MATERNAL SELF-EFFICACY, SOCIAL SUPPORT, AND KANGAROO CARE AMONG MOTHERS OF PRETERM INFANTS, THE REPUBLIC OF MALAWI

MERCY NDABAKSE BANDA

MASTER OF NURSING SCIENCE

GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
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A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF NURSING SCIENCE

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THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF NURSING SCIENCE

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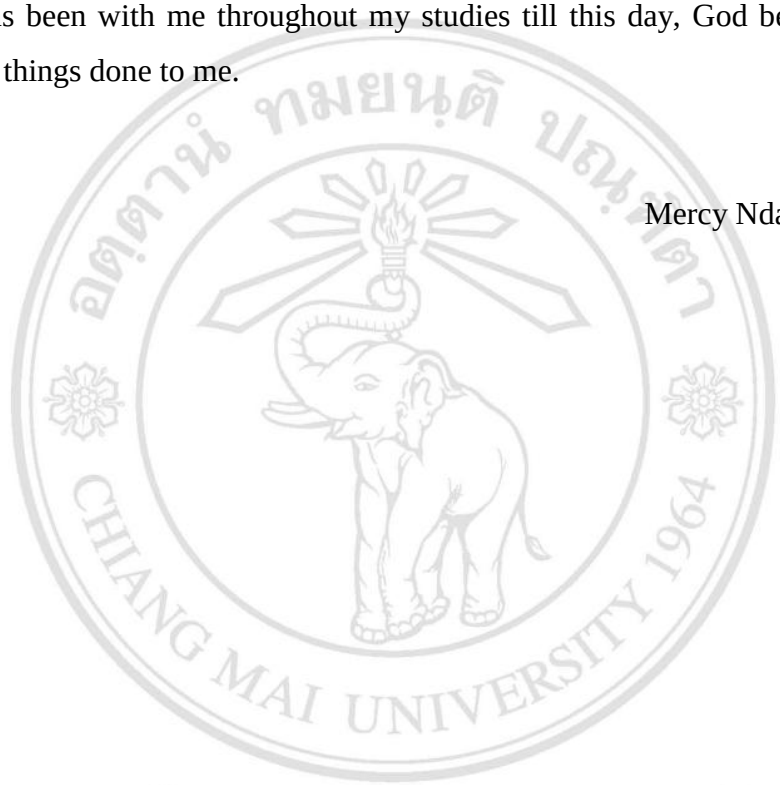

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ABSTRACT

Kangaroo care has many benefits to both mothers and preterm infants. This descriptive correlative research studied the practice of kangaroo care among mothers of preterm infants and examined the relationships among maternal self-efficacy, social support, and kangaroo care among mothers of preterm infants in the Republic of Malawi. The sample comprised 96 mothers coming for follow up visits at three tertiary hospitals in Malawi. Data were collected from March to April 2019. The research instruments were translated to Chewa, including a demographic data form, the Perceived Maternal Parenting Self-Efficacy Questionnaire (Barnes, 2007), the Perinatal Infant Care Social Support Scale (Leahy-Warren, 2005), and the Kangaroo Care questionnaire developed by the researcher. Cronbach's alpha coefficients were obtained and found that the Perceived Maternal Parental Self-Efficacy was .85, the Perinatal Infant Care Social Support Scale was .94, and Kangaroo Care was .94. Data were analyzed using descriptive statistics and Pearson's product-moment correlation.

The results were as follows:

1. Most mothers of preterm infants, 69.79%, demonstrated full practice of kangaroo care with a mean score of 19.88, SD = 3.26.

2. Maternal self-efficacy was positively correlated with kangaroo care to a moderate degree ($r = .48$, $p < .01$).

3. Social support was positively correlated with kangaroo care to a high degree ($r = .61$, $p < .01$).

These results suggest that mothers of preterm infants should be assessed for maternal self-efficacy, social support, and kangaroo care. Nurse-midwives should develop strategies to enhance maternal self-efficacy and social support in order to promote kangaroo care among mothers of preterm infants.

