Development and Psychometric Evaluation of a Self-Efficacy in Performing the Maternal Role Scale in First-Time Pregnant Adolescents in Indonesia (SEPMRS-Indonesia)

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ABSTRACT

This study aimed to develop and evaluate the psychometric properties of a self-efficacy in performing the maternal role scale for the first time pregnant adolescents in Indonesia (SEPMRS-Indonesia). Two phases of scale development were conducted: 1) scale development phase, and 2) psychometric evaluation phase. The conceptual framework of this study was based on the self-efficacy theory of Bandura (1977), the concept of the maternal role from Rubin (1984), a literature review of the concept of the maternal role, and individual interviews of 12 Indonesian pregnant adolescents with a first-time pregnancy. The first draft of the scale comprised seven domains with 78 items. The content validity index was judged by five experts yielding a CVI of .94.

Data from a total of 602 Indonesian pregnant adolescents with a first-time pregnancy were used in this study after test the statical analysis assumptions. The construct validity was determined by exploratory factor analysis (EFA) and known group technique. The internal consistency reliability was assessed by Cronbach's alpha coefficient and stability tests using test-retest method. The EFA yielded two factors of 60 items which explained 58.85% of the total of variance consisted of: (1) being able to

perform essential activities during pregnancy, and (2) maintaining health and happiness during their pregnancy. The range of overall Cronbach's alpha coeeficients were .97 to .98. The result of known group technique showed a significant mean difference on the scores of SEPMRS-Indonesia between pregnant adult and pregnant adolescent with a first-time pregnancy (p <.01). The stability of the 60 items SEPMRS-Indonesia was at an acceptable level (r = .99).

The SEPMRS-Indonesia is a newly developed scale that can be useful to assess the self-efficacy in performing the maternal role in pregnant adolescents in Indonesia. Researchers who are interested in studying self-efficacy of pregnant adolescents could apply this scale to their studies.

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E r i k a

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

CONTENTS (Continued)

LIST OF TABLES (Continued)

TABLES PAGE

LIST OF FIGURES (Continued)

PAGE

FIGURES

CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

Adolescent pregnancy is major health issue in a number of countries and a large contributor to maternal and child mortality (WHO, 2017). The number of pregnant adolescents is quite high worldwide. WHO noted that 16 million adolescents aged 15 to 19 years got pregnant each year (WHO, 2014). The data of a development plan survey mid-term (RPJM) in 2016 shows; that for ages 15-19 years old the fertility rate (ASFR) is 36 (1-100), and the number has been decreasing compared to the previous year which was 49 (Sihombing, 2017).

There are number of factors that influence the rate of adolescent pregnancy in Indonesia. For example, marrying at young age because of tradition, culture, and a low family income causes many girls to stop their education and not attend high school (Homzah & Sulaiman, 2007; Mchunu, Peltzer, Tutshana, & Seutlwadi, 2012), inadequate sexual knowledge, changing attitudes towards sex, and peer pressure are contributory to a high pregnancy rate (Mushwanaa, Monarenga, Richterb, & Muller, 2015), having higher sexually permissive attitudes, contraceptives or condom use, adolescents wanting a pregnancy give them a sense of the future (Mchunu et al., 2012), and parents worried about adolescent promiscuity (Homzah & Sulaeman, 2007).

Adolescent pregnancy is considered as having a high impact on both the mother and the fetus mainly becaused of immature reproductive development (Sedgh, Finer, Bankole, Eilers, & Singh, 2015; WHO, 2017). The impacts of adolescent

pregnancy include, the adolescent's health problem and the infant's health problem, and also social-economics problems (WHO, 2017). In childbearing, pregnant adolescents are at risk of anemia, hyper-emesis, bleeding, urinary tract infection, and pregnancy-induced hypertension (Christofides et al., 2014). It is also easier for them to suffer stress and anxiety, and an abortion (Mchunu, Peltzer, Tutshana, & Seutlwadi, 2012; Sedgh, Finer, Bankole, Eilers, & Singh, 2015). In Sweden, Denmark, and the USA it was noted that 69%, 26%, and 67%, pregnant adolescents end their pregnancy by having an abortion, respectively (Sedgh et al., 2015). During labor, they are likely to have bleeding, premature labor, low birth weight and even a higher risk of death for both the mother and the fetus. A study in the USA found that there was a 55% higher risk of babies dying before birth for adolescents aged 10-15 years old, about a 19% higher risk in babies of mothers 16-17 years-old, and a 6% higher risk in babies of mothers 18-19 years old (WHO, 2017). Some studies have shown an independent negative effect of an early pregnancy on the health status of a newborn due to adolescent pregnancies which have long-term effects leading to adulthood disease (UNICEF, 2015; WHO, 2017). The social impact of pregnancy in adolescence contributes to increasing population growth, on the contrary delaying pregnancy in adolescents produces broad economic and social benefits where they can continue their education to a higher level and pursue a career to develop themselves (UNICEF, 2015; WHO, 2017).

In regards to being a mother, pregnant adolescents are not like adult women, they lack the ability to prepare themselves well to become a mother (Lowdermilk, Perry, & Cashion, 2010; Pilatteri, 2014; Ricci, 2017). They should be able to maintain their health and their baby's health. In addition preparing for childbirth includes

physical and psychosocial aspects. Being pregnant at a young age affects adolescents' abilities to perform the maternal role optimally (Lowdermilk et al., 2010; Orshan, 2008; Ricci, 2017). A young age affects physical and psychosocial readiness. If adolescents do not have preparation in the physical, mental and social aspects, they may not have the ability for taking care of themselves and their baby. Hence, they need professional people to help them to develop their emotional intelligence, and provide resources to allow them to be able to perform roles as a new mother (DeVito, 2010; Mercer, 2004; Ricci, 2017).

As a young mother, pregnant adolescents have to improve their health and their prospective baby growth by eating healthy foods, adhere to taking vitamins, control stress and emotions, be able to recognize the danger signs of pregnancy and be able to make a decision to report immediately to a health care provider in case of any danger in pregnancy, be able to maintain health by attending regular antenatal care, regularly exercise, be able to leverage the support of the family and be able to plan for the delivery in the health care system (Kantaruksa, 2001; Ricci, 2017). The other role of pregnant adolescents is that they have to be able to fight potential problems during their pregnancy. Ricci (2017) explained that the many responsibility in the developmental tasks of adolescence, especially identity, can be broken as the adolescent tries to integrate the tasks of pregnancy, bonding, and preparing to care for another with the tasks of developing self-identity and independence.

The transition phase of an adolescent to be a mother has many problems such as physiological, social, and emotional problems that threatens maternal or fetal health (Meyers, 2010; Ricci, 2017). A high-risk pregnancy with psychosocial tasks associated with pregnancy results in an increasingly complex situation (Mercer &

Ferketich, 1994; Rubin, 1984). With any high-risk condition, alterations in the perception and in this case the lack of preparedness to be a mother, it is more likely to result in pregnant adolescents having difficulty to perform the maternal task (Ricci, 2017).

This study developed a new scale to measure self-efficacy in performing the maternal role in a first-time pregnancy in adolescent pregnant women in Indonesia, particularly to detect the efficacy expectations and outcome expectations to perform maternal roles during pregnancy. The literature reviews showed that there is no tool that directly measures self-efficacy in performing the maternal role in pregnant adolescents. Difficulties in assesing the scale to measure the self-efficacy of pregnant adolescents to perform thematernal role using currently available instruments have been shown by many researchers. A study from Mirghafourfand (2016) measured the validity of maternal self-efficacy in Iranian mothers (2016), however, this study did not measure the maternal roles of pregnant adolescents. Another study from Dennis et al., (2010) measured only the aspect of self-efficacy in terms of the ability to breastfeed among adolescents in Canada, and a study from Guimond et al., (2008) measured parenting efficacy on children within the context of an early intervention on children's development. During the last ten years (1996-2016), there have been no tools that specifically measure the self-efficacy of pregnant adolescents to perform the maternal role during pregnancy.

Measuring self-efficacy in performing the maternal role in pregnant adolescents can be very challanging due to the spirit of young age to become a prospective mother. Some studies have been conducted to measure self-efficacy of mothers during or after delivery. For instance, a study from Mirghafourvand et al.,

(2016) measured maternal self efficacy scale in Iranian mothers. This scale measured 437 new Iranian mothers' self-efficacy in infant care by ten items consisting of nine items about infant care and one general item. This study only measured self-efficacy of the mother in infant care after delivery. As of yet, there has not been a study thar has measured the self-efficacy in performing the maternal role during pregnancy, particularly in pregnant adolescent in Indonesia. A study from Weglicki (1999) measured maternal confident in African-American pregnant teens aged 13-20 years in the first and second semester. This study used Pender's Health Promotion Model and was integrated with Erickson's developmental theory. The study used the concept of the maternal confidence of pregnant teens related to the ability to care, uncertainty, and mothering behaviors. Another study from Kaiser (2002) developed a questionnaire about the transition to motherhood for adolescents. The questionnaire assessed the psychosocial factors that influence the transition to motherhood in first-time pregnancy using the concept of transition to motherhood, and recruited 145 unmarried pregnant adolescents aged 15-18 years. Another instrument from Secco (1997) measured perceived maternal competence and assessed mothering behavior and infant developmental outcomes also prenatally during the first to fourth month post-partum.

There are no studies that have reported and measured efficacy expectations and outcome expectations in performing the maternal role during pregnancy. On the other hand, improving self-efficacy to influence behavior change in pregnant adolescents has been studied extensively. Self-efficacy has been shown to have an effect in specific maternal role behavior changes. Difficulties in assesing self-efficacy in performing the maternal role in pregnant adolescents using currently available tools have been reported by many researchers. Finally, there is no existing specific research

that directly measure the self-efficacy particularly efficacy expectations and outcome expectations in performing the maternal role for Indonesian pregnant adolescents. Therefore, there is a great need to focus on the development of a scale to reflect the four dimensions of the maternal role from Rubin (1984), and bring in Indonesian cultural practice that influences pregnant adolescents in their first pregnancy by conducting individual interviews.

Assessment of self-efficacy in performing the maternal role for pregnant adolescents is one way to help pregnant adolescent to achieve their ability to fulfil their role as a new mother to improve their health and their baby's health. The development of this new scale is an effort to supply a way for health providers and educators, including nurses, nurse practitioners, and midwives to assess self-efficacy in performing the maternal role in pregnant adolescents to improve their responsibility during pregnancy. Furthermore, this psychometric testing of the SEPMRS-Indonesia is essential, so that a measure of this key concept is available to enable health care providers and educators to assist pregnant adolescents to perform their roles as prospective mothers for their unborn baby during pregnancy. In developing this scale, the investigator examined the definitions, described the concept and the components, represented its psychometric properties, and obtained appropriate self-efficacy in performing the maternal role for a measuring tool for the application in maternity nursing area in Indonesia.

Objectives of the Study

1. To develop an instrument for measuring a self-efficacy in performing the maternal role for pregnant adolescents with a first time pregnancy in Indonesia.

2. To evaluate the validity and reliability of a self-efficacy in performing the maternal role scale for pregnant adolescents with a first time pregnancy in Indonesia.

Research Questions

1. What are the appropriate components of a self-efficacy in performing the maternal role scale for pregnant adolescents with a first time pregnancy in Indonesia (SEPMRS-Indonesia)?

2. How valid and reliable is the newly developed a self-efficacy in performing the maternal role scale for pregnant adolescents with a first time pregnancy in Indonesia (SEPMRS-Indonesia)?

Conceptual Framework

The conceptual framework of this study was based on the self-efficacy theory from Bandura (1977), the concept of the maternal role from Rubin (1984), and individual interviews. The self-efficacy theory was used to assess the ability of pregnant adolescents in relation to performing the maternal role during pregnancy.

1. Self-Efficacy Theory (Bandura, 1977)

The theory of self-efficacy is a psychological construct from the social cognitive theory which was developed by Bandura. This theory is often used in various studies and it predicts health behavior changes or a person's confidence to participate in a particular behavior in every situation (Bandura, 1977). According to Bandura (1977), self-efficacy is structured into two components consisting of; 1) efficacy

expectations and 2) outcome expectations. These two components are explained as follows.

1.1 Efficacy expectations

Bandura (1977) explained that efficacy expectations are the personal trust that one can confidently perform those behaviors to produce the purposed outcome. Efficacy expectations vary on several dimensions that have important performance implications. They are different in magnitude, generality, and strength, with enormity referring to the level of difficulty and generality to the number of domains of behavior in which individuals judge themselves to be effective, and strength pointing to the confidence of individuals for finishing a specific task (Bandura, 1997). Efficacy in this study refers to the ability of a pregnant adolescent to perform some specific behaviors to reach the expectations related to the task that she wants to perform. Finally, the objectives of this efficacy expectation are to get healthy and have a good level of well-being for herself and her baby.

1.2 Outcome expectations

Outcome expectations are the belief that a certain behavior will produce a particular outcome (Bandura, 1997). Outcome expectations in this study refer to the behaviors which will be reached by new mothers to get healthy and have a good level of well-being during pregnancy. A pregnant adolescent will perform some roles during her pregnancy to get a particular outcome for her and her new baby. Outcome expectations are general results which are based on the ability of a mother to perform specific behavior related to efficacy expectations.

The self-efficacy theory particularly efficacy expectations and outcome expectations can be used to measure the ability of a pregnant adolescent to perform the maternal role during pregnancy. Furthermore, the specific task measures might provide integral information as to a pregnant adolescent's belief in their confidence to perform the maternal role (e.g., ability of taking care of herself and unborn baby to improve health and well-being), and they have the ability to complete those particular tasks (Bandura, 1986). It is possible that a pregnant adolescent might feel competent regarding general maternal tasks. These constructs seem to be an important next step in understanding the relationship between beliefs and behaviors for pregnant adolescents to perform maternal tasks.

2. Concept of Maternal Role (Rubin, 1984)

The maternal role in this study was based on Rubin's maternal task (1984). Rubin stated that becoming a mother is taking a role for herself and her relationship with her family and social systems. This condition is also how to cope with the situations involving childbearing, childbirth and childrearing. According to Rubin (1984), during pregnancy, a mother realizes her child and the presence of the child is known indirectly by its mass, and movement. A mother knows the identity of the child after birth. Rubin divided the maternal role into four parts: safe passage, acceptance by others, binding-in to the child, and giving of oneself. This is explained in more detail as follows.

1.2 Safe passage

According to Rubin (1984), safe passage refers to the ability of a pregnant mother to seek care for herself and her baby during pregnancy. Pregnant women have to perform roles such as, seeking prenatal services and other health care professionals to consult about their pregnancy from the first to third trimester. The aim of this action is to protect themselves and their baby from being damaged (Rubin, 1984). It is also suggested for pregnant women to read about pregnancy health from magazines, books, and brochures or to watch television programs related to pregnancy conditions to improve their knowledge about fetal development. In this role, pregnant women also should keep themselves healthy by eating nutritious food, take vitamins and avoid anything that may endanger them or their unborn baby during pregnancy. Comfortable feelings of achievement are also important for pregnant adolescents. As bad feelings during this period make the pregnancy difficult to go through.

1.3 Acceptance by others

Acceptance by others refers to the ability of a pregnant mother to express her emotional connection with her baby that begins from the pregnancy until the birth of the baby. As a new mother, she should accept her baby into the family and her social networks. Pregnant adolescents have more difficulty in bringing their pregnancy forward for social acceptance to having a baby and becoming a new mother. Therefore, supportive strength is crucial to improve the comfort of the mother through her pregnancy. People around give strength and support to pregnant women or pregnant adolescents, so they can feel happy and accepted (Rubin, 1984).

2.3 Binding-in to the child

Binding-in to the child refers to the mother's ability to attach and be close to her unborn baby, and realize and accept his/her presence. A new mother should be a sensitive one to give care to her unborn baby and be able to adapt to the infant's alerts by paying attention, appropriately interpret the alerts, respond consistently to the signals, and respond exactly in a time period that does not provoke exaggerated frustration for the baby. Before fetal movement, the mother also should pay attention to her condition, amenorrhea, feelings of fatigue, any foul taste in her mouth, nausea, more frequent urination, and any bleeding that threatens her ability to carry her pregnancy. When the unborn baby begins to move, a pregnant woman and her husband should be able to respond to the baby. This is the way to bond to the baby from the womb until the birth (Rubin, 1984).

2.4 Giving of oneself

Pregnant women consider that childbearing is in itself an act and a climate of giving (Rubin 1984). Giving of oneself refers to the ability of pregnant adolescents to perform some actions of giving. Rubin (1984) stated that a pregnant woman has an appreciative awareness of a gift that receives attention and a transaction in giving and receiving between two persons. Emphasis is on the felt experiences of the receiver and the communication from the giver to the recipient through gift objects. A gift can be a pleasurable experience to the mother from her couple partner or others. An unborn baby also is a gift and the mother accepts the presence of the baby.

3. Individual Interviews

Theory and concepts only may not be appropriate to develop the tool to measure the self-efficacy to perform the maternal role in pregnant adolescents with a first time pregnancy. Therefore, it was necessary to do indivdual interviews to get a sense of the maternal role in pregnant adolescent mothers with a first time pregnancy in Indonesia and to see their ability in performing the role as a new young mother. The next step was to find a pregnant adolescent that matched the participant's criteria for an interview to get any pre-determined domains that supported the development of the items that would be integrated with the theory and concepts in this study.

Eight to fifteen participants were planned to be interviewed individually in this step to explore how far they understood about their role as a prospective mother and what they has done during their pregnancy. There were ten themes obtained from these interviews with twelve pregnant adolescents in Indonesia and integrated with the theory of self-efficacy be composed of efficacy expectations and outcome expectations and the concept of the maternal role (safe passage, acceptance by others, binding-in to the child, and giving of oneself) as explained in figure 1. The seven pre-determined domains of self-efficacy in performing maternal role included: 1) safe passage for herself and unborn baby during pregnancy, 2) establishing a relationship with her husband and unborn baby, 3) seeking support for mother and unborn baby, 4) seeking companionship and strategies to deal with problems during pregnancy, 5) empowering husband to earn money for maternal and unborn baby's health, 6) being a healthy mom with a healthy unborn baby, 7) having a good feeling and a happiness for her during pregnancy. The details of definition of pre-determined domains explained as below.

Safe passage for herself and unborn baby during pregnancy: referring to the ability of the pregnant adolescent perform healthy activities, i.e., eating a healthy diet, consuming vitamins, checking her pregnancy regularly, having good sleep and rest, and maintaining cleanliness to keep healthy and safe

Establishing a relationship with her husband and unborn baby: referring to the ability of the pregnant adolescents to implement some activities to show her ability to maintain good communication with her husband, and unborn baby and paying attention to her husband and unborn baby.

Seeking support for maternal and unborn baby's health: referring to the ability of the pregnant adolescent to find or get some support to help her to look after herself and her unborn baby during pregnancy.

Seeking companionship and strategies to deal with problems during pregnancy: referrring to the ability of the pregnant adolescent to perform a role to encourage her husband to get money to improve their health and be able to prepare for labor cost.

Empowering husband to earn money for maternal and unborn baby's health: referring to the ability of pregnant adolescents to encourage her husband to get money to take care of her needs during pregnancy and be able to prepare the labor cost

Being a healthy mom with a healthy unborn baby: referring to the ability of the pregnant adolescents to get healthy and their baby healthy after doing some particular activities during pregnancy.

Having a good feeling and a happiness for her during pregnancy: referring to ability of the pregnant adolescents to get happiness after doing some activities during pregnancy

Finally, these seven pre-determined domains were used develop items to measure the self-efficacy of pregnant adolescents with a first time pregnancy in performing the maternal role during pregnancy. The conceptual framework of SEPMRS-Indonesia is shown in figure 1.

Self-Efficacy in Performing Maternal Role

Self-efficacy in performing the maternal role in this study refers to a mother's ability to perform particular behaviors to take care of her self and her unborn baby during pregnancy. The self-efficacy theory from Bandura can be a part of the ability of a pregnant adolescent to accomplish her work to prepare herself to become a mother. Self-efficacy can affect the ability of pregnant adolescents to perform the maternal role successfully. Self-efficacy in performing the maternal role is an outcome expectation, and thus, a mother's previous perceptions of competence in a maternal role are thought to contribute to both current and future self-efficacy as well as the actual mother's behaviors (Bandura, 1986).

The majority of the previous studies used the self-efficacy theory and the results had a correlation with the ability of mothers to perform a specific behavior. A study from Dodt and colleagues (2012) explained that the efficacy expectation of a mother to perform the maternal role to breastfeed her baby had a higher score (Dodt, Ximenens, Almeida, Oria, & Dennis, 2012). A mother performing a maternal role is her ability to take care herself and her baby during pregnancy. With respect to the maternal role, the efficacy theory has suggested that increasing feelings of effectiveness as a caregiver will lead to the enhanced quality of the prospective mother–child relationship. A study showed that mothers with low task-specific self-efficacy tend to

be less sensitive and more awkward during mother-baby interactions (Teti & Gelfand, 1991).

In previous research, the theory of self-efficacy has not been used to explain efficacy expectations and outcome expectations in performing the maternal role for pregnant adolescents. Self-efficacy expectations and outcome expectations were constructed to measure the ability of pregnant adolescents in performing the maternal role. The self-efficacy theory proposes a framework to design a prospective maternity nursing intervention programs.

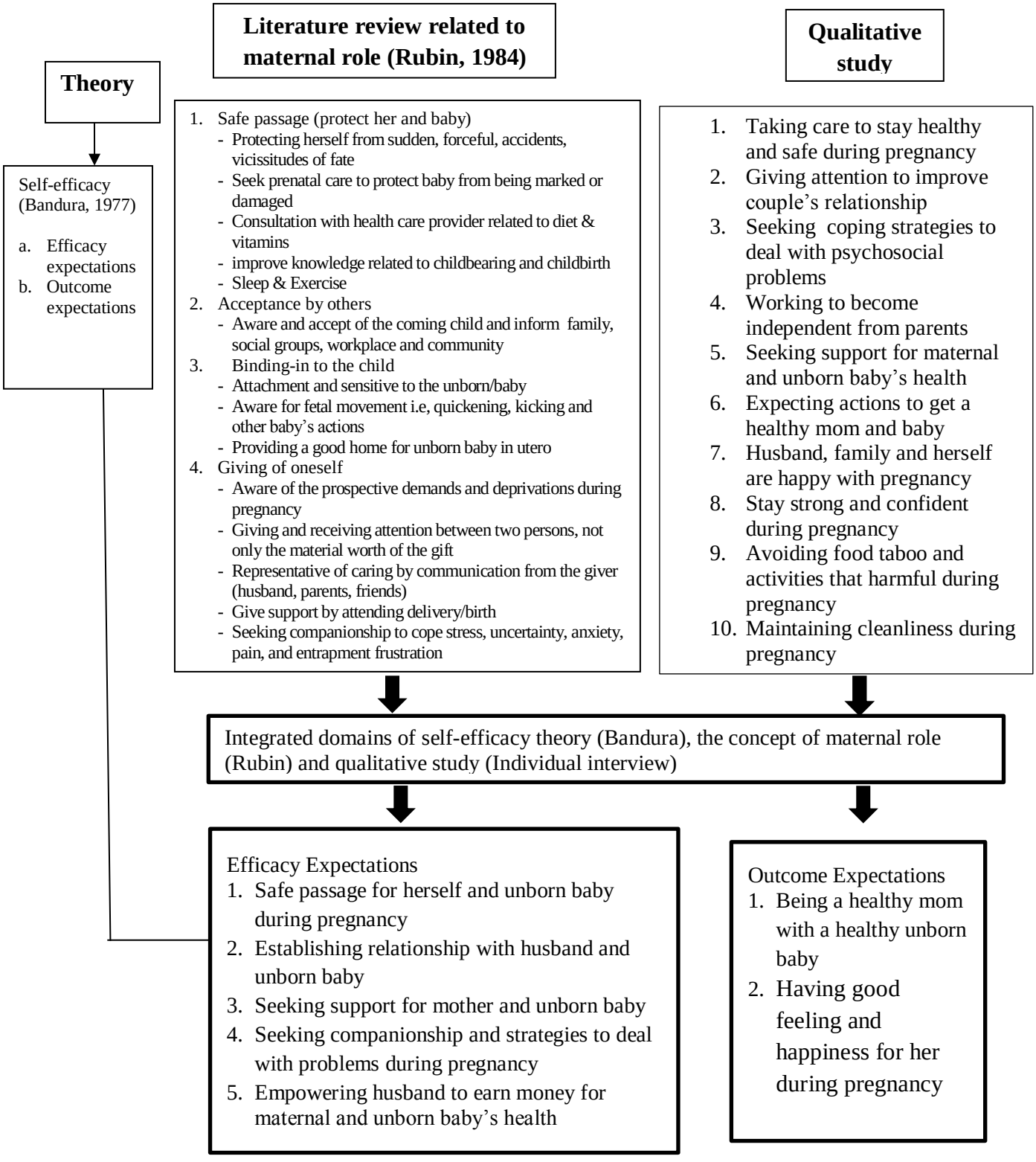

Figure 1: Conceptual Framework of a Self-Efficacy in Performing Maternal the Role Scale (SEPMRS-Indonesia)

Measurement Framework

The measurement framework is important to guide the research design to interprete a measurement. This study used a norm referenced measurement as a framework to develop and interpret scores for the SEPMR scale in Indonesia. The norm-reference framework is performed to compare the score of a subject's expected performance to another subject's performance within some well-defined norm group (Waltz et al., 2010). A norm referenced framework is carried out to develop a tool to measure a specific characteristic and distinguish or compare among subjects that possess a different number of the characteristics (Waltz, Strickland, & Lenz, 2010). The SEPMRS-Indonesia is a measure to assess the self-efficacy of pregnant adolescents with a first time pregnancy in performing a maternal role. A samples gets a score of SEPMRS-Indonesia and were evaluated by ranking and comparing the scores to the other samples who take the same test with the same scale. This result provided information on how a sample performed on expected roles on the scale and can be compared to other samples. Hence, the score between a pregnant adolescent and others who take the SEPMRS-Indonesia were compared.

Based on the above considerations, the conceptual framework of this study built on the conception of the self-efficacy of pregnant adolescents with a first time pregnancy to perform a maternal role in regards to the self-efficacy theory proposed by Bandura (1977) and the maternal role concept as proposed by Rubin (1984).

Definition of Terms

Self-efficacy refers to an individual's perceptions as competent in a given task or domain and is thought to develop through a complex path contingent on an individual's tendency to set and follow goals (Bandura, 1977, 1986, 1997). In this study, self-efficacy in performing maternal role refers to personal judgment of pregnant adolescent at the first time pregnancy related to her ability to perform maternal role as her specific tasks as a new coming mother during pregnancy to achieve efficacy expectations and outcome expectations for her and her baby. This theory integrated with four concept of maternal roles from Rubin (1984) and individual interview. The integrated pre-determined domains consisted of seven domains of self-efficacy included: safe passage for herself and unborn baby during pregnancy, sstablishing relationship with husband and unborn baby, seeking support for maternal and unborn baby's health, seeking companionship and strategies to deal with problems during pregnancy, empowering husband to earn money for maternal and unborn baby's health, being healthy mom and unborn baby, and having a good feeling and a happiness for her during pregnancy. The following pre-determined domains were explained as follows:

*Safe passage for herself and unborn baby during pregnancy***:** refers to ability of the pregnant adolescents to perform healthy activities, i.e., eating a healthy diet, consuming vitamins, checking her pregnancy regularly, having good sleep and rest, and maintaining cleanliness to keep healthy and safe.

*Establishing relationship with husband and unborn baby***:** refers to ability of the pregnant adolescents to implement some activities to show her ability to maintain

good communication with her husband, and unborn baby and paying attention to her husband and unborn baby.

*Seeking support for maternal and unborn baby's health***:** refers to ability of the pregnant adolescent to find or get some support to help her to look after herself and her unborn baby during pregnancy.

*Seeking companionship and strategies to deal with problems during pregnancy***:** refers to ability of the pregnant adolescent to find strategies to solve the problem during pregnancy (i.e., nausea problem, vomitting problem, etc.)

Empowering husband to earn money for maternal and unborn baby's health: refers to ability of pregnant adolescents to encourage her husband to get money to take care of her needs during pregnancy and be able to prepare the labor cost.

*Being healthy mom and unborn baby***:** refers to ability of the pregnant adolescents to get their healthy and their baby healthy after doing some particular activities during pregnancy.

Having a good feeling and a happiness for her during pregnancy: refers to ability of the pregnant adolescents to get happiness after doing some activities during pregnancy.

Significance of the Study

Developing self-efficacy in performing the maternal role scale is a culturally-grounded measure for Indonesian pregnant adolescents which is validated and reliable and can be used to measure the self-efficacy of pregnant adolescents in performing the maternal role in Indonesia. This study is needed to improve the understanding of pregnant adolescents in performing the role during pregnancy based

on the Indonesian cultural approach. The outcomes of this study were expected as follows.

1. Developing this scale which was validated and reliable and can be used to measure self-efficacy of pregnant adolescent in performing the maternal role during pregnancy in the Indonesian context.

2. Understanding self-efficacy in performing the maternal role is a critical point for designing and implementing nursing interventions to provide for the pregnant adolescent's needs during pregnancy.

3. This scale also can used as an instrumental tool strengthening and improving the preparation to be a mother for pregnant adolescent with a first time pregnancy.

Scope of this Study

This study was a scale development related to self-efficacy of pregnant adolescents in performing maternal role during pregnancy which were conducted in four provinces in Indonesia: Riau Province, Central Java Province, West Nusatenggara Province and West Java Province during February until June 2017, and involved pregnant adolescents with a first time pregnancy as samples of this study.

CHAPTER 2

LITERATURE REVIEW

This study developed an instrument to measure self-efficacy in performing the maternal role of pregnant adolescents with a first-time of pregnancy in Indonesia. The study identified the content domain of self-efficacy in performing the maternal role for pregnant adolescents. From the identified content domain, items were developed for the instrument. Measures of validity and reliability were established. This chapter presents the state of knowledge on self-efficacy in performing the maternal role for pregnant adolescents based on the theory of self-efficacy and its measurement. The purposes of this chapter are to describe the concept and conceptual structure of self-efficacy in performing the maternal role for pregnant adolescents with a first time pregnancy. The literature review of this study is explained as follows.

1. Pregnant adolescent development
    - 1.1 Physical development
    - 1.2 Psychosocial development
    - 1.3 Emotional development
2. Adolescent pregnancy
    - 2.1. Overview of situation analyisis of adolescent pregnancy
    - 2.2. Influencing factors related to adolescent pregnancy
    - 2.3. Effects of adolescent pregnancy
3. Self-efficacy in performing maternal role
    - 3.1 Theory of self-efficacy
        - 3.1.1 Efficacy expectations

3.1.2 Outcome expectations

3.2 Maternal role

3.2.1 Definition of maternal role

3.2.2 Domain of maternal role

3.2.3 Factors influencing maternal role in pregnant adolescents

3.3 Self-efficacy in performing maternal role in pregnant adolescents

4. Existing tools related to self-efficacy in performing maternal role

Pregnant Adolescent Development

This section describes pregnant adolescent development consisting of physical development, psychosocial development, and emotional development. The details of these as follows.

Physical Development

Adolescents are a unique group with particular needs related to their developmental stage (AlBuhairan, Areemit, Harrison, & Kaufman, 2012; Ricci, Kyle, & Carman, 2017). Adolescence is a fast growth peiode to optimal development. In adolescent girls, the beginning of breast development and the growth of the uterus occurs. Medical complications of childbearing can occur when the pregnancy comes early in adolescence (Elster & McAnarney, 1981).

An adolescent pregnancy leads to physical consequent to them, and it can also influence the unborn babies physical development and their future development

(WHO, 2017). It is possible for a baby born out of a pregnant adolescent to be healthy and developmentally on schedule, but there are still have a high risks (Phyllis, 1984).

There are a few factors that affect adolescent pregnancy development such as, biological influences and genetics, life events which are most stressful, social-economic status, diet and nutrition, obesity, and illness (Pillitteri, 2014; UNICEF, 2015). Most of the adolescents implicated have reached fertility and experienced changes in their physical body which support fertility in sexual maturation. In regards to physical changes, an adolescent has growth development that occurs in almost every part of the body (Ricci et al, 2017). Also during pregnancy, pregnant adolescents experience physical changes in the breasts, skin and other areas of their body (Hatfield, 2014; Pillitteri, 2014). This change has a specific influence on the psychological aspects of an adolescent's physical development. It is usually visible that pregnant adolescents feel very uncomfortable about their bodies.

Physical changes during pregnancy are difficult to hide. For teenagers who pregnant at the first time, this can be a problem. As the fetus grows, the pregnant teenager's abdomen also enlarges. this change begins on the fourth to the end of the semester for most pregnant women. The growth of the fetus in the abdomen can creates physical changes in the interior of the body as well.

As the baby grows, the unborn baby will spread in the mother's uterus and pressing some areas inside. This condition causes the organs of the body adjust to a smaller space and lead to a decrease in the mother's appetite due to discomfort in the stomach, the need to urinate, decreased lung capacity and also back pain due to increased baby load. In addition, hormonal changes and blood body capacity also

increase. Mother will increase between 25% and 40% to be overcome with vital organs. Babies also get food from the mother's blood (Pillitteri, 2014: Ricci, 2017).

Adolescence is also a period marked by the active start of female hormones. Ovulation does not always occur during the first menstrual cycle for girls because increased estrogen levels are needed to produce enough mature eggs to be released. During pregnancy, the hormone estrogen increases and it causes many changes in adolescents such as emotional changes and physical changes (Pillitteri, 2014).

Psychosocial Development

The main task of adolescent development is to establish identity. Pregnancy can cause a psychological disturbance of teenagers and may interfere with early adolescence stage or middle adolescent. The establishment of identity is essential for a close and meaningful relationship with the teen's sexual partner. Teenagers who will become a mother tend to depend on their parents, peers, and health workers as a source of experience that has never passed. Being a mother gives her identity and purpose. Sometimes they think to have an abortion because of feelings of shame and guilt and choose the path of abortion to end their pregnancy. Various degrees of depression often occur in pregnant teenagers. Pregnant teenagers will achieve lower levels of education and become less successful than other teenagers. Most of them still hope to finish high school or work well. A key factor for successful pregnancy in adolescents is the availability of family members for financial support, psychological support, and child care during their schooling. Psychosocial problems occur in pregnant teenagers if they are unable to adapt during their pregnancy.

Adolescent girls are attempting many dissimilar roles in presuming her relationship with peers, family, community, and society (Pillitteri, 2014; Ricci et al., 2017). An adolescent girl is expanding her own individual sense of herself. If an adolescent is not successful in the formation of her own sense of self, the she evolves a sense of role confusion. The culture of adolescents becomes very important to them. It is through the involvement with their group that they find support and help with developing their own identity (Ricci et al., 2017). The ability of the adolescent to successfully form a sense of self is dependent upon how well they successfully completed the former stages of development (Ricci et al., 2017). If they have been successful, they can develop resources during this period to overcome any problem in previous developmental stages, and if they believe that they cannot express themselves in any manner due to societal restriction, they will develop role confusion (Ricci et al., 2017).

Adolescents are often involved with a peer group who talk about the changes during this period. Teens usually have one major peer group with whom they identify and learn together, play together and talk about their ideals, and these members usually have the same thing in the some ways, including sex (Pillitteri, 2014). During this age, the dominant psychosocial problems are influenced by peers especially in the early stages where they are conscious of their physical appearance and social behavior, acceptance in peer groups (Murray & McKinney, 2014; Ricci, 2017).

In regards to adolescent pregnancy, if adolescents are pregnant, this can be a problematic and dogmatic, they may be ashamed to tell their peers or instead they seek out their peers for support and they cannot hang out with their peers as they use to because they have a new responsibility to be a new coming mother.

