอดและการดูแลของแพทย์และพยาบาลในหน่วยห้องคลอดเช่นเดียวกับผู้คลอดทั่วไป

ในระยะหลังคลอดกลุ่มศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” และกลุ่มที่ได้รับการพยาบาลตามปกติ จะได้รับการส่งเสริมสัมพันธภาพระหว่างมารดาและบุตรหลังคลอดทันที การช่วยเหลือให้บุตรดูดนมแม่ภายใน 30-60 นาทีหลังคลอด ผู้วิจัยจะเก็บรวบรวมข้อมูลโดยการสังเกตพฤติกรรมการให้นมแม่และให้ท่านตอบแบบสอบถามความรู้เรื่องการเลี้ยงลูกด้วยนมแม่ครั้งที่ 2 ภายหลังจากคลอดแล้วอย่างน้อย 24 ชั่วโมง

ความเสี่ยงที่อาจจะเกิดขึ้นเมื่อเข้าร่วมการวิจัย การศึกษาครั้งนี้เป็นการศึกษาความรู้เรื่องการเลี้ยงลูกด้วยนมแม่และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นที่ศึกษาบทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” และมารดาวัยรุ่นที่ได้รับการพยาบาลตามปกติ ซึ่งไม่ก่อให้เกิดภาวะแทรกซ้อนและผลกระทบบางอย่างแก่มารดาและทารก ในระหว่างการศึกษาวิจัยจะมีแพทย์และพยาบาลดูแลอย่างใกล้ชิด หากมีอาการผิดปกติเกิดขึ้นท่านจะได้รับการดูแลช่วยเหลือทันที

หากท่านไม่เข้าร่วมในโครงการวิจัยนี้ ท่านก็จะได้รับการบริการและการดูแลรักษาจากแพทย์และพยาบาลตามวิธีการที่เป็นมาตรฐาน

ผู้เข้าร่วมการวิจัยนี้จะไม่ได้รับค่าตอบแทนใดๆ และไม่มีค่าใช้จ่ายพิเศษใดเพิ่มไปจากปกติ

หากมีข้อข้องใจที่จะสอบถามเกี่ยวกับการวิจัยหรือเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย สามารถติดต่อกับ นางวัฒนา นันทกสิกร โทรศัพท (02) 419-7000 ต่อ 4640-1 หรือ 086-538-4803 ได้ตลอดเวลา

หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่ปิดบัง

ข้อมูลส่วนตัวของผู้เข้าร่วมการวิจัยจะถูกเก็บรักษาไว้ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้เข้าร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุน สถาบัน หรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ คณะกรรมการจริยธรรมฯ เป็นต้น

ผู้เข้าร่วมการวิจัยมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อค่าบริการและการรักษาที่สมควรจะได้รับแต่ประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านจะสามารถแจ้งให้ประธานคณะกรรมการจริยธรรมการวิจัยในคนทราบได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน ตึกอศุขยเวชวิกรม ชั้น 6 ร.พ. ศิริราช โทรศัพท์ (02) 419-6405-6 FAX (02) 419-6405

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ..... / วันที่.....
(.....)

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย

วันที่..... เดือน..... พ.ศ.....

ข้าพเจ้า อายุ.....ปี อาศัยอยู่บ้านเลขที่.....

ถนน ตำบล อำเภอ

จังหวัด รหัสไปรษณีย์..... โทรศัพท์

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยเรื่อง ประสิทธิผลของการใช้บทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” ต่อความรู้และพฤติกรรมการให้นมแม่ในมารดาวัยรุ่นครั้งแรก

โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับของการวิจัย รวมทั้งแนวทางการดูแลช่วยเหลือ โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากผู้วิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมในโครงการวิจัยนี้

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยขึ้นกับข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับนางวัฒนา นันทกสิกร ได้ตลอดเวลาที่หมายเลขโทรศัพท์ (02) 419-7000 ต่อ 4640-1 หรือ 086-538-4803

หากข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าจะสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน หรือผู้แทนได้ที่ สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน ตึกกอดุลยเดชวิกรมชั้น 6 ร.พ. ศิริราช โทรศัพท์ (02) 419-6405-6

ข้าพเจ้าได้ทราบถึงสิทธิที่ข้าพเจ้าจะได้รับข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อกรบริการและการรักษาพยาบาลที่ข้าพเจ้าจะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ..... ผู้เข้าร่วมการวิจัย / วันที่.....
(.....)