หัวข้อวิทยานิพนธ์ สมรรถนะแห่งตนในการเป็นมารดา การสนับสนุนทางสังคมและการดูแลแบบแกงการูในมารดาของทารกเกิดก่อนกำหนด สาธารณรัฐมาลาวี

ผู้เขียน นางสาวเมอซี ดาแบคซีร์ แบนดาร์

ปริญญา พยาบาลศาสตรมหาบัณฑิต

คณะกรรมการที่ปรึกษา อาจารย์ ดร. นงลักษณ์ เฉลิมสุข อาจารย์ที่ปรึกษาหลัก
รองศาสตราจารย์ ดร. ปิยะนุช ชูโต อาจารย์ที่ปรึกษาร่วม

บทคัดย่อ

การดูแลแบบแกงการูมีประโยชน์ทั้งต่อมารดาและทารกเกิดก่อนกำหนดในหลายทาง การศึกษานี้เป็นการศึกษาเชิงพรรณนาหาความสัมพันธ์ มีวัตถุประสงค์เพื่อศึกษาการดูแลแบบแกงการูในมารดาของทารกเกิดก่อนกำหนด และเพื่อหาความสัมพันธ์ระหว่างสมรรถนะแห่งตนในการเป็นมารดา การสนับสนุนทางสังคมและการดูแลแบบแกงการูในมารดาของทารกเกิดก่อนกำหนดในสาธารณรัฐมาลาวี กลุ่มตัวอย่าง จำนวน 96 คน เป็นมารดาที่มาตรวจหลังคลอดในโรงพยาบาลระดับตติยภูมิจำนวน 3 แห่งในมาลาวี เก็บรวบรวมข้อมูลในช่วงเดือนมีนาคมถึงเดือนเมษายน พ.ศ. 2562 เครื่องมือวิจัยได้รับการแปลเป็นภาษาชีวา ประกอบด้วย แบบสอบถามส่วนบุคคล แบบสอบถามการรับรู้สมรรถนะแห่งตนในการเป็นมารดา (Barnes, 2007) แบบสอบถามการสนับสนุนทางสังคมในการดูแลทารกแรกคลอด (Leahy-Warren, 2005) แบบวัดการดูแลแบบแกงการูที่พัฒนาโดยผู้วิจัย ค่าอัลฟาครอนบาคของเครื่องมือเป็นดังนี้ แบบสอบถามการรับรู้สมรรถนะแห่งตนในการเป็นมารดาเท่ากับ .85 แบบสอบถามการสนับสนุนทางสังคมในการดูแลทารกแรกคลอดเท่ากับ .94 และแบบวัดการดูแลแบบแกงการูเท่ากับ .94 วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนาและสหสัมพันธ์เพียร์สันโปรดักต์โมเมนต์

ผลการวิจัย พบว่า

1. มารดาของทารกเกิดก่อนกำหนดส่วนใหญ่ร้อยละ 69.79 มีการดูแลแบบแกงการูเต็มรูปแบบที่มีค่าเฉลี่ย 19.88, SD = 3.26

2. การรับรู้สมรรถนะแห่งตนในการเป็นมารดา มีความสัมพันธ์ทางบวกกับการดูแลแบบแกงการู ในระดับปานกลาง อย่างมีนัยสำคัญทางสถิติ ($r = .48$, $p < .01$)

3. การสนับสนุนทางสังคมมีความสัมพันธ์ทางบวกกับการดูแลแบบแกงการูในระดับมาก อย่างมีนัยสำคัญทางสถิติ ($r = .61$, $p < .01$)

ผลการวิจัยเสนอแนะว่า มารดาของทารกเกิดก่อนกำหนดควรได้รับการประเมินสมรรถนะแห่งตนในการเป็นมารดา การสนับสนุนทางสังคม และการดูแลแบบแกงการู พยาบาลผดุงครรภ์ควรพัฒนากลยุทธ์ที่ส่งเสริมสมรรถนะแห่งตนในการเป็นมารดาและการสนับสนุนทางสังคม เพื่อส่งเสริมการดูแลแบบแกงการูในมารดาของทารกเกิดก่อนกำหนด

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CHAPTER 1

Introduction

Background and Significance of the Research Problem

Globally, the estimation of 15 million infants are born preterm annually and over 60% of preterm births occur in Africa and South Asia (World Health Organization [WHO], 2018). The top 10 countries with highest preterm birth rates over 15%, are in sub-Saharan Africa and approximately accounts for two thirds of all preterm births (WHO, 2018). The Republic of Malawi, one of countries in Africa, has highest rate of preterm births in the world with the incidence of 1 preterm of 5 births and a rate of 18.1 per 100 live births (National Statistics Office [NSO], 2017; WHO, 2018). Preterm infants are described as babies born before 37 completed weeks of gestation (WHO, 2018). There are three main classifications of preterm births based on gestational age and these are: late preterm those born between 32 and 37 weeks - account for 84% of total preterm births, most survive with supportive care; very preterm - those born between 28 and 32 weeks, these infants require extra supportive care; extremely preterm – those born before 28 weeks, these infants require the most intensive care to survive (WHO, 2014).