Emotional Development

Adolescence is the most vulnerable time in one's life, and it is full of challenges because adolescents are both physically and mentally immature as it is marked by a period of unstable way of thinking (AlBuhairan et al., 2012; Olukunle, 2007). Erikson explained that adolescents in the early and mid period of developmental tasks are shaping a sense of identity or determining who they are and what type of person they will be (Erikson, 1987).

As an adolescent girl progresses through developmental ages and stages, she faces conditions related to the changes of adolescence. She also has to negotiate the progressive development of sex characteristics (Perry, Hochenbery, Lowdermilk, & Wilson, 2010; Ricci et al., 2017). Adolescents should start to develop their tasks to build goals for their career, but in the case of pregnancy adolescent girls cannot continue their study. This situation can create a lot of stress for them, and they need professional help to carefully guide them (Ricci et al., 2017).

Pregnancy can be a physically, emotionally, and socially stressful time because of the hormonal changes in the body. The pregnancy can result in social and emotional problems for adolescents, and the stressor can be overwhelming for them.

Adolescent Pregnancy

This part explains briefly information about pregnancy in adolescence consisting of: an overview of situation analysis of adolescent pregnancy, influencing factors related to adolescent pregnancy, and the effects of adolescent pregnancy.

Overview of Situation Analysis of Adolescent Pregnancy

Nowadays marriage and pregnancy at an adolescent age is a common phenomenon which has a high incidence rate. In 2015, girls aged 15–19 years gave birth to a total of 229,715 babies for a birth rate of 22.3 per 1,000 girls in this age group in the United States. In the U.S, the record of the overall teen birth rate reduced by 8% from 2014. The rate of births has decreased for girls aged 15–17 years (9%) and for girls aged 18–19 (7%) years (WHO, 2017).

WHO noted that 90% of births to adolescents occur within marriage in developing countries (WHO, 2017), and 20,000 girls under the age of 18 give birth every day and this has increased to 7.3 million a year (UNFPA, 2013). In Western Asia/Northern Africa, Central Asia, and South-Central and South-Eastern Asia, the adolescent birth rates were close to 100%, while in South America and in sub-Saharan Africa this was about 70-80%. In Indonesia, the mid-term development plan survey data (RPJM) in 2016 showed that the fertility rate (ASFR) for adolescents aged 15-19 year age was 36 (1-100). The number is down compared to the previous year which was 49 (Sihombing, 2017). It was recorded that 47% of Indonesia's population married in the teenage period (Rachmawati, 2014). The pregnancy rates in adolescents aged 15-19 has reached 48 out of 1,000 pregnancies. The frequency of adolescent pregnancy is quite high in Indonesia. The latest data shows, there are 1.7 million teenagers under the age of 24 who give birth every year in Indonesia (VIVA, 2017).

WHO (2017) stated that the phenomenon of teenage pregnancy is a global problem. Most countries have the same problems related to teenage pregnancy. However, due to different cultures in many countries this has resulted in government policies that are often not the same. In 2010, there were 158 countries with the minimum

legal age of marriage for women at 18 years and above. In Indonesia, the number of teenage pregnancies less than 18 years is quite high, but the data is not always recorded. Cultural shame and religion are factors that prohibit pregnancy before marriage. Therefore, for young pregnant females, many of them do not follow up with their pregnancy with a community health centre.

Influencing Factors Related to Adolescent Pregnancy

Marriage at young age is also one of the unresolved family issues in the world, particularly in Indonesia. There are a number of factors that influence teenage pregnancy. WHO (2017) reported that teenage pregnancy may be due to factors that include: social and cultural norms, being unmarried as an only means for some in building identity, nonconsensual sex, and lower educational levels for young girls resulting in fewer job opportunities for them. Other factors influencing teenage pregnancy are socio-cultural factors, family income, and family role (Homzah & Sulaeman, 2007; Mothiba & Maputle, 2012).

Some studies found that pregnancy in adolescence is due to low socioeconomic conditions (WHO, 2017; Samantaray, 2010), culture, lack of social mobility, poor educational opportunities (Ross, Baird, & Porter, 2014), inadequate sexual knowledge, changing attitudes towards sex, peer pressure (Mushwanaa, Monarenga, Richterb, & Muller, 2015), having higher sexually permissive attitudes, contraceptive or the condom use, an adolescent wanting the pregnancy and having a sense of the future (Mchunu et al., 2012). Low socio-economics cause adolescents to drop out of school and get married at a young age (Samantaray, 2010).

One in five girls has given birth by the age of 18 years, and ninety-five per cent of these births happen in countries with low and middle-incomes (WHO, 2017). The average adolescent birth rate in low-income countries is five times as high as that in high-income countries, and more than twice as high as in middle-income countries (WHO, 2014). Most of the young girls in low and middle income countries are unmarried and most of them are not ready for the emotional, psychological, and financial responsibilities of motherhood (WHO, 2014). A study found that 44% of pregnant adolescents are influenced by a single parent's income, and 20% be the father's income (Mothiba & Maputle, 2012). Some cultures suggest that a girl get married at a young age (Omarsari & Djuwita, 2008; WHO, 2017). Marriage in adolescence is strongly associated with education as well as economic factors, and pregnancy is more common in adolescents with low socioeconomic conditions and low education levels (WHO, 2017).

Other factors also influencing teenage pregnancy are: adolescents lacking knowledge about sexual and reproductive health, not having access to contraceptives or experiencing contraceptive failures, low educational levels, religion, and the consequences of a sexual attack (Homzah & Sulaeman, 2007). Lack of knowledge is also an obstacle of pregnant teenagers in understanding their role as a new mother who is responsible to themselves and their unborn baby until delivery (WHO, 2008). In some cases, an adolescent may willful try to get pregnant without any respect for the responsibilities and inherent risks in assuming the maternal role (Orshan, 2008).

The practice of early marriage is also influenced by local traditions, although there are regulations under laws prohibiting marriage in adolescence. The Office of Religious Affairs often gives dispensation for marriage in adolescence. The Marriage Act

since 1974 does not expressly prohibit the practice (President of Indonesia, 1974). According to the Marriage Act, a new girl can marry at the age of 16, and a boy over the age of 18 years, but in practice they are often married under these ages.

Effects of Adolescent Pregnancy

WHO (2017) stated that adolescent childbearing has a negative effect on a number of aspects including: adolescent effects, unborn baby effects, social-economic effects. These effects are explained as follows.

Adolescent's effect

Pregnancy during adolescence is an important issue for several reasons. There are many common problems that appear and effect the adolescent in this condition. The adolescent effects lead to the physical and psychological aspects. In regards to physical effects, the risks increase for medical complications (Mchunu et al., 2012). The conditions associated with childbearing at an adolescent age and the health problems that occur during pregnancy include: anemia, hyperemesis, low birth weight baby, STIs, mental illness, unsafe abortion practices, obstetric fistula, and pregnancy complications (Yilmaz, Yilmaz, & Cakmak, 2016; WHO, 2008). Pregnancy during the ages of adolescence also leads to high risk for obstetric complications such as preterm labor and birth, anemia, and sexually transmitted infections (Ricci, 2017). A study found that 53.12% of pregnancies in teenagers can lead to complications (Yasmin, Kumar & Parihar, 2014). The major pregnancy complications in adolescents were preterm labour (27.45%), hypertensive disorders of pregnancy (20.17%), premature rupture of membranes (18.21%), low birth weight

(16.86%), preterm births (16%), abortion (14.57%), anemia (8.12%), and stillbirths (5%). These also had a negative effect on the long-term development of cognitive and emotional aspects of adolescents as well as on their educational performance (Gueorguieva, Carter, Ariet, Roth, Mahan & Resnick, 2001). Other risk factor of adolescent pregnancy are high rates of sexual activity, sexual or physical violence in the home, and cultural values and norms that accept adolescent parenting (Orshan, 2008).

An adolescent pregnancy also has an effect on teenagers' psychosocial health, wherein it introduces another stress to the difficulties of this developmental period (Perry et al., 2010; Ricci, 2017). The psychosocial impact contributes to a loss of self-esteem, a destruction of life projects, and the maintenance of the circle of poverty (Ricci, 2017). The psychosocial risks related to early childbearing frequently have an even larger impact on adolescent mothers, families, peers, and society than the obstetric risks (Whiteley & Brown, 2010; Ricci, 2017).

Adolescent pregnancy can be an emotional situation, and the emotional level of an adolescent is usually described by impulsiveness and self-centered behavior, and they often place major importance on the beliefs and actions of their peers (Pillitteri, 2014; Ricci, 2017). Many adolescents are not aware of the effect of their behavior in trying to build a personal and independent identity. Their process of thinking does not include planning for the future. Some researchers found that pregnancy in adolescence can lead to psychiatric disorders such as, stress, anxiety, and depressive disorder (Leight, Fitelson; Ross & McLean, 2006; Schetter & Tanner, 2012). Stress exposure during pregnancy affects the birth outcome (Schetter & Tanner, 2015). In the emotional aspect, an adolescent can suffer emotionally if she becomes pregnant and does not want

her baby. She may become fearful of the impact on her life of having a baby and that she will not be able to fulfil her goals for the future (WHO, 2017; Mchunu et al., 2012). This problem may lead to impulsive behavior such as seeking an abortion or even attempting suicide (Sedgh et al., 2015; WHO, 2017).

Unborn baby's effect

Pregnancy in adolescence also has an impact on the unborn baby such as, placenta previa, anemia, hypertension, toxemia, and premature birth, as well as the effects from the social and emotional crisis, and the ethical dilemma and decisions that a pregnant adolescent experiences (Casey, Rebecca, Jones, & Hareb, 2008; Ricci, 2017). Pregnancy during adolescence causes a double burden in fulfilling nutritional needs for personal growth and for the fetus. An adolescent's baby is often at risk for abuse or neglect because of the adolescent parent's lack of knowledge about growth, development, and parenting (Perry et al., 2010). The babies of adolescent mothers are at greater risk of preterm birth, low birth weight, child abuse, neglect, poverty and even death (Ricci, 2017).

A research from some coutries found that risk of preterm birth, low birth weight and the risk of caesarean section was significantly higher among mothers aged 15-19 years and below (Ganchimeg et al., 2013). In regards to maternal causes, pregnant adolescents are also at higher risk of dying each year compared to women in adulthood. These risks increase greatly at a younger age, with adolescents younger than 16 years old are up against four times the risk of maternal death as women over the age of 20 years old. In addition, a baby born to an adolescent has a significantly higher risk of death compared to a baby born to a woman in adulthood (WHO, 2017).

Social-economic effect

Adolescent pregnancy also has a negative impact in social consequencies. For instance, 7 out of 10 pregnant adolescents will drop out of school (Ricci, 2017). Meanwhile, community appraisal on adolescent marriages still depends on moral beliefs, ethics, and human etiquette, and pregnancy at this young age is still considered taboo, something that should not have happened (WHO, 2017). If there are teenagers who are pregnant, especially if the pregnancy occurs outside of marriage then the public view of the teenager or her family is not good (Saha, 2017). A pregnant teenager sometimes must deal with negative thinking from their family and friends and she often has to confront exclusion from society. This makes life more difficult for them (WHO, 2017; Yasmin et al., 2014). Therefore, pregnant teenagers need to be connected to their parents, their peers, and their community as well (Ricci, 2017).

In society, most cases of adolescent pregnancy are unplanned, and make up one fifth of all unintended pregnancies annually (Alan Guttmacher Institute, 2012; Ricci, 2017). As one study showed 35% of the pregnancies among 15-19 year olds were unplanned, unwanted or untimed as cited from sub- Saharan Africa, and it indicated that the teenagers' relationships were unstable (Mchunu et al., 2012)). This factor can lead to abortion as one of the choices that an adolescent teenager can take. Only about two thirds of these unwanted pregnancies are safe until childbirth, while a third results is unsafe abortions (Bankole, 2010). A study about the factors associated with pregnant adolescent in South African youth found that 74.1 of the subjects indicated an unwanted pregnancy, and 6.8% terminated a pregnancy by abortion (Mchunu et al., 2012). There have been many cases of adolescent pregnancies and

abortions, and this impacts on the social aspect in pregnant adolescents (Yasmin et al., 2014).

In regards to theeconomic effect, pregnancy at a young age impacts on the unpreparedness of young parents to meet their needs because of joblessness or depending on being helped by parents or even still living with parents (Sedgh et al., 2015; Mchunu et al., 2012; Grant & Hallman, 2008). A low educational level often results in adolescents not getting a job. This condition makes it difficult to continue living without parents' help (UNFPA, 2013; WHO, 2017).

Self-Efficacy in Performing Maternal Role

This section discusses about the theory of self-efficacy, the maternal role, and self-efficacy in performing the maternal role in pregnant adolescents

Theory of Self-Efficacy

The definition of self-efficacy is the level or power of one's belief in one's own ability to complete tasks to achieve a purpose (Ormrod, 2006). Bandura (1983) defines self-efficacy as people's decision of how they can arrange well and perform element cognitive, social, and behavioral skills in dealing with future situations. Bandura (1977) defined self-efficacy as a person's belief in his/her capacity to organize and implement actions to achieve the goals set, and trying to assess the levels and strength in all activities and context.

The self-efficacy theory is used as the one of the theories underpinning this study. Efficacy is not only focusing with what one has, but with judgments of what

one can do with what one has (Bandura, 1997). Bandura (1977) developed the self-efficacy theory when he noted a deficiency in the traditionalist stimulus-response theory of human behavior. Bandura proposed that cognition intervenes between the stimulus and response. That is, people cognitively appraise a stimulus and select behaviors thought appropriate in the situation. The locus of behavior regulation becomes the person rather than the stimulus. Bandura proposed that people tailor their behaviors to specific situations because they know that behaviors are not consistently rewarded and may be negatively as well as positively evaluated. The self-efficacy theory describes the interaction between behavioral, personal, and environmental aspects in health. Self-efficacy has been shown to be a predictor of many health-related behaviors, including in the parenting role (Cooper, 2010; Guimond, Wilcox, & Lamorey, 2008; Russel, 2006).

Self-efficacy is judgments from someone that she has ability to successfully achieve something (Bandura, 1977). Bandura (1986) also stated that the human ability will be better if started with self-reflection, because it is the foundation of social cognitive theory. Through self-reflection, efficacy is the assessment of one's ability to arrange and perform courses of activity that are needed to achieve something to be desired. The trust of self-efficacy offers the basis for human motivation, well-being, and personal achievement, because if people believe that their actions can produce the results they want, they have little incentive to act or to survive in the face of adversity (Pajares & Frank, 2006).

Bandura stated that the degree and power of self-efficacy will specify: (1) whether that behavior will be done or not, (2) how much business that will be generated, and (3) how long the effort will support in the face of challenges. The theory of self-

efficacy is not related to the skills of the individual but more to do with the decisions that they have in respect to the skills. This theory develops a sense of self-efficacy and shared belief in its capability to achieve goals and complete desired tasks (Bandura, 1997).

Self-efficacy contributes to confidence in cognitive development and function and consists of: cognitive, and affective processes, motivation and the process of selection (Bandura, 1997). In cognitive confidence, Bandura explains that the effect of self-efficacy trust on the process of cognitive functions take diversity of forms. The personal objective condition is affected by self-evaluation of competencies. If the perceived self-efficacy is stronger, the higher the goal challenges people set for themselves and the stronger is their responsibility to themselves (Bandura, 1991). Bandura (1993) stated that most human motivation is cognitively generated. People usually motivate themselves and conduct their specific action by the exercise. They set objectives for themselves and plan to do actions to realize it in the future. In the affective process, Bandura (1991) explains that the trust of people in their competencies influence how much stress and depression they experience in threatening or troubled situations, and their level of motivation as well.

Efficacy depends on possessing skills, knowledge, and the ability to apply these competencies successfully in a variety of situations (Bandura, 1997). When persons viewed their working environment as controllable, they expended greater effort toward attaining goals (Bandura & Wood, 1989).

Self-efficacy is a link between knowing and doing (Bandura, 1977). One must have the ability to use these skills in a variety of situations. Under differing situations, the ability to perform a task varies. The contextual factors affect one's choice

of behaviors and influence one's beliefs related to ability of someone to perform. The degree of self-efficacy one possesses in a given context influences the degree of effort one is willing to expend on that activity to attain a goal, one's perseverance, and the possibility of goal attainment. Other researchers have employed the self-efficacy theory to study a variety of problems, such as phobias (Bandura, 1977), administrative behaviors (Wood, Bandura, & Bailey, 1990), and complex decision making.

Self-efficacy perceptions are task-specific related to efficacy expectations. In trusting to perform a specific behavior, individuals may have a high level of confidence in one area, such as in performing the maternal role in eating healthy food, taking multivitamins, breastfeeding, and exercise during pregnancy. Higher self-efficacy has been associated with the ability to perform a specific behavior (Bandura, 1977). Pregnant adolescents who have low self-efficacy were easily convinced that the role they were doing in the face of difficult challenges was in vain, so they tended to experience negative symptoms of stress. Besides, pregnant adolescents with high self-efficacy were likely to see challenges as something that can be overcome given by the competence and considerable effort to perform the maternal role (Bandura, 1997).

Bandura (1977) structured two components of self-efficacy: efficacy expectations and outcome expectations. Both of these contents are explained as follows.

Efficacy expectations

Bandura (1977) defined efficacy expectations as the beliefs of someone about his/her ability to carry out particular tasks, accurately predict behavior that one can successfully perform the behavior needed to generate the outcomes, and how much effort will be needed to finish as well as how long will one face obstacles and bad

experiences. The efficacy expectations are obtained from four principal sources of evidence; mastery experience, vicarious experiences, verbal persuasion, and physiological states (Bandura, 1997). The mastery experience refers to learning through personal experience where one reaches mastery over a difficult or previously feared task and, thus enjoys an enhanced self-efficacy. Mastery experiences are the most potential source of efficacy information. They supply the most valid evidence of whether one can gather whatever it takes to succeed (Bandura, 1997). Previous successes increase mastery expectations, while repeated failures will be decreasing them. Bandura (1997) stated that mastery experience is achieved through personal experience and it is the most effective source of efficacy expectation. If people are successful in mastery experiences, then they will develop robust self-efficacy expectations.

The vicarious experience is learning that occurs through direct observation of events from others. For example, the pregnant adolescent can learn from her mother how to perform the maternal role during pregnancy and after birth. People can be a model, and it can yield expectations in observers that they can achieve their own performance by learning from what they have observed (Bandura, 1977). Additionally, individuals may be more motivated when observing a master's model of successful achievement despite a very difficult environment. Modeled behaviors showed with clear rewarding outcomes are more effective than modeling with unclear outcomes (Bandura, 1997).

Verbal persuasion is the third source of efficacy expectations. Verbal persuasion refers to activities where people are led. It involves telling an individual that he/she has the capabilities to master the given behavior (Bandura, 1997). These

activities are done through giving suggestions in order for a person to believe that she/he can cope successfully with specific tasks. Verbal persuasion also can provide coaching and evaluative feedback on performance. Verbal persuasion has a guaranteed effective in supporting the research of health promotions. Verbal encouragement from a credible and trusted resource in the form of counseling and education has been utilized alone and with performance, behavior to reinforce efficacy expectations.

Lastly, physiological states are the types of information that is provided to influence efficacy expectations. The physiological states influence self-efficacy judgments with respect to specific tasks. Emotional reactions (i.e., anxiety, stress) can lead to negative judgments of one's ability to complete the tasks (Bandura, 1997). Physiological indicators are important in coping with stressors, physical achievement, and any health problems.

Outcome expectations

Bandura defined outcome expectation as a person's estimation that a given behavior will lead to particular outcomes (Bandura, 1977). Outcomes expectations are determined by one's actions or by forces outside one's control. High efficacy expectations have been linked with persistence and high goal attainment. If someone can achieve their specific tasks then her/his outcome expectations will be accomplished as well (Bandura & Schunk, 1981). The emphasis on outcome expectations lie in the ability of existing trust to take actions or behavior and reach the efficacy expectations.

Behaviors are influenced by generalized expectations that outcomes are determined either by one's actions or by external forces beyond one's control (Bandura,

1997). If a pregnant woman has the confidence and ability to do the specific task in performing the role as a mother and achieve a healthy state both for her and her baby, it means that she has achieved the outcome expectation. In addition, efficacy expectations and outcome expectations differ only in reaching the goal. The efficacy expectations focus on many specific tasks, and outcome expectations focus on the general goal.

In conclusion, efficacy expectations are distinguished from response-outcome expectations. The theory of self-efficacy explains that outcome expectations are clearly differentiated from efficacy expectations because efficacy expectation is the perceived ability to do a behavior, whereas outcome expectancies are judgments about the likelihood of the outcomes that flow from behavior and that the individual can believe that a specific action will produce particular outcomes (Bandura, 1977).

Maternal Role

This study used the concept of the maternal role from Rubin (1984) after having reviewed a lot of literature about the maternal role from other studies. This part also explains other definitions of the maternal role from other researchers. The concept of the maternal role in this section consists of: 1) definition of the maternal role, 2) domain of the maternal role, and 3) factors influencing the maternal role in pregnant adolescents.

Definition of maternal role

Pregnancy is a period of preparation for the appearance of the new task of a mother. A prospective mother will get acquainted with the unborn or newborn baby as an integral and crucial part of her pregnancy (Lederman & Weis, 2009). She should be able to play the role as a new coming mother for her baby during her pregnancy and after birth. In adolescent pregnant women, this new coming role will be a tough challenge, because psychologically they are unprepared to accept the role of a mother.

There are a number of definitions related to the maternal role. Steele and Pollack (cited in Bobak, Jensen, & Zalar, 1989) defined the maternal role as one process with two components, being practical or being mechanical in nature and emotional in nature. The being mechanical in nature involves cognitive and motor skills and includes feeding, holding, clothing, and cleaning the infants, protecting the infant from harm and providing mobility for her or him. The emotional component in the nature role involves cognitive and affective skills that include motherliness, attitudes, tenderness, awareness, and concern for the child's need and desires. Naphapunsakul (2006) defined the maternal role as a mother's behaviors and feelings in infant care which included confidence in providing care to her infant, having a mother-infant relationship, and satisfaction in the maternal role. Mercer (1985) defined the maternal role is an interaction and development process between mother and baby in childbearing. Pregnant women should be confident to perform their role which includes her relationship with her infant (Mercer, 1986).

Rubin (1984) defined the maternal role as tasks of a mother to prepare herself and her baby during pregnancy and one month after birth. In brief, the maternal role can be defined as a mother's ability to take her responsibility as an impending mother to perform some role tasks during pregnancy to get healthy to give birth. As an

expectant mother, pregnant women develop a view of themselves and what that role entails. Rubin described the complex process of maternal role taking involving mimicry, role play, fantasy, and search for a role fit (Rubin, 1984). Mimicry involves observing and copying the behaviors of other women who are pregnant mothers in an attempt to discover the characteristics of the role. Mimicry often begins in the first trimester, when the women may wear maternity clothes before they are needed to understand the feelings of women in more advanced pregnancy and see how others react to her.

Role play consists of acting out some aspects of what mothers actually do. The pregnant women search for chances to give care to their baby and chance to practice the expected role as a good mother for their baby. Fantasy is how women can consider a variety of possibilities and try some of the behaviors. For example, how they handle and hold a baby or play together with a baby. Rubin explained about the role expectations of mother and how she explores the role long enough to develop a sense of herself to play the role and she can select the behavior to assert strongly how she will perform the role. The maternal role as explained by Rubin is also how a mother can solve problems that may arise during pregnancy. Sometimes pregnant women experience sadness, and for this situation they can change especially in particularly difficult times for them.

The maternal role theory from Mercer was developed in 1986. The major concepts of Mercer (2004) form the maternal role attainment theory. This theory is founded on the premise that maternal role attainment is individualized to the mother's experience, and it is influenced by the mother and the infant in an ongoing process taking months or years to complete the roles. Mercer applied the role acquisition theory

to the development of maternal role attainment through four progressive phases consisting of the anticipatory phase, the formal phase, the informal phase, and the role identity phase (Mercer, 2004). During the anticipatory phase, the pregnant woman fantasizes about the role, relates with her fetus in utero, and role plays being a mother (Mercer, 2004; Meighan, 2010). Mercer described that the anticipatory phase includes learning expectations and can entangle fantasizing about their maternal role and this is the social and psychological adaptation to the maternal role. The formal phase is the opinion of the maternal role at birth. In this stage, behaviors are guided by someone in a social system or network of the mother and depend on the suggestion of others to make decisions. The informal phase is when the mother develops methods of mothering by herself which are not delivered by a social value. She finds what works for her and the child. The personal phase is the excitement of the mother. In this phase, the prospective mother finds confidence, harmony, and competence to perform the maternal role. In some cases, she may find herself ready or expecting to have another baby (Mercer, 1986; Mercer, 2004).

Kantaruksa (2001) explained five strategies to have well-being and to be healthy during pregnancy.These five strategies are; 1) seeking care, 2) modifying behaviors, 3) dealing with emotions, 4) building the relationship with their unborn baby, and 5) preparing for childcare. She also explained four phases of preparation on becoming a new mother. Phase one begins when the women suspects they are pregnant; phase two begins when the women perceive the movement of their unborn baby, or quickening occurs; phase three begins as the women start to perceive their body image as seriously altering; and phase four begins as the women realize that their due date is coming closer. During the four phases, pregnant adolescents need confidence to manage

their health and their baby's health. A pregnant adolescent should be prepared in how to become a new mother and start from now.

Domains of maternal role

After reviewing some of the literature, this study chose the concept of the maternal role from Rubin (1984). Rubin explains in more detail about the task of the mother during pregnancy until delivery. The other concepts just explained about the maternal role after delivery (Copeland & Harbaugh, 2004; Mercer, 2004).

Rubin described that the psychological work of pregnancy is divided into four domains of maternal role tasks which are: safe passage, acceptance by others, binding into the child, and giving of oneself, as follows.

Safe passage

This is the primary task of pregnant adolescents. In this role, pregnant women seek the safe passage for herself and her baby during pregnancy and delivery (Rubin, 1984). In this phase, they seek the doctor or other health care provider to consult about their pregnancy. This information can include: nutritious food or diet to avoid anemia problems during pregnancy (Casey et al., 2008; WHO, 2008), vitamins to maintain stamina, exercises, and managing time for taking a rest and sleeping, and planning a schedule of antenatal care visits. A pregnant women should exercise during pregnancy. Excercises during pregnancy are of benefit for: improving weight management, reducing the incidence of gestational diabetes, decreasing the incidence of preeclampsia, enhancing one's body image, having better psychological well-being,

reducing lower back pain, improved fetal development, easier labor, safety of maternal exercise, and avoiding a miscarriage (Schoenfeld, 2011; Rubin, 1984).

Sleep quality is also a concern in pregnant women (Rubin, 1984). There is a high association between poor quality of sleep and depression, which guides to an agreement that there is a bidirectional connection between sleep and mood (Kempler, Sharpe, & Bartlett, 2012). Pregnant women experience sleep disturbances during pregnancy and following after birth.

In the safe passage phase, sometimes their culture will allow them to avoid some food, but in fact the food is more beneficial for them and infant, or otherwise dangerous for them. In some cultures pregnant women are encouraged to eat certain foods that are beneficial in pregnancy for both the mother and unborn baby and to avoid certain foods that are detrimental in pregnancy. According to Leininger (1985), cultures are the one of the biggest influences on childbirth perceptions and the role of motherhood. There is one study about childbirth perceptions among women belonging to American Mormon, Canadian Orthodox Jewish, and Finnish Lutheran faiths. The results found the Finnish Lutheran women experienced difficulty in becoming a mother, because they had many roles to do. On the contrary, the results found that American Momon and Canadian Jewish women felt happy to be a mother, and they said that to be a mother is their purpose in life (Callister, Julkunen, & Lauri, 1996).

Belief is also a factor that correlated with food intake during pregnancy. Some beliefs are formed because of family habits. A study from Akwapim women in Ghana found that many foods are prohibited during pregnancy because of a variety of reasons (Aikins, 2014). For example, pregnant women avoid groundnut soup that causes heartburn, they are prohibited from eating some types of eggs, and sweet fruits

(i.e. sugarcane, pineapple, coconut). They believe that sweet fruits have abortive functions and have to be avoided during pregnancy. Other food they have to avoid is hamburgers and ice cream. Pregnant women are prohibited to consume these foods because of high-fat and high-sugar content.

Acceptance by others

Pregnancy is a period of preparation for the appearance of a new paradigm, with the new coming infant as an integral and important part of this (Lederman & Weis, 2009; Rubin, 1984). The paradigm change can be thought of as an alteration in perception. The girl without a child looks at the world differently than the woman who becomes a mother with a new baby. There will be some personal conflict and critical resistance to change before any fundamental regulation to this new paradigm occurs. Especially when compared with teens who are pregnant, the conflict will be even greater. The developmental and adaptive process of the pregnancy experience has been recognized by pregnant women. A lot of women are expecting to get pregnant, and some will not. Women who want a baby wonder at their pregnancy as a gift and they are very receptive (Grossman, Eichler, & Winickoff, 1980; Rubin, 1984). A study found that there was the impact of rejection/acceptance experienced during the adolescent mother's childhood on confidence in performing a role as a mother in a small sample of European American and Mexican American teens (Crockenberg, 1987).

According to Rubin (1984), childbearing needs established relationships with family, school groups, social groups, and the work place and also in the community. This phase also refers to a baby's emotional connection with his/her mother

that begins as unborn to birth. Rubin stated that "acceptance of the coming child also a requires an awareness of the personal sacrifices and the willingness to let go some ego-satisfying pleasure". Securing acceptance is a condition necessary to produce and sustain the energy for all the other tasks. This phase involves a reworking of psychological, social and physical space within the family to make a place for the coming baby. An impending mother should keep creating a good relationship with her baby by talking and touching to develop a secure bond between the mother and her baby, and it is period to give your baby the best start in life. Actually, a baby needs more than love, and a baby needs to be able to take part in a nonverbal emotional exchange with her mother (Rubin, 1984).

Binding-in to the child

New mothers are important in understanding and responding between them and their baby's feelings (Rubin, 1984). Rubin (1984) stated that a pregnant woman should commit herself to the unknown child. This is a direct experience between the mother and child with the fetal movement felt by the mother in the womb. This experience adds to the strong emotional ties and attachment of the mother and her baby during pregnancy and the intimate personal experiences in pregnancy. In this role, pregnant women develop an attachment with their unborn baby, and they realize and accept her/his presence. By the end of the second trimester, the pregnant woman becomes so sensitive of the child within her. She realizes about the quickening of the baby and attaches so much value to baby that she has something very pleasing, very necessary to her, and something that gives her great delight and pride (Rubin, 1984). In this role, pregnant women should be sensitive with the baby's presence. Ainsworth and

colleagues (1978) explained that pregnant women should form an attachment to her baby by analyzing and knowing the emotional world of the baby. They explained clearly that mothers who showed sensitive caregiving behaviors were those competent to: (a) attune to an infant's signals with attentiveness, (b) appropriately interpret the signals, (c) respond appropriately to the signals, and (d) react promptly, in a time period that did not provoke excessive frustration for the child. It is recommended that the attachment system include the influential the behavior of the mother.

Giving of oneself

Pregnant women accept and assume that the presence of the baby is a gift and they are happy to accept the presence of the baby (Rubin, 1984). A pregnant woman provides space within her that she would have a baby as she is pregnant. Establishing a good relationship with husband, parents and close friends. In this role, pregnant women should enhance their ability to maintain relationships by providing companionship, good attitude, attention, and supporting each other, and also help to increase her support to keep healthy.

Pregnant adolescents sometimes place stress on relationship given the increased changes from their normal condition to the new responsibility of becoming a mother. The transition to be prospective mother can be challenging and may often involve the disappearance of control and bring interference to relationships (Hanzak, 2005, Robertson & Lyons, 2003). Pregnant adolescent sometimes are not able to cope with the changes in relationships due to: tiredness, stress, a lack of confidence and a lack of focus on the parental relationship (Hanzak, 2005). They are considered as a sensitive group from a pregnancy health viewpoint. Pregnant adolescents tend to be at risk because they

are still at a young age, they are immature in reproductive factors and also emotional factors. Furthermore, it is suggested that pregnant adolescents take part in health activities and have good emotions to avoid any problems (Santiago, Park, & Huffman, 2013). In addition, the preparations of pregnant adolescents to be impending mothers are not as good as adult women. Therefore, this period is difficult for pregnant adolescents.

Factors influence maternal role in pregnant adolescent

Some factors can influence the maternal role in pregnant adolescents (Ricci, 2017; Sohail & Muazzam, 2012; Verstraeten et al., 2014). For instance, the condition of being pregnant, a wanted or unwanted child, social and economic support, and stress and anxiety. The condition of a pregnant adolescent affects her ability to perform her role. For example, nausea and vomiting during pregnancy for an adolescent will decrease her motivation and influence her behavior (Sohail & Muazzam, 2012). An unwanted child and also perceived knowledge also influence the self-efficacy of pregnant adolescents to perform their role during pregnancy (Ricci, 2017). Social support and economic support also have a correlation with motivation and the ability of the pregnant adolescent to play a role to be a mother (Dunst, Trivette, & Deal, 1988; Ricci, 2017). Pregnant adolescents with a high level of support from their mother or other family members have the ability to perform their role during pregnancy (Dobrzykowski & Stern, 2003; Russel, 2006). Stress and anxiety also influence the ability of pregnant adolescents (Turnage & Pharris, 2013). For adolescents, particularly unmarried adolescents, pregnancy is a difficult situation that causes stress (Ricci., 2017). It is in the period in which they should still be going to

school, now they have to think about as well as assume the responsibility for the care of their future.

Mercer (1986) explained the factors that can affect the maternal role directly or indirectly. These factors include stress, social support, family function, the mother's relationship with the infant's father, maternal age, childbearing attitudes, personality traits, early separation from the infant, birth experience, the infant's temperament, the infant's health status, and self-concept. However in this study, after the review of the literature, the factors influencing the maternal role in pregnant adolescents are divided into three; 1) personal factors (Elsner, 2002; Mercer, 1986; Verstraeten et al., 2014), 2) environmental factors (Mercer, 1986), and 3) psychological factors (Mercer, 1986). The factors explained as follows.

Personal factors

The component of personal factors influence self-efficacy in performing the maternal role in pregnant adolescents and include: pregnancy condition, wanted or unwanted child, knowledge, and beliefs/culture.

*Pregnancy condition***.** Most pregnant women experience nausea and vomiting. The signs and symptoms usually appear in the first trimester. This condition will decrease the appetite of the woman during pregnancy. A study from Sohail & Muazzam (2012) found that gestational age has a correlation with nausea during pregnancy and influences the behavior of pregnant women. Adolescents are still developing mentally and physically, so the condition of pregnancy tends to be stressful and severe. In the 3rd and 4th trimester they have to prepare to change and take on the

responsibility of becoming parents (Christopides et al., 2014; DeVito, 2010; Mumah, et al., 2014).

*Wanted or unwanted child***.** Pregnancy is a period that is anticipated in a married couple, however this may differ for teens that become pregnant accidentally or those who are in free relationships. Therefore, the pregnancy is not an expectation for them, but is often seen as a disgrace or it might even be considered as a punishment for doing something forbidden. In South African, nearly one-third of South African women were reported as having had a pregnancy in adolescence, and most of these pregnancy were unplanned or unwanted (Christofides et al., 2014; Department of Health, 2008; Marteleto & Ranchhod, 2008). The effects of an unwanted pregnancy are more severe than unplanned pregnancies (D'Angelo et al., 2004). The adolescent can experience high levels of stress through the days during her pregnancy.