ลงชื่อ..... ผู้ให้ข้อมูลและขอความยินยอม / ผู้วิจัย
(.....)

ในกรณีผู้เข้าร่วมการวิจัยอ่านหนังสือไม่ออก ผู้ที่อ่านข้อความทั้งหมดแทนผู้เข้าร่วมการวิจัยคือ..... จึงได้ลงลายมือชื่อไว้เป็นพยาน

ลงชื่อ..... พยาน/ วันที่.....
(.....)



APPENDIX D

RESEARCH INSTRUMENTS

บทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่”

ลำดับ	ภาพ	เสียง
1.	ภาพพระราชบิดา	ดนตรีบรรเลง
2.	บทเรียนคอมพิวเตอร์ช่วยสอนเรื่อง “การเลี้ยงลูกด้วยนมแม่” เป็นส่วนหนึ่งของวิทยานิพนธ์ หลักสูตรพยาบาลศาสตรมหาบัณฑิต บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล จัดทำโดย นางวัฒนา นันทกสิกร คณะกรรมการผู้ควบคุมวิทยานิพนธ์ ผศ.ดร. เขียวลักษณ์ เสรีเสถียร อ.ดร. เอ็มพร รติษฐ รศ.นพ. พฤษศ จันทร์ประภาพ	ดนตรีบรรเลง
3.	สวัสดีค่ะ ยินดีต้อนรับเข้าสู่โปรแกรม ภาพประกอบ : เด็ก	
4.	การเลี้ยงลูกด้วยนมแม่ ภาพประกอบ : เด็กแรกเกิด แม่กับลูก ลูกดูคนแม่	เพลงอีมู่น
5.	การเลี้ยงลูกด้วยนมแม่ วัตถุประสงค์ เพื่อให้แม่ 1. มีความรู้ความเข้าใจและเห็นความสำคัญ ของการเลี้ยงลูกด้วยนมแม่	การเลี้ยงลูกด้วยนมแม่ วัตถุประสงค์ เพื่อให้แม่ 1. มีความรู้ความเข้าใจและเห็นความสำคัญ ของการเลี้ยงลูกด้วยนมแม่

ลำดับ	ภาพ	เสียง
	2. มีพฤติกรรมกรูให้นมแม่ที่ถูกต้อง (ข้อความปรากฏบนหน้าจอทีละข้อ)	2. มีพฤติกรรมกรูให้นมแม่ที่ถูกต้อง
6.	<p>การเลี้ยงลูกด้วยนมแม่</p> <p>ภาพประกอบ : แม่กับลูก เด็กแรกเกิด ลูกดูดนมแม่ เด็กโต</p> <p>(เมนูให้เลือกเข้าสู่โปรแกรม)</p> <p>เนื้อหา</p> <p>แบบทดสอบ</p> <p>ผู้จัดทำ</p> <p>ปิดโปรแกรม</p>	
7.	<p>เนื้อหา คลิกเข้าสู่เมนูหลัก</p> <p>เมนูหลัก (ให้เลือก)</p> <p>ประโยชน์</p> <p>แรกเริ่มให้นม</p> <p>ทำให้นม</p> <p>วิธีการให้นม</p> <p>เรื่องน่ารู้อื่นๆ</p> <p>หัวใจของความสำเร็จ</p>	
8.	<p>การเลี้ยงลูกด้วยนมแม่</p> <p>ประโยชน์ต่อลูก</p> <p>มีสารอาหารครบถ้วน</p> <p>ไม่เป็นโรคอ้วน</p> <p>สะอาดและปลอดภัย</p> <p>ย่อยง่าย ขับถ่ายสะดวก</p> <p>มีภูมิคุ้มกันโรค ลดโอกาสการติดเชื้อ</p> <p>ลดโอกาสการเกิดโรคมุมิแพ้</p> <p>ฉลาด อารมณ์ดี รู้จักอดทนและรอคอย</p>	<p>การเลี้ยงลูกด้วยนมแม่</p> <p>ประโยชน์ต่อลูก มีดังนี้</p> <p>มีสารอาหารครบถ้วน เหมาะสมต่อ</p> <p>การเจริญเติบโต</p> <p>ไม่เป็นโรคอ้วน</p> <p>สะอาดและปลอดภัย</p> <p>ย่อยง่าย ขับถ่ายสะดวก ท้องไม่ผูก</p> <p>มีภูมิคุ้มกันโรค ลดโอกาสการติดเชื้อ ทำ</p> <p>ให้ลูกแข็งแรง ไม่เจ็บป่วยบ่อย</p> <p>ลดโอกาสการเกิดโรคมุมิแพ้</p> <p>ฉลาด อารมณ์ดี รู้จักอดทนและรอคอย</p> <p>ได้รับความรัก ความอบอุ่น</p>