Due to immature developmental physiology and selected organ functional systems, preterm infants are at risk for serious health problems including immediate life threatening health problems, long-term complications, and developmental delays (Raju, 2012). In the newborn period, preterm infants with immature respiratory system are at risk of apnea of prematurity leading to respiratory distress syndrome (Hibbard et al., 2010). Additionally, they have thermo instabilities due to inadequate brown fat to generate heat resulting into cold stress, hypoxemia, metabolic acidosis, and hypoglycemia (Raju, 2012). Preterm infants are more likely to develop neonatal jaundice as a result of immature liver that fails to get rid of bilirubin in the blood stream (Platt, 2014). Preterm infants are also vulnerable to various infections due to immature immune system (Platt, 2014). Neurological impairments which can affect neurodevelopmental outcomes, such

as; cerebral palsy, and sensor neuronal hearing loss (Jarjour, 2015). Due to long period of hospitalization they are separated from their parents until his/her clinical condition is stable (Pike, Kritzinger, & Krüger, 2017). This leads into poor bonding bwtween mother and infant (Karimi, Khadivzadeh, Saeidi, & Bagheri, 2016). To minimize the effects of prematurity and improve neonatal outcomes on preterm infants, Kangaroo Care or Kangaroo Mother Care is recommended (Boundy et al., 2016).

Kangaroo Care (KC) is defined by WHO (2015) as a method of providing continuous and prolonged skin–to–skin contact between the mother (or other caregiver) and the baby, and exclusive breastfeeding (ideally) or feeding with expressed breast milk. Malawi has experience with the implementation of Kangaroo Care since 1999 and developed national KC guidelines in 2005 (Ministry of Health [MOH], 2009). Based on Malawi KC guidelines, KC refers to skin to skin contact between mother/surrogate and preterm infant (dressed in a nappy and hat) in a strictly vertical position with infant's head turned one side between a mother's breasts and under mother's clothes for at least 20 hours or more per day (MOH, 2009). KC in Malawi is mainly for low birth weight and late preterm infants (32-37 weeks), physically stable and having reached weight of above 1,500 grams. Very preterm infants (28-32 weeks), and extremely preterm (below 28 weeks) infants are nursed in nurseries in NICU at tertiary or secondary level of care, since this group require advanced and extra support of care. The principle and practice of KC recommends continuous KC, that is skin to skin contact for at least 20 hours or more (including day and night), for a successful continuous KC a family member is allowed to help to give a mother a rest (MOH, 2009). The guidelines also recommend intermittent skin-to-skin contact in which the preterm infant is placed in the skin-to-skin position in divided times, preferably at least 2 hours per session, for at least 20 hours or more per day (MOH, 2009; Thukral, Chawla, Agarwal, Deorari, & Paul, 2008).

World Health Organization (WHO), strongly recommends KC as the routine care for stable infants weighing ≤ 2000 grams. As an evidence–based intervention to improve preterm birth outcomes, KC is continued at home after discharge with routine follow up visits scheduled to weigh the infant, counsel on feeding, and check for danger signs (WHO, 2015). In Malawi, KC for preterm infants is initiated in the hospital soon after birth and when physical condition is of the infant is stabilized. For mothers to be allowed

to continue KC at home have to meet following criteria; their infants having reached weight of above 1,800 grams, and breastfeeding being established, and mother performs skin to skin with competency then dyad is allowed to continue KC at home. Infants who are not stable and require medical attention can practice intermittent KC (spending some hours in the KC position, gradually increasing the time as the infant gets stronger). The practice guideline for secondary and tertiary level is the same, but for primary level very preterm and extremely preterm are referred to secondary level of care irrespective of body weight. Early discharge after delivery is a hallmark of the KC approach and occurs when both infant and mother reaches the above mentioned criteria, then pair is discharged to continue KC at home with an agreed-upon schedule for follow-up visits at the hospital. Outreach clinic or home or monitoring the health of an infant, in some settings care can be under health surveillance assistants and community nurses in the communities to follow up the progress (MOH, 2009).