Knowledge. Knowledge is one factor that affects the action to make a decision (Nicolini, Powell, Conville & Solano, 2008). Adolescence is a period of transition in which adolescents are developing in decision making skills, so they still lack knowledge in this area especially. This period is characterized by the search for information and they are still very much focused on themselves. Knowledge of maternal care during pregnancy and childbirth is not an achievement of what they want to know at this age. Adolescents have limit knowledge related to the role of mother during pregnancy (DeVito, 2010). Adolescents who get pregnant have to try to meet their own needs along with their fetus. They also must find out and improve their knowledge related to pregnancy (Riesch, Anderson, Pridham, Lutz, &Becker, 2010; Ricci, 2013).

*Culture/beliefs***.** Social support is related to culture and it is believed that the husband's responsibility is a factor that affects the physical and psychological well-

being of pregnant women (Hesty, Rahman, & Suriah, 2013)). Pregnancy is seen as a private matter, and should be personally intervened together with her husband because of the culture. Pregnant women should be accompanied by their husband when they have a healthcare check-up, because it is believed that besides improving maternal health, it will also increase the close relationship between the mother, baby and the prospective father. Cravings are also a belief in regards to the well-being of a baby (Hesty et al., 2013). If pregnant women do not get the food they crave then it is believed will make the baby is born with hypersalivation.

Environmental factors

The environmental factors influence self-efficacy in performing the maternal role in pregnant adolescents, and these include social support and social economics.

Social support. It is a factor that is associated with behavior, particularly in parenting (Belsky, 1984). Social support is a beneficial concept that has been explored in the literature as a postponement to stress and a link to mental well-being (Mercer, 1986). Walker (1992) defined social support as transactions of interactional support consisting of: emotional support, appraisal support, informational support, or instrumental support. According to Belsky's parenting theory, there is a strong relationship between social support and the competency of a mother in parenting. In that study it was also found, that from both cross-sectional and longitudinal studies, psychosocial well-being was related to the competency of a mother to social support.

Social support has been shown to improve health outcomes in many areas of biological functioning including pregnancy, and it has a positive effect on mothering

(Murray & McKinney, 2014). The functions of social support are as a mediator of environmental, and biological stress, and as an essential component of the articulation of various forms of social capital in the development and use of human capital (Chrzan, 2008). Some studies showed that social support also functions as a cause of increased maternal confidence in performing the maternal role during pregnancy until birth (Russel, 2006). Turnage & Pharris (2013) explained that social support is an important aspect for pregnant adolescents the in transition time into the new role of motherhood. A mother is a person who is a primary source of support for a pregnant adolescent during her pregnancy. Mothers can help pregnant adolescents to improve their self-image to be positive and can assist them in the adaptation to the role of parent (Turnage & Pharris, 2013). A pregnant adolescent needs her mother's support more than her husband's, but the culture requires her husband to accompany her during pregnancy and childbirth. In addition, the 'husband standby (suami siaga programme) programme' set up by the Indonesian government forces a husband to be ready for delivery and to keep his wife while pregnant and if it has sat trouble getting pregnant, he should bring his wife to the closest health center. Support received from people around a couple having a baby can directly increase their health and reduce interpersonal pressures and stress, and promote relationships and improve self-appraisal and the environment (Naphapunsakul, 2006). A study from Reece found that first-time mothers who had high levels of social support were found to also have high maternal role performance (Reece, 1995 as cited in Naphaphunsakul, 2006).

Social economics. This affects the important decisions made in a family. A family's decision making is influenced by how much income there is in providing health for the family. According to Pender, families with a low income are very limited

in making decisions in obtaining needed health services. Turrel et al. (2003) states that there is a relationship between income per month with selected foods during pregnancy during pregnancy health. Similarly, education, employment and food purchasing behavior are also associated with the condition of pregnant women (Turrell et al., 2003). A number of pregnant adolescents are living in low social economic conditions and come from the poorest countries with low social economics (WHO, 2017).

A few studies have explained that the conditions associated with young mothers' socio-economic status may be primarily associated with their parenting problems (WHO, 2017; Furstenberg & Brooks-Gunn, Morgan, 1987; Weglicky, 1999). In a study by McAnarney and colleagues (1986) found that in lower socio-economic sectors of younger teen mothers, these younger mothers were less accepting, cooperative, accessible, sensitive, and more likely to use negative verbal communication than older teen mothers, and the younger ones were noticed to be more impatient in preparing time for play with their 9 to 12 month old children. Although what appears to be enormous evidence, it remains unclear as to why only some adolescent mothers have no skill in assuming the maternal role immediately during pregnancy following the birth of their babies while others have no difficulties (Weglicky, 1999).

Psychological factors

The psychological factors that influence self-efficacy in performing the maternal role in pregnant adolescents include stress and anxiety.

Stress and anxiety. According to Turnage & Pharris (2013), to be a new mother is serious time for most mothers. A study found that first-time mothers rated

their maternal role stressful during pregnancy and at one month postpartum at fairly high levels, and there is a relationship between first time pregnant women and stress (Naphapunsakul, 2006). For pregnant adolescents, having a baby means an overall life change from adolescent responsibilities to motherhood responsibilities, and this period will cause them stress (Christofides et al., 2014; Mumah et al., 2014). Before their pregnancy, the adolescents may have expended a large deal of their emotional energy working on self-identification via relationships with their same aged peers. On the other hand, the pregnant adolescents experience a transition to the new identity to be a mother (DeVito, 2010). This new identity is expressed in terms of their modifying role in their family from child to a new mother with all the expectancy placed on them to perform the maternal role for taking care of themselves and their baby (DeVito, 2010; Secco, 1997).

A study from East, Mathews, and Felice (1994) found that African American teens have significantly greater care-taking confidence as measured by the Maternal Self-Report Inventory. It seems that pregnancy has a positive impact for them. In this study, it was also reported that adolescents' level of confidence in the maternal role had a significant relationship with stress. This means that high stress was associated with low confidence in their mothering role, low acceptance of their children, and low empathy for their children's needs (East et al., 1994).

Self-efficacy in performing maternal role in pregnant adolescents

This study describes the self-efficacy in performing the maternal role in pregnant adolescents. Based on the concept of Rubin (1984), there are four roles that are applied by pregnant adolescents during their pregnancy, 1) safe passage, where the

new mother has the ability to protect her unborn baby from sudden, forceful accidents, vicissitudes of fate, can seek prenatal care to protect her baby from being marked or damaged, can consult with health care providers in relation to diet and vitamins, improve knowledge related to childbearing and childbirth, and sleep and exercise, 2) acceptance by others where pregnant adolescents have the ability to be aware and accepting of the coming child and inform their family, social groups, workplace and community, 3) binding in to the child where the pregnant adolescent has the ability to attach and be sensitive to the unborn/baby, aware of fetal movement i.e, quickening, kicking and other actions of the unborn baby, provide a good home for the unborn baby in utero, and 4) giving of oneself where pregnant adolescents have the ability to explain and be aware of the prospective demands and deprivations during pregnancy, are able to take part in giving and receiving attention between two persons, not only the material worth of the gift such as cloth or another gift. The important thing that representative of caring by communication from people that she love (husband, parents, and friends). They give support by attending delivery/birth, seeking companionship to cope with stress, uncertainty, anxiety, pain, and entrapment frustration

Erikson explained that adolescence is a sensitive time for pregnancy because the developmental tasks of pregnancy are superimposed on those of adolescence. The developmental task of adolescents consist of four tasks: to establish a sense of self-worth or a value system, to emancipate from parents, to adjust to a new body image, and to choose a vocation (Erikson, 1987). For pregnant adolescents it is also more difficult to perform the role than for adult pregnant women during the period of early- parenting. For example, adolescent mothers indicate less responsive and sensitive behaviors, use some vocalizations, and provide a minus stimulating

environment for their unborn baby than mothers in adult age (Mercer, 1995), and they do not typically exhibit the same variety or frequency of interactions as adult mothers (Martell, 2001). These distinction are necessary because the maternal-unborn baby relationship is described in the interactive behaviors of both the prospective mother and the unborn baby which comprise a critical measure that further defines parenting (DeVito, 2007; Mercer, 2004). After birth adolescents mother are also lack of prepare their cognitive to participate in newborn care, experience more stress in parenting, and are less adaptive in their parenting style when compared with adult mothers (Ricci, 2017). A pregnant adolescent is also in the process of separating from her parents and may be destroyed by knowing that in less than a year someone will be dependent on her. When she realizes she is pregnant, she may have a decreased ability to separate from her parents because she needs their financial help to get prenatal care and also for buying things for her and her new baby (Pillitteri, 2010).

Even though becoming a mother is biologically possible for adolescent girls, their concrete way of thinking and their egocentricity frequently disrupts the ability to be a mother effectively (Lowdermilk et al., 2010). Higher mortality rates among babies of adolescents are associated to a lack of knowledge, immaturity of the mothers, and also inexperience to be a mother which causes them to be incompetent to acknowledge a problem and to gain the necessary resources to improve the situation (Lowdermilk et al., 2010; DeVito, 2007). However, in most instances, with adequate support, and developmentally appropriate teaching, adolescent girls can learn effective mothering skills. As a new young mother, pregnant adolescents should prepare themselves for the appearance of the new task to perform the maternal role during pregnancy. They will become acquainted with the unborn baby as an integral and

crucial part of their mothering role (Lederman & Weis, 2009). On the other hand, marriage at an adolescent age is a risk because there is insufficient readiness in the aspects of health, mental, emotional, educational, social, economical, and reproduction aspects (Ministry of Health, 2012; Perry et al., 2010). They are undergoing the dual challenge of progressing through the stages of adolescence while adapting to the maternal role (DeVito, 2010).

Self-efficacy in performing the maternal role for adolescents is still a phenomenon in which they are confronted with the role of being a mother, while they are still young and it results in their lack of ability to perform the maternal role. Getting pregnant in adolescence means that they have to take on adult roles that they have not previously thought about (DeVito, 2010). First-time pregnant adolescents face challenges that place extra responsibility not only on their stage of adolescent development but also on their ability to perform their maternal role as a new coming mother. Pregnant adolescents are dealt with the dual challenge of proceeding through the phase of motherhood in adolescence which is frequently influenced by characteristics associated with their specific stage of adolescence. For example, a young mother in the early stage of adolescence still needs to be taken care of by her own mother or a person in her life who acts as her mother (DeVito, 2010; Mercer, 2004). Therefore, pregnant adolescents have specific needs that help them to successfully navigate through the combined demands of adolescent development and their efficacy to play the role as a new young mother. Some studies identified some factors significant to improving the self-efficacy of a young mother to perform maternal roles. The factors are role identity, social support relationships, and developmental perspectives for the adolescent mother as she adapts to the demands of parenting (DeVito, 2010).

Pregnant adolescents who have low self-efficacy were easily convinced that their role in the face of difficult challenges would be useless, so they tended to experience to negative symptoms of stress. On the other hand, pregnant adolescent with high self-efficacy were likely to see challenges as something given by the competence and considerable effort to perform the maternal role (Bandura, 1997). Adolescents who are not ready, and unmarried, may see the pregnancy as a hopeless and stressful situation, they will lose their dreams, feel like they are trapped in life that was never wanted, and they will feel stressful. Pregnancy in adolescence will be a challenge as the impending mother who lack skills needed to handle a pregnancy and motherhood. She has a lack of patient, maturity and an inability to handle the stress during pregnancy (WHO, 2017). She also lacks the source of finance to support her pregnancy and may not have the maturity to do prenatal care and have guidance or follow-up pregnancy care (Perry et al., 2010; Ricci et al., 2017).

Moreover, adolescents with positive self-efficacy to perform the maternal role are influenced by having dependable social supportive relationships are satisfied in their role as a new mother (Secco, Atech, Woodgate, & Moffatt, 2002), and feel confident (Kretchmar & Jacobvitz, 2002).

Existing Tools related to Self-Efficacy in Performing Maternal Role

A few studies have described the self-efficacy to perform maternal activities during pregnancy and the post-partum period, but most of the studies only focused in one aspect of the role, such as breastfeeding (Dennis, Heaman, & Mossman, 2011) and exercise (Bland et al., 2013). All the instruments related to self-efficacy in the maternal role are explained as follows.

1. Psychometric Properties of Maternal Self-Efficacy Questionnaire

This scale was developed by Mirghafourvand et al., (2016) to measure the validity of the maternal self-efficacy scale in Iranian mothers. This scale measures maternal self-efficacy and focuses on responsibility of a mother's infant care. The instument comprised of 10 items (9 items about the mother's activity and one general item). Some example of the items are item 1 "in comparison to other mothers in general, how good are you at soothing your baby when he/she is upset or distressed?", item 2, "in comparison to other mothers in general, how good are you in understanding what your baby wants or needs?".

This study was conducted with 437 newly delivered mothers in Bonab, Iran. Content validity was used to assess the qualitative content by evaluation from experts' opinions and quantitative analysis used the content validity ratio (CVR) and Content Validity Index (CVI). To evaluate the items, this study used face validity by 30 newly delivered mothers. Exploratory factor analysis was used to determine the construct validity. The reliability was applied by test–retest and internal consistency (Cronbach's alpha). The results showed the CVI and CVR were 0.91 and 0.94 respectively. The reliability was approved both in terms of reproducibility (ICC = 0.98) and internal consistency (a = 0.89). Construct validity was confirmed using exploratory factor analysis (KMO = 0.90, Bartlett's test $p > 0.001$) for the scale. The results supported the validity and reliability of the scale. This scale can be used in both clinical practice and research.

2. **The Breastfeeding Self-Efficacy Scale (BSES-EF)**

This scale was developed by Dennis et al., (2010) to measure the self-efficacy in breastfeeding among adolescents in Canada. The samples were 103 pregnant adolescents aged 15-19 years old with >34 weeks gestation who wanted to breastfeeding from two prenatal clinics at a tertiary care setting. The data analysis: the reliability of this scale used Cronbach's alpha coefficient, corrected item-total correlation, and alpha estimate. This scale had .84 of the Cronbach's alpha for the antenatal assessment and .93 for the postnatal assessment. This scale result scores predicted breastfeeding initiation significantly, while antenatal and postnatal scores predicted duration and exclusivity to 4 weeks postpartum. This scale had a valid and reliable measure of breastfeeding self-efficacy among adolescents, predicting breastfeeding initiation, duration, and exclusivity. The strength of this scale is high in the antenatal assessment's Cronbach's alpha coefficient (.84) and also high for Cronbach's alpha for the postnatal assessment (.93). Antenatal BSES-SF values predicted breast-feeding initiation significantly. This scale is valid and reliable to measure breast-feeding self-efficacy in adolescent girls. This scale also can predict breast-feeding initiation, duration, and exclusivity. The weakness of this scale is that the number of samples is not enough to conduct factor analysis. The sample of this study was only 69 pregnant adolescents who continued to breastfeed.

3. **Maternal Confidence in African-American Pregnant Teens (YAMCS)**

This scale was developed by Weglicki (1999) to measure the maternal confidence of pregnant teens. The sample for this study was 124 African American

pregnant teens between 13 and 20 years age in 28-30 weeks gestation. The YAMCS, consists of 38 items, and each item used a 5-Likert scale score from totally confident, more than confident, confident, less than confident, and not confident. Reliability used Cronbach's alpha. This scale measures 5 aspects of young adults' maternal confidence related to the questions about how confident some pregnant teens feel about becoming a mother and taking care of their newborn babies. These questions ask about personal feelings and included: self-secure/self perception, ability to care for a baby, mothering qualities, factors affecting confidence, and experience and learning. The example of items were one item in each domain, "I feel good about my abilities to care for my baby", "I have faith in my ability to make my baby happy", "I am afraid that I will not be a good mother for my baby", Prenatal care is one of the most important things I can do while I am pregnant", I am more unsure about being a mother the closer I get to my baby being born". This scale also use Pharis confidence scale. The items example were in item 1, "Soothe a baby that is crying for no reason", item 2, "Give a bath to a child under 1 year"

The results showed that five subscales of Cronbach's alphas were low ranging from .41 to .69, but one subscale "ability to care for baby" had a high Cronbach's alpha (.81). The strength of this scale is the ability to care for a baby had a respectable Cronbach's alpha, .81. The weakness of this study is that this instrument has 38 items with 124 samples, if we follow Munro (2005), at least 10 subjects are needed for each item, and for 38 items the researcher needed 380 samples for this study. Subscale Cronbach's alphas were fairly low ranging from .41 to .69 on four of the five subscales.

4. The Early Intervention Parenting Self-Efficacy Scale (EIPSES)

This scale was developed by Guimond et al., (2008). This instrument measured parenting efficacy on children within the context of early intervention. The samples were 117 caregivers who received EIPSES. the scale consisted of 16 items with an internal reliability coefficient of 0.80. Initial factor analysis revealed a 2-dimensional structure for EIPSES, first related to Parent Outcome Expectations and the second showing Parental Competence, together accounted for 37% of the variance. The results suggest that parents' outcomes are conceptualized as a measure of parental beliefs in the role of environmental influences, such as early intervention, on the development of children. Parental competence factors are defined as parents' beliefs in their ability to promote the child's developmental outcomes. Analysis of subgroup reliability and assessing parent self-efficacy related to task-specific initial interventions. example on item 1, "If my child is having problems, I would be able to think of some ways to help my child , and item 2, "When my child shows improvement, it is because I am able to make a difference in my child's development".

Summary

The extensive of review literature was identified the knowledge about pregnant adolescent's concept. The development of knowledge regarding self-efficacy in performing the maternal role was explained through the concept from the past research conducted in some countries. Furthermore, one theory related to self-efficacy and one concept related to the maternal role are explained as a basic theory and concept to develop new knowledge which focuses on measuring efficacy expectations and outcome expectations and reviewing the concept of the maternal role from Rubin

(1984) by defining the domains of the maternal role integrated with individual interviews. The concept of the maternal role has four domains of safe passage, acceptance by others, binding-in to the child and giving of oneself. Finally this part also discussed four existing tools as beneficial indicators for this study. The review of the literature showed that there was no instrument that directly measures the self-efficacy in performing the maternal role in pregnant adolescents with a first time pregnancy that would fit with the Indonesian context.

CHAPTER 3

METHODOLOGY

This chapter presented the methods of development and evaluation of a scale for measuring self-efficacy on performing the maternal role in first-time pregnant adolescents in Indonesia (SEPMRS-Indonesia). This consisted of two phases: 1) phase I was the development of SEPMRS-Indonesia containing three steps, and 2) phase II was the psychometric evaluation of SEPMRS-Indonesia containing five steps. These phases are discussed as below.

Phase I: Developing the Conceptual Structure of the SEPMRS-Indonesia

This phase consisted of the first step to three steps of DeVellis (2017) guideline of development scale: 1) determine the content domains, 2) generate an item pool, and 3) determine the scale format. The details of each step were explained as follows.

Step 1: Determining the Content Domains

DeVellis (2017) stated that this step is to explore the literature to conclude a clear idea for theoretical construct. This step was the process of measurement to recognize the particular constructs, dimensions, and factors that were studied. The purpose of this step was to explore the review of the literature to conclude clearly the final idea for a theoretical construct of the scale (DeVellis, 2017). This step was divided into two parts: 1) the review of the literature, and 2) individual interviews.

1.1 Review of the Literature

The process of constructing SEPMRS-Indonesia started with a review of the literature related to the theory of self-efficacy, the concept of the maternal role, and existing instruments related to the self-efficacy in performing the maternal role in adolescents. The review included the literature of Western and Eastern countries including qualitative and quantitative research, abstracts and full papers all in English versions. Various databases were used to search and to find out more about the concept of the maternal role, including CINAHL, PubMed, Pro-Quest, Science Direct, Google scholar and also text books. Articles published from 1970-2015 were selected in this phase. The terms of self-efficacy, maternal role, and pregnant adolescent were used as key words for searching. All the literature related to self-efficacy, maternal role, adolescent, and pregnancy was reviewed. Based on the review, the researcher classified the literature into the two of components of self-efficacy (Bandura, 1977), efficacy expectations and outcome expectations, including the four roles of a mother during pregnancy, as according to Rubin (1984), safe passage, acceptance by others, binding-in, and giving of oneself.

1.2 Individual Interviews

To identify the content of the culturally-meaningful domain of efficacy expectations and outcome expectations in performing the maternal role in pregnant adolescents in the Indonesian context, an approach of an individual interview was performed with twelve pregnant adolescents with a first-time pregnancy.

The purpose of this step was to clarify and confirm the culturally-grounded domains of the maternal role in Indonesian pregnant adolescents to make it

fit with the Indonesian context. The details about the data collection process and interviewing process were discussed below.

Participants and setting. The participants were 12 Indonesian pregnant adolescents who agreed to engage in this study. The study settings were Pekanbaru city and some districts in Riau Province in Indonesia. The purposeful recruiting criteria were: 1) pregnant adolescent with a first time pregnancy (15-19 years), 2) second to third trimester in pregnancy 3) absence of any complications, (hiperemesis, eclampsia, etc), 4) willing to discuss her self-efficacy in performing the maternal role during her pregnancy. According to Lincoln & Guba (1985), twelve to twenty participants are needed if a researcher looks for disconfirming evidence or attempts to reach maximum variation.

Instrument. The interview guideline consisted of two parts; 1) demographic data of the participants. It consisted of marital status, age, education level, gestational age, and family income, 2) open ended questions about self-efficacy in performing the maternal role to find the meaning and actions of participants related to the theory of self-efficacy and concept of maternal role (i.e., what should you do to be a new mother, could you explain the role of a mother during pregnancy, what is your expectations on becoming a new mother during pregnancy). Additional supplementary questions were also asked to gain more information rselated to self-efficacy in performing the maternal role in pregnant adolescents.

Before conducting the individual interview, the questions of the interview were reviewed by three experts to value the appropriateness and relevance of the instruments to be developed with its domains. The experts were a qualitative expert

from the Faculty of Nursing, Prince of Songkla University, one maternity expert from the Faculty of Nursing-PSU, and one maternity expert from Indonesia.

Data collection. After the participants agreed to participate in this study, they were interviewed in a comfortable place in the community health center to make sure that they could freely express their performance related to the maternal role during pregnancy. Before being interviewed, written consent was asked for to allow for the tape recording. The length of each interview varied from 40 minutes to an hour for each participant and ended when the target data were obtained. In the last part of this phase, when the data had been obtained from the twelve participants by conducting individual interviews, the data were transcribed verbatim.

Analysis of data. The contents of the tape recordings were transcribed and a coding scheme was developed. The data obtained from individual interviews were analyzed to find the themes. The qualitative data were analyzed and coded to develop the themes of the self-efficacy in performing the maternal role. Content analysis method was used to categorize textual data from each interview. Finally ten themes of maternal role performance emerged from individual interview. These ten themes were integrated with the theory of self-efficacy and the concept of the maternal role of this study and used to develop the item pool of self-efficacy of pregnant adolescents in performing the maternal role scale in Indonesia (SEPMRS-Indonesia). The details of the results of the individual interviews to foundable domains of pre-determined domains can be provided in chapter 4.

Step 2: Generating an Item Pool

The purpose of this step was to generate an item pool. The seven pre-determined domains were used to generate an item pool of the self-efficacy in performing the maternal role derived from the integration of the theory of self-efficacy, the concept of the maternal role, and from individual interviews.

An item pool was generated from specific domains of self-efficacy in performing the maternal role of pregnant adolescents in Indonesia. The activities of this step consisted of: 1) developing a conceptual definition of each selected pre-determined domains, 2) formulating operational definitions, 3) identifying the contents of each pre-determined domain, and 4) generating the item pool.

The items of SEPMRS were generated in English language and then back translated into Indonesian language for pregnant adolescents with a first time pregnancy in Indonesia to facilitate them to understand and in accordance with the culture and context of Indonesia and it was easier to answer the context related to the concept. The initial draft (draft 1) of SEPMRS-Indonesia consisted of 78 items.

Step 3: Determining the Format of the Scale

The response format of SEPMRS used a 5 point Likert-scale rating from 1 to 5 (1= not at all confident, 2= slightly confident, 3= fairly confident, 4= mostly confident, and 5= very confident). A Likert type instrument is classified as a type of respondent-centered scale and is mostly used to measure emotion, optimism, work, satisfaction, opinion, beliefs, attitude, perception, personality, and descriptions of people's lives and environment. According to Hasson & Arnetz (2005), the Likert scale is easier to use and to understand by the respondent, and also easier to code as well as to interpret.I It is usually

a quick and complete instrument (Jamieson, 2004). A 5-point Likert scale offers a midpoint on a bipolar scale, showing that position is neutral, therefore upgrades reliability (Krosnick and Fabrigar, 1997). According to the reason stated above, a 5 scale choice was appropriate for this instrument. The Likert scale also allows the respondents to decide about which part and to what value she would take in answering the statements. For statistical significance, the Likert scale tends to show the answer as a normal distribution against a large middle section of answers. Wyrwich and Tardino (2004) stated that respondents are less likely to choose the extreme options (1 or 5).

The explanation of the value of the Likert scale was the 1 (one) was the lowest value and the 5 (five) was the highest value. Then the score of all the components were summed together to give a total value. The result of this step was SEPMRS-Indonesia version 1.

The SEPMRS-Indonesia was designed for measuring the self-efficacy in performing the maternal role of pregnant adolescents in Indonesia. Following the scale format of the measurement, the generated item pools were developed in English version and was evaluated by five experts. To avoid any bias, this step used the back translation process. The purpose of this step was to check the appropriateness of the developed instrument in the real situation and to reveal any potential problems with SEPMRS-Indonesia (draft 3), clarity, and comprehensiveness of the items, and reliability. Before performing the pilot testing to verify the readability and reliability, all instruments were translated from the English version to the Indonesian version using the back translation technique (Brislin, 1986). The process of the back translation were carried out in 3 steps as explained in the following.

1. Forward translatation from the English version to Indonesian language. This step involved 3 Indonesian experts in nursing, also an expert in the field of maternity and children.

2. A blind back translatation. The Indonesia version of the SEPMRS-Indonesia was translated into English by two experts from the nursing faculty in Indonesis who are fluent in Bahasa Indonesia and English. They were also blind in the original SEPMRS-Indonesia English version. A blind back-translation of the English version confirmed the meaning of the English version to sufficiently reflect in the back translate version without any previous knowledge about the content of the SEPMRS-Indonesia.

3. The original and back translation version's comparison. This step used a native English to edit and compare each item of the genuine SEPMRS-Indonesia and translated back to asses their semantiq equivalent (concept, meaning, grammar, wording, and format).

Phase II: Psychometric Evaluation of SEPMRS-Indonesia

This phase was modificated from the steps of scale development from DeVellis (2017) which concluded into: 4) evaluate the content validity of the initial item pool, 5) pre-test the items, 6) administer items to development sample (field test), 7) evaluate the items, and 8) optimize scale length. Each step in this phase was presented as follows.

Step 4: Evaluating the Content Validity of the Initial Item Pool

This step was to review the items by experts who are knowlegeable in the content of the study. Experts determined the relevance of each item to the intended scale domains or constructs, clarity, conciseness and also the level of representation of the domains.

The clarity and relevancy of each item were an important concern and were assessed by the content validity index (DeVellis, 2017). The method of content validity was used based on an expert's judgment to assign whether the content of the measure was consistent with what it was expected to measure and how well an item to explicity represented the universe of the items (McDonald, 1999).

Samples. Five experts were asked to review the first version of 78-items SEPMRS. The five experts consisted of two experts were doctor in nursing working as nursing educator in Faculty of Nursing Prince of Songkla University-Thailand and had expertise in scale development, one expert was a nurse educator who work in maternity nursing in University of Indonesia-Jakarta, one expert was nurse educator in maternity area in Faculty of Nursing of Syarif Hidayatullah State Islamic University, Jakarta, Indonesia, and the last one was also a nurse educator who work in Faculty of Nursing University of Jendral Soedirman, Purwokerto-Indonesia. All experts from Indonesia have doctoral degree in nursing. Since most attributes of self-efficacy in performing the maternal role in pregnant adolescents were found in the literature review, two experts in maternity nursing and also a native English speaker were invited to check the equivalency of the pre-determined domains with the theory and concept of this study as well as for the consistency in item meaning of the instrument.

Instrument. The SEPMRS-Indonesia draft 1 was used to determine the relevance of an item and the clarity of the items. The evaluation form was also submitted for the experts to evaluate the items of the scale. The conceptual framework, definition of the term of self-efficacy in performing the maternal role of pregnant adolescents, the blue print of the item matrix, and the definitions of each scale were included in the submission file.

Procedure. Firstly, the five experts were asked to evaluate the instruments as to whether they were willing or not. Secondly, the experts were given a letter from the Faculty of Nursing Prince of Songkla University, Thailand. The instrument was submitted to the five experts. Each expert gave comments and analysed the conceptual definition of the self-efficacy in performing the maternal role. They rated each descriptor for conceptual relevancy, conciseness, appropriateness, and clarity of contents. Experts gave suggestions as to whether the instrument was readable and the length of the instrument was appropriate. Both the Thai and Indonesian experts reviewed the 78 items of the English version. The experts were asked to use a rating form which consisted of a four-point rating scale. The relevance of each item was assessed by a 4-point scale to evaluate the closeness of the statement in reflecting the idea provided by the category definition from: not relevant, somewhat relevant, quite relevant, and highly relevant by rating 1 to 4. Lastly, the experts were also asked to make comments on any items that seemed unclear, or unjustified with the concept.

Data analysis. The CVI was performed after the scale validation by the five experts to keep or eliminate any items. Each item of the CVI was calculated by computing the proportion of the maternity nursing experts who judged on score 3 or 4 (Polit & Beck, 2012). Therefore, the items that were evaluated at level 3 or 4 were

retained while those with a lower number were deleted. The CVI of the general instrument was regained by summing the percentage of approval scores of the items that were given by the experts and a rating of 3 or 4. A Contect Validity Index greater than or equal to 0.80 can be accepted (Waltz et al., 2005).

Content Validity Index which was representative and also relevant was calculated for each item (the item rated as valid as a rating of 3 or 4 for the proportion of agreement between the experts), and for the entire instrument (computed by averaging the CVI across items) (Dyrbye, Szydlo, Downing, Sloan, & Shanafelt, 2010). The equality for the proportion CVI from Lynn (1986) was explained as follows.

$$\text{CVI} = \frac{\text{Number of items expert agreement rated 3 or 4}}{\text{Total numbers of item}}$$

The value of the CVI was computed by a proportion and the value of .80 was considered as minimal for individual predictors for the degree of acceptance (Lynn, 1986; Polit & Beck, 2004). All comments from the experts were reviewed and items were revised. The items judged at level 1 or 2 were modified concerning the experts' recommendations and by discussion with the study advisor. Finally, after the CVI, the revised second draft of SEPMRS-Indonesia consisted of 63 items.

Step 5: Pre-testing the Items

The purpose of this step was to verify the worthiness of the developed instrument in the tangible situation and to reveal any potential problems with the third draft-SEPMRS-Indonesia, including language appropriateness, clarity, and comprehensiveness of items, and how much time was needed to fill in the questionnaire. This step involved a small number of representative samples.

Pre-test Trial

Samples, sampling and sample size. The samples for this step consisted of 30 first-time pregnant adolescents. To nominate the samples who met the inclusion criteria, purposive sampling was used. The criteria of inclusion for participants in this study were; 1) pregnant adolescents (15-19 years), 2) agreed to engage in this study, and 3) were able to convey in Bahasa Indonesia. A total of 30 pregnant adolescents participated in this step.

Instrument. The content of the instrument consisted of two sections: 1) demographic data form which consisted of age, education, religion, work, and particularly pregnancy information, and 2) the second draft with 63-item SEPMRS-Indonesia. The questions were about clarity of reading and understanding the items, whether it was easy, or difficult to complete the instrument, or anything inadequate or objectionable.

The format for the items was a 5-point Likert scale ranging from 1 = not at all confident; to 5 = very confident. The details about the format contents were explained in step 3.

Data collection. Data were collected in Riau Province: Pekanbaru city, Dumai district, Pelalawan distric, and Kampar district. Inform consent was obtained orally, then the questionnaire was distributed to 30 respondents. Participants completed the questionnaires during their visit to the community health center, then the researcher collected the questionnaires.

Data analysis. 30 samples returned the questionnaires after having completely answered it. The samples confirmed that all the items were clear and readable. They answered and completed the instruments in about 50-60 minutes. Then the data were analyzed using descriptive statistics. This result of pre-testing used

Cronbach's alpha coefficient to examine the strength or level of reliability and internal consistency reliability. For the result of pre-testing, there was no item deleted based on discussion with the study advisor. There were two processes in the data analysis, 1) items analysis, and 2) internal consistency, as follows.

1. Items analysis

Items analysis was a one-step procedure permitting an examination of the pattern of responses to each item that was conducted as a guideline for revision. This study analyzed the alpha correlation of item to item and item to total scale. Items with an item-total correlation less than 0.3 were excluded or revised. This step evaluated the item and it discussed whether it was to be maintained, revised or deleted with the study advisor. An average inter-item correlation between .30 and .70 was desirable. This study showed the items that fall in a range between .30-.70 were usually considered acceptable (Waltz et al., 2010). Based on this procedure the items less than were .30 were revised or deleted. If an item was deleted, the alpha level was not increased. Therefore, some items were revised and 63 items retained in this step were through discussion with a supervisor.

2. Internal consistency

To examine the strength of reliability, this study performed internal consistency reliability using Cronbach's alpha coefficient. Internal consistency focused on the homogeneity of the items scale (DeVellis, 2017). Internal consistency has a relationship among items and logically connects to the relationships of items to the latent variables, and high inter-item correlations mean the items are all measuring the same things (DeVellis, 2017). According to Pett, 2003, the items with high internal consistency, with .80 or greater will be selected for the final evaluation of the

instruments. The item-total correlations ranging from .30-.70 are considered to be an appropriate measure of good internal consistency (Nunnally & Bernstein, 1994). The pre test showed that some items had to be revised based on the item-total correlations result. The details of the pre-testing results were presented in chapter 4.

Step 6: Administering Items to A Development Sample

In this step, field testing and data analysis were conducted which were provided as follows.

6.1 Conduction of Field Testing

In order to assess the validity and reliability of the complete scale, the third draft of SEPMRS-Indonesia was administered to a developmental sample. Field testing was performed to re-appraise internal consistency and item analysis which included factor analysis. The details about the field test as following.

Study settings. This study was conducted in four provinces in Indonesia; Riau Province, West Java Province, Central Java Province, and West Nusa Tenggara Province. In Riau Province, there were four places selected in the data set, namely Pekanbaru city, Kampar district, (district escort – Escort?) and Dumai. In Pekanbaru city, there are 22 community health centers as data gathering places. Four provinces were selected based on several criteria, namely the prevalence of young marriages and administrative requirements are not difficult. The field testing process took five months.

Samples and sample size. The samples of this step were pregnant adolescents with a first-time pregnancy who were married. This study used purposive sampling to recruit pregnant adolescents who were aged 15-19 years old, in the second to third trimester of pregnancy, had no complications (i.e., preeclampsia symptoms,

diabetes mellitus, hypertension, etc), were ready to be included in this study, and could speak in Bahasa Indonesia.

The sample size was estimated based on statistic assumptions. Based on the factor analysis requirements, the size of a sample can be vary from 5 samples in each item with 100 as a minimum sample (Gersuch, 1983), up to 3 to 6 subjects in each item with 250 as a minimum sample (Cattell, 1966), up to 5 to 10 samples in each item with 250 as a minimum sample (Tinsley & Tinsley, 1987), and up to 10 samples in each item (Munro, 2005). The description of the number of samples to develop a scale includes: 100 = poor, 200 = pair, 300 = good, 500 = very good, and up to 1000 = excellent. In order to establish an adequate sample size and be representative of pregnant adolescents in the Indonesian context, the ratio 1:10 applied for the sample size. Finally this study had 630 subjects who were assumed well enough for field testing.