แบบสอบถามในการวิจัย

เลขที่แบบสัมภาษณ์.....

วันที่เก็บข้อมูล.....

 กลุ่มควบคุม กลุ่มทดลอง

ชุดที่ 1 ข้อมูลส่วนบุคคลของมารดาและทารก

แบบสัมภาษณ์มารดา

1. อายุ ปี
2. ระดับการศึกษาสูงสุด
3. อาชีพ
 - แม่บ้าน
 - ค้าขาย
 - รับจ้าง
 - รับราชการ รัฐวิสาหกิจ
 - อื่นๆ (ระบุ))
4. รายได้ของครอบครัวเฉลี่ยเดือนละ บาท
5. ลักษณะของครอบครัว
 - ครอบครัวเดี่ยว
 - ครอบครัวขยาย อาศัยอยู่กับ
6. ท่านมีความพร้อมในการตั้งครรภ์ครั้งนี้หรือไม่
 - มีความพร้อม
 - ไม่มีความพร้อม เนื่องจาก.....
7. ท่านเคยได้รับความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่หรือไม่
 - เคย จาก..... รวม.....ครั้ง
 - ไม่เคย
8. ท่านมีความตั้งใจที่จะเลี้ยงลูกด้วยนมแม่หรือไม่
 - ไม่ตั้งใจ เพราะ.....
 - ตั้งใจ เป็นระยะเวลา

บันทึกการคลอด

1. ทารกเกิดเวลา.....น. วันที่ เดือน พ.ศ. 2551
2. ทารกเพศ.....
() ตรงกับความต้องการ
() ไม่ตรงกับความต้องการ
3. น้ำหนักแรกเกิด กรัม
4. เมื่อเริ่มทำการศึกษา ปากมดลูกเปิดขยาย.....เซนติเมตร



แบบประเมินคะแนนความเจ็บปวดจากการเจ็บครรภ์

คำชี้แจง

การประเมินความเจ็บปวดจากการเจ็บครรภ์ของมารดาวัยรุ่นครรภ์แรกจะใช้มาตราวัดความเจ็บปวดแบบเส้นตรงชนิดตัวเลข 0 ถึง 100 โดยที่

คะแนนความเจ็บปวดที่มาตราวัดเท่ากับ 0 แสดงว่า ไม่มีความรู้สึกเจ็บปวดเลย จนกระทั่งคะแนนความเจ็บปวดที่มาตราวัดเท่ากับ 100 แสดงว่า มีความรู้สึกเจ็บปวดจนทนไม่ได้ มีเกณฑ์การพิจารณา ดังนี้

มาตราวัดความเจ็บปวดน้อยกว่า 40 มิลลิเมตร หมายความว่า มารดาวัยรุ่นมีคะแนนความปวดจากการเจ็บครรภ์น้อยกว่า 40 คะแนน แสดงว่า มีความรู้สึกเจ็บปวดที่สามารถทนได้

มาตราวัดความเจ็บปวดมากกว่า 40 มิลลิเมตร หมายความว่า มารดาวัยรุ่นมีคะแนนความปวดจากการเจ็บครรภ์มากกว่า 40 คะแนน แสดงว่า มีความรู้สึกเจ็บปวดมากที่อาจจะไม่สามารถทนต่อความเจ็บปวดต่อไปได้

ขอให้ท่านทำเครื่องหมาย × บนเส้นตรงที่มีความยาวเท่ากับ 100 มิลลิเมตรที่ตรงกับความรู้สึกเจ็บปวดของท่านมากที่สุดในขณะนี้