Kangaroo Care has physiological and psychosocial gains for premature infants which are well established in a meta-analytic evidence. KC has demonstrated to lower infant mortality rates, decreasing the risk of sepsis and infection, hypoglycemia, hyperthermia, and hospital re-admissions (Boundy, Selwood, Harwood, McNabb, & Turner, 2015; Conde-Aguedelo, 2003). Preterm infants receiving KC, their physiological parameters are normalized, such as vital signs (temperature, heart rate, respiratory rate, and oxygen saturation (Flacking, Ewald, & Wallin, 2011). KC reduces perception of pain and stress (Silva, Barros, Pessoa, & Guinsburg, 2016), KC also increases the rates of exclusive breastfeeding, and improves growth (Boundy et al., 2015). Additionally, KC also increases maternal and neonate interactions, infants receiving KC are more attachment to their mothers and have positive interactions in such that mothers become more adaptive to infant cues (Athanasopoulou & Fox John, 2014). KC is practiced until the preterm infant reaches an average weight of 2,500 grams and 37 corrected weeks of gestation most women can do to the maximum of six weeks (MOH, 2009).

Nurses play a role to promote KC for hospitalized preterm infants (Mahboobeh, Sedigheh, & Fatemesadat, 2016), Before initiating a preterm infant on KC, mothers and companions (spouses, grandmothers, sisters or in-laws) are taught on how to perform the KC, and provide group counselling on benefits of KC on preterm and mothers. The WHO

KC practice guideline (2003) and Malawi National KC guidelines (MOH, 2009), states that KC practice should go together with support from family members, community and health care worker to ensure its full implementation hence the need for family counselling. During hospitalization period, nurses demonstrate the practice by using a doll, later mothers are asked to do the return demonstration. After the clinical condition is stabilized, the preterm infant and mother are allowed to continue the practice at home as long as breastfeeding is established and mother is competent in the practice. The main purpose of providing, education, counselling, and demonstrating KC is to help mothers to develop self-efficacy for KC, since it is believed that self-efficacy plays a role in behavior change which results into desired health outcomes (Strecher, DeVellis, Becker, & Rosenstock, 1986). Adding to that, mothers are taught extra techniques such as infection prevention measures, monitoring danger signs, positioning, feed preparation interms of amount and frequency, and exact duration of skin to skin contact (MOH, 2009).

Despite mothers being knowledgeable with regards to KC protocols, and attained KC education at hospital by nursing staff, Blencowe and Molyneux (2005) highlighted that mothers allowed to continue KC at home were allegedly not compliant with KC protocol. A study done at Queen Elizabeth Central Hospital, Malawi to explore the outcomes of continued unsupervised practice of KC after discharge from hospital found that 70% of women had intermittent follow up care visits at the KC clinic; some neonates felt very cold and had poor growth rate on follow up visits; and 12.4% post discharge deaths of preterm neonates were reported (Blencowe & Molyneux, 2005). This results were contrary to expectation of above 75% practice, as indicated in Malawi Every Newborn Action Plan for KC practice and compliance to protocols (MOH, 2015). Malawian mothers are allegedly defaulting to practice KC, as shown through self-reporting, observation and conclusions (Chisenga, Chalanda, & Ngwale, 2015). Bergh et al. (2012) made the recommendation to strengthen either intermittent or continuous Kangaroo Care, by advocating for all women to practice KC as long as they delivered preterm or low birth weight infant in order to prevent neonatal deaths resulting from prematurity complications.

Due to high prevalence rate of preterm births, approximately (18-26 per 100), leads to overcrowding in hospitals in Malawi and hence KC practice is allowed to continue at home and monitored at health facilities (Chisenga et al., 2015), except for extremely and very preterm infants who are nursed in NICU at tertiary hospitals. Malawi being one of the countries with limited resources and having high incidence of preterm and low birth weight infants the pressure of work is high on health workers so the resolution is to allow women to continue the KC at home with supervision from the facility, adding to that there is increased turn over in hospitals, which adds more pressure on few nurses, but with a good intention to prevent nosocomial infections among these high risk preterm infants hence KC is allowed to continue at home (Raajashri, Adhisivam, Vishnu Bhat, & Palanivel, 2018). If mothers are allowed to go home, members of the community and the spouse reinforce the practice hence leading to yielding positive outcome on follow up visits (Nguah et al., 2011).