Instruments. The third draft of SEPMRS-Indonesia had 63 items that were repaired after pre-testing including a demography data form. Finally the instrument was applied in this step.

Data collection. The proposal was submitted to the committee, after the examination dissertation committee from the Faculty of Nursing, Prince of Songkla University had approved it. Informal permission was granted, an ethical approvement letter from the Faculty of Nursing, Prince of Songkla University was sent to the head of the Health District of Riau Province in Pekanbaru city, and also three provinces included: Central Java Province, West Java Province and West Nusatenggara Province that was used in this study to request permission to conduct the study before collecting data. After obtaining permission, the researcher looked for

a nurse or midwife to help in the field during data collection. The researcher then acquainted the research assistant with the aim of the study, and explained the criteria of the respondents, informed consent, and the way to distribute the questionnaires. The researcher and research assistant checked the completeness of the questionnaires after the package of questionnaires were received back. All of the data were organized after data collection was completed. Furthermore, the analysis of the demoghraphic characteristics and each evaluating method were undertaken further.

6.2 Data analysis

The next step after data collection was checking the data, then the 630 questionnaires were coded, data entry and cleaning the data were performed, finally the assumptions of factor analysis were tested. Before testing assumptions, the missing data were checked and there was no missing data. The data also were checked the completeness, and the questionnaires were checked before data analysis as to whether the answers had been completed or not. After being reviewed and evaluated for its completeness, the data were encoded and processed using a computer program for statistical test of assumptions.

The next step for analysis data was test of assumptions prior to run factor analysis. All the assumptions test as requirements of factor analysis were tested to examine the nature and appropriateness of the data. The assumptions of EFA consisted of test of normality, test of outlier, test of linearity, multicollinearity, test for sample adequacy, and Bartlett's test of Sphericity. The details of the tests of assumptions are as follows.

Test of normality

The test of normality aimed to examine of each item in the variable. The distribution of 63 items were checked with the value of skewness and kurtosis. All the items were within the acceptable range. Each item had value range from 0,001 to 2.75 and kurtosis values range from 1.86 to 6.44. Variables of skewness value less than 3 and kurtosis value less than 10 were useful or show normal distribution (Kline, 2005; Curran & Finch, 1996). All 63 items were normally distributed. Therefore, these assumptions were met.

Linearity

The linearity was test by checking the P-P scattered plots of residual against the predicted values that offer the information about non-linearity the P-P scatter plots showed positive linear relationship with all predicted values and all residiual, and this results indicating the assumptions of linearity was met.

Outliers

After normality test, the multivariate statististical using Mahalanobis distance performed in this part to check outliers with a set of the criteria of p-values equals to 0.001 (Tabachnick & Fidel, 2007). In the data set found 28 outliers and excluded (24, 25, 26, 27, 28, 31, 32, 37, 38, 46, 50, 51, 52, 53, 55, 59, 60, 69, 70, 80, 361, 427, 483, 530, 551, 561, 563, 565). Finally 602 data were completed and no any outlier and validated as data sets.

Multicollinearity

Multicollinearity was performed to this study by using correlation matrix (r) for independent variables for checking where predicted variables are highly correlated. According to Ho (2014) a high correlation is a problem with singularity and

become trouble to assess the unique contribution of the individual variable in factor analysis. The results found that there was no any multicollinearity and the ranged of correlations among the variables were met (r = .13 - .44). According to Field (2005), the value of r < .90 ia acceptable.

Sample Adequacy

The adequacy of the samples is necessary for factor analysis. After check the outlier and the assumptions were met before run the factor analysis, finally 602 samples were used a valid samples for exploratory factor analysis. Before run factor analysis, Kaiser- Mayer-Oikin (KMO) measure of sampling adequacy was tested. The result of KMO was .96, showing that the assumptions were met. According to Field (2005), the value of $\geq$ .60 indicates adequacy to run factor analysis.

Bartlett's Test of Sphericity

Bartlett's Test of Sphericity used to determine the adequacy of the correlation matrix. The significant correlation showing (0.000) that at least some of the variables are correlated to each other significantly in Chi-Square (Ho, 2014). The factor analysis was suitable with the significant value at $p < 0.001$ (Field, 2005).

The final analysis of the data also included the descriptive statistics for demographic data and the construct validity which was determined by exploratory factor analysis (EFA). Before performing the EFA, all the items should have met the requirements by checking the item- total correlation matrix. Any item-total correlation less than .30 was excluded from the item pool as suggested by Waltz et al. (2010).

The EFA was also performed as final testing to extract the number of factors and to analyze which items or variables would go together in one factor (Yong

& Pearce, 2013). The Principal Component Analysis (PCA) was also performed to extract the number of factors from the subject's responses to the items.

Step 7: Evaluating the Items

The aim of this step was to assess the construct validity and realiability of the newly developed tool measuring the self-efficacy of pregnant adolescents with a first time pregnancy in performing maternal roles. According to DeVellis (2017), there are three statistical analyses conducted in this step consisting of: 1) initial examination of an item's performance, 2) evaluation of the construct validity test, and 3) determination of the scale reliability. The details are explained as below.

7.1 Initial examination of item's performance

Before conducting the EFA, the researcher evaluated the initial item performance by determining the inter-item correlation. As guidance to analyze the SEPMRS-Indonesia, the criterion level of an item was the item-total correlations less than .30 which were desirable (Waltz et al., 2010; Nunnally & Bernstein, 1994). Any item less than .30 was removed from the scale's item set. The criteria for the inter item analysis was an average correlation between .30 - .70. If an item failed to meet the criteria, it would still be maintained if its contents were assumed to be strongly consistent with the theoretical definitions of the SEPMRS-Indonesia dimension. According to DeVellis (2017), the item with a high value for the correlation is more hopeful than a low value of an item. Nunnally & Bernstein (1994) also suggested that the acceptable items to total correlation should range from 0.30 – 0.70. For this study, inter-item correlation was set between .30 - .70, with item total correlation $\geq$ .30 and

Cronbach's alpha .70 - .90, and this value was considered to be a suitable measure of good internal consistency (Nunnally & Bernstein, 1994). In this step all the 63 items were met the statistic requirements.

7.2 Evaluate construct validity test

The next step was to evaluate the construct validity by conducting EFA to examine the theoretical construct of SEPMRS-Indonesia. The reason to use factor analysis was because of the large data sets that comprised of some variables that can be reduced by observing 'groups' of variables (i.e., factors). The factor analysis was performed to identify latent constructs or factors which can be reduced to a smaller set, to get at an underlying concept, to simplify interpretations, and also to save time (Rummel, 1970; Yong & Pearce, 2013).

Exploratory factor analysis is a method to determine whether specific constructs were needed to characterize the item set (DeVellis, 2017). Factor analysis can recognize principal dimensions of a construct in the development of an instrument, and recognize subtraction of the item in which a set of variables is summarized into a new set of a smaller number of variables (Hair, Anderson, Tatham, & Black, 1998). It was applied to detect the underlying dimension of the scale and to support the internal structure of the SEPMRS-Indonesia item set. To determine the construct validity of SEPMRS-Indonesia, two statistical methods were conducted in the EFA: Principal Component Analysis (PCA) and factor rotation. PCA was performed to establish the primary factor solution, and factor rotation was performed to find the fit and suitable factor of interpretation.

To minimize the number of variables that have high loadings on each factor and to make small loadings, the rotation of orthogonal type was used employing the varimax method (Yong & Pearce, 2013). Varimax rotation is used in the orthogonal rotation method because it is the most proper in a condition where the factors extracted are uncorrelated (Kline, 2000). According to Stevens (2002), the factor loading cutoff point was suitable at 0.40 or more to reduce side loadings and appropriate to interprete purposes, and also can reduce the items and will increase reliability of the factors, increase interpretibility of factors and also make the variable more parsimonious or simple. The factor loadings are used to interpret what the factor is by judging the relative sizes of the loadings. High loadings suggest stronger factor contributions to those variables. Loadings of both positive and negative signs are possible, but the results are scarce to have both positive and negative loadings that are large (Grice, 2001). In this step used factor loading cutoff point at 0.50 to reduce side loadings in the factor.

Hair et al. (1998) explained that rotated factors analyzed by verifying the factor loading of each item greater than .30. The criteria to evaluate the item are, 1) eigenvalues should be more than 1 (Hair et al., 1998), 2) scree plot of the test criterion data points up the break (Tabachnick & Fidel, 2007), 3) criteria of percentage variance should be more than 5% of variance explained (Hair et al., 1998), 4) at least .30 for factor loading (Hair et al., 1998), 5) at least .30 for item-total correlation (Nunnaly & Bernstein, 1994), and 6) interpretability of the theoretical (Hair et al., 1998). Eventually, the scores from the respondents were examined to extract and specify factors of SEPMRS-Indonesia. The results of this step were items that met the criteria used to form the SEPMRS-Indonesia draft 4.

7.3 Determination of the scale reliability

Internal consistency was performed by using the data of the field test study to evaluate the reliability of SEPMRS-Indonesia. To estimate the internal consistency Cronbach's alpha coefficientswere used. The internal consistency levels were 70 – 80 is acceptable, 80-90 is very good, and above .90 is excellent (DeVellis, 2017). Minimally accepted for a newly developed instrument is alpha coefficients of .70 (Nunnally & Bernstein, 1994).

The additional test for evaluating the validity and reliability of SEPMRS-Indonesia were known group technique and stability testing by using test-retest reliability. The details of these tests were explained as follows.

Known Group Technique

The known group technique was performed to evaluate the construct validity of the new scale (Knapp et al., 1998). This technique is a common procedure for determining the construct validity of a measuring instrument. The purpose of construct validity was to measure the theoretical construct of the SEPMRS-Indonesia (draft 4 as the final draft). The construct validity is the extent to which an instrument measures the concept, and it is designed to measure (Jacobson (2004). The SEPMRS-Indonesia was tested by exploratory factor analysis and the known group technique to evaluate the construct validity.

In this procedure, the score of group one and group two of subjects was compared for those who were in contrast as to high and low in the characteristic being measured. Pregnant adolescents were categorized by a low characteristic sample, and the pregnant adolescents who have more than one pregnancy or pregnant adult women

who have experienced more than one pregnancy were categorized in the high characteristic of the sample. As Soeken (2005) explained that the known group comparison is typically conducted with two groups of subjects known to be extremely high and extremely low in the characteristics (i.e., experience in performing maternal role). Some studies explained that pregnant adolescents have a low ability to perform roles during pregnancy (DeVito, 2010). The sample and setting, instruments, data collection, and data analysis of each evaluation were described as follows.

Two groups of Indonesian pregnant females were selected. The first group consisted of 30 pregnant adult women who have experiences in performing maternal roles. The second group was 30 pregnant adolescents with a first time pregnancy. A sample size of 60 subjects (30 for each group) was needed to reach the value at the .8 level and the alpha at .05 level. Then the fourth draft of the SEPMRS-Indonesia with a demoghraphic data form was used as an instrument to test this technique. In this step, to compare the contrast groups, the SEPMRS-Indonesia with two factors for 60 items scale was used to analyze the results that establish from exploratory factor analysis. The independent t-test was conducted to compare of two groups score of self-efficacy ofpregnant adolescents in performing maternal roles during pregnancy.

Stability Reliability Test

This step consisted of two reliability tests: 1) test-retest, and 2) internal consistency. This step measured stability evaluation. The aim of stability was to evaluate the test-retest of the SEPMRS-Indonesia (draft 4 as final draft) for the stability examination. Test–retest reliability is estimated based on the correlation between two administrations of

the same item, scale and instrument for different times, locations, or populations. The closer the coefficients are to 1.00, the more stable the measurement. This step recruited 30 pregnant adolescents with a first time pregnancy in a community setting in Indonesia. The inclusion criteria for the sample for stability test were similar as for the field test sample.

Before conducting this step, the researcher explained the purpose of this step to the samples. Test-retest is estimated by managing the same instrument to the same sample on two different occasions on the opinion there will be no large change in the construct under study among the two sampling time points (DeVon et al., 2007). Using the data obtained from the two administration at a two-week interval; the test-retest reliability coefficient between the two times measures of the SEPMRS-Indonesia scale was undertaken. The test-retest reliability was conducted with the two weeks interval. The scores gained from the different times were calculated and the results of stability were interpreted.

This step was divided into the preparation phase and the implementation phase. In the phase of preparation, the researcher submitted a letter to the head of the community health center to ask permission to arrange the study with 30 pregnant adolescents for undertaking the test-retest. In the implementation phase, the researcher contacted the nurse or midwife in the community to help the researcher to gather the data of the pregnant adolescents and to help give out the packet of questionnaires that consisted of the demographic data questionnaire, the SEPMRS-Indonesia (draft 4 as final draft), and the informed consent. The researcher also explained the objective of the study and all the procedures of data collection. After completing the questionnaire, the questionnaire was given back to the researcher in the agreed time.

Pearson Product Moment Correlation was performed to examine the correlations between the results of test-retest reliability as minimally acceptable at .70

or more (DeVellis, 2017). There is a slight or almost insignificant relationship if the correlation is less than .20, between .20-40 means a low relationship, the correlation is moderate or has a substantial relationship at 40-70, correlation is at a high at .70-90, and correlation is very high or has a very dependable relationship at .90-1.00 (Nunnally & Bernstein, 1994).

Step 8: Optimizing Scale Length

This step purposed to optimize the length of this scale to evaluate the process of scale development. At this step, the reliability and validity of the SEPMRS-Indonesia scale is acceptable. Based on step 7, the optimal length of the SEPMRS-Indonesia final version would be established. The proposed SEPMRS-Indonesia was expected to be a well-developed instrument containing evidence to support its validity and reliability. To find the objectives of this study, several factors analyses were performed. The details of the development psychometric evaluation of SEPMRS-Indonesia are shown in figure 2.

Protection of Human Subjects' Rights

Prior to the data collection, a request form seeking approval to conduct the study and informed consent was submitted to the Ethical Committee, Faculty of Nursing, Prince of Songkla University, and permission was sought from the ethical committee of each community health center in the study. All the samples were informed about the purpose of the study, the data collection procedure and also the subject's right to withdraw from the study at any time. The samples were informed that withdrawing during the research process would not impact on the received care. They were also

informed of the time to complete the questionnaire. The name of the samples were not put in the data process. A code number on the questionnaire was set to confirm confidentiality. The data from the samples was kept confidential and was used only for this study. Thes samples were given information that the results from this study would be reposted only in a group format. All the data were kept in a locked file and entered into an electronic database by the coded numbers during the process of collecting the data. The data could only be accessed by the researcher without reporting to anyone else. In publication, the researcher only put the results without identifying any of the samples.

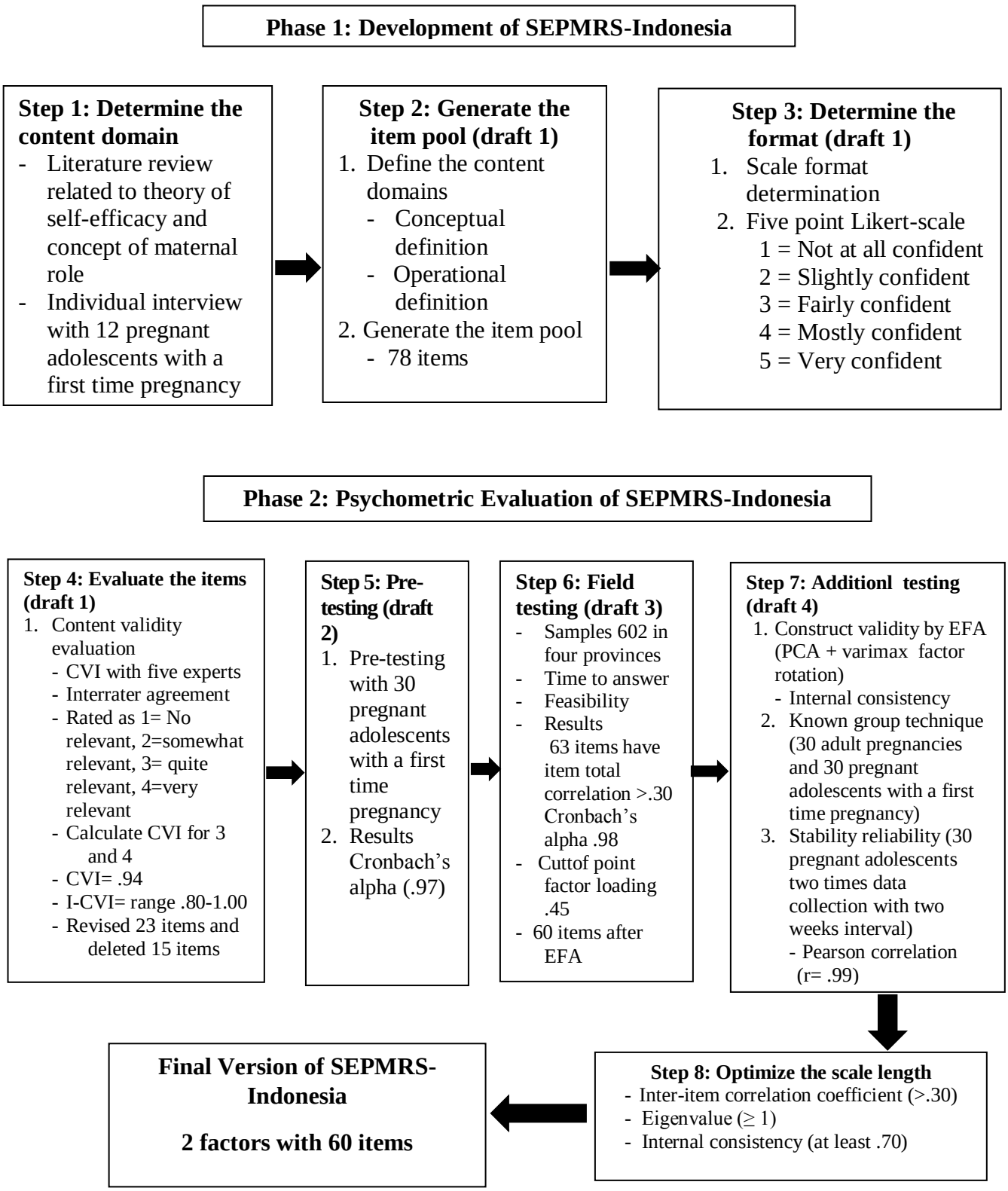

Figure 2. Process of Scale Development and Psychometric Evaluation of the SEPMRS-Indonesia

CHAPTER 4

RESULTS AND DISCUSSION

This chapter discusses the results of the process for developing the SEPMRS-Indonesia and the results of the psychometric evaluation. The results are presented into two phases. The first phase was developing the conceptual structure of the SEPMRS-Indonesia. The second phase was the psychometric evaluation of the SEPMRS-Indonesia. In addition, each research question is also discussed.

Results

This part explains the two phases of the scale development process. All phases are described as follows.

Phase I: Developing the Conceptual Structure of the SEPMRS-Indonesia

The results of this phase are divided into three steps: 1) determination of the content domains, 2) generation of an item pool, and 3) determination of item format.

Step 1: Determination of the Content Domains

This step guided the extensive review of the literature, individual interviews and integrated domains from the literature review and individual reviews as follows.

1.1 Result of Literature Review

The conceptual structure of this study was based on the theory of self-efficacy from Bandura (1997), and the concept of the maternal role from Rubin (1984),

as well as a consolidation of the literture of self-efficacy in performing the maternal role in adolescents. After reviewing the available literature, the researcher categorized and determined the two components of self-efficacy from Bandura (1997) which are efficacy expectations and outcome expectations. Efficacy expectation is defined as one's belief about one's ability to perform specific tasks, and outcome expectation is defined as a person's estimation that a given behavior will lead to particular outcomes.

The domain from Rubin (1984) were classified based on four concepts of the maternal rolewhich are, 1) safe passage, 2) acceptance by others, 3) binding in to the child, and 4) giving of oneself. Safe passage is explained as: protecting herself from sudden, forceful, accidents, vicissitudes of fate, seeking prenatal care to protect her baby from being marked or damaged, consulting with a health care provider related to diet and vitamins, improving knowledge related to childbearing and childbirth, and sleeping and exercising. Acceptance by others is explained as awareness and acceptance of the coming child and informing family, social groups, workplace and community. Binding-in to the child is explained as attachment and being sensitive to the unborn/baby, aware of fetal movement i.e, quickening, kicking and other actions of the baby, providing a good home for the unborn baby in utero, and giving of oneself is explained as being aware of the prospective demands and deprivations during pregnancy, giving and receiving attention between two persons, representative of caring by communication from the giver (husband, parents, and friends), give support by attending delivery/birth, seeking companionship to cope with stress, uncertainty, anxiety, pain, and entrapment frustration.

1.2 Results of Individual Interviews

After determining the specified domain of self-efficacy in performing the maternal role, a qualitative approach using an individual interview was carried out to explore the performance of pregnant adolescents in performing the maternal role. Interviews was conducted with 12 pregnant adolescents, aged 18 to 19 years. Three of them were aged 18 and nine were 19. Among these, the majority were Muslim. Six participants had graduated from junior high school and the rest from senior high school. All the participants were married. Nine lived with their parents, while the rest lived with their husband whereas, only one was self employed and the rest were housewives.

The results from the interviews were analyzed and interpreted to define the themes of self-efficacy in performing the maternal role in pregnant adolescents with a first time pregnancy and to design the specified domains of the concept. There were ten themes found from the qualitative study and these were 1) taking care to stay healthy and safe during pregnancy, 2) giving attention to improve relationships with husband and unborn baby, 3) seeking coping strategies to deal with psychosocial problems, 4) working to become independent from parents, 5) seeking support for maternal and unborn baby's health, 6) expecting actions to be a healthy mom and baby, 7) creating happiness for her, husband, and family, 8) staying strong and confident during pregnancy, 9) avoiding certain foods and activities that are harmful during pregnancy, and 10) maintaining cleanliness during pregnancy.

The results obtained from the qualitative study were close in meaning with the themes that were identified in the literature review which were finally integrated with the theory of self-efficacy and the concept of the maternal role. For example, the theme "taking care to stay healthy and safe during pregnancy, avoiding certain foods

and activities that are harmful during pregnancy, and maintaining cleanliness during pregnancy" were close in meaning with the domain "safe passage" from the domain of the maternal role and will be merged to be "safe passage for herself and her unborn baby during pregnancy" in the pre-determined domain; the domain "giving attention to improve a couple's relationship" was close in meaning to the domain of the maternal role "acceptance by others" and "binding-in to the child", and will be kept as "establishing a relationship with husband and unborn baby" in the pre-determined domain; the domain "stay strong and confident during pregnancy" was close in meaning to the domain "giving of oneself" from the domain of the maternal role and was merged to be "seeking companionship and strategies to deal with problems during pregnancy" in the pre-determined domain the domain "working to become independent from parents" was a new domains obtained from the individual interviews and would be kept and revised as "empowering husband to earn money for maternal and unborn baby's health" in the pre-determined domain, the domain "seeking support for maternal and unborn baby's health" was close in meaning to the domain of the maternal role "binding-in to the child" and would be the domain "seeking support for mother and unborn baby". All five pre-determined domains reflected the efficacy expectations. The other two pre-determined domains represent the outcome expectations that were "being a healthy mom and unborn baby" which were reflected to safe passage and expecting actions to get a healthy mom and baby, and "having good feeling and happiness for her during pregnancy" were reflected as the concept of the maternal role "binding-in to the child" and the theme of the individual interviews "creating happiness for herself, husband and family".

All four domains of the maternal roles, themes from individual interviews, and pre-determined integrated domains are shown in table 1.

Table 1

Pre-determined Domains of Self-Efficacy in Performing Maternal Role Scale

Maternal Role	The Themes from qualitative study	Pre-determined Domains
1. Safe passage. For instance: protecting herself and unborn baby, seek prenatal care to check pregnancy, consultation with health care provider about nutrition deficiencies, effects of drugs, & vitamins, improve knowledge related to childbearing and childbirth, follow the antenatal class, control herself from pregnancy problem such: hypertension, sleep & exercise, find the competent doctor/health care provider to ensuring safe passage, find support from husband and others closest	1. Taking care to stay healthy and safe during pregnancy. For example: eat nutritious food, taking vitamin every day, check pregnancy regularly, take a rest and sleep enough, keep activity and excercise during pregnancy, seeking information about pregnancy by media, consultation with health care provider, and keep cleanliness	1. Safe passage for herself and unborn baby during pregnancy (Rubin 1 and qualitative 1, 9, 10). For example: eat healthy food, taking vitamin, protect from conditions that pose to a danger, rest and sleep, attend maternal class, doing excercises regularly, consult to health care provider, find information by media, keep cleanliness

Table 1 *(continued)*

Maternal Role	The Themes from qualitative study	Pre-determined Domains
2. Acceptance by others. For example: aware and accept of the coming child and inform family, social groups, workplace and community	2. Giving attention to improve couple's relationship. For instance: sending attention each other: send message during work, prepare food for husband	2. Establishing relationship with husband and unborn baby (Rubin 2 and 3, qualitative 2). For example: she has good communication with her husband, she has good communication with her unborn baby
2. Binding-in to the child. For example: attachment and sensitive to the unborn/baby	3. Seeking support for maternal and unborn baby health. For instance: find support from husband and parents, find support from peers, find support from midwife, nurse, doctor	3. Seeking support for mother and unborn baby (Rubin 2 and qualitative 5). For example: seek support from husband and family, seeking support from HCP, close friends, and people around

Table 1 *(continued)*

Maternal Role	The Themes from qualitative study	Pre-determined Domains
4. Giving of oneself. For example: aware of the prospective demands and deprivations during pregnancy, giving and receiving attention between two persons, not only the material worth of the gift, representative of caring by communication from the giver (husband, parents, friends), give support by attending delivery/birth, seeking companionship to cope stress, uncertainty, anxiety, pain, and entrapment frustration	4. Seeking coping strategies to deal with psychosocial problems. For example: release bad thinking related to pregnancy, control emotion, discuss to mother if got pregnancy problem, think positive in every bad situation during pregnancy.	4. Seeking companionship and strategies to deal with problems during pregnancy (Rubin 4 and qualitative 3, 8). For example: think positive, discuss with husband, mother and health care provider about pregnancy problem, release stress by listen music, watching TV or find information, express feeling with close friends

Table 1 *(continued)*

The Themes from qualitative study	Pre-determined Domains
5. Working to become independent from parents., such as: separate living with parents, find a job, support husband to get more money for them and delivery, and manage money for giving birth.	5. Empowering husband to earn money for maternal and unborn baby's health (qualitative 4), for instance: support husband to find a job to support family budget, encourage husband to manage money to support their life, manage money for childbearing.
6. Expecting actions to get healthy mom and baby. For example: ollowed every suggestions from mother and health care provider, followed antenatal care to get a healthy baby	6. Being healthy mom and unborn baby (Rubin 1 and qualitative 6), for intance: keeping healthy by following the HCP suggestions related to healthy food, vitamin, iron tablet, and excercises during pregnancy.
7. Creating happiness for her, husband, and family. For example: love the unborn baby, people around happy with her pregnancy, people around give attention during pregnancy, improving attention to her pregnancy.	7 Having good feeling and happiness for her during pregnancy (Rubin 2, 3 and qualitative 7). For example: happy when communicate with unborn baby. For instance: happy with the presence of the baby, happy to communicate with husband, parents and close friends.

Table 1 *(continued)*

	The Themes from qualitative study
8.	Stay strong and confident during Pregnancy - Keep calm eventhough have pregnancy problems such as nausea and vomiting. - Be patient during pregnancy - Control emotion
9.	Avoid food taboo and activities that harmful during pregnancy - Avoiding eat fastfood during pregnancy - Avoiding working hard such, washing, driving motorcycle
10.	Maintain cleanliness during pregnancy - Keep body clean - Keep home and bed room clean

Step 2: Generation of an Item Pool

In this step the specific items generated were measured.') The results yield seven domains that integrated with the concept of the maternal roles and ten themes were obtained from the individual interviews. The domains were: 1) safe passage for herself and unborn baby during pregnancy had 6 items, 2) establishing relationship with husband and unborn baby had 7 items (concerned with, - concerned with what? Or could you mean 'of concern'?) 3) seeking support for mother and unborn baby consisted of 5 items, 4) seeking companionship and strategies to deal with problems during pregnancy (had 9 items concern, 5) empowering husband to earn money for maternal and unborn baby's health consisted of 9 items, 6) being a healthy mom with a healthy unborn baby consisted of 13 items concern, and 7) having good feelings and happiness

during her pregnancy consisted of 9 items. Finally all the seven pre-determined domains yielded 63 items of the SEPMRS-Indonesia version II after having been reviewed by five experts.

In summary, the conceptual structure of the self-efficacy of pregnant adolescents on performing the maternal role was defined into seven domains of self-efficacy consisting of 63 items. The definition of each domains are described in table 2.

Table 2

Descriptions of Pre-Determined Domains of Self-Efficacy of Pregnant Adolescent in Performing Maternal Role

Domains	Description
Safe passage for herself and unborn baby during pregnancy	Ability of the pregnant adolescents perform healthy activities, i.e., eating a healthy diet, consuming vitamins, checking her pregnancy regularly, having good sleep and rest, and maintaining cleanliness to keep healthy and safe.
Establishing a relationship with her husband and unborn baby	Ability of the pregnant adolescents to implement some activities to show her ability to maintain good communication with her husband, and unborn baby and paying attention to her husband and unborn baby.
Seeking support for maternal and unborn baby's health	Ability of the pregnant adolescent to find or get some support to help her to look after herself and her unborn baby during pregnancy.

Table 2 *(continued)*

Domains	Description
Seeking companionship and strategies to deal with problems during pregnancy	Ability of the pregnant adolescent to find strategies to solve the problem during pregnancy (i.e., nausea problem, vomitting problem, etc.)
Empowering husband to earn money for maternal and unborn baby's healthy	Ability of pregnant adolescents to encourage her husband to get money to take care of her needs during pregnancy and be able to prepare the labor cost.
Being a healthy mom with a healthy unborn baby	Ability of the pregnant adolescents to get healthy and their baby healthy after doing some particular activities during pregnancy
Having good feeling and happiness for her during pregnancy	Ability of the pregnant adolescents to get happiness after doing some activities during pregnancy.

Step 3: Determination of the Scale Format

The scale format of the SEPMRS-Indonesia was a 5-point Likert-scale. The five categories were chosen from 1 = not at all confident to 5 = very confident (1= not at all confident, 2= slightly confident, 3= fairly confident, 4= mostly confident, and 5= very confident). A high score indicated higher degree of self-efficacy in performing the maternal role. This means that pregnant adolescents have the ability to perform the role as a prospective mother during their pregnancy. A low score indicated lower degree of self-efficacy in performing the role. This means that pregnant adolescents do not have the ability to perform the role as a mother during their pregnancy.

This format was deemed most appropriate to measure the self-efficacy of pregnant adolescents to perform roles during pregnancy, and it has fewer choices and

is thus more convenient, short, and concise to use. All the subjects were asked to provide their prejudiced opinion using the scale in response to each question. The results of this step was SEPMRS-Indonesia draft 1 with 63 items.

Phase 2: Psychometric Evaluation of SEPMRS-Indonesia

This phase had five steps of psychometric evaluation. Content validity was evaluated using Content Validity Indext. Construct validity was evaluated by using factor analysis and contrast group technique. Reliability was examined using two procedures: internal consistency evaluation and test-retest method. The results of this stage are presented as follows.

1.1 Results of Content Validity Evaluation

The aim in this step was to determine a content validity index. Five experts evaluated the 78 items of the draft I of SEPMRS-Indonesia. They reviewed, commented, and identified all the items. They analysed 78 items representative and reasonable with the concept of self-efficacy and the maternal role. The five experts checked all items related to: 1) linking each domain with the items, 2) assessing the relevancy of the items to the five point rating scale.

Two of the experts were senior Thai lecturers that had experience in scale development and the content of this study, and the other three experts were in the field of maternity and community nursing in Indonesia. Feedback from the Thai experts was mostly about revising the meaning of the item, some items had to be rechecked carefully in that the content of the items were related to the concept of the maternal role, and the items must have applicability and specifically show the efficacy expectations and

outcome expectations. Some items had to be rearranged because the items did not fit with the concept of this study and these were: items 1, 2, 3, 4, 5, 9, 16, 18, 19, 21, 24, 31, 32, 34, 49, 63, 64, 65, 68, 70, 71, 72, and item 75. The Thai experts also suggested moving some items to the outcome expectation (items 5, 8, 15, 16, 25, 33, 35, 38, 39, 40, 50, and item 58), because these items must be separated between items of the efficacy expectations and items of the outcome expectations. The experts also suggested checking the grammar of each item sentence. The feedback from the Indonesian experts suggested that some items must be deleted because they have the same meaning and some items were not related to the concept of the maternal role and also efficacy expectations and outcome expectations. After expert validation, the suggestions were discussed with the advisor and some items were revised, and some items were deleted.

Revisions conducted in this step were to gain the explication of the items. The second version of the SEPMRS-Indonesia scale thus had a total of 63 items which was rated by the 5 experts for content validity index (CVI) of .94, with the item-level content validity index (I-CVI) ranging from .80 to 1.00. The result was the SEPMRS-Indonesia draft 2 with 63 items.

2.2 Results of Pre-Testing

The second draft of the 63-item SEPMRS-Indonesia was used to perform the pre-test with the involvement of 30 pregnant adolescents. The purpose of this step was to perform item analysis and check for pre-liminary internal consistency. In addition, the results were also used for revising the items based on item total correlations less than .30. Finally the result of the pre-testing showed that no item

needed to be deleted, and all the data set would be kept to use in field testing as the draft 3 of SEPMRS-Indonesia. The details of the sample demographic data, analysis of items, and internal consistency are explained as below.

Demographic data. Thirty Indonesian pregnant adolescents at three community health centers were invited to this study. Majority was 19 years old (66.7%), level of education was grade 6 (63.3%), Islamic (93.3%) and all of them were housewives (100%). The other information was 70% of the samples checked their pregnancy through antenatal care, and 73.3% samples did not attend maternity classes. Most of samples received support from their husband (43.3%) and they plan to give birth in a community health center (60%).

Internal consistency

Pre-test data were used to examine the internal consistency by using Cronbach's alpha coefficients. According to Pett et al., (2003), the items with high internal consistency, with .80 or greater are selected for the final evaluation of the instruments. The total scales have Cronbach's alpha coefficient more than 0.8. The total Cronbach's alpha coefficient of the SEPMRS-Indonesia second version was at .97.

In addition, an average inter-item correlation between .30 and .70 is desirable for item analysis. There were four items less than .30 (item # 25, 51, 53 and 58). These items had to be revised to check the content related to the concept of this study based on discussions with the advisor. Finally all the items were kept in the item pool because the items were strongly related to the concept of this study and were used for field testing.

The results of the pre-testing supported the continuity of 63 items of the SEPMRS-Indonesia since the total item correlations were acceptable. Hereafter, the psychometric properties of the scale draft 3 were to be further examined in the field testing.

2.3 Results of Field Testing

In this step, the SEPMRS-Indonesia draft 3 was used for data collection. The samples of this study were 630 Indonesian pregnant adolescents with a first-time pregnancy aged 15 to 19 years, representative of four provinces in Indonesia. The samples were purposely selected from various settings which were: community health center, general community residence, Posyandu (Integrated service center), and also private clinics. From a total 700 questionnaires distributed, the investigator received 650 (92%) questionnaires returned during February to June, 2017. The step tested the assumptions before conducting the final data analysis to ascertain the appropriateness of the data for factor analysis. The results of the assumptions showed that there were no deviations for the data set that would be used for factor analysis. Furthermore, 28 outliers were found and deleted from the data set. Finally, 602 completed questionnaires were suitable to use for the factor analysis. The demographic characteristics of the samples are described as follows.