ตัวอย่าง



จากการวัดความยาวของเส้นตรงของมาตราวัดความเจ็บปวดจาก 0 ถึงเครื่องหมาย × เท่ากับ 35 มิลลิเมตร หมายความว่า คะแนนความเจ็บปวดจากการเจ็บครรภ์ของท่านเท่ากับ 35 คะแนน แสดงว่า ท่านมีความรู้สึกเจ็บปวดจากการเจ็บครรภ์ที่สามารถทนได้

แบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่

คำชี้แจง

แบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่นี้ มีวัตถุประสงค์เพื่อศึกษาความรู้ของมารดาเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ในเรื่องประโยชน์ของนมแม่ วิธีการให้นมแม่ และความรู้ทั่วไปเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ ซึ่งจะนำมาพัฒนาหาแนวทางในการปรับปรุง การให้ความรู้และช่วยเหลือมารดาเพื่อส่งเสริมให้การเลี้ยงลูกด้วยนมแม่ประสบความสำเร็จมากยิ่งขึ้น แบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่มีจำนวนทั้งหมด 24 ข้อ ขอให้ท่านตอบให้ตรงกับข้อความที่ท่านทราบมากที่สุด โดยทำเครื่องหมายถูก (/) ลงในช่องที่กำหนดให้เพียงคำตอบเดียวในแต่ละข้อที่ตรงกับความคิดเห็นของท่าน การเลือกคำตอบให้ถือเกณฑ์ดังนี้

ใช่ หมายถึง ท่านเห็นว่าข้อความนั้นถูกต้อง
 ไม่ใช่ หมายถึง ท่านเห็นว่าข้อความนั้นไม่ถูกต้อง
 ไม่ทราบ หมายถึง ท่านไม่ทราบว่าข้อความนั้นถูกต้องหรือไม่

ตัวอย่าง

ข้อความ	ใช่	ไม่ใช่	ไม่ทราบ
ก. บุตรที่กินนมแม่จะมีสุขภาพแข็งแรง	/		

แบบสอบถามความรู้เกี่ยวกับการเลี้ยงลูกด้วยนมแม่

ข้อความ	ใช่	ไม่ใช่	ไม่ทราบ	สำหรับผู้วิจัย
ความรู้เกี่ยวกับประโยชน์ของนมแม่ 1. นำนมแม่มีภูมิคุ้มกันโรคแก่ลูก				
<ul style="list-style-type: none"> • • • • • 				
ความรู้เกี่ยวกับวิธีการให้นมแม่ 10. ควรให้ลูกดูดนมแม่ภายใน 60 นาทีแรกหลังคลอด				
<ul style="list-style-type: none"> • • • • • 				
ความรู้ทั่วไปเกี่ยวกับการเลี้ยงลูกด้วยนมแม่ 19. ถ้ารู้สึกเจ็บหัวนมขณะลูกดูดนมแสดงว่าลูกอาจจะ				
<ul style="list-style-type: none"> • • • • • 				

แบบสังเกตพฤติกรรมการให้นมแม่

คำชี้แจง

แบบสังเกตพฤติกรรมการให้นมแม่ชุดนี้ ผู้วิจัยจะเริ่มสังเกตพฤติกรรมของแม่ที่
เกิดขึ้นก่อนให้นม ขณะให้นม และหลังให้ลูกดูดนม และสังเกตพฤติกรรมของลูกในขณะที่ดูดนม
และภายหลังดูดนม โดยจะทำการสังเกตพฤติกรรมตามที่กำหนด

ถ้ามีพฤติกรรมตามที่กำหนดจะทำเครื่องหมายถูก (/) ในช่อง ปฏิบัติ/เกิดขึ้น
และให้คะแนน 1 คะแนน

ถ้าไม่มีพฤติกรรมตามที่กำหนดจะทำเครื่องหมายถูก (/) ในช่อง ไม่ปฏิบัติ/ไม่
เกิดขึ้น และให้คะแนน 0 คะแนน