They are some disadvantages of home KC practice, and some resistance to the full implementation of the practice (Koenraads, Phuka, Maleta, Theobald, & Gladstone, 2017). In Malawi, a qualitative study by Manjanja (2013) in which the researcher explored women's experiences of providing KC at home, participants expressed anxiety on a kangarooed infant due to its strange looks, being inactive and infant condition and some women indicated that they were uncomfortable with the practice due to the knot at the back. Adding to that Manjanja (2013), observed inappropriate KC practices which could interfere with infant's health for instance participants practiced mixed feeding neglecting exclusive breastfeeding which is a KC requirement, others provided alternative ways of providing warmth like adding extra blanket, keeping the house warm with charcoal, and improper dressing was also observed, others preferred to perform the KC at night only (Manjanja, 2013). Another study in Malawi by Chizenga et al. (2015), indicated that 76% of participants who practiced KC at home risked discontinuation and incompliance as a result of extra women responsibilities. Discomfort were also observed mothers expressed that; were scared of the method, due to the size of the infant which scared them, uneasiness of the practice, the need for constant help and being the first time to practice made them uncomfortable to perform (Chisenga et al., 2015). Lakew and Worku (2014) observed that some mothers performing KC practiced mixed feeding and their neonates had poor outcomes such as deaths which accounted of 16.3% deaths.

Unlike in a study by Nguah (2011) at the start home KC practice was unacceptable by a relative number of women but later community encouraged women to practice. As a result, all follow up visits resulted into positive neonatal outcomes.

From literature review on continued KC at home, there are three main factors that are likely to influence the uptake of KC including individual, household, and cultural/community factors. The individual factors included physical discomfort and perceived health risks, outcome expectations, and mothers' self-efficacy in providing KC properly (Hunter et al., 2014). Factors in the household level included decision-making dynamics, heavy household work burden, and family support for newborn care and household work (Hunter et al., 2014). Factors in community and cultural level included cultural value, local understanding of illness etiologies, existing newborn care practices, resistance to an unfamiliar practice, and community support (Hunter et al., 2014). Similarly, a study in Malawi indicated that women who were allowed to continue the practice at home had early discontinuation due to lack of support and multiple roles of women which affected compliance and other factors that hindered KC uptake at home were lack of empowerment to make decisions on their own as mothers; lack of assistance with the skin-to-skin contact; and not being comfortable with the KC position (Chisenga et al., 2015). A qualitative study also done in Malawi indicated that women providing KC at home faced stigma due to appearance of the infants and members of the community gave negative comments which contributed mothers to provide alternative ways of warmth other than KC, and provide mixed feeding (Manjanja, 2013). From all of these factors, maternal self-efficacy and social support are examined as the factors related to KC among mothers of preterm infants in this study.

Self-efficacy by Albert Bandura (1997) is defined as an individual's perception of competence toward a specific task or behavior. Based on Bandura concept of self-efficacy, Al-Kandari and Al-Qashan (2010) developed maternal self-efficacy that is defined as mothers' perception of their ability to successfully complete a specific task of caregiving; so, for instance, maternal self-efficacy has to do with mothers' feelings of competency in the maternal role. Bandura (1997) acknowledged the existence of maternal self-efficacy and emphasized that for a person to execute a caring behavior successfully, they must believe that their actions will have the desired outcome and have

confidence in their ability to perform specific behaviors or skills. High maternal self-efficacy enables mothers to provide a healthy, sustaining environment for their infant (Pennell, Whittingham, Boyd, Sanders, & Colditz, 2012). For someone to have positive competent caring practices behaviors, maternal self-efficacy has to play a role (Gao, Sun, & Chan, 2014). A study on maternal self-efficacy in mothers of preterm infant found that mothers with preterm infants had low self-efficacy while those with term infants had high maternal self-efficacy (Gross, Rocissano, & Roncoli, 1989). A study by Izadirad et al. (2011) found that there was a direct relationship between maternal self-efficacy and infant cares ($r = .538$, $p = 0.000$). Dlamin et al. (2017) found positive moderate association between self- efficacy and kangaroo care among parents who were nursing their infants in NICU ($r = .368$, $p = 0.000$). In addition, a study by Roberts, Paynter, and Mcewen (2000) aimed to compare KC and conventional cuddling care (CCC) in premature and small-for-gestational-age infants, the results indicated that mothers who had high self-efficacy scores performed KC and those with low self-efficacy did not.

A part from maternal self-efficacy, literature has indicated that the most effecting enabling factor for KC practice in a home setting is social support. Social support by House (1981) is defined as perception and actuality that one is cared for, has assistance available from other people, and that one is part of a supportive social network. Social support has been conceptually divided into four domains (House, 1981): informational (information provided to another during a time of stress), instrumental (the provision of tangible goods and services or tangible aid), appraisal (the communication of information which is relevant to self-evaluation rather than problem solving), and emotional support (the provision of caring, empathy, love, and trust). There are studies indicating that parents with preterm infants are more in need of social support. Singer et al. (1