Demograpic Characteristics of Study Samples

The respondents were aged between 15 to 19 years (their average age was 18.5 years old) with M = 18.47, and SD= 0.84, most of them were married (99%), a housewife (89.8%), husband's occupation was mostly self employed (59%), the average total family income was 2 million rupiah, 238 respondents did not check their hemoglobin because some community health centers do not check pregnant women if

they think that the woman does not have an anemia problem. From 609 respondents, 230 of them had not checked their Hb (37.8%), and 379 respondents were checked for Hb (62.2%). From the 62.2% of respondents who had checked their Hb, 2.6% was normal, 43.5% had very mild anemia, 15.6% had mild anemia and 0.5% had moderate anemia. 81.1% of the respondents checked their pregnancy through antenatal care at the health center. 58.0% of the respondents had pregnancy checked by USG, and 59.4% drank milk everyday. 33.2% of the respondents still lived with their parents, 21.3% lived with their parents in law and 45.5% lived only with their husband. 21.8% of the sample got support from their husband, 13.1% from parents, 1.0% from parents in law and 1.6% from a health care provider. Most of the respondents (40.6%) planned to give birth in a delivery clinic and would be helped by a midwife, and 37.1 % planned to give birth in the community health center (table 3).

Table 3

The Demographic Characteristics of Study Samples in Field Test Evaluation of SEPMRS-Indonesia (N = 602)

Demographic data	Frequency	Percentage
Age		
19 years	385	64.0
18 years	147	24.4
17 years	46	7.6
16 years	19	3.2
15 years	5	0.8

Table 3 (*continued*)

Demographic data	Frequency	Percentage
Marital status		
Married	596	99.0
Divorce/separated	4	0.7
Un-married/Single	2	0.3
Religion		
Islam	578	96.0
Christian	24	4.0
Highest level education		
Grade 12	100	16.6
Grade 9	484	80.4
Grade 6	18	3.0
Occupation		
Housewife	540	89.7
Private worker	52	8.6
High school student	10	1.7
Husband occupation		
Self Empolyee	356	59.1
Private worker/employee	151	25.1
Others (high school, laborer, traders fisherman, office boy)	95	15.8
Total family income		
< 1 Million rupiah	8	14.5
1-2 Million rupiah	335	55.5
2-3 Million rupiah	71	11.7
3-4 Million rupiah	85	14.3
>4 Million rupiah	24	4.0

The additional information about pregnant adolescents would be presented as follows (table 4).

Table 4

Frequency and Percentage of Pregnancy Information of the Samples (N = 602)

Pregnancy information of the samples	Frequency	Percentage
Hemoglobin test		
Not check Hb	226	37.6
Check Hb	376	62.4
Normal >13 gr%	16	4.3
Very light anemia 10-13 gr%	262	69.7
Light anemia 8-9 gr%	95	25.2
Medium anemia 6-7.90 gr%	3	0.8
ANC		
Yes	489	81.2
No	113	18.8
USG		
Yes	352	58.5
No	250	41.5
Health problem during pregnancy		
Yes	140	23.3
No	462	76.7
Drink milk a day		
Yes	359	59.6
No	243	40.4
Living with		
Husband	275	45.6
Parents	199	33.1
Parents in law	128	21.3

Table 4 (*continued*)

Pregnancy information of the samples	Frequency	Percentage
People support during pregnancy		
Almost All (husband, parents, parents in	375	62.3
law, health care provider)	131	21.8
Husband	80	13.2
Parents	6	1.0
Parents in law	10	1.7
Doctor/midwife/nurse		
Place to delivery		
Delivery clinic	246	40.9
Community health center	223	37.0
General hospital	77	12.8
Private hospital	51	8.5
Others	5	0.8

2.4 Data Analysis

The data were analyzed using descriptive statistical analysis. Tabachnick & Fidel (2007) explained that the data should not have missing data, should have normal distribution by checking for no skewnes and kurtosis values higher than >3.0 and <10 respectively, the scatter plots show a positive linear relationship with all linear correlation, and the data have no outliers. The demographic data were computed using descriptive statistical analysis to input the data of the samples' characteristics. These data were used to examine the psychometric evaluation of the scale. In this step, three analysis were performed, 1) evaluation of the initial item performance, 2) exploratory factor analysis, and 3) reliability for internal consistency after EFA.

2.4.1 Evaluation the Initial Item Performance

The purpose of this part was to determine the initial items' performance by item-scale and inter-item correlations after testing the scale reliability with individual items. Total item correlation should range from at least .30 to .70 (Nunnally & Bernstein, 1994). In this stage, the total item correlations were computed for 63 items. From the 63 items, item to item correlation ranged from .33 to .84. For the results for this study, inter-item correlation was set between .30 - .70, with item total correlation $\geq$ .30 and Cronbach's alpha .70 - .90, and this value was considered to be a suitable measure of good internal consistency. Finally, the 63 items would be maintained because of having the value > 0.3 which showed a significant result for all items. A further step was the scale draft 3 with 63 items which was applied for field testing.

Internal consistency: The internal consistency was examined by using Cronbach's alpha coefficient to check the reliability of each component for the total scale. The alpha coefficients of each subscale and total scale were evaluated. The alpha coefficient for the total scale was at .98, and for the seven pre-determined components Cronbach's alpha ranged from .84 to .94.

Item-total correlation: From the 63 items, the overall items had atotal item correlation of more than .30. Finally, in the next step, the 63-items of the SEPMRS-Indonesia were used to run the EFA for examining the construct validity of this scale.

2.4.2 Evaluation of the Construct Validity

The purpose of this step was to examine the theoretical construct of the scale. In this step exploratory factor analysis (EFA) was conducted and also examined by the known group technique.

Exploratory factor analysis

This step was performed when a researcher wants to find out the number of factors affecting the variables and to analyse which variables are suitable (DeCoster, 1998). The third draft of the SEPMRS-Indonesia, which consisted of 63 items, was investigated on its internal structure. To define the factor structure of the SEPMRS-Indonesia, the steps of the analysis were: 1) descriptive factor analysis, 2) factor extraction using principal components method, and 3) varimax rotation.

This step began by checking that the reliability of the correlation of each item of the 63 items had a value > .3. Then exploratory factor analysis was undertaken with the 63 items. The results are presented in the following:

Descriptive factor analysis. In this step Bartlet's test of sphericity and Kaiser-Meyer-Oikin (KMO) were performed to confirm the appropriateness of applying factor analysis. The result showed significantly high inter-item correlation for Bartlet's sphericity for the 63 items of SEPMRS ($\chi^2 = 41897.314$, $p < .000$). The KMO showed the estimated sampling adequacy at .96 of self-efficacy which is considered excellent for applying factor analysis.

Factor extraction using principal components method. This process, using eigenvalues greater than 1, examined the scree plot, factor loading, and percentages of total variance explained. The factor exctraction maintained the 63 items which ranged from .32 to .84 for corrected total item correlation. The step showed 2 factors accounting for 58.85% of the total variance explained. Then the scree plot showed more similarity, 2 to 5 should be probed for factor analysis (Figure 3). The curve was higher at 2 factors and dropped at 5 factors. For the first run, 2 factors were investigated, and then the second run investigated 3, 4, and 5 factors. From the four factors ran (2 factors, 3 factors, 4 factors, and 5 factors), the 2 factors can explain the concept of this scale. The items belong to the efficacy expectations clustered together, and also the items belong to the outcome expectations also cluster together in one factor. Furthermore, it was acceptable to keep 2 factors based on the factor analysis assumptions (KMO, Bartlett's test, and scatter plot). Therefore, the next analysis was using rotation with the orthogonal varimax method.

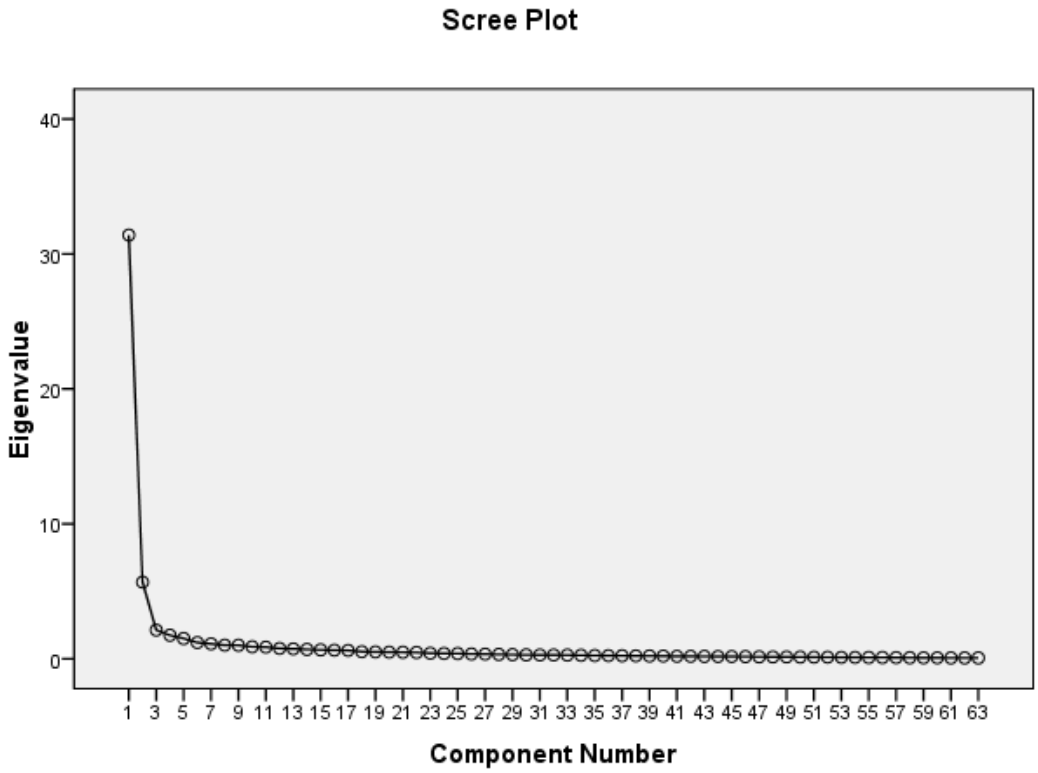

Figure 3: The Cattle's scree plot of SEPMRS-Indonesia

Based on the results of the first run of EFA, there were two factors of self-efficacy that were analyzed item per item for each factor. Furthermore, rotation with the orthogonal varimax method was calculated. The orthogonal method is arranged when the factors are rotated 90 degrees from each other or it is assumed that the factors are uncorrelated (DeCoster, 1998); Rummel, 1970); Costello & Osborne, 2005). This is less realistic since factors generally are correlated with each other to some degree.

Varimax rotation. For the varimax, the factor loading cutoff point used at first was 0.30, however, to make a more reliable and parsimonious measure, the

cutoff point was changed to 0.45. Two factors were decided to be the most compatible and theoretically explainable. The two factors have total variance explained by 58.85 % which consisted of 60 items. Furthermore, the 60 items would be draft 4 of the SEPMRS-Indonesia which was the final draft to be further tested by comparison of different group and stability testing.

The results of the two factors consisted of the self-efficacy of pregnant adolescents to perform their roles during pregnancy which can be explained as follows.

Factor 1: Being able to perform essential activities during pregnancy

Factor 1 was named as "being able to perform essential activities during pregnancy". It consisted of 35 items with factor loadings ranging from .46 to .80. This is the first factor and accounted for 49.85% of variance with an eigenvalue of 31.40 for the assessment of item content. This factor described the efficacy expectations of a pregnant adolescent and included the ability of the pregnant adolescent to take care of herself and her unborn baby by eating healthy food, taking vitamins, maintaining a good relationship with her husband and her unborn baby, solving any pregnancy problems, staying strong during pregnancy, encouraging her husband to earn money and find support for her.

The example items for supporting the factors 1 were: item 1: "I am able to take multivitamins every day during pregnancy", item 3: "I am able to protect myself and my unborn baby from conditions that pose a danger, such as anemia and hypertension.", item 15: "my husband and I are able to communicate well and discuss all about my pregnancy", and item 30: "I believe that I am able to handle my family without my parents..". The factor loading of this factor is presented in table 5.

Table 5

Items and Factor Loadings for Factor I, Being Able to Perform Essential Activities During Pregnancy (N=602)

No	Item statements	Factor loading	h^2
1	I am able to take multivitamin every day during pregnancy.	.66	.49
2	I believe that I can take calcium every day as a requirement.	.46	.24
3	I am able to protect myself and my unborn baby from conditions that pose a danger, such as anemia and hypertension.	.69	.57
4	I am able to have leisure time every day during pregnancy (i.e. doing nothing and just relaxing, watching TV etc.).	.61	.44
5	I am sure that I have enough sleep and can take a rest every day	.65	.45
6	I am sure that I can perform exercises to get healthy during pregnancy	.46	.21
7	I believe that I can visit the doctor/midwife/nurse on every appointment.	.59	.39
8	I believe that I can attend the maternal classes provided at the community health center.	.46	.22
9	I believe that that I can go to see the doctor if I have health problem during pregnancy.	.72	.56
10	I am able to follow the health care provider's suggestion to improve my health.	.75	.67
11	I can get information from magazines, books, etc. that is of benefit to my health and my unborn baby's health.	.77	.67
12	I am sure that I can clean my body every day.	.71	.63
13	I am sure that I can keep my home clean every day.	.75	.73

Table 5 *(continued)*

No	Item statements	Factor loading	h^2
14	I am sure that I am able to have good relationship with my husband.	.75	.69
15	My husband and I are able to communicate well and discuss all about my pregnancy.	.77	.68
16	I feel confident to communicate with my unborn baby.	.71	.59
17	I believe that I can encourage my husband to communicate with my unborn baby.	.73	.67
18	I believe that I am able to talk to my unborn baby when she/he moves in my womb.	.73	.60
19	I believe that I can listen to Al-Qur'an/Bible/music with my unborn baby.	.68	.55
20	I am sure that I have ability to read Al-Qur'an/ Bible/story book to my unborn baby before sleep.	.68	.54
21	I am sure that I am able to discuss with my husband and my mother about my uncomfortable feeling during pregnancy.	.80	.72
22	I believe I can tolerate the problem of social deprivation feeling to get through delivery.	.76	.67
23	I am sure I am able to think positively during pregnancy.	.77	.75
24	I am able to discuss with my husband and my mother if I have a pregnancy problem.	.78	.73
25	I believe that I am able to consult with health care provider when I feel anxious about childbirth.	.72	.65
26	I am able to discuss with my husband when I feel stress during pregnancy.	.73	.63
27	I am sure I can watch television or listen music to reduce my boredom during pregnancy.	.73	.66

Table 5 *(continued)*

No	Item statements	Factor loading	h^2
28	I believe that I can find some information to reduce my fear of childbirth.	.71	.62
29	I am sure that I can express my feelings to my close friends when I feel anxiety.	.74	.66
30	I believe that I am able to handle my family without my parents.	.64	.49
31	I am sure that my husband and I can find a job to support our family budget.	.71	.66
32	I feel confident to manage money for our daily life.	.68	.58
33	I am able to have enough money for childbearing	.71	.62
34	I am sure that I can get support from my husband during pregnancy	.69	.69
35	I am sure that I can get support from my relatives (mother, father, mother and father in- law, brother, sister) during pregnancy	.71	.66
36	I am sure that I can get support from close friends during pregnancy	.68	.68
37	I am sure that I can get support from health care provider during pregnancy	.72	.71
38	I am sure that I can get support from people in the community	.71	.65

Factor 2: maintaining health and happiness during their pregnancy

Factor 2 was named as "maintaining health and happiness during their pregnancy". It consisted of 22 items with a factor loading ranging from .67 to .79 and accounted for 9.02% of variance with an eigenvalue of 5.68. These items

correlated with the ability of a pregnant adolescent to get healthy and happy by doing some activities during pregnancy. For instance, item 3: "I and my unborn baby will be healthy if I am able to have good nutrition during pregnancy," item 5: I will be healthy if I am able to perform exercise regularly", item 10: "I will keep my pregnancy healthy if I am able to take iron tablets every day", item 19: "I will feel close to and happy if I am able to talk to my unborn baby", and item 21: "I am happy when I feel my unborn baby move inside my womb". Therefore this factor was labeled as "getting healthy and happy during pregnancy (table 6).

Table 6

Items and Factor Loadings for Factor II, Maintaining health and happiness during their pregnancy (N=602)

No	Item statements	Factor loading	h^2
1	I will have a healthy baby If I am able to follow the health care provider's suggestions,	.77	.67
2	I will have no complication during pregnancy if I can take a good care of myself,	.73	.60
3	I and my unborn baby will be healthy if I am able to have a good nutrition during pregnancy.	.78	.67
4	I and my unborn baby will be healthy If I can visit the health care provider on every appointment	.79	.68
5	I will be healthy if I am able to perform exercise regularly	.67	.50
6	I and my unborn baby will be healthy if I can avoid the environmental hazards	.69	.52
7	I will be able to deal with psychosocial problems if I can practice relaxation	.69	.55

Table 6 *(continued)*

No	Items	Factor Loading	h^2
8	I can get a healthy baby if I can keep myself healthy.	.78	.66
9	I and my baby will be safe if I can give birth in hospital or clinic	.73	.61
10	I will keep my pregnancy healthy if I am able to take iron tablet every day	.73	.61
11	I will stay healthy during pregnancy if I can clean my body everyday	.79	.71
12	I can manage my low back pain during pregnancy If I can perform exercise regularly	.68	.52
13	My baby can have breast milk after birth if I am able to prepare my breast during pregnancy	.77	.66
14	I will be happy if I can get enough support from my husband	.79	.68
15	I feel happy if I can get support from my mother and my mother in law	.79	.68
16	I will feel happy if I can communicate with my family and my close friend,	.75	.64
17	I am able to arrange meals for my husband to make him feel happy	.69	.55
18	I will feel blessed if I am able to eat good food for my health and baby's health	.76	.67
19	I will feel closed and happy if I am able to talk to my unborn baby	.78	.72
20	I feel happy when my husband communicates with my unborn baby	.79	.72
21	I am happy when I feel my unborn baby move inside my womb.	.79	.71
22	I will feel happy when I can get through during pregnancy.	.78	.70

2.4.3 Reliability of the scale

Internal Consistency. The reliability for the internal consistency was re-evaluated by 602 subjects after determining the structural constructs of the SEPMRS-Indonesia. The fourth draft includes 60 items of the SEPMRS-Indonesia which explain the 38-item efficacy expectations and the 22-item outcome expectations. The fourth draft was used to calculate the alpha coefficients on the subscales and total scores with the value .70 or higher show an acceptable standard of level reliability (Hair et al., 2006).

The finding expressed that the overall internal reliability was still good (.96) with 60 items. When Cronbach's alpha was processed by each factor, the internal consistency had results ranging from from .97 to .98 (table 7), the item-total correlation value for 60 items > .30 and Cronbach's alpha coefficients of two factors ranged from .46 to .80. This results demonstrated that the alpha coefficients confirmed the reliability of the final draft of the SEPMRS-Indonesia scale.

Table 7

The Cronbach"s Alpha Coefficients of the Overal and Each Factor with 60-Item SEPMRS-Indonesia (Draft 4) (N = 602)

	Component of SEPMRS, Indonesia	Number of items	Cronbach's Alpha
I	Being able to perform essential activities during pregnancy	38	.98
II	Maintaining health and happiness during their pregnancy.	22	.97
	Overall total	60	.98

2.5 Additional Testing Results

The additional testing to examine the validity and reliability of the newly developed instrument measuring self-efficacy in performing maternal role scale in pregnant adolescent in Indonesia (SEPMRS-Indonesia final draft). The additional testing used known group technique and stability evaluation. The sample & setting, instrument, data collection, and data analysis of each approach are explained as follows.

Results of Known Group Technique

This technique conducted to examine the construct validity of the 60-item SEPMRS-Indonesia draft 4 as final draft. A sample of 60 respondents (30 for each group) were used for construct validity evaluation of the SEPMRS-Indonesia final draft using the known group technique.The first group were multipara pregnant adults who experienced in pregnancy and the second group were 30 pregnant adolescents with a first time pregnancy.

The comparison of mean difference between self-efficacy in performing maternal roles scale of two groups indicated that the first group had a higher score of self-efficacy in performing maternal role compared the second group. An independent sample t-test was performed to analyze the difference of SEPMRS-Indonesia on the total mean scores of two groups. The t-test analysis indicated that the mean scores of SEPMRS-Indonesia scale of multiparaous pregnant adults had a higher self-efficacy in performing maternal role ($M = 267.97$, $SD = 23.31$) compared to the pregnant adolescents at first time pregnancy group ($M = 250.47$, $SD = 36.86$) with statistically significant difference at the 0.03 level ($t = 2.19$). These findings supported the construct validity of the SEPMRS-Indonesia scale (table 8).

Table 8

Mean, SD and T-Value of the SEPMRS-Indonesia Known Group Scores of SEPMRS-Indonesia (N = 30 + 30)

Group name	N	M	SD	t	*p*
Multiparous pregnant adult	30	267.97	23.31	2.19	0.03
Pregnant adolescent with a first time pregnancy	30	250.47	36.86		

Stability Testing

The stability reliability evaluation of the SEPMRS-Indonesia used a test-retest. Test-retest reliability was performed to assess the stability of the scale. The 60-item SEPMRS-Indonesia final draft was distributed to 30 pregnant adolescents who were collected by purposive sampling, and the same procedure was repeated with the same group of pregnant adolescent two weeks later. A Pearson Product Moment correlation coefficient was calculated to assess the consistency of the self-efficacy of pregnant adolescents to perform the maternal role and it was evaluated using the total SEPMRS-Indonesia scores at test I with the total scores of test II. The results showed a strong positive correlation between the total scores of the SEPMRS-Indonesia ($r = .99$, $p < .01$) (table 9).

Table 9

The First and Second Test of the SEPMRS-Indonesia for Stability Evaluation for Total (N=30)

Factor	Test (Test 1)		Retest (Test 2)		r
	M	SD	M	SD	
- Overall result	202.33	43.17	204.20	39.37	.99**
- Being able to perform essential activities during pregnancy	128.10	28.20	129.80	25.74	.99**
- Maintaining health and happiness during their pregnancy	74.23	16.94	74.40	15.52	.97**

**p< .001

The results of the stability evaluation of the first and second test of the SEPMRS-Indonesia for each domain showed that the mean scores of all the subscales at time 1 ranged from 74.23 to 128.10 and scores at time 2 ranged from 74.40 to 129.80 including the correlations between test I and test II which ranged from .97 - .99 (table 13). Hence, the conclusion from the test-retest reliability results showed the score of variation of the 60-items of the SEPMRS-Indonesia was stable over a 2-week period during the period the questionnaires were answered by pregnant adolescents.

Summary

The self-efficacy in performing the maternal role scale was developed in two phases: the first phase was the development of the SEPMRS-Indonesia which consisted of three steps following DeVellis (2017), and the second phase was the psychometric properties testing of the SEPMRS-Indonesia which consisted of five steps modified from DeVellis (2017). Two phases of scale development in this study aimed

to create an instrument to measure the self-efficacy of pregnant adolescents in performing the maternal role.

The development of the SEPMRS-Indonesia scale has four drafts. Draft 1 of the SEPMRS-Indonesia was submitted to a panel of five experts who reviewed, commented and suggested on some of the contents of the SEPMRS-Indonesia scale. The first draft had 78 total items. Draft 2 of the SEPMRS-Indonesia scale had a total of 63 items, whose content validity index was rated by five experts (two experts from Thailand and three experts from Indonesia) at .94. Draft 3 of the SEPMRS-Indonesia was calculated for internal consistency and exploratory factor analysis. Furthermore, draft 4 of the SEPMRS-Indonesia is the final draft with 60 total items and was examined by additional testing and for fit with the content and the concept of the scale.

This psychometric properties has two factors which were proved to be the self-efficacy scale and existence with the Indonesian context. The validity results described that the scale was conceptually constructed. The results of the reliability testing also showed that this scale was reliable and can be utilized. Furthermore, the psychometric properties of a newly constructed scale were distinguished and were competent to differentiate in measuring the self-efficacy of pregnant adolescents in performing the maternal role during pregnancy.

Discussion

This part discussed the results in two sections: 1) the components of the SEPMRS-Indonesia, and 2) the psychometric properties of the SEPMRS-Indonesia are explored as below.

1) The components of the SEPMRS-Indonesia

The 60-items of the SEPMRS-Indonesia draft 4 was established after factor analysis with total variance which was explained at a level of 58.85%. The SEPMRS-Indonesia draft 4 consisted of two factors: 1) being able to do the essential activities during pregnancy that represent efficacy expectations, and 2) getting healthy and happy during pregnancy that represent the outcome expectations. According to Bandura (1977), self-efficacy is structured into two components consisting of 1) efficacy expectations and 2) outcome expectations. Efficacy expectations in this study refers to the ability of pregnant adolescents to perform some specific behaviors to get the outcome expectations related to the task that pregnant adolescents perform in the maternal role. Outcome expectations in this study refer to the general result which is improvement by pregnant adolescents to get themselves healthy and their baby healthy. Factor 1 supported the theory of this study and reflected the efficacy expectations which described the ability of a pregnant adolescent to perform some activities related to her roles in performing the maternal role during pregnancy. Factor 2 also was substantiates with the theory of this study and reflected the outcome expectations which explained the expectations after they performed some roles. The two factors are described in the following.

Factor 1: being able to do the essential activities during pregnancy

The first factor was labeled “being able to perform essential activities during pregnancy”. This factor was the efficacy of pregnant adolescents to perform particular activities during pregnancy. The factor contains 38 items regarding the component of the SEPMRS-Indonesia which had factor loadings ranging from .46 -

.80. The percentage of variance contributing to this factor was 49.85% with an eigenvalue of 31.40. The Cronbach's alpha for this factor was .98. The high Cronbach's alpha of factor 1 showed high internal consistency between item to item in terms of reliability. Munro (2005) explained that a factor loading of more than .40 to .70 reflected a high level of correlation to the factor.

This factor explained the ability of pregnant adolescents to perform some activities during pregnancy This study also described that pregnancy at an adolescent age reflected the hard task that pregnant adolescents have to perform to become a mother during their pregnancy. On the other hand, pregnant adolescents should not only adapt to the role of being a new mother but also they have to continue to develop their needed tasks through the transitional stages of adolescence (Mercer, 2004).

Adolescents' main tasks in their developmental stage is to establish identity (Pillitteri, 2004). Therefore, pregnant adolescents have difficulties of psychological development during their pregnancy. A lot of developmental changes in their body cause them difficulty in performing the maternal role during pregnancy. A first time pregnancy makes adolescents experience social and academic failures because they are going to be a mother and will perform some roles that they have never done before. Many pregnant adolescents were likely to stop their education because of having to marry or becoming pregnant. When asked about their future plans, they do not have an answer whether they want to complete or continue their education. Adolescents often do not think about the consequences of their actions, they do not have a plan for the future yet. On the other hand, they must perform many roles during their

pregnancy. They have to think about how they will survive or promote the health of the unborn baby healthy inside of their womb.

Most pregnancies worldwide in adolescents are unintended pregnancy and this situation causes stress and anxiety for the pregnant adolescent (Alan Guttmacher Institute, 2012; Orshan, 2008; Ricci, 2017), wherein they should still go to school, they are not ready for the emotional stress, and lack of financial resources, they have to think about assuming responsibility for fostering the care of their future (March of Dimes, 2011; Ricci, 2017). Pregnancy in the adolescence period of life is a difficult situation for many young mothers. So, pregnant adolescents will usually obey what is the rule of goodness for themselves from their mother, nurse or midwife.

Despite being in a younger age group, a lot of pregnant adolescents in Indonesia show good responsibility after getting pregnant. Many of them can perform maternal roles that benefit them and for their unborn baby (Erika, Nongnut, & Chunuan, 2017). For example, they tried to keep theirselves safe and healthy during their pregnancy, they try to maintain a good relationship between themselves and their husband also unborn baby. They can do other things to sustain their pregnancy, such as take care of themselves and their unborn baby, save money for the birth, solve any pregnancy problems and so on. Some pregnant adolescents can handle and perform these roles during pregnancy. Some participants narrated their experienced related to performing the maternal roles to maintain their pregnancy well as below.

"*I ate fish and eggs at my meals, almost every meal. My mom said that I have to eat that food a lot if I want my baby to be healthy... So I ate that food more than others" P5*

"...I checked my pregnancy regularly. I checked my pregnancy almost every month based on the schedule from my midwife. My Mother suggested I check it once a month..."P3

"...When I check my pregnancy the first time the midwife gave me vitamins, she suggested that I take all the vitamins in order to make me healthy and also my unborn baby. I take it following her suggestion..."P1

"...I asked my husband to accompany me when I had an appointment with my doctor or midwife. I feel comforted when he was beside me during the consultation. I felt confident....I asked my mother to visit me at the weekend, I needed her support during my pregnancy..."P4

"I avoid eating fast food and soft drinks to avoid any pregnancy problems. I just eat food such as fried fish, eggs and vegetables such as spinach, carrots and lettuce. I also did not eat pineapple and durian. My mom said that durian could cause an abortion...P4

Being a mother gives new responsibilities as identity and purpose for the pregnant adolescent. She learned how to take care of herself and also her unborn baby. Pregnant women definitely do not expect to have any pregnancy problems, so they should follow the midwife or nurse's suggestions to avoid any problems during their pregnancy.

The ability of pregnant adolescents in Indonesia to perform maternal roles during pregnancy are still dependant on their parents or others in some cases. They do not think about how to be healthy duing pregnancy. In Indonesia, the ability of teenagers in deciding what to do during pregnancy still depends on their parents. They want to be healthy but they are still confused as to what they have to do. They pay

attention to their pregnancy status by attending antenatal care accompanied by their mother or husband. But for some pregnant adolescents, they do everything during their pregnancy by themselves. They decided to do some activities to improve their health and to feel comfortable. For instance, they attended maternity classes to get some information (i.e., nutrition knowledge, excercises for pregnant women, vitamins etc.) then they could implement their pregnancy care at home. All the information was of benefit for them to improve their health duringtheir pregnancy.

A pregnant adolescent needs her mother or her husband to increase her confidence to perform the role during pregnancy. Pregnancy is a transition phase for a pregnant adolescent to be a mother. This condition may be difficult for an adolescent. Many changes happen during pregnancy such as body changes, psychological changes and also social changes. On the other hand, many adolescents have their own unmet developmental needs, coping with the developmental tasks of motherhood is often difficult and can cause anxiety, stress and even depression (Lowdermilk et al., 2010; Ricci, 2013; Scehtter & Tanner, 2012). Some of the adolescents found it difficult to accept their changing self-image and having to adjust to new roles related to the responsibility as a new mother (Lowdermilket al., 2010). Pregnancy for an adolescent has a vast responsibility in that the adolescent needs to take care of herself and also her unborn baby until delivery. Moreover, academically they lack knowledge including knowledge of pregnancy (Turnage & Pharris, 2013). Poor academic performance can be related to low cognitive skills, because cognition involves the ability to take information, process it, store it, and finally retrieve and use it (Zastrow & Kirst-Ashman, 2013). The cognitive skill of pregnant adolescents depends on their wish and ability to take on the task. Their cognitive skills and life skills are still developing.

Therefore, they need support for continuing their life during pregnancy. Pregnancy is a new experience for them, but they have to be responsible for themselves and their unborn baby, while their peers can play and continue their education. This is certainly a contradictory phenomenon. Hence, theoretically teenage pregnancy is the time when a teenager carries a heavy burden for her age. Therefore, she needs support during her pregnancy from people close to her such as her family and health care providers to encourage and increase her ability to perform maternal roles during her pregnancy (Ricci, 2017).

Support for pregnant adolescents from the people closest is one of the factors that influence the spirit of pregnant adolescents. This support is related to the ability of pregnant adolescents to get through their pregnancy in good health. This support is related to what to eat, how the adolescent's needs are met during her pregnancy (Sieving & Stevens, 2013). Therefore, she should be able to find support whether it be her husband, mother, in-laws or even close friends who may be able to accept all the emotion that comes during an adolescent's first pregnancy. A study by DeVito (2010) described the fact that pregnant adolescents realize that they have many roles as a prospective mother, but on the other hand they very doubtful and afraid to face these roles alone. They need their own mother as they cope with new parenthood. One study from Phahuwatanakom (2003) explained that social support particularly family support had a significant result to improve maternal competencies of a mother in the post partum period. This study explained that as new mothers, they have to learn all about their newborn babies, such as feeding and how to look after the baby (Brian, 2001). Social support is also related to the culture of the husband's responsibility which is believed to be a factor that affects the physical and psychological well-being of

pregnant women (Hesty et al., 2013). Pregnancy is seen as a private matter, and should be personal intervened. In Indonesia, a pregnant woman should be accompanied by her husband when she goes to check up on her health with her healthcare because it can assertain her confidence as a new mother, and it will also increase the close relationship between the mother, baby, and his/her father.

Besides support, pregnant women also need good communication with her husband, parents and even her unborn baby and to maintain relationships to people closest to her. Her mother or nurse is one of the people who teaches a new mother how to communicate with her baby in the womb. Pregnant adolescents need communication with others to improve their health (Miller et al., 2001; Sieving & Stevens, 2013). Good communication is associated with decreasing problems during pregnancy. Two pregnant adolescents said something about this role.

" ...Sometimes I talk to my unborn baby during my busy time. When I am cooking I talk to her. If she moves in my stomach I touch her. I always talk to my unborn baby when I do an activity..." P2

"I had good communication with my husband. He always sent a short message to me just to ask me whether I had already taken lunch or not...." P1

Pregnant adolescents should be able to adapt to living apart from their parents, and to bond and attach with their unborn baby (Ricci, 2017). A pregnant adolescent has to protect herself and her unborn baby from danger such as a miscarriage, anemia, hyperemesis, high blood pressure or other problems that can occur during pregnancy. So a pregnant adolescent needs to take care of herself during her pregnancy in order to be healthy and to have a healthy baby. Two pregnant adolescents narrated.

"I did everything carefully. Washing carefully, cooking carefully and walking carefully. My mother said during pregnancy everything I do should be slowly and carefully...P2

"...I stayed only with my husband ....We rented a house here. I asked my husband to open a motorcycle repair shop here once we were married, because he had experience at that job as an assistant to his brother..." P1

From those reasons above, this factor was the most powerful contributing factor to the self-efficacy of pregnant adolescents to perform maternal roles during pregnancy.

Factor 2: Maintaining health and happiness during their pregnancy

The second factor labeled "getting healthy and happy during pregnancy" was comprised of 22 items with factor loadings ranging from .67- .79 and the percentage of accounted variance was 9.00% as the highest factors with an eigenvalue of 6.67. The internl consistency reliability of Cronbach's alpha was .97, and was acceptable in this scale. This factor had high loading and it contributed to the variables. The name of this factor is "getting healthy and happy during pregnancy." This factor was outcome expectations which described the ability of a pregnant adolescent to achieve particular goals after she had performed some actions.

This factor describes the prospective outcome that will be achieved after they are able to perform some activities during pregnancy. Pregnant adolescents can be healthy and happy if they succeed in performing essential activities during pregnancy such as eating nutritious food, taking vitamins as recommended, exercising regularly, having adequate rest and even make their feeling comfortable. If she wants

to be happy, she has to create some actions to make herself happy. The examples of the items were: “I will have a healthy baby if I am able to follow the health care provider’s suggestions.”, “I will have no complications during pregnancy if I can take good care of myself.”; and “I and my unborn baby will be healthy if I am able to have good nutrition during pregnancy.” These three examples of the items involved the expected goals that pregnant adolescents in Indonesia want to achieve if they want to get healthy during pregnancy. Two samples of individual interviews from participants narrated this factor as below.