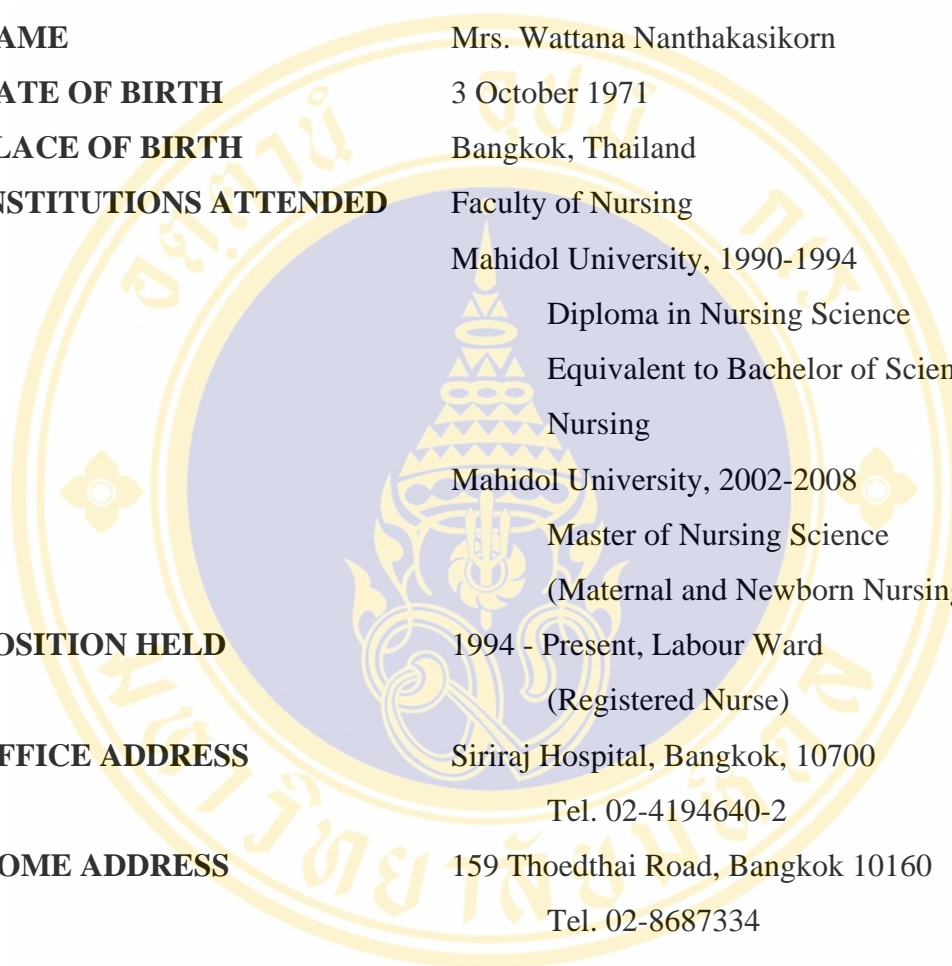
ตัวอย่าง

พฤติกรรม	ปฏิบัติ/ เกิดขึ้น	ไม่ปฏิบัติ/ ไม่เกิดขึ้น
ก. มารดาทำความสะอาดร่างกาย	/	

แบบสังเกตพฤติกรรมกรรมการให้นมแม่

พฤติกรรม	ปฏิบัติ/ เกิดขึ้น (1 คะแนน)	ไม่ปฏิบัติ/ ไม่เกิดขึ้น (0 คะแนน)	สำหรับ ผู้วิจัย
พฤติกรรมของแม่ 1. ล้างมือด้วยสบู่และน้ำ เช็ดให้แห้งก่อนให้นม ลูก			
2. แม่มีสีหน้ายิ้มแย้ม หรือมีท่าที่เต็มใจที่ได้อุ้ม ลูก เพื่อให้นมแม่			
<ul style="list-style-type: none"> • • • • • 			
พฤติกรรมของลูก 18. ลูกดูดนมแม่ได้ดี ไม่ร้องหรือหันหน้าหนี จากหัวนม			
19. ลูกมีท่าทางสงบ ขณะดูดนมแม่			
<ul style="list-style-type: none"> • • • • • 			

BIOGRAPHY



NAME	Mrs. Wattana Nanthakasikorn
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INSTITUTIONS ATTENDED	Faculty of Nursing Mahidol University, 1990-1994 Diploma in Nursing Science Equivalent to Bachelor of Science in Nursing Mahidol University, 2002-2008 Master of Nursing Science (Maternal and Newborn Nursing)
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