“...My husband is glad with my pregnancy. This is our first baby, so I and my husband were rather excited....”P3

“...My mother and father are happy with my pregnancy...My husband makes it easier for me to perform my duties as a housewife at home, that makes me happy. Sometimes he helps me with the cooking, washing, cleaning our house, and even preparing milk for my drink every morning and night...”P8

Indeed pregnancy is a happy event for couples who have planned to have children. Pregnancy is an awaited moment and a mother will try to keep her pregnancy healthy throughout her term so that the baby will be born healthy (Ricci, 2017). The period of pregnancy is also a happy time for the prospective mother. She envisions having a small healthy baby, and that is a dream for a married mother. But this is unlike pregnancy for women who are not ready to have a baby, such as pregnancy in adolescence. Adolescence is a transitional phase, and at this time they are still thinking about their needs, their desires, their ideals and their peers (Pillitteri, 2004). Adolescents need friends, study and other activities to for their growth development. Pregnancy can destroy their ambition. Pregnancy can be a stressful period for

adolescents and even if they have an abortion (Lowdermilk et al., 2010; Ricci, 2013; Scehtter & Tanner, 2012).

In Indonesia, a lot of pregnant adolescents accept their pregnancy. They are married because of economic factors, allowed by religion and traditions or the customs of a region in Indonesia that cause the occurrence of marriage at a young age (BKKBN, 2012). They accept their pregnancy and are happy to go through it with pleasure. Pregnant adolescents are mostly accompanied by their mother during pregnancy in Indonesia. Some of them even stay with their parents. The average Indonesian community embraces the extended family system (three generations in one family), therefore, the involvement of other family members within the family is very influential, and they are happy to undergo this pregnant condition. As adolescents who are pregnant, they try to adjust the activities that are recommended to them to do. They also hope to have a healthy baby. With the various advice they get from the people closest to them such as their mother, midwife, nurses or doctor they will prove that they want to be healthy and happy.

In summary, the components of the SEPMRS-Indonesia consisted of two factors. Factor I was being able to perform essential activities during pregnancy, and factor II was getting healthy and happy during pregnancy. EFA was performed with 60 items of the SEPMRS-Indonesia (factor I = 38 items, and factor II = 22).

2) Psychometric properties of the SEPMRS-Indonesia

The discussion of this section is comprised of three aspects: 2.1) evidence supporting the content validity of the SEPMRS-Indonesia, 2.2) evidence

supporting the construct validity of the SEPMRS-Indonesia, and 2.3) evidence supporting the reliability of this measure.

2.1. Evidence supporting the content validity of the SEPMRS-Indonesia

According to Zangaro & Soeken (2005), the content validity is the most important in scale development. The experts were concerned with evaluating the items from the instrument in terms of the relevance and clarity in representing the concepts underlying the measure's development. The expert who reviews an instrument must from a reelevant field and must be knowledgeable in the content of the study and methodology, because the expert reviews the clarity of the items relevant to the construct of the study. If the items are not clear this can be problematic for the samples' understanding and they would not be able to answer the items. This study used five experts which were lecturers in maternity and child nursing and had experienced in tool development . One expert from Thailand was a lecturer in maternity nursing, and the other one expert in scale development. Both of them were assistant professors. Two experts from Indonesia were from maternity nursing and were knowledgeable in the content of this stuy, and the other was from community nursing. The CVI result was .94 showing an excellent value which demonstrated that the content validity well represented the self-efficacy of pregnant adolescents in perfroming the maternal role. The acceptable value of CVI must be at least .80 for individual predictors (Polit & Back, 2012). Therefore, the CVI is at an acceptable level for the content validity of the scale.

2.2. Evidence supporting the construct validity of SEPMRS-Indonesia

According to DeVellis (2017), the construct validiy is important for any measurement in terms of structural validity. This step was examined by using exploratory factor analysis (EFA) and known group technique in this scale. The EFA offered a satisfactory outcome with two factors and the 60- item of the SEPMRS-Indonesia that served the purpose of this study well. EFA was useful to determine the construct validity.

According to Waltz et al., (2010), to reduce some items and to make parsimony of the factor, the factor loadings can be higher than .30. High factor loadings also represent the factor that is more suitable. All factors had an eigenvalue greater than 1 and most of them accounted for at least 5% of variance which was adequate. Hence, the SEPMRS-Indonesia accounted for 58.85% of the total variance implying the scale captured the construct and attributes of self-efficacy in performing the maternal role concept which was respectable to assess the self-efficacy in performing the maternal role for pregnant adolescents in Indonesia.

For known group technique, the result explained that there was a significant difference between the two groups for construct validity. Thirty respondents were recruited for each of the two groups . The first group was pregnant women who were multipara pregnant adults and the second group was pregnant adolescents with a first-time pregnancy. A sample size of 60 subjects (30 for each group) was used for construct validity evaluation of the SEPMRS-Indonesia scale using the known group technique. The comparison of the mean difference between self-efficacy in performing maternal role scores of the two groups indicated that the first group represented a higher score of self-efficacy in performing the maternal role than the second group. The t-test result indicated that the mean score of the SEPMRS-Indonesia of both groups had a

statistically significant difference (p = 0.03). As stated by Rubio et al., (2003), a high degree of construct validity is gained when the scores of dissimilar groups are very different on items that have high relevanve to one group but not the other. The study results showed that most items of the adapted questionnaire were different between the groups. The results supported that the construct validity of the SEPMRS-Indonesia.

2.3. Evidence supporting the reliability of this measure

There were two types of tests to test the reliability which were internal consistency reliability and stability reliability of the SEPMRS-Indonesia. Cronbach's alpha coefficient was used to assess the internal consistency in the three activities of pre-test, field test, and additional testing. The result of reliability showed the Cronbach's alpha coefficient total of the pre test was .97, field test .98 for two factors, the test-retest also showed agreement between two time measures at an acceptable level, which ranged from .97 to .99. The total result of the stability of the SEPMRS-Indonesia was also higher than .7 ($\acute{\alpha}$ = .99) which is a highly acceptable internal consistency for a newly constructed instrument. According to DeVellis (2017), a research scale that achieves an alpha between 0.80 and 0.90 is very good. The overall internal consistency of the SEPMRS with 60 items as final items showed a satisfactory Cronbach's alpha at level .98 and .99, respectively.

In the stability test of SEPMRS-Indonesia using the test-retest method, the results of the total scores of the SEPMRS-Indonesia in two separatetimes of a two week interval correlated (r = .99, p<.001). These findings mean the scores remained constantfrom one event to another and the SEPMRS-Indonesia indeed reflects important construct because it could evaluate (the proportional- what? Noun missing) at separate times

(DeVellis, 2017). Furthermore, the SEPMRS-Indonesia had demonstrated evidence support for the stability of this newly developed tool.

Summary

This study aimed to develop the self-efficacy of pregnant adolescents in performing the maternal role in a first time pregnancy scale and to determine its psychometric properties. The SEPMRS-Indonesia provides adequate psychometric properties as a standard newly constructed tool. In addition, it also integrated with the Indonesian culture related to pregnancy which is suitable to measure the self-efficacy of pregnant adolescents to perform roles as an impending mother in Indonesia. The process of the development of this tool was integrated from the literature review and individual interviews to obtain the themes related to the theory and concept of this scale. Both of the processes gained the components which emerged into seven domains consisting of; 1) safe passage for herself and unborn baby during pregnancy, 2) establishing relationship with husband and unborn baby, 3) seeking support for maternal and unborn baby's health, 4) seeking companionship and strategies to deal with problems during pregnancy, 5) empowering husband to earn money for maternal and unborn baby's health, 6) being healthy mom and unborn baby, and 7) having good feelings and happiness during her pregnancy. The developed items have been yielded by integration with the Indonesian context for 78 items.

The research questions of this study were answered by the results as folllowing:

Question one: What were the appropriate components of self-efficacy in performing the maternal role scale for pregnant adolescents with a first time pregnancy in Indonesia?

The results obtained two factors consisting of 60 items with high internal consistency reliability of Cronbach's alpha coefficient at level .98 and 58.85% of the total variance explained. These two factors are explained as follows.

Factor 1: being able to do the essential activities during pregnancy which consisted of 38 items with factor loadings ranging from .46 - .80 and accounted for 49.85% of variance with an eigenvalue of 31.40.

Factor 2: maintaining healthy and happiness during their pregnancy which consisted of 22 items with factor loadings ranging between .67 - .79 and accounted for 9.00% of variance with an eigenvalue of 5.67.

Question two: How valid and reliable was the newly developed self-efficacy in performing the maternal role scale for pregnant adolescents with a first time pregnancy in Indonesia. (SEPMRS-Indonesia scale)?

The result of the Content Validity Index (CVI) was .94 which showed that the content of SEPMRS-Indonesia was good and reflects the self-efficacy of pregnant adolescents in performing the maternal role domains. The construct validity of the 60-items by using EFA showed moderate to high factor loadings (.46 to .80), an eigenvalue greater than one, and total variance was explained as 58.85%.

The reliability test, and the internal consistency were examined for the pre-test, field test and additional testing and the overall total Cronbach's alpha coefficient was .98. The results explained the homogeneity and high item-total

correlation of the items of the SEPMRS-Indonesia scale. The study also used the test-retest method to examine the correlation of the SEPMRS-Indonesia scale. The result of test-retest showed that the correlation of the total factors of the SEPMRS-Indonesia was significant (r =.99, $p< .01$).

Therefore, the SEPMRS-Indonesia scale has qualified psychometric properties and it is a newly developed standard construct tool which can be integrated within the Indonesian culture context. Additionally, the SEPMRS-Indonesia scale could be utilized in maternity nursing to measure the self-efficacy that reflects the efficacy expectations and outcome expectations of pregnant adolescents to perform the maternal role during their pregnancy.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This chapter describes the conclusions, summary of the results, the strengths and limitations of the study, and recommendations for future studies.

Conclusions

The two purposes of this study were: 1) to develop a scale for measuring self-efficacy in performing the maternal role for Indonesian pregnant adolescents in their first-time pregnancy, and 2) to assess the validity and reliability of self-efficacy in performing the maternal role scale for pregnant adolescents in their first time pregnancy in Indonesia.

This study recruited 630 Indonesian pregnant adolescents with a first-time pregnancy from the following four provinces in Indonesia: Riau Province, West Java Province, Central Java Province, and West Nusa Tenggara Province. Particularly in Riau Province, this study collected the data from twenty community health centers in Pekanbaru city and three districts which were: Pelalawan, Bangkinang and Dumai. Finally, 300 respondents were obtained from Riau Province (48%), 130 respondents from West Java Province (20%), 100 respondents from West Nusa Tenggara Province (16%), and 100 from Central Java Province (16%). After checking outliers, 28 data deleted (*p*value > .001). Finally there were 602 samples met the criteria of this study.

The SEPMRS-Indonesia scale composed of 60-items with two factors. Factor I reflected to efficacy expectations and factor II reflected to outcome

expectations). The total of Cronbach's alpha was .98 with a total variance explained of 58.85%, the range of factor loadings was from .46 to .80.

The Summary of the Results

The results of this study obtained two factors consisted 60 items which reflect to efficacy expectations and outcome expectations with high internal consistency reliability of Cronbach's alpha coefficient at level .98 and 58.65% of the total variance explained. The following description provides the results of two factors of SEPMRS-Indonesia as follows.

Factor 1: being able to perform essential activities during pregnancy has 38 items, and it has a factor loading ranging between .46 - .80 and the presence of variance accounted for 48.85% with an eigenvalue of 31.40. This factor explains the ability of a pregnant adolescent to do the essential activities during pregnancy.

Factor 2: maintaining health and happiness during pregnancy has 22 items, and it has a factor loading ranging between .67 - .79 and accounted for 9.02% of variance with an eigenvalue of 5.67. This factor explains the ability of a pregnant adolescent to achieve the prospective outcome to be healthy and happy during pregnancy.

In addition, the psychometric properties of the SEPMRS-Indonesia verified a valid and reliable measurement to evaluate an Indonesian pregnant adolescent's self-efficacy in performing the maternal role. For validity, the results of the exploratory factor analysis with the total sample score (N=602) supported the construct validity of the SEPMRS-Indonesia. Hence, the results of the contrast group

technique used Pearson Product-Moment correlations between pregnant adolescents in their first-time pregnancy and multipara pregnant adults. Cronbach's alpha coefficient results and the test-retest result supported the internal consistency and stability of the SEPMRS-Indonesia for reliability. The Cronbach's alpha of each two factors were .97 and .98 respectively, and the total score of the scale was .98.

The Strengths and Limitations of the Study

The Strengths of the Study

1. This was a qualitative study which was integrated with the theory of self-efficacy from Bandura (1977) and the concept of the maternal role from Rubin (1984). The new domains from the qualitative study are based on the real situation in the Indonesian context. Rubin's concept of the maternal role was developed many years ago and is applicable in all trimesters of pregnancy in Western pregnant adults, while this instrument measures the ability of pregnant adolescents to perform their role as a mother when they are pregnant so it differs from the concept of the mother's role by Rubin. The interview of Indonesian pregnant adolescents were systematically processed and straightened. Before conducting the interviews, the guideline was checked by an expert in qualitative study. The findings specifically contribute to nursing knowledge related to promoting health in self-efficacy of pregnant adolescents in performing the maternal role and also for scale development

2. The methodology followed the scale development guidelines from DeVellis (2017). The study used a strong methodology for qualitative and also quantitative methods. This method sustained the researcher to obtain the real

phenomenon of pregnant adolescents in Indonesia. Additionally, the comparison of the subjects per item in the study was 1:10. Due to the 63 total items, the study used 630 respondents. This ratio was more than an adequate sample as suggested by Tinsley and Tinsley (1987). Hence, all of the SEPMRS-Indonesia scale was suitable and effective for use in the Indonesian context.

3. The results of the studies explored the efficacy of pregnant adolescents in preforming their roles as a prospective mother in their first-time pregnancy. Hence, the validity and reliability testing showed that this newly developed scale can be used to measure the self-efficacy in performing the maternal role in pregnant adolescents in the Indonesian context.

4. This study developed the self-efficacy of pregnant adolescents in performing the maternal role particularly in the Indonesian pregnant adolescent context. The previous scale focused on western culture and only developed one aspect of the maternal role in pregnant women in general. Hence, this newly developed instrument was very useful to measure the efficacy of pregnant adolescents in performing maternal roles during pregnancy.

5. This study was conducted in four provinces in Indonesia with help provided by the health care providers. They helped to distribute the questionnaires to the districts. For instance, in Riau the questionnaires were distributed to the three districts which had the highest number of pregnant adolescents. Before the questionnaires were distributed, the health care providers asked the head of the City Health Department about the data of the pregnant adolescents. In Pekanbaru city, the data of the respondents was obtained from 20 community health centers. Each community health center contributed to 10-20 respondents minimally.

The Limitations of the Study

However, every study has limitations. Although the study results were valid and reliable and can be used generally, this study has limitations as well which are outlined in the following.

1. This study was conducted only in four provinces from 34 provinces in Indonesia. It cannot be concluded whether these 4 provinces can represent the whole of Indonesia. There was difficulty to access people who can help to find respondents who are pregnant adolescents, hence the limitation in the number of provinces. The researcher had also tried to find samples in one metropolitan city in Indonesia which has high pregnancy rates. It is allowed administratively, but in the field of obtaining data from nurses in the health centers in Jakarta this proved very difficult. Many pregnant teenagers stop their pregnancy because they still want to continue school and some pregnant adolescents do not want to attend a health center or hospital to check up on their pregnancy. So there was no data related to the teenagers who were pregnant in that city.

2. Most of the respondents were Muslim (99%) and married. Islam allows marriage at a young age if the adolescents are ready. It means that the readiness to have children is on average already planned. The demographic data was contrary to the various studies that showed that pregnant teenagers were unable to perform the roles of a mother to have a baby. It may be necessary to look for more diverse samples to look at the usefulness of the instrument that is more general to all pregnant adolescents within marriage or outside of marriage.

Recommendations

The following sentences state the recommendations of the newly developed scale for policy implication, nursing education, and nursing practice, presented as follows.

1. For policy implication, the information gained from this study may be useful for the Indonesian government to implement help for pregnant adolescents in preparing to be a new mother and can help in creating a good program to improve the health of pregnancy adolescents in Indonesia via a community health center program.

2. For nursing education, this scale contributes to formulate new knowlege that can be used to support nursing students to learn more about the types of problems that occur in pregnant adolescents such as how they prepare for labor, their experience in labor or other types of problems that occur specifically in adolescents who have given birth.

3. For nursing practice, the findings are useful for nurses, midwives or other health care providers to assess the ability of pregnant adolescents in performing the maternal role and to help in creating appropriate strategies to improve pregnant adolescents' abilities to perform their roles in a first-time pregnancy.

References

Aikins, A. G. (2014). Food beliefs and practices during pregnancy in Ghana: Implications for maternal health interventions. *Health Care for Women International, 35*, 954-972.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Erlbaum.

Alan Guttmacher Insitute (2012). *Facts on American teens's sexual and reproductive health*. Retrieved from http://www.guttmacher.or/pubs/FB-ATSRH.html.

AlBuhairan, F., Areemit, R., Harrison, A., & Kaufman, M. (2012). Adolescent psychosocial development and evaluation: Global perspectives. *Complementary Pediatrics*. Retrieved from www.intechopen.com, 179-202.

Aruda, M. M., Waddicor, K., Frese, L., Cole, J. C. M., & Burke, P. (2010). Early pregnancy in adolescents: Diagnosis, assessment, options counseling, and referral. *Journal of Pediatric Health Care*, *24*(1), 1-10.

Statistics Indonesia & Macro International. (2008). *Indonesia demographic and health survey 2007*. Calverton, Maryland, USA: Retrieved from https://dhsprogram.com/pubs/pdf/FR218/FR218[27August2010].pdf.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, *31*, 143–164.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.

Bandura, A. (1986). *Social foundations of thought and action*. Upper Saddle River, NJ: Prentice Hall.

Bandura, A. (1983). Self-efficacy determinants of anticipated fears and calamities. *Journal of Personality and Social Psychology, 45*, 464-469.

Bandura, A. (1977). Self-efficacy: Toward an-unifying theory of behavior change. *Psychological Review, 84*, 191-215.

Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology, 41*, 586-598.

Bandura, A., & Wood, R. E. (1989). Effect of perceived controllability and performance standards on self-regulation of complex decision-making. *Journal of Personality and Social Psychology, 56*, 805-814.

Bankole, A., & Malarcher S. (2010). Removing barriers to adolescents' access to contraceptive information and services. *Study Family Planning*; 41(2), 117-124.

Belsky, J., & Kelly, J. (1994). *The transition to parenthood: How a first child changes a marriage.* Vermillion: London.

Bernstein, I. H., Rush, A. J., Thomas, C. J., Woo, A., & Trivedi, M. H. (2006). Item response analysis of the inventory of depressive symptomatology. *Neuropsychiatric Disease and Treatment*, *2*(4), 557-564.

Bobak, I. M., Jensen, M. D., & Zalar, M. K. (1989). *Maternity and gynecologic care* (4th ed.). The C.V. Mosby Co.

BKKBN (2012). Study of early marriage in several provinces in Indonesia: The impact of over population, the root of the problem and the role of institutions in the

area (*Kajian pernikahan dini pada beberapa provinsi di Indonesia: Dampak overpopulasi, akar masalah dan peran kelembagaan di daerah). Pokja Analisis Dampak Sosial Ekonomi terhadap Kependudukan, Ditdamduk,* 1-29.

Bland, H. W., Melton, B. F., Marshall, E. S., & Nagle, J. A. (2013). Measuring exercise self-efficacy in pregnant women: Psychometric properties of the pregnancy-exercise self-efficacy scale (P-ESES). *Journal of Nursing Measurement, 2*1(3), 349-359.

Brislin, R. W. (1986). The wording and translation of research instrument. In W. J. Lonner & J. W. Berry (Eds), *Field method in cross-cultural research* (pp. 137-164). Beverly Hills, NP: Sage.

Brian, S. R. (2001). Women in medicine. *American Family Physician, 64 (1),* 174-177.

Burns, N., & Grove, S.K. (2005). *The practice of nursing research conduct, critique, & utilization* (5th ed). Philadelphia: WB Saunders Company.

Callister, L. C., Julkunen, V. K., & Lauri, S. (1996). Cultural perceptions of childbirth: a cross-cultural comparison of childbearing women. *Journal Holistic Nursing, 14*(1), 66-78.

Casey, B. J., Rebecca, M., Jones, R. M., & Hareb, T. A. (2008). The adolescent brain. *Annals of the New York Academy of Sciences*, 1124, 111–126.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1,* 245-276.

Chrzan, J. A. (2008). *Social support and nutrition during adolescent pregnancy: Effects on health outcomes of baby and mother* (Doctoral dissertation). Available from ProQuest Dissertations & Theses Global.

Christofides, N. J., Jewkes, R. K., Dunkle, K. L., Nduna, M., Shai, N. J., & Sterk, C. (2014). Early adolescent pregnancy increases risk of incident HIV infection in the Eastern Cape, South Africa: A longitudinal study. *Journal International AIDS Society*, *17-19*.

Cohen, M. I. (1998). Adolescence 11-21 years. Department of Pediatrics, Albert Einstein College of Medicine.*http://brightfutures.org/bf2/pdf/pdf/AD.pdf.*

Cooper, J. S. (2010). Psychometric testing of cooper parental self-efficacy scale-child health behavior. (Doctoral Dissertation, University of Mississippi Medical Center Jackson, Mississippi).

Costello, A.B., & Osborne, J.W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research and Evaluation*, *10*(7), 1-9.

Cote, J. (1984). *The identity crisis: A formulation and empirical test of Erikson's theory of ego identity formation*. (Doctoral dissertation, York University). ProQuest. Retrieved from file:///D:/book20OF%20maternity/Erikson%20the%20identitiycrisis.pdf**.**

Crockenberg, S. (1987). Predictors and correlates of anger toward and punitive control of toddlers by adolescent mothers. *Child Development*, *58*, 964-975.

Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods, 1*, 16–29.

David, L., DuBois., Michael J., & Karcher. (2005). *Handbook of youth mentoring*. London: Sage Publication.

D'Angelo, D. V., Gilbert, B. C., Rochat, R. W., Santelli, J. S., & Herold, J. M. (2004). Differences between mistimed and unwanted pregnancies among women who have live births. *Perspectives* on *Sexual* and *Reproductive Health, 36,* 192-197.

De Bruyn, M., & Packer, S. (2004). Adolescents, unwanted pregnancy and abortion. Policies, counseling and clinical care. *Chapel Hill, NC, Ipas,* 1-56. ISBN: 1-882220-70-6.

DeCoster, J. (1998). Overview of factor analysis. Retrieved from http://www.stat-help .com/notes.html.

Dennis, C. L., Heaman, M., & Mossman, M. (2011). Psychometric testing of the breastfeeding self-efficacy scale-short form among adolescents. *Journal of Adolescent Health, 49,* 265–271.

Department of Health (2008). *The 2003 South African demographic and health survey*. Pretoria: South African Department of Health.

DeVellis, R.F. (2017). *Scale development: Theory and application* (4th ed.). Thousand Oaks, CA: Sage Publication.

DeVito, J. (2007). Self-perceptions of parenting among adolescent mothers. *The Journal of Perinatal Education*, *16*(1), 16–23.

DeVito, J. (2010). How adolescent mothers feel about becoming a parent. The *Journal of Perinatal Education, 19*(2), 25–34.

DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., & Lazzara, D. J. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship*, *39*(2), 155-164.

Dixon, J. (1997). Grouping techniques. In *statistical methods for health care research* (3rd ed., pp. 310-332). Philadelphia: Lippincott Williams & Wilkins.

Dobrzykowski, T., & Stern, P. (2003). Out of sync: A generation of first-time mothers over 30. *Health Care Women International*, *24*(3), 242-53.

Doth, R. C. M., Ximenes, L. B., Almeida, P. C., Oria, M. O. B., Lee Dennis, C. (2012). Psychometric and maternal socio-demographic assessment of the breastfeeding self-efficacy scale - short form in a Brazilian sample. *Journal of Nursing Education and Practice*, *2*(3), 66-73.

Dunst, C., Trivette, C., & Deal, A. (1988). *Enabling and empowering families*. Boston, MA: Cambridge Books.

Dyrbye, N. D., Szydlo, D. W., Downing, S. M., Sloan, J. A., & Shanafelt, T. D. (2010). Development and preliminary properties of well-being index for medical students. *British Journal of Medical Education*, *10*(8), 2-9).

East, P. L., Matthews, K. L., & Felice, M. E. (1994). Qualities of adolescent mothers' parenting. *Journal of Adolescent Health*, *15*(2), 163-168.

Erika., Nongnut, B., Chunuan, S. (2017). The maternal role performance among Indonesian pregnant adolescents. *Songklanagarind Journal of Nursing*, 37 (Supplement), 80-88.

Erikson, E. H. (1987). *Childhood and Society*. New York: W.W.Norton.

Erikson, E. H. (1982). *The life cycle completed*: A review. New York: Norton.

Ferketich, S. (1990). Internal consistency estimates of reliability. *Research in Nursing & Health*, 13, 437-440.

Furstenberg, F., Brooks-Gunn, J., & Morgan, S. (1987*). Adolescent mothers in later life.* New York: Cambridge University Press.

Ganchimeg, T., Mori, R., Ota, E., Koyanagi, A., Gilmour, S., Shibuya., . . . Souza, J. P. (2013). Maternal and perinatal outcomes among nulliparous adolescents in

low- and middle-income countries: a multi-country study. *International Journal of Obstetrics & Gynaecology*, *120*, 1622–1630.

Gersuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Grant, M. J., & Hallman, K. K. (2008). Pregnancy-related school dropout and prior school performance in Kwa Zulu-Natal, South Africa. *Studies in Family Planning*, *39*(4):369-382.

Grice, J. W. (2001). A comparison of factor scores under conditions of factor obliquity. *Psychological Methods*, *6*, 67-83.

Grossman, F. K., Eichler, L. S., & Winickoff, S. A. (1980). *Pregnancy, birth and parenthood*. San Francisco, CA: Jossey-Bass.

Gueorguieva, R. V., Carter, R. L., Ariet, M., Roth, J., Mahan, C. S., & Resnick, M. B. (2001). Effect of teenage pregnancy on educational disabilities in kindergarten. *American Journal of Epidemiology*, *154*(3), 212-220.

Guimond, A. B., Wilcox, M. J., & Lamorey, S. G. (2008). The early intervention parenting self-efficacy scale (EIPSES): Scale construction and initial psychometric evidence. *Journal of Early Intervention*, *30*, 295-320.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.), Prentice Hall, Upper Saddle River, New Jersey.

Hanzak, E. A. (2005) *Eyes without sparkle: A journey through postnatal illness*. Oxford Radcliffe Publishing.

Hasson, D., & Arnetz, B. (2005). Validation and findings comparing VAS vs Likert Scales for psychosocial measurements. *International Electronic Journal of Health Education*, *8*, 178-192.

Hatfield, N.T. (2014). *Introductory maternity and pediatric nursing* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.

Hesty, Rahman, M. A., & Suriah. (2013). *Pregnancy Care Concepts in Pregnant Women Ethnic Bugis in Buareng Village Kajuara Sub-District Bone District 2013* (Konsep perawatan kehamilan etnis Bugis pada ibu hamil di desa Buareng Kecamatan Kajuara Kabupaten Bone tahun 2013). Fakultas Kesehatan Masyarakat Universitas Hassanuddin. Retrieved from https://mafiadoc.com/konsep-perawatan-kehamilan-etnis-bugis-pada-ibu-_5a2c57a81723dd6ace79d254.html.

Ho, R. (2014). *Handbook of univariate and multivariate data analysis with IBM SPSS* (2nd ed.). Boca Raton, CRC Press, NY: New York.

Homzah, S., & Sulaeman, M. (2007). *Motif (driving factor) and perception of early marriage of rural teenagers in West Java* (Motif dan persepsi kawin usia muda pada remaja pedesaan di Jawa Barat). Paper presented at the Tenth *Seminar Kebudayaan Indonesia-Malaysia*, *Bandung*. Retrieved from http://repository.unpad.ac.id/18664/1/Motif-Faktor-Pendorong-Dan-Persepsi-Kawin-Usia-Muda.pdf.

Jacobson, S. F. (2004). *Evaluating instrument for use in clinical nursing research* Instruments for clinical health care research. In Frank-Stromborg M, Olsen, S. J. (eds). Instruments for Clinical Health Care Research (3nd ed.). Boston: Jones & Bartlett.

Jamieson, S. (2004). Likert scales: How to abuse them. *Medical Education*, *38*(12), 1217-1218.

Jordan, J. V. (1994). *A relational perspective on self-esteem.* Wellesley, MA: Stone Center.

Kaiser, M. M. (2002). *Transition to Motherhood in Adolescence: The Development of the Adolescent Prenatal Questionnaire*. (Doctoral d*issertation,* University of Nebraska). Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/14742107.

Kantaruksa, K. (2001). *Transition experiences of Thai women during their first pregnancy*. (Unpublished doctoral dissertation). Chiang Mai University, Thailand.

Kempler, L., Sharpe, L., & Bartlett, D. (2012). Sleep education during pregnancy for new mothers. *BMC Pregnancy and Childbirth*, *12*(155).

Klaus, M., & Kennell, J.H. (1982). *Parent-infant bonding* (2nd ed.). Springfield, Missouri: Mosby.

Kline, P. (2000). *The handbook of psychometric testing* (2nd ed.). New York, NY: Routledge.

Kline, T. J. (2005). *Psychological testing: A practical approach to design and evaluation*. Thousand Oaks, CA: Sage.

Knapp, T. R. (1998). Comments on the statistical significance testing articles. *Research in the Schools*, *5*(2), 39-41.

Krosnick, J. A., & Fabriger, L. R. (1997). Designing rating scales for effective measurement in surveys. In L. Lyberg, P.Biemer, M. Collins, L. Decker, E. DeLeeuw, C. Dippo, N. Schwarz, & D. Trewin (Eds), *Survey measurement and process quality* (pp. 141-164). New York, NY: Wiley-Inter-science.

Lederman, R., & Weis, K. (2009). *Psychosocial adaptation to pregnancy: Seven dimensions of maternal role development* (3rd ed.). Churchill Livingstone (Springer Publishing). London-NewYork.

Lee, J. M. (2007). Weight status in young girls and the onset of puberty. *Pediatrics, 119*(3), e624-e630.

Leight, K. L., Fitelson, E. M., Weston, C. A., & Wisner, K. L. (2010). Childbirth and mental disorders. *International Review of Psychiatry, 22*, 453-471.

Leininger, M. (1985). Transcultural care diversity and universality: A theory of nursing. *Nursing and Health Care, 6*(4), 209-212.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Lindqvist, M., Lindkvist, M., Eurenius, E., Persson, M., Ivarsson, A., & Mogren, I. (2016). Leisure time physical activity among pregnant women and its associations with maternal characteristics and pregnancy outcomes. *Sex Reproductive Health*, 9, 14-20.

Littleton, L., & Engebretson, J. C. (2002). *Maternal, neonatal, and women's health nursing*. The United States of America: Thomson Learning.

Lowdermilk, D. L., Perry, S. E., & Cashion, K. (2010). *Maternity nursing* (8th ed.). Elsevier. Mosby.

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research, 35*, 382-385.

Martell, L. K. (2001). Heading toward the new normal: A contemporary postpartum experience. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 30*, 496–506.

Marteleto, L., Lam, D., & Ranchhod, V. (2008). Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Study Family Planning, 39,* 351-368.

McDowell, M. A., Brody, D. J., & Hughes, J. P. (2007). Has age at menarche changed? Results from the National Health and Nutrition Examination Survey (NHANES) 1999-2004. *Journal of Adolescent Health, 40*(3), 227-231.

Mchunu, G., Eltzer, K., Tutshana, B., & Seutlwadi, L. (2012). Adolescent pregnancy and associated factors in South African youth. *African Health Sciences, 12*(4), 426-434.

Meighan, M. (2010). *Maternal role attainment-becoming a mother*. In M. R. Alligood & A.M. Tomney (Eds.), Nursing theories and their work (7th ed.). Maryland Heights, MO: Mosby.

Mercer, R. T. (1995). *Becoming a mother: Research on maternal identity from Rubin to the present*. New York: Springer Publishing Company, Inc.

Mercer, R. T. (2004). Becoming a mother versus maternal role attainment. *Journal of Nursing Scholarship, 36*(3), 226–232.

Mercer, R. T. (1985). The process of maternal role attainment over the first year. *Nursing Research, 34*(4), 198-204.

Mercer, R. T., (1986). Predictors of maternal role attainment at one year post birth. *Western Journal of Nursing Research*, *8*(1), 9-32.

Mercer, R. T., & Walker, L. O. (2006). A review of nursing interventions to foster becoming a mother. *Journal of Obstetetric, Gynecologic & Neonatal Nursing*, *35*(5), 568-582.

Mercer, R. T., & Ferketich, S. L. (1994). Predictors of maternal role competence by risk status. *Nursing Research, 43*(1), 38-43.

Mercer, R. T., & Ferketich, S. L. (1994). Maternal-infant attachment of experienced and inexperienced mothers during infancy. *Nursing Research, 43*(6), 344-351.

Meyers, S. E. (2010). *Maternal role & high-risk pregnancy experience with antepartum hospitalization*. (Doctoral Dissertation, The University of Texas) .Retrieved from https://search.proquest.com/docview/856589959.

Miller, B. C., Benson, B., & Galbraith, K. A. (2001). Family relationships and adolescent pregnancy risk: A research synthesis. *Developmental Review,* 21, 1–38.

Ministry of Health, RI. (2012). *The situation of adolescent reproductive health* (Situasi kesehatan reproduksi remaja). Infodata. Retrieved from www.depkes.go.id/download.php/infodatinrep.

Ministry of Health, RI. (2010). Guidelines for monitoring local areas of maternal and child health *(*Pedoman pemantauan wilayah setempat kesehatan ibu dan anak*)*. Kementerian Kesehatan Republik Indonesia). Direktorat Jendral Bina Kesehatan Masyarakat Direktorat Bina Kesehatan Ibu. Jakarta. Retrieved from *http://www.akbidmuhammadiyahmadiun.ac.id/backsite/file_download/Pedoman-PWS-KIA.pdf*.

Ministry of Health (2007). *National action plan for food and nutrition in 2006 -2010*. Jakarta.

Mirghafourvand, M., Charandabi, S.M., Jafarabadi, M. A., & Fat, F. (2016). Psychometric properties of maternal self-efficacy questionnaire in a population of Iranian mothers. *Journal of Child and Family Studies, 25*(10), 2966–2971.

Mothiba, T. M., & Maputle, M. S. (2012). Factors contributing to teenage pregnancy in the Capricorn district of the Limpopo Province. *Journal of the Democratic Nursing Organization of South Africa*, *35*(1).

Mumah, J, Kabiru, C. W, Izugbara, C., & Mukiira, C. (2014). Coping with unintended pregnancies: Narratives from adolescents in Nairobi's slums. STEP UP (Strengthening Evidence for Programming on Unintended Pregnancy). *Research Report Nairobi: African Population and Health Research Center*, 1-28.

Munro, B. H. (2005). *Statistical methods for health care research* (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Murray, S. M., & McKinney, E. S. (2014). *Foundations of maternal-newborn and women's health nursing* (6th ed.). Sounders Elsevier. Marryland Heights, Missouri.

Murtianingsih & Karjono, M. (2014). The causes of early marriage among adolescents in the coastal areas of Kuta Central Lombok (*Penyebab terjadinya pernikahan dini pada remaja di daerah pesisir panta kuta Kabupaten Lombok Tengah*). *Media Bina Ilmiah, 8(7),* 34-37.

Mushwanaa, L., Monarenga, L., Richterb, S., & Muller, H. (2015). Factors influencing the adolescent pregnancy rate in the Greater Giyani Municipality, Limpopo Province – South Africa. *International Journal of Africa Nursing Sciences, 2,* 10-18.

Nag, M. (1994). Beliefs and practices about food during pregnancy. *Economic and Political Weekly*, 2427-2438.

Naphapunsakul, M. (2006). *A causal model of maternal role performance in transition in being the first time mother*. (Doctoral dissertation, Prince of Songkla University, Thailand). Retrieved from file:///C:/Users/Downloads/46422-107190-1-PB.pdf.

Nicolini, D., Powell, J., Conville, P., & Solano, L. M. (2008). Managing knowledge in the healthcare sector. A review. *International Journal of Management Reviews*, *10*, 245–263.

Noseff, J. (2014). Theory usage and application paper: Maternal role attainment. *International Journal of Childbirth Education*, *29*(3), 58-61.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory (3rd ed.)*. New York McGraw-Hill.

Olukunle, O. (2007). *Adolescents' transition: The challenges and the way out (African perspectives)*. Poster Presentation at the 5 African Population conference Arusha, Tanzania.

Omarsari, S., & Djuwita, R. (2008). Kehamilan pranikah remaja di Kabupaten Sumedang (Adolescent premarital pregnancy in Sumedang). *Journal of National Community Health*, *3*(2), 57-64.

Ormrod, J. E. (2006). *Educational psychology: Developing learners* (5th ed.). Upper Saddle River, N.J.: Pearson/Merrill Prentice Hall.

Orshan, S.A. (2008). *Maternity, newborn, and women's health nursing*. Philadelphia: Lippincott Williams & Wilkins.

Pajares, F. (1997). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.). *Advances in motivation and achievement*. Greenwich, CT: JAI Press, *10*, 1-49.

Pajares, F., & Schunk, D. H. (2001). Self-beliefs and school success: Self-efficacy, self-concept, and school achievement. In R. Riding & S. Rayner (Eds.), *Self-perception*. London: Ablex Publishing.

Pender, N. J. (2011). Heath Promotion Model manual. Michigan, United State: University of Michigan. [Cited 23 January 2017]. *Available from: www. https://deepblue.lib.umich.edu/bitstream/handle/2027.42/85350/HEALTH_PROMOTION_MANUAL_Rev_5-2011.pdf.*

Perry, S. E., Hockenberry, M.J., Lowdermilk, D.L., & Wilson, D. (2010). *Maternal child nursing care* (4th ed.). Elsevier: Mosby.

Pett, M., Lackey, N. & Sullivan, J. (2003). *Making sense of factor analysis.* Thousand Oaks: Sage Publications, Inc.

Pett M. A. (1997). *Non-parametric statistics for health care research*. London: SAGE Publications.

Phahuwatanakom, W. (2003) *The relationships between social support, maternal employment, postpartum anxiety, and maternal role competencies in Thai primiparous mothers*. (Doctoral dissertation). Washington DC. Catholic University of America). Retrieved from http://sunzi.lib.hku.hk/ER/detail/hkul/2982863.

Phyllis, C., & Lepprt, M. D. (1984). *Primary care for women (2nd ed.)*. Women & Health; Old Westbury.

Pickhardt, C. E. (2010). *Adolescence and emotion*. https://www.psychologytoday.com/blog/surviving-your-childs-adolescence/201007/adolescence-and-emotion.

Pillitteri, A. (2014). *Maternal and child health nursing: Care of the childbearing and childrearing family*. Philadelphia: Liipincott Williams & Wilkins.

Police Brief (2011). The marriage in young age for women: Why? (Perkawinan muda di kalangan perempuan: Mengapa?). *Pusat Penelitian dan Perkembangan Kependudukan-BKKBN*, *1*(6), 1-4.

Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed). Philadelphia, PA: Wolters Kluwer.

Polit, D. F., & Hungler, B. P. (1999). *Nursing research: Principles and methods*. Philadelphia: Lippincott.

President of Indonesia (1974). Law of the Republic of Indonesia Number 1 Year 1974 About Marriage (Undang-undang Republik Indonesia Nomor 1 Tahun 1974 Tentang Perkawinan). *https://sdm.ugm.ac.id/web/sk/1974_UU-1-TAHUN-1974_PERKAWINAN.pdf*.

Rachmawati, J. K. (2014). Penerimaan diri remaja hamil pra-nikah (Acceptance of premarital teenage pregnancy). Universitas pendidikan Indonesia (University of Education of Indonesia). Perpustakaan .upi.edu. *http://repository.upi.edu/6359/4/S_PSI_0906283_Chapter%201.pdf.*

Ricci, S. S., Kyle, T., & Carman, S. (2017). *Maternity and pediatric nursing* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.

Ricci, S. S. (2017). Essentials of maternity, newborn, and women's health nursing (4th ed.). Philadelphia: Lippincott Williams & Wilkins.

Riesch, S., Anderson, L., Pridham., K., Lutz, K., & Becker. (2010). Furthering the understanding of parent-child relationship: A nursing scholarship reviews series. Part 5: Parent-adolescent and teen parent-child relationship. *Journal for Specialists in Pediatric Nursing. 15*(3), 182-201.

Robertson, E., & Lyons, A. (2003). Living with puerperal psychosis: A qualitative analysis. *Psychology & psychotherapy: Theory, Research and Practice, 76*(4), 411-431.

Ross, L. E., & McLean, L .M. (2006). Anxiety disorders during pregnancy and the postpartum period: a systematic review. *Journal of Clinical Psychiatry*, *67*, 1285–1298.

Ross, S., Baird, A. S., & Porter, C. C. (2014). Teenage pregnancy: Strategies for prevention. *Obstetric, Gynaecology and Reproductive Medicine*, 24-29.

Rubin, R. (1984). *Maternal identity and the maternal experience*. New York: Springer.

Rubin, R. (1975). Maternal tasks in pregnancy. *Journal of Maternal Child Nursing*, *4*(3), 143-153.

Rubin, R. (1977). The role of context in information seeking and impression formation. *Communication Monographs*, *44*, 81-90.

Rubin, R. (1967). Attainment of the maternal role: Part I. Processes. *Nursing Research*, *16*(3), 237-245.

Rubio, D. M., Weger, M.B., Tebb, S.S., Lee, S., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. *Social Work Research, 27*(2), 94–104.

Rummel, R. J. (1970). *Applied factor analysis.* Evanston, IL: Northwestern University Press.

Russel, K. (2006). Maternal confidence of first-time mothers during their child's infancy. *Dissertation.* Georgia State University. Retrieved from *http://scholarworks.gsu.edu/nursing_diss.*

Saha, R. (2017). Negative side effects of teen pregnancy on society. *Mom & Junction*. Retrieved from *http://www.momjunction.com/articles/effects-of-teen-pregnancy-on-society_00384725/#gref*.

Salkind, N. J. (2007). *Encyclopedia of measurement and statistics*. California: SAGE Publications.

Samantaray, P. (2010). *Continuum of maternal and neonatal care: None or all*?" Presented on 42nd Asia Pacific Academic Consorsium Public Health. Denpasar.

Sandelowski, M. (2005). Sample size in qualitative research. *Research in Nursing & Health, 18(2), 179-183.* Retrieved from *http://doi.org/10.1002/nur.4770180211.*

Santiago, Park, & Huffman. (2013). Consumption habits of pregnant women and implications for developmental biology: A survey of predominantly Hispanic women in California. *Nutrition Journal***,** *12*(91), 1-14.

Sarbin, T. R. (1954). *Role theory*. In G. Lindzey, (Ed.), *Handbook of social psychology*. Reading, Massachusetts: Addison-Wesley.

Savin-Williams, R. C., & Berndt, T. J. (1990). Friendship and peer relations. In S. S. Feldman & G. R. Elliot (Eds.), *At the threshold: The developing adolescent.* Cambridge, MA: Harvard University Press.

Scoenfeld, B. (2011). Resistance training during pregnancy: Safe and effective program design. *Strength and Conditioning Journal*, *33*(5), 67-75.

Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current Opinion Psychiatry*, *25*(2), 141–148.

Scherer, R. F., Wiebe. F. A., Luther, D. C., & Adams, J. S. (1988). Dimensionality of coping: Factor stability using the ways of coping questionnaire. *Psychological Reports*, *67*, 763-770.

Schumacher, K. L., & Meleis, A. I. (1994). Transitions: A central concept in nursing. *Image: Journal of Nursing Scholarship*, *26*(2), 119-127.

Secco, M. L. (1997). Assessment of the psychometric features of the perceived maternal competence (PMC) scales with a sample of adolescent mothers. *Dissertation*. The University of Manitoba.

Secco, M. L., Atech, C., Woodgate, R., & Moffatt, M. E. (2002). Perceived and performed infant care competence of younger and older adolescent mothers. *Issues in Comprehensive Pediatric Nursing*, *25*(2),97–112.

Sedgh, G., Finer, L. B., Bankole, A., Eilers, M. A., & Singh, S. (2015). Adolescent pregnancy, birth, and abortion rates across countries: Levels and recent trends. *Journal of Adolescent Health*, *56*, 223-230.

Sieving, R., & Stevens, A. B. (2013). Adolescent Psychosocial Development: Implications for Pregnancy and Prenatal Care Retrieved from *https://pdfs.semanticscholar.org/d270/664485559c1cc17033c03af3838d315a4835.pdf*.

Sihombing, R. (2017). *Lower pregnancy rates and teenage births* (Turunkan angka kehamilan dan kelahiran remaja). Media Indonesia. Retrieved from *http://mediaindonesia.com/news/read/97628/turunkan-angka-kehamilan-dan-kelahiran-remaja/2017-03-22*.

Soeken, K. L. (2005). Validity of measure. In Waltz, Strickland, & Lenz (Eds), *Measurement in Nursing and Health Research*. New York: Springer Publishing Company.

Sohail, R., & Muazzam, A. (2012). Correlates of disordered eating behavior among pregnant women. *Pakistan Journal of Psychological Research, 27*(2), 153-172.

Solopos. (2015). *Teenage pregnancies: 48 of 1,000 Indonesian teenagers giving birth* [Kehamilan remaja: 48 dari 1.000 remaja Indonesia melahirkan]. Solopos.com.

Retrieved from *http://www.solopos.com/2015/01/06/kehamilan-remaja-48-dari-1-000-remaja-indonesia-melahirkan-565537.*

Stevens, J. (2002). *Applied multivariate statistics for the social sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Needham Heights, MA: Allyn & Bacon.

Teti, D. M., & Gelfand, D. M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. *Child Development, 62*, 918-929.

Tinsley, H. E., & Tinsley, D. J. (1987). Uses of factor analysis in counseling psychology research. *Journal of Counseling Psychology, 34*, 414-424.

Turnage, B. F., & Pharris, A. D. (2013). Supporting the pregnant adolescent. *International Journal of Childbirth Education, 28*(4), 72-76.

Turrell, G., Hewitt, B., Patterson, C., & Oldenburg, B. (2003). Measuring socio-economic position in dietary research: Is choice of socio-economic indicator important? *Public Health Nutrition, 6*, 191-200.

Tribun Batam (2015). *Alarming! 858 Bintan teenagers forced to marry at age 13-16 years old* (Memprihatinkan! 858 remaja Bintan terpaksa menikah di usia 13-16 tahun). Retrieved from *http://batam.tribunnews.com/2015/09/21/memprihatinkan-858-remaja-bintan-terpaksa-menikah-di-usia-13-16-tahun.*

Ulrich, C. M., & Soeken, K. L. (2005). A path analytical model of ethical conflict in practice and autonomy in a sample of nurse practitioners. *Nursing Ethics, 12*(3), 305–315.

UNFPA. (2013). *Motherhood in childhood: Facing the challenge of adolescent pregnancy*: The State of World Population 2013. New York: United Nations Population Fund.

UNICEF. (2015). Progress pending: Analysis of marriage data of child age in Indonesia. Based on Susenas in 2008-2012 and Census of population in 2010 (Kemajuan yang tertunda: Analisis data perkawinan usia anak di Indonesia. Berdasarkan Hasil Susenas 2008-2012 dan Sensus Penduduk 2010) Retrieved from *https://www.unicef.org/indonesia/id/Laporan_Perkawinan_Usia_Anak.pdf*.

United Nations Population Fund. (2013). *The state of world population 2013: Motherhood in childhood*. Retrieved from *http://www.unfpa.org/press/state-world-population-2013-motherhood-childhood.*

Verstraeten, R., Royen, K. V., Aviles, A. O., Penafiel, D., Holdsworth, M., Donoso., . . . Kolsteren, P. (2014). A conceptual framework for healthy eating behavior in Ecuadorian adolescents: A qualitative study. *Plos One*, *9*(1), 1-7.

Walker, B. (1992). Health policies and the black community. In R.L. Braithwaite & S.E. Taylor (Ed), *Health issues in the black community*, (pp. 315-320). San Francisco: Jossey-Bass.

Walker, L., & Avant, K. (2005). *Strategies for theory construction in nursing* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Waltz, C. F., Strickland, O. L., & Lenz, E. R. (2005). *Measurement in nursing and health research (3rd ed.*). New York: Springer Publishing Company.

Weglicki, L.S. (1999). *The development and testing of an instrument to measure maternal confidence in African American pregnant teens*. (Doctoral dissertation), The University of Michigan). Retrieved from *https://deepblue.lib.umich.edu/handle/2027.42/132032*.

Wood, R. E., Bandura, A., & Bailey, T. (1990). Mechanisms governing organizational performance in complex decision-making environments. *Organizational Behavior and Human Decision Processes, 46*, 181-201.

Whiteley, L., & Brown, L. (2010). Clinical perspective: Understanding psychosocial complexities of pregnant and parenting teens. *Brown University Child & Adolescent Behavior Letter*, *26*(6), 1-6.

WHO. (2017). *Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries.* Retrieved from: *http://www.who.int/reproductivehealth/publications/adolescence/9789241502214/en/*.

WHO. (2014). Maternal health: Adolescent pregnancy. Maternal, newborn, child, and adolescent health. Retrieved from *http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/*.

WHO. (2008). Making pregnancy safer note (MPS note): Adolescent pregnancy. *Department of Making Pregnancy Safer*, *1*(1), 1-4.

Wyrwich, K. W., & Tardino, V. M. S. (2004). *A blue print for symptom scales and responses: Measurement and reporting*. Retrieved from *http://doi.org/10.1136/gut.2003.034348.*

Yasmin, G., Kumar, A., & Parihar, B. (2014). Teenage pregnancy - Its impact on maternal and fetal outcome. *International Journal of Scientific Study. 1*(6), 9-13.

Yilmaz, E., Yilmaz, Z., & Cakmak, B. (2016). Nausea and vomiting in early pregnancy of adolescents: Relationship with depressive symptoms. *Journal of Pediatric and Adolescent Gynecology*, *29*(1), 65–68.

Yong, A. G., & Pearce, S. (2013). A Beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2), 79-94.

Yulistara, A. (2012). Most young marriage, a woman from West Java (Yang paling banyak nikah muda, wanita asal Jawa Barat). Lifesyle Wolipop. Retrieved from *http://wolipop.detik.com/read/2012/07/06/120652/1959182/854/yang-paling-banyak-nikah-muda-wanita-asal-jawa-barat.*

Zastrow, C. H., & Krist-Ashman, K..K. (2013). *Understanding human behaviour and the social environment* (9th ed.). Belmont, CA: Brooks.

Zygmont, C., & Smith, M. R. (2014). Robust factor analysis in the presence of normality violations, missing data, and outliers: Empirical questions and possible solutions. *The Quantitative Methods for Psychology*, *10*(1), 40-55.

APPENDICES

Appendix A

Results from Individual Interview

Taking care to stay healthy and safe during pregnancy

Taking care to stay healthy and safe during pregnancy refers to ability of pregnant adolescent to do healthy activities, i.e., eating a healthy diet, consuming vitamins, checking pregnancy regularly, having good sleep and rest, and maintaining cleanliness to keep healthy and safe. The role of mother in keeping fetal safety is very important. Every mother, as well as a young mother would want her fetus born normally and healthy and avoid some problems during pregnancy. This can be realized if since the pre-pregnancy they are ready physically and mentally to face the pregnancy.

Most of the participants had responsibility to their pregnancy. Some of them told that they have to keep healthy during pregnancy. One of the participants explained.

"*Even though I am still young, I have to take care myself to get healthy. I also have responsibility to take care of my baby inside" P1*

Some of them tried to change their habits to be healthy. They followed mother's and health care provider's suggestions to eat healthy food.

"*I ate fish and egg in my meals, almost every meal. My mom said that I have to eat that food a lot if I want my baby to be healthy. So I ate that food more than others" P5*

Eleven participants went to a community health center or a private clinic to check their pregnancy regularly since the first time,

"I checked my pregnancy regularly. I checked it almost every month...."P3

Most of the participants consumed vitamins and iron tablets everyday. They explained that the vitamins make them more energetic. Some participants explained as below.

"At every visit to the clinic I got 30 vitamins for free...I take vitamins every day in order to make my baby healthy...." P2

"When I checked my pregnancy at the first time, midwife gave me the vitamins...I took some of them..."P1

Generally, the participants tried to maintain their health. Therefore, they followed the suggestions from the health care provider and also their mother as well as attempted to implement what they could to improve their health themselves.

Giving attention to improve relationship with husband and unborn baby

Giving attention to improve relationship with husband and unborn baby refers to the ability of pregnant adolescents to implement some activities to show their ability to give attention and improve relationship with husband and also their unborn baby. Half of the participants said that they attempted to do their best for their husband. They have good relationship within their couple during pregnancy. The husbands give support to their wife. For instance, the husband checked that his wife took meals and vitamins, and took a rest, and he also accompanied her in doing exercise in the morning. One of participant narrated:

I had good communication with my husband. He always sent a short message to me just to ask me whether I had already taken lunch or not...." P1

The participants also communicated with the baby by touching and talking with the unborn baby during her activities.

“ ...Sometimes I talk to my unborn baby during my busy time. When I am cooking I talk to her. If she moves in my stomach I touch her. I always talk to my unborn baby when I do an activity...” P2

Most of the participants had a good relationship with their husband and their unborn baby. They share their problem to husband when they felt not comfortable.

Seeking coping strategies to deal with psychosocial problems.

Seeking coping strategies to deal with psychosocial problems refers to ability of pregnant adolescent to find some activities to pass uncomfortable day, and solve a problem in order to be able to have a healthy pregnancy. Pregnancy is a difficult condition and a new experience for an adolescent. Many pregnant adolescents may not prepared psychologically. They tend to become upset when faced with this situation, then automatically find themselves in a dilemma through this condition. They become stressed and anxious.

In this study, some of the participants able to perform their roles by keeping calm and accepted their condition and also abided rules of a parent or a doctor to manage discomfort by relaxing and sharing together with family and also consult to health care provider. A participant explained:

“...I am very stressed at first, but after I ask midwife about my problem, I become more relaxed and tried to reduce my anxiety...”P8

“...when I felt very emotional, then I just relax and be quite, I dont do anything until my emotion is stable again...I just call my mother when I feel sad or worried. I feel comfort if I express my feeling to my mother...”P6

The diversity of ways and feelings of a pregnant adolescent is a reflection that indeed they need assistance from a health care provider and also their mother as the person closest to them.

Working to become independent from parents

Working to become independent from parents refers to ability of pregnant adolescent to encourage her husband to get work and money to take care of her needs during pregnancy. Some of the participants were living with their parents and encouraged their husband to get job outside. Some of the participants lived with husband and helped the husband to get money as a self-employee. They tried to be responsible to each other since they were married.

"...I stayed only with my husband ....We rented a house here. I asked my husband to open a motorcycle repair shop here since we were married, because he had experience at that job as an assistant to his brother..." P1

"...I lived with my husband since being married. ....at fisrt he did not have a job, then I encouraged him to sell the VCD (Video Compact Disc) .....Finally he knew his responsibility to prepare our unborn baby by doing some side job..." P2

In Indonesia, men have to work hard to earn money and wives stay at home doing housework such as washing, cooking and babysitting, but sometimes the husband needs support from his wife to encourage him to get a job or doing something to get money to meet their needs during pregnancy and also for preparing for the presence of the baby.

Seeking support for maternal and unborn baby health

Seeking support for maternal and unborn baby health refers to activities of pregnant adolescent to find or get some support to look up her pregnancy. She tried to find suppport from husband, mother or someone that she believed.

Most of the participants got support from family, such as husband and parents. Support is one of the important aspect to improve health. According to participants:

"....I communicated to my husband to accompany me at every visite to the community health center..." P2

"...I asked my husband to accompany me when I have an appointment with my doctor or midwife. I feel comforted when he was beside me during the consultation. I felt confident....I asked my mother to visit me at the weekend, I needed her support during my pregnancy..."P4

A few pregnant adolescents told that they were more dependent with their mother. They needed support from mother and people around to make them feel confident. Some adolescents said that they asked support from their husband, mother and also mother-in law. Sometimes they called them just to get support and share their experience related to the pregnancy.

Expecting actions to get a healthy mom and baby

Expecting actions to get a healthy mom and baby refers to the ability of pregnant adolescents to get a particular goals after they do some activities during pregnancy. Some pregnant adolescents explained that they have some activities to improve health. They perform some activities as a new coming mother to improve their healthy and happiness that they will have a baby soon. They followed their mother and

health care provider's sugestions. They gave a lot of caring to themselves because they wanted to get their unborn baby healthy. The participants explained:

"I take care of my body to become fresh and healthy...." P3

"I plan to give birth in the clinic, and I asked the midwife to help me during delivery because I familiar with her, and I believe that she will make me safe..."P2

The participants have many expectations during pregnancy. They tried to get the expectations by choosing good actions to reach it.

Creating happiness fo her, husband, and family

Creating happiness fo her, husband, and family refers to feelings of people to create good response because of pregnancy and unborn baby. Some of husband accept their pregnancy and give more attention to them during pregnancy. Some pregnant adolescents said that they were very happy and will take care of it well. They said that accepted the unborn baby, then they generated a lot of attention to their pregnancy. Two of the participants narrated:

Two participants share their happiness during pregnancy.

"My husband glad with my pregnancy. This is our first baby, so he was rather excited. My mother and father also happy because this baby is also their first grandchildren, so they were very happy..."P3

"...My husband very happy when he know that I was pregnant, and my parents as well, they more attention to me...I felt happy..."P4

Stay strong and confident during pregnancy

Stay strong and confident during pregnancy refers to the ability of pregnant adolescent to pass her pregnancy with strong and confident. Pregnancy at young age can be a stress situation, where they cannot control their emotion. If a pregnant adolescent can solve their pregnancy problem, they can be calm and willing to be patient with their condition.

Two participants narrated their feeling as following.

"...I am easy to crying and this is my weakness. But I try to keep strong. Sometimes when I felt lonely I just pray to God in order to make me have a good feeling and confident..."P3

"I prepare my mental to keep strong during pregnancy, eventhough I felt scared and stress to through it...I tried to stay strong..."P2

Avoiding food taboo and activities that harmful during pregnancy

Avoiding food taboo and activities that harmful during pregnancy refers to ability of pregnant adolescent to avoid some activities that hazardous during pregnancy. Sometimes mother of pregnant adolescent is very concerned about things that are considered taboo or harmful to pregnat adolescent and her unborn baby. Then the mother prohibit her to eat or perform certain activities that are considered dangerous during pregnancy.

A participant narrated about food and activities that is considered taboo and dangerous during pregnancy.

"...I dont eat fast food, noodles such as: Indomie and supermie (Noodles brand from Indonesia) or other noodles...my mother said that noodles are not good for my baby. That foods contain chemical and danger for my fetus"P5

"...My husband and my mother also prohibit me to drive a motorcycle since pregnant, they said it was very dangerous and can cause abortion"P5

Maintaining cleanliness during pregnancy

Maintaining cleanliness during pregnancy refers to ability of pregnant adolescent to keep everything healthy during pregnancy. Hygiene affects of health pregnant women, therefore a pregnant woman should maintain cleanliness starting from personal hygiene, food, home and the environment.

One participant explained that she was very concerned about cleanliness .

"I keep clean everything to make me healthy, my body, my home, my foods. Everything should be clean...I wish my baby will be healthy because of that..."P3

Appendix B

Informed Consent Form for Semi Structured Individual Interview

Research Title : Development and Psychometric Evaluation of Self-Efficacy in Performing Maternal Role Scale in First-Time Pregnant Adolescents in Indonesia
Researcher : Erika
Lecturer at School of Nursing University of Riau and Student, Ph.D-Nursing, Prince of Songkla University, Thailand
Mobile: +6281275555404, E-mail: rika_hardi@yahoo.com

Dear partcipipant, my name is erika, and I am a PhD student in Nursing Program at Prince of Songkla University, Thailand. I am interesting to study in maternal role of pregnant adolescent during their first time pregnancy. The results will be guide other people to develop scale to measure self-efficacy of pregnant adolescent in performing maternal role during pregnancy in further.

You are the one significant person who met the criteria of this study, so you were invited to participated in my study. If you decide to participate, you will be interviewed individually by the researcher about fourty to fifty minutes or more upon your request to interview.

There is no physical risk involved in your participant and your name will not appear on my paper, only confidential number will appear on the paper. You can withdawl during interview if you feel uncomfortable, and will not prejudice you.

A form below is attached for you to keep your agreement records in this study. You can make decision whether or not to sign your name in this form. Your signature indicates that you have read the information provided,clear, and understand it. Please feel free to choose it.

.....
(E r i k a)
Doctoral students, Prince of Songkla University

.....
Participant

Date.....

Appendix C

Semi Structured Interview Guideline

Section I: Demography Characteristic of Respondent
Instruction:

Please give answers by put a check mark (√) in the answer choices or fill in the blank. Each question has five possible answers. Choose which according to the your real condition/situation.

1. Age : .....year
2. Height/Weight : .....cm/.....kg
3. Maritale Status
   [ ] 1 Married
   [ ] 2 Divorce/separated
   [ ] 3 Un-married/single
   [ ] 4 Others, please specify_____
4. Religion
   [ ] 1 Islam
   [ ] 2. Christian
   [ ] 3 Buddhist
   [ ] 4 Hindu
   [ ] 5 Others, please specify_____
5. Highest education level
   [ ] 1 No education
   [ ] 2 Grade 6
   [ ] 3 Grade 9
   [ ] 4 Grade 12
   [ ] 5 Others, please specify_____
6. Occupation
   [ ] 1 housewife
   [ ] 2 private worker/employee
   [ ] 3 high school student
   [ ] 4 Bachelor/diploma student
   [ ] 5 Others, please specify _____
7. Husband's occupation
   [ ] 1 Self Empolyee
   [ ] 2 Private worker/employee
   [ ] 3 high school student
   [ ] 4 Bachelor/diploma student
   [ ] 5 Others, please specify _____
8. Total family income per month : .....Rupiah
9. Gestational age : .....weeks

Section II: Interview Questions for participants

1. Can you explain what is maternal role according to your understanding?
2. Can you explain what are your role as young mother?
3. How do you take care your self and unborn baby?
4. What should you do as a prospective mother?
5. What are your expectations related to your confident to do maternal role as a new mother during pregnancy?

Appendix D

Informed Consent Form for Participant

Title : Development and Psychometric Evaluation of Self-Efficacy in Performing Maternal Role Scale in First-Time Pregnant Adolescent in Indonesia (SEPMRS, Indonesia)

Researcher: Erika
Faculty of Nursing, Prince of Songkla University, Hatyai, Songhkla-Thailand.

You are invited to participate in this study about "Development and Psychometric Evaluation of Self-Efficacy in Performing Maternal Role Scale for First Time Pregnant Adolescent in Indonesia (SEPMRS). This study conducted by Erika, a doctoral student at Faculty of Nursing Prince of Songkla University- Thailand, under supervision Assoc. Prof. Dr. Nongnut Boonyoung. This research study is a part of the requirements for the doctoral degree. The objective of this study is to develop scale for measuring self-efficacy in performing maternal role for first time pregnant adolescence in Indonesia You have been selected as a possible participant in this study because you are pregnant adolescent age 15-20 years old.

If you agree to participate, please complete a set of questionnaires. You can do it at community health center or Posyandu as you prefer and will be at time convenient to you. The questionnaires should take your approximately 50-60 minutes to complete. Please complete questionnaire yourself.

Participation in the study should not cause you any discomfort. You can withdraw from the study at any time. You are guaranteed to be concealed in this study. Therefore, all your responses will be confidential and you will not be identifiable in any way in the report of this study. All information will be reported as group data.

If you have any questions during the study, please feel free to contact me at the following address. Thank you for your time and participate in this research study.

Sincerely

…….

Erika
Faculty of Nursing Prince of Songkla University-Thailand.
Tel : +66866526249 (Thailand)
Tel : +628127523843 (Indonesia)
Email rika_hardi@yahoo.com

For Participants,
I was informed and agree to participate in this study.

Name ……. Signature …… Date …….

Appendix E

Questionnaires of SEPMRS-Indonesia

Instruction:
Please give answers by put a check mark (√) in the answer choices. Each question has five possible answers. Choose which according to the your real condition/situation.

1 = Not at all confident
2 = Slightly confident
3 = Fairly confident
4 = Mostly confident
5 = Very confident

No	Statements for Efficacy Expectations	Response				
		1	2	3	4	5
1	I am able to eat fish or egg or tempe or tofu, fruits and vegetables every day.					
2	I am sure I can eat healthy food according to the health care provider's suggestion.					
3	I am able to take multivitamin every day during pregnancy.					
4	I believe that I can take calcium every day as a requirement.					
5	I am able to protect myself and my unborn baby from conditions that pose a danger, such as anemia and hypertension.					
6	I am able to have leisure time every day during pregnancy (i.e. doing nothing and just relaxing, watching TV etc.).					
7	I am sure that I have enough sleep and can take a rest every day					
8	I can sleep well every night.					
9	I am sure that I can perform exercises to get healthy during pregnancy					
10	I believe that I can visit the doctor/midwife/nurse on every appointment.					
11	I believe that I can attend the maternal classes provided at the community health center.					
12	I believe that that I can go to see the doctor if I have health problem during pregnancy.					
13	I am able to follow the health care provider's suggestion to improve my health.					
14	I can get information from magazines, books, etc. that is of benefit to my health and my unborn baby's health.					
15	I am sure that I can clean my body every day.					
16	I am sure that I can keep my home clean every day.					
17	I am sure that I am able to have good relationship with my husband.					
18	My husband and I are able to communicate well and discuss all about my pregnancy.					
19	I feel confident to communicate with my unborn baby.					
20	I believe that I can encourage my husband to communicate with my unborn baby.					

Instruction: (continued)

Please give answers by put a check mark (√) in the answer choices. Each question has five possible answers. Choose which according to the your real condition/situation.

1 = Not at all confident
2 = Slightly confident
3 = Fairly confident
4 = Mostly confident
5 = Very confident

No	Statements for Efficacy Expectations	Response				
		1	2	3	4	5
21	I believe that I am able to talk to my unborn baby when she/he moves in my womb.					
22	I believe that I can listen to Al-Qur'an/Bible/music with my unborn baby.					
23	I am sure that I have ability to read Al-Qur'an/ Bible/story book to my unborn baby before sleep.					
24	I am sure that I am able to discuss with my husband and my mother about my uncomfortable feeling during pregnancy.					
25	I believe I can tolerate the problem of social deprivation feeling to get through delivery.					
26	I am sure I am able to think positively during pregnancy.					
27	I am able to discuss with my husband and my mother if I have a pregnancy problem.					
28	I believe that I am able to consult with health care provider when I feel anxious about childbirth.					
29	I am able to discuss with my husband when I feel stress during pregnancy.					
30	I am sure I can watch television or listen music to reduce my boredom during pregnancy.					
31	I believe that I can find some information to reduce my fear of childbirth.					
32	I am sure that I can express my feelings to my close friends when I feel anxiety.					
33	I believe that I am able to handle my family without my parents.					
34	I am sure that my husband and I can find a job to support our family budget.					
35	I feel confident to manage money for our daily life.					
36	I am able to have enough money for childbearing.					
37	I am sure that I can get support from my husband during pregnancy.					
38	I am sure that I can get support from my relatives (mother, father, mother and father in- law, brother, sister) during pregnancy.					
39	I am sure that I can get support from close friends during pregnancy.					
40	I am sure that I can get support from health care provider during pregnancy.					
41	I am sure that I can get support from people in the community.					

Instruction: (continued)

Please give answers by put a check mark (√) in the answer choices. Each question has five possible answers. Choose which according to the your real condition/situation.

1 = Not at all confident
2 = Slightly confident
3 = Fairly confident
4 = Mostly confident
5 = Very confident

No	Statements for Outcome Expectations	Response				
		1	2	3	4	5
42	I will have a healthy baby If I am able to follow the health care provider's suggestions,					
43	I will have no complication during pregnancy if I can take a good care of myself,					
44	I and my unborn baby will be healthy if I am able to have a good nutrition during pregnancy.					
45	I and my unborn baby will be healthy If I can visit the health care provider on every appointment					
46	I will be healthy if I am able to perform exercise regularly					
47	I and my unborn baby will be healthy if I can avoid the environmental hazards					
48	I will be able to deal with psychosocial problems if I can practice relaxation					
49	I can get a healthy baby if I can keep myself healthy.					
50	I and my baby will be safe if I can give birth in hospital or clinic					
51	I will keep my pregnancy healthy if I am able to take iron tablet every day					
52	I will stay healthy during pregnancy if I can clean my body everyday					
53	I can manage my low back pain during pregnancy If I can perform exercise regularly					
54	My baby can have breast milk after birth if I am able to prepare my breast during pregnancy					
55	I will be happy if I can get enough support from my husband					
56	I feel happy if I can get support from my mother and my mother in law					
57	I will feel happy if I can communicate with my family and my close friend,					
58	I am able to arrange meals for my husband to make him feel happy					
59	I will feel blessed if I am able to eat good food for my health and baby's health					
60	I will feel closed and happy if I am able to talk to my unborn baby					
61	I feel happy when my husband communicates with my unborn baby.					
62	I am happy when I feel my unborn baby move inside my womb.					
63	I will feel happy when I can get through during pregnancy.					

Appendix F

List of Experts

List of Content Validity Experts

1. Asst. Prof. Dr. Umaporn Boonyasopun, RN

   Faculty of Nursing, Prince of Songkla University, Songkhla, Thailand

2. Asst. Prof. Dr. Sununta Youngwanichsetha, RN

   Faculty of Nursing, Prince of Songkla University, Songkhla, Thailand

3. Prof. Dr. Yati Afiyanti, MN

   Faculty of Nursing, University of Indonesia, Jakarta, Indonesia

4. Yenita Agus, M.Kep, Sp.Mat, Ph.D

   Faculty of Nursing of Syarif Hidayatullah State Islamic University, Jakarta, Indonesia

5. Mekar Dwi Anggraini, M.Kep, Ph.D

   Faculty of Nursing University of Jendral Soedirman, Purwokerto, the middle of Java

Appendix G

Reliability Test and Assumptions of EFA

Table 10

Reliability Statistics of Pre Test			Reliability Statistics of Field Test		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.977	.978	63	.983	.984	63

Table 11

Assumptions of Exploratory Factor Analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.964
Bartlett's Test of Sphericity	Approx. Chi-Square	41897.314
	df	1953
	Sig.	.000

Appendix H

Summary of Table Statistic Assumptions

Table 12

Assumptions of Statistical Analysis for EFA (N = 602)

No	Assumptions	602 cases	Interpretations
1	Normality	63 items was Normal	Q-Q Plots have Normal Distribution (Ho, 2014)
2	Outliers	Outlier cases no 60, 427, 55, 555, 50, 70, 59, 52, 38, 31, 69, 483, 46, 80,563, 530, 551, 51, 361, 32, 28, 37, 26, 27, 53, 24, 25	21 cases were excluded with *p*-value less than .001 using Mahalanobis Distance Test (Tabachnick & Fidel, 2007)
3	Linearity	602 items was Linear	P-P Plots, Linear relationship (Ho, 2014)
4	Sample adequacy	602 samples for EFA	The KMO = .964, sample size was adequate (Munro, 2005)
5	Bartlett's Test of Sphericity	Approx. Chi-Square Df *p*-value	41897.314 1953 .000

Appendix I

Table of Normality Using Skewness and Kurtosis

Table 13

Normality Test of Each Item of the SEPMRS-Indonesia Using Skewnes and Kurtosis, Standard Error of Skewnes and Kurtosis, and Skewnes and Kurtosis Value (N = 602)

No	Variables	Skewness	Skewness value	Kurtosis	Kurtosis value
		SE of Skewness (.100)		SE of Kurtosis (.199)	
1	I am able to eat fish or egg or tempe or tofu, fruits and vegetables every day.	-0.049	0.49	0.948	4,76
2	I am sure I can eat healthy food according to the health care provider's suggestion.	-0.023	0.23	1.118	5,62
3	I am able to take multivitamin every day during pregnancy.	0.034	0.34	1.082	5,44
4	I believe that I can take calcium every day as a requirement.	0.144	1.44	0.997	5.01
5	I am able to protect myself and my unborn baby from conditions that pose a danger, such as anemia and hypertension.	0.057	0.57	1.282	6.44
6	I am able to have leisure time every day during pregnancy (i.e. doing nothing and just relaxing, watching TV etc.).	0.027	0.27	0.895	4.49
7	I am sure that I have enough sleep and can take a rest every day	0.018	0.18	0.828	4.16
8	I can sleep well every night.	0.031	0.31	0.395	1.98
9	I am sure that I can perform exercises to get healthy during pregnancy	0.252	2.52	0.577	2.89
10	I believe that I can visit the doctor/midwife/nurse on every appointment.	0.029	0.29	0.903	4.54

Table 13 *(continued)*

No	Variables	Skewness	Skewness value	Kurtosis	Kurtosis value
		SE of Skewness (.100)		SE of Kurtosis (.199)	
11	I believe that I can attend the maternal classes provided at the community health center.	0.223	2.23	0.705	3.54
12	I believe that that I can go to see the doctor if I have health problem during pregnancy.	0.131	1.31	0.928	4.66
13	I am able to follow the health care provider's suggestion to improve my health.	0.053	0.53	0.731	3.67
14	I can get information from magazines, books, etc. that is of benefit to my health and my unborn baby's health.	0.006	0.06	0.912	4.58
15	I am sure that I can clean my body every day.	0.167	1.67	0.946	4.75
20	I believe that I can encourage my husband to communicate with my unborn baby.	0.032	0.32	0.733	3.68
21	I believe that I am able to talk to my unborn baby when she/he moves in my womb.	0.001	0.01	0.802	4.03
22	I believe that I can listen to Al-Qur'an/Bible/music with my unborn baby.	0.205	2.05	0.713	3.58
23	I am sure that I have ability to read Al-Qur'an/ Bible/story book to my unborn baby before sleep.	0.149	1.49	0.733	3.68
24	I am sure that I am able to discuss with my husband and my mother about my uncomfortable feeling during pregnancy.	0.137	1.37	0.815	4.09
25	I believe I can tolerate the problem of social deprivation feeling to get through delivery.	0.019	0.19	0.613	3.08

Table 13 *(continued)*

No	Variables	Skewness	Skewness value	Kurtosis	Kurtosis value
		SE of Skewness (.100)		SE of Kurtosis (.199)	
26	I am sure I am able to think positively during pregnancy.	0.146	1.46	0.699	3.51
27	I am able to discuss with my husband and my mother if I have a pregnancy problem.	0.008	0.08	0.844	4.24
28	I believe that I am able to consult with health care provider when I feel anxious about childbirth.	0.074	0.74	0.875	4.39
29	I am able to discuss with my husband when I feel stress during pregnancy.	0.082	0.82	0.744	3.74
30	I am sure I can watch television or listen music to reduce my boredom during pregnancy.	0.042	0.42	0.746	3.75
31	I believe that I can find some information to reduce my fear of childbirth.	0.008	0.08	0.861	4.33
32	I am sure that I can express my feelings to my close friends when I feel anxiety.	0.082	0.82	0.729	3.66
33	I believe that I am able to handle my family without my parents.	0.047	0.47	0.509	2.56
34	I am sure that my husband and I can find a job to support our family budget.	0.129	1.29	0.796	4.00
35	I feel confident to manage money for our daily life.	0.004	0.04	0.822	4.13
36	I am able to have enough money for childbearing.	0.061	0.61	0.711	3.57
37	I am sure that I can get support from my husband during pregnancy.	0.081	0.81	0.918	4.61

Table 13 *(continued)*

No	Variables	Skewness	Skewness value	Kurtosis	Kurtosis value
		SE of Skewness (.100)		SE of Kurtosis (.199)	
38	I am sure that I can get support from my relatives (mother, father, mother and father in- law, brother, sister) during pregnancy.	0.189	1.89	0.936	4.70
39	I am sure that I can get support from close friends during pregnancy.	0.022	0.22	0.920	4.62
40	I am sure that I can get support from health care provider during pregnancy.	0.099	0.99	0.871	4.38
41	I am sure that I can get support from people in the community.	0.084	0.84	0.971	4.88
42	I will have a healthy baby If I am able to follow the health care provider's suggestions,	0.117	1.17	1.018	5.11
43	I will have no complication during pregnancy if I can take a good care of myself,	0.238	2.38	0.514	2.58
44	I and my unborn baby will be healthy if I am able to have a good nutrition during pregnancy.	0.242	2.42	0.999	5.02
45	I and my unborn baby will be healthy If I can visit the health care provider on every appointment	0.171	1.71	1.039	5.22
46	I will be healthy if I am able to perform exercise regularly	0.054	0.54	0.876	4.40
47	I and my unborn baby will be healthy if I can avoid the environmental hazards	0.161	1.61	0.783	3.93
48	I will be able to deal with psychosocial problems if I can practice relaxation	0.240	2.40	0.702	3.53
49	I can get a healthy baby if I can keep myself healthy.	0.184	1.84	0.370	1.86
50	I and my baby will be safe if I can give birth in hospital or clinic	0.275	2.75	0.595	2.98

Table 13 *(continued)*

No	Variables	Skewness	Skewness value	Kurtosis	Kurtosis value
		SE of Skewness (.100)		SE of Kurtosis (.199)	
51	I will keep my pregnancy healthy if I am able to take iron tablet every day	0.020	0.20	0.695	3,49
52	I will stay healthy during pregnancy if I can clean my body everyday	0.091	0,91	0.686	3,45
53	I can manage my low back pain during pregnancy If I can perform exercise regularly	0.121	1.21	0.666	3,35
54	My baby can have breast milk after birth if I am able to prepare my breast during pregnancy	0.051	0.51	0.433	2,17
55	I will be happy if I can get enough support from my husband	0.041	0.41	0.853	4,29
56	I feel happy if I can get support from my mother and my mother in law	0.096	0.96	0.634	3,18
57	I will feel happy if I can communicate with my family and my close friend,	0.100	1.00	0.823	4,13
58	I am able to arrange meals for my husband to make him feel happy	0.142	1.42	0.766	3,85
59	I will feel blessed if I am able to eat good food for my health and baby's health	0.104	1.04	0.564	2,83
60	I will feel closed and happy if I am able to talk to my unborn baby	0.150	1.50	0.622	3,12
61	I feel happy when my husband communicates with my unborn baby.	0.147	1.47	0.713	3,58
62	I am happy when I feel my unborn baby move inside my womb.	0.182	1.82	0.934	4,69
63	I will feel happy when I can get through during pregnancy.	0.207	2.07	0.825	4,14

Note. Interpretation: Rule of thumb Skewness less than 3.0 and Kurtosis less than 10 (Kline, 2005)

Appendix J

Assumptions of Factor Analysis

1. Test of Outliers by Mahalanobis Distance with *P*-Value = 0.001
2. Normality Test (Q-Q Plots)

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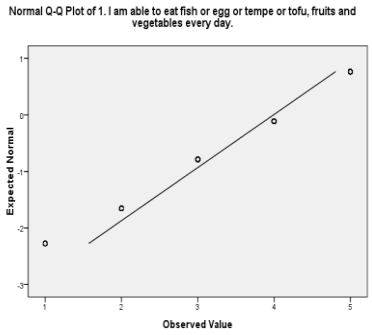

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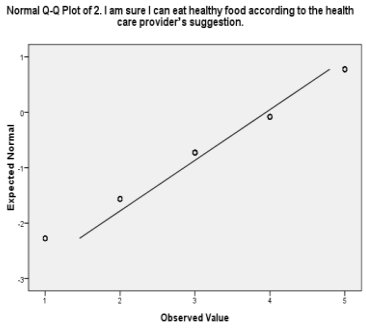

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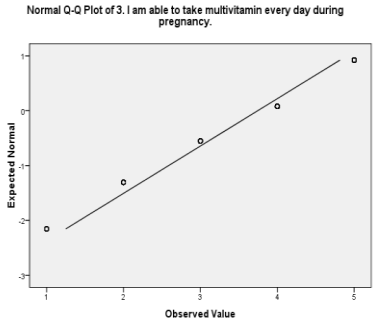

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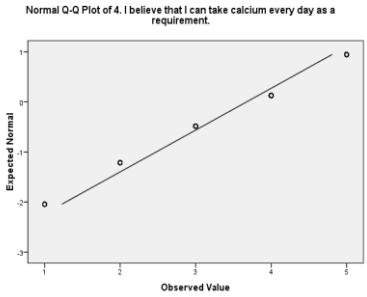

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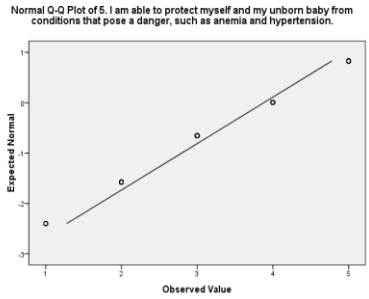

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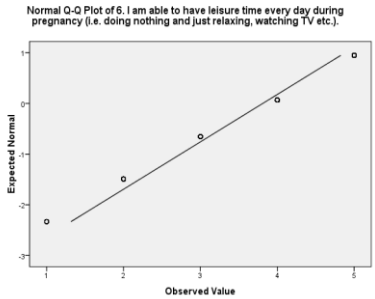

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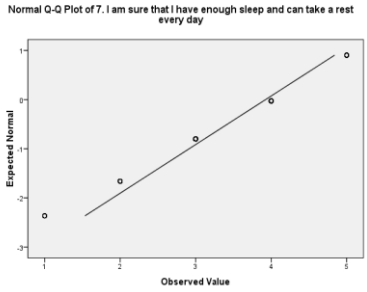

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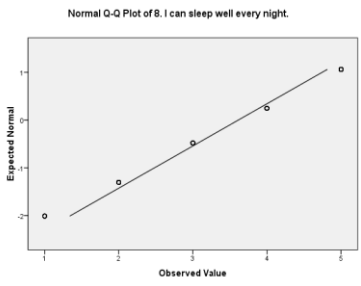

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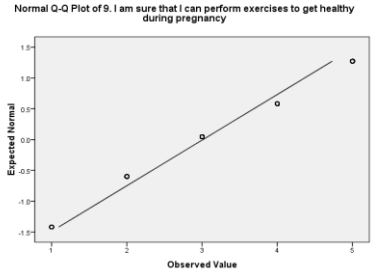

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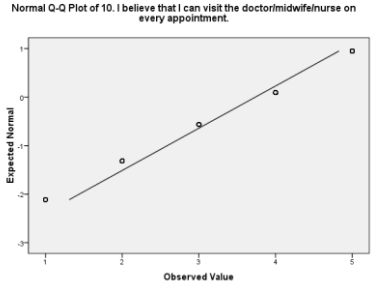

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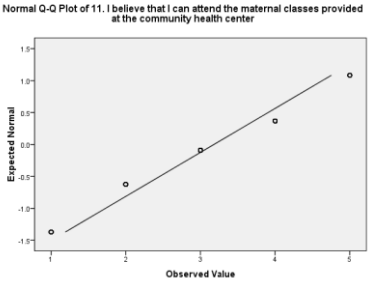

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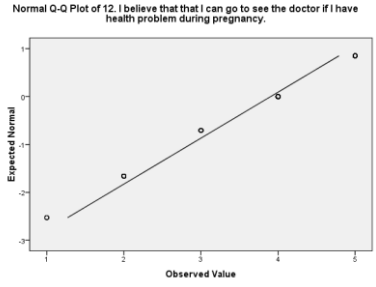

Normality Test (continued)

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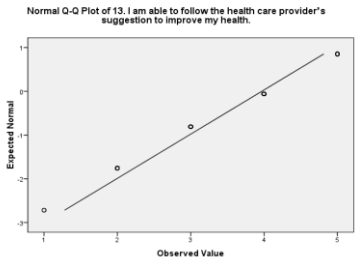

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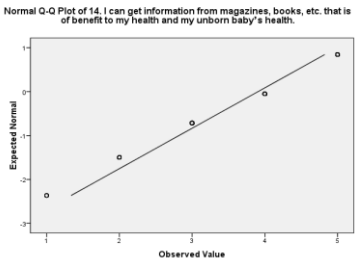

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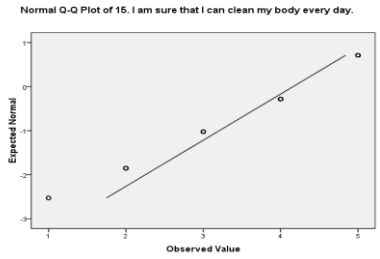

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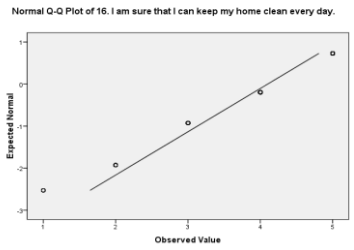

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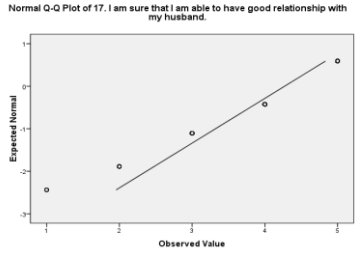

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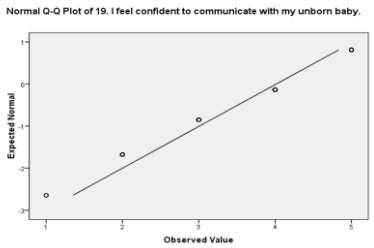

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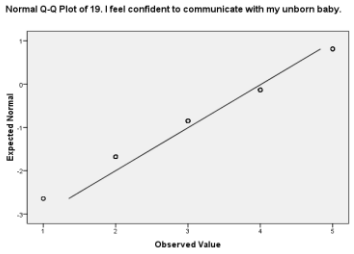

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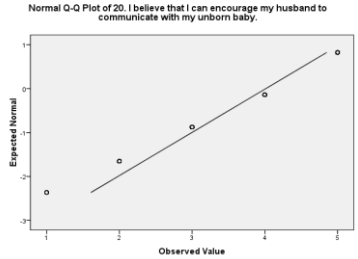

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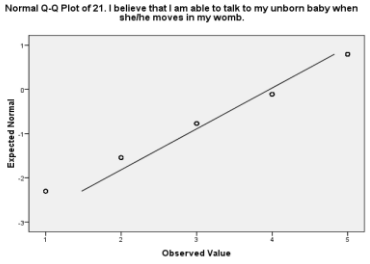

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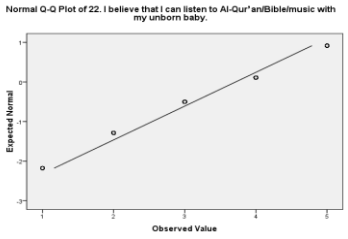

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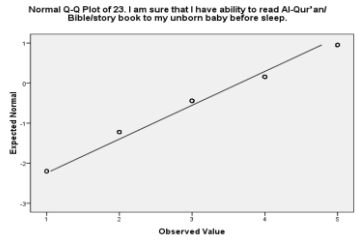

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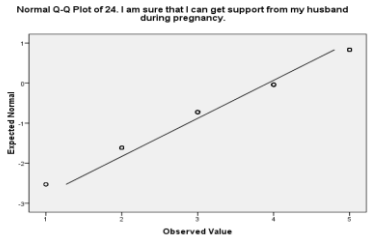

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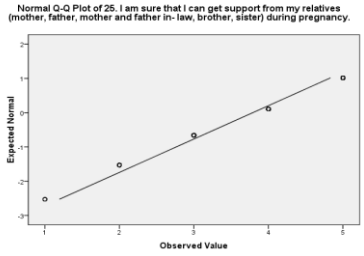

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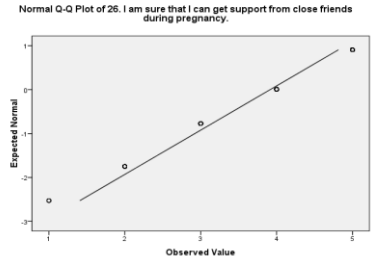

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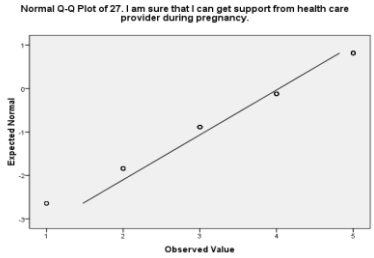

Normality Test (continued)

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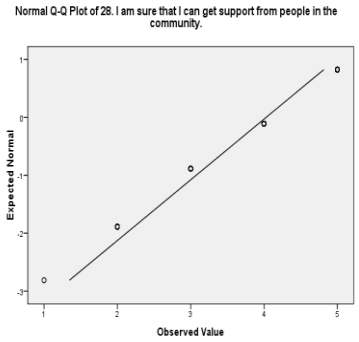

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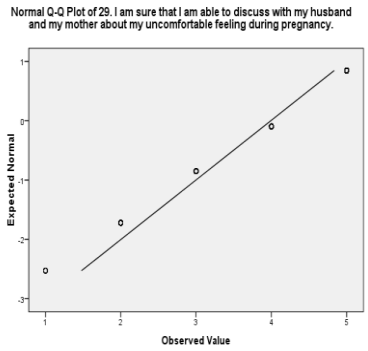

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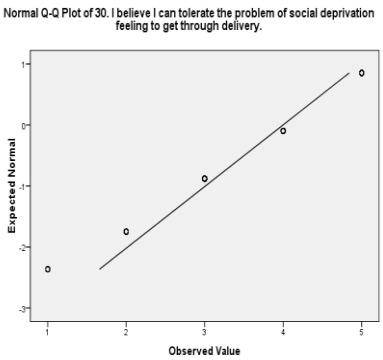

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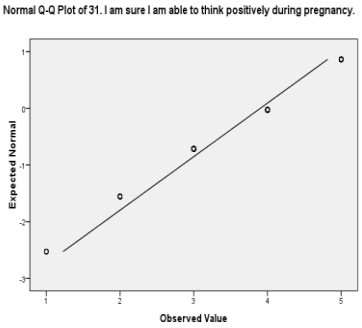

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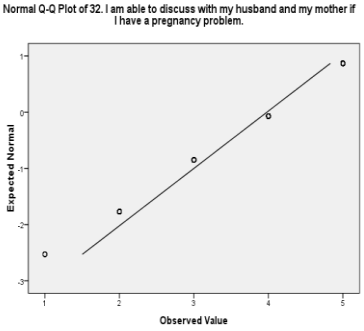

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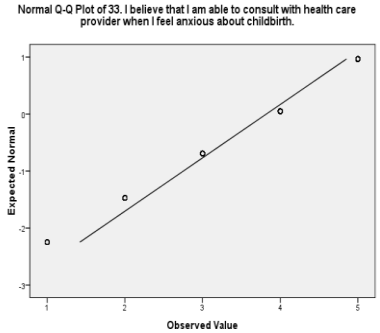

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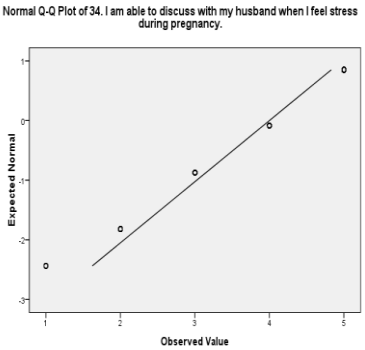

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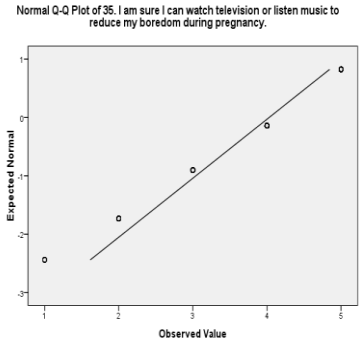

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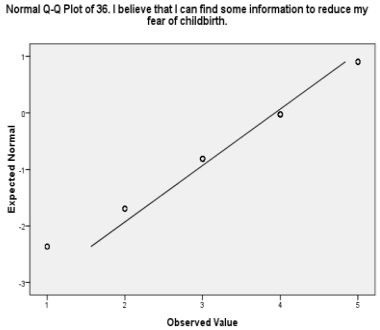

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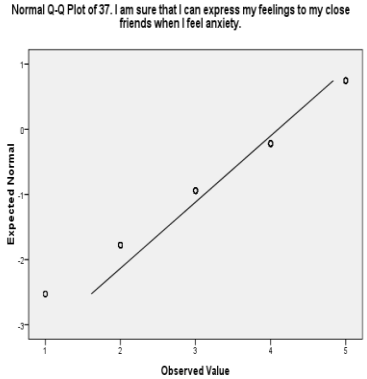

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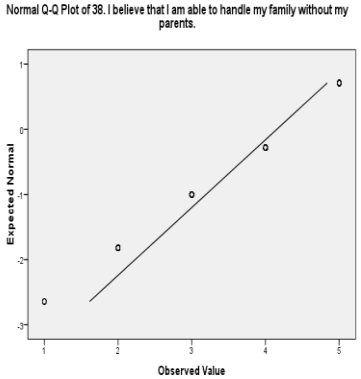

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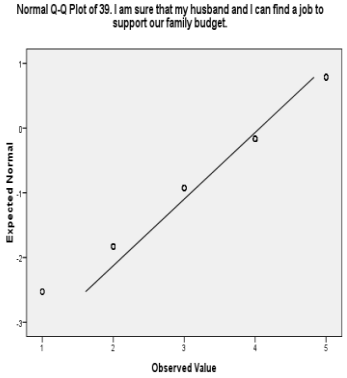

Normality Test (continued)

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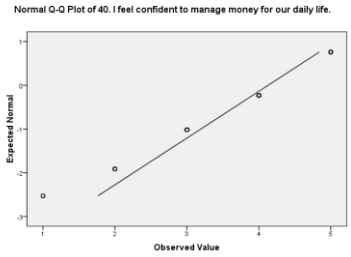

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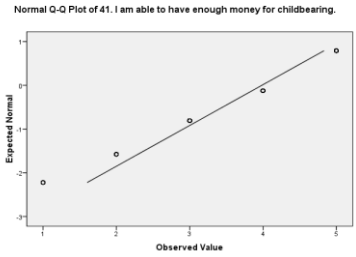

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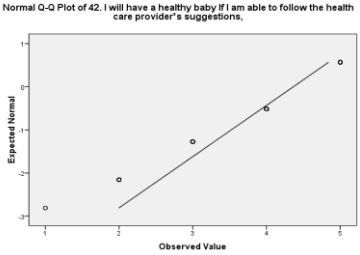

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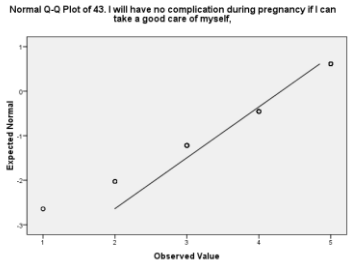

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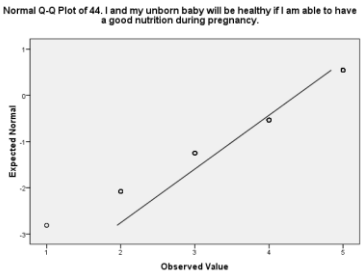

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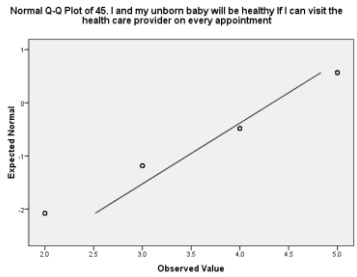

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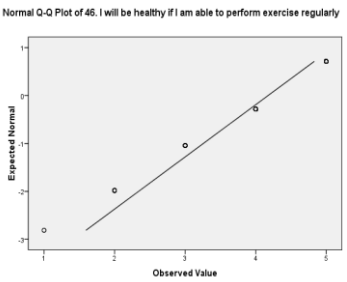

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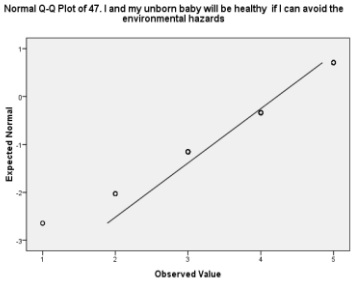

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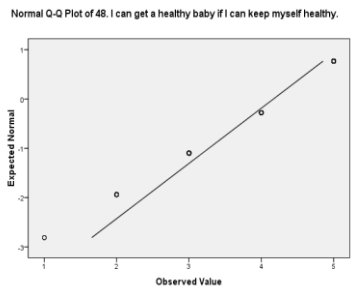

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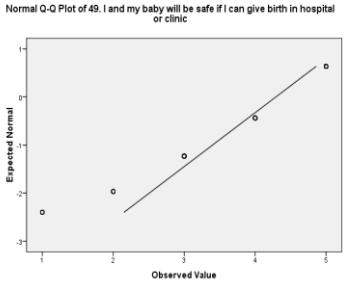

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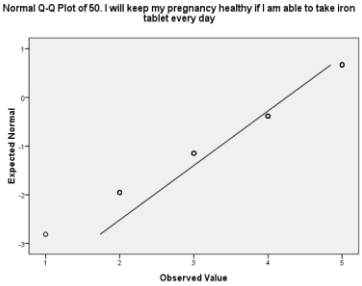

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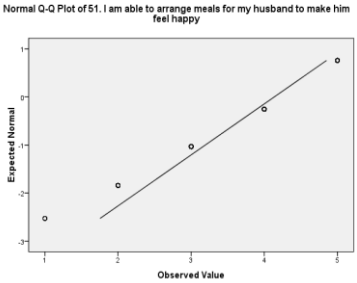

Normality Test (continued)

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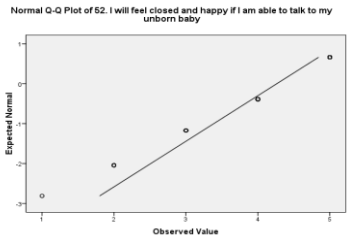

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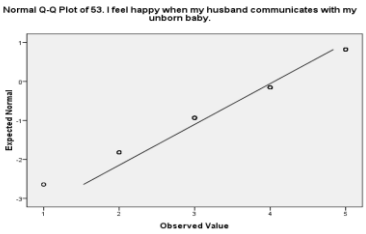

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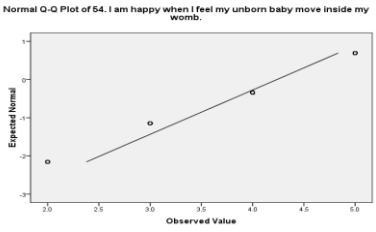

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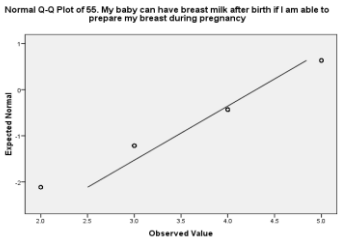

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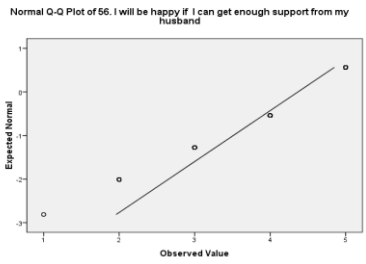

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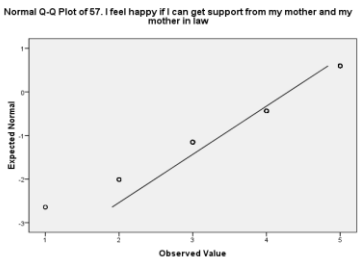

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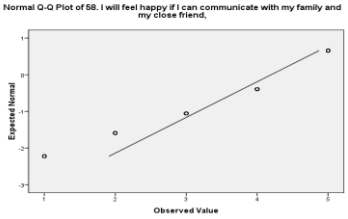

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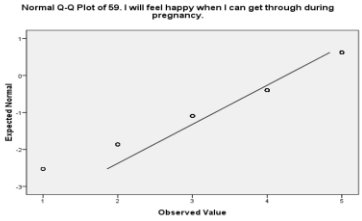

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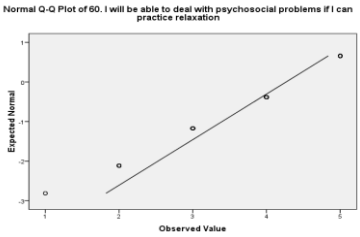

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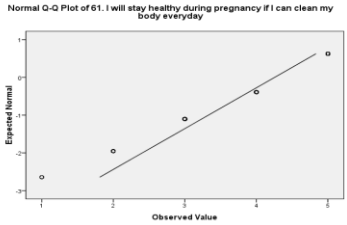

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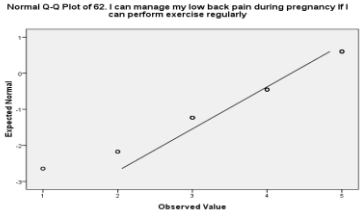

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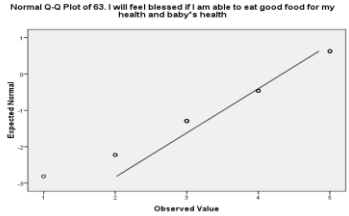
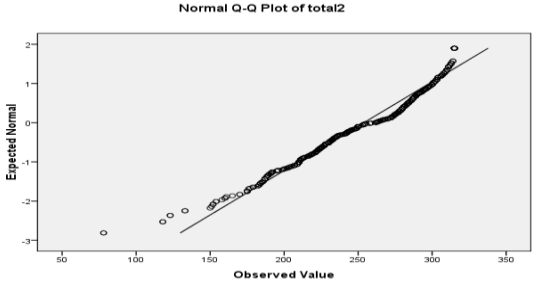
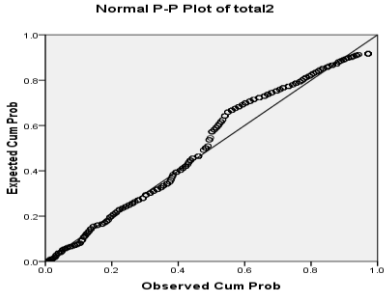




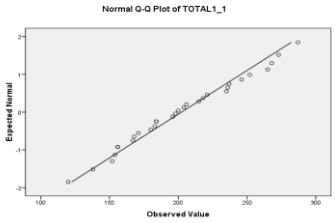
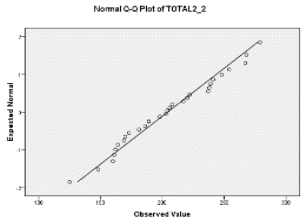
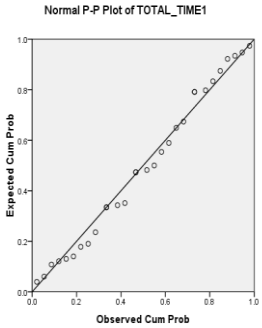
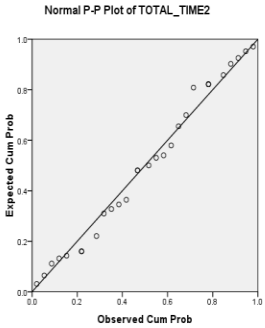


Appendix K

Assumptions of Test-Retest

Table 14

The Pearson Product Moment Correlation Assumptions for Test-Retest of the SEPMRS-Indonesia for 60 items (N = 30)

Test	Time 1	Time 2
1. Assumptions of Pearson's Correlations were met (Ho, 2014)	√	√
2. Normality	Skewness value = 0.40 Kurtosis value = 1.03 Q-Q Plots	Skewness value = 0.26 Kurtosis value = 1.07 Q-Q Plots
		
3. Linear relationship between two variables/group		
4. Outlier	No Outlier (Mahalanobis distance)	No Outlier (Mahalanobis distance) (Ho, 2014)

Appendix L

Assumptions of Independent T-Test

Table 15

T-Test Assumptions for Known Group for 60 items (N = 30 + 30)

Assumptions	Tests	Results	Interpretation
Normality	Skewness value = 2.99 Kurtosis Value = 3.76	Normal distribution	Assumptions of T-Test were met based on statistic requirement (Kline , 2005)
Outlier	Mahalanobis distance	No outlier	(Ho, 2014)

Appendix M

Ethics Committee Approval

FACULTY OF NURSING

PRINCE OF SONGKLA UNIVERSITY

P.O. BOX 9, KHOR HONG, HATYAI
SONGKHLA, THAILAND, 90112
FAX NO. 66-74-286421
TEL. NO. 66-74-286456,
66-74-286459

MOE 0521.1.05/ 605

Ethics Committee Approval

February 15, 2017

To whom it may concern:

This letter is to confirm that the Nursing Faculty Ethics Committee approved the research study of Mrs. Erika ID: 5510430014 entitled "Development and Psychometric Evaluation of Self-Efficacy in Performing Maternal Role Scale for First Time Pregnant Adolescence in Indonesia" on December 19, 2015. The study is a major part of Mrs. Erika's Doctoral Program at the Faculty of Nursing, Prince of Songkla University, Thailand. The study ensures the rights, safety, confidentiality, and welfare of research participants and it was determined that the study would not be harmful to the participants in the future.

Sincerely,

Aranya Chaowalit

Associate Professor Aranya Chaowalit, PhD, RN
Dean, Faculty of Nursing
Prince of Songkla University
THAILAND

Appendix N

Curriculum Vitae

Name Mrs. Erika

Student ID 5510430014

Educational Attainment

Degree	Name of Institution	Year of Graduation
Diploma in Nursing	Nursing Institute, Padang-West Sumatera	1993
Bachelor in Nursing	Faculty of Nursing-University of Indonesia	1998
Master of Nursing Science	Faculty of Nursing-University of Indonesia	2004
Maternity Nursing Specialist	Faculty of Nursing-University of Indonesia	2005
Doctoral Candidate in Nursing Science	Prince of Songkla University-Thailand	2017

Scholarship Awards during Enrolment

Doctor of Philosophy Degree in Nursing Science (International Program) Scholarship, Funded by The Indonesian Ministry of Education Directorate General of Higher Education.

Work – Position and Address (If Possible)

Lecturer of Nursing, Faculty of Nursing, University of Riau, Indonesia, 28127,

Telephone (62761) 31162

Email: rika_hardi@yahoo.com, Phone: +628127523843

List of Publication and Proceeding

1. Erika, Boonyoung, N., & Chunuan, S. (2017). The Maternal Role Performance among Indonesian Pregnant Adolescents. *Songklanagarind Journal of Nursing*, 37(Supplement), 80-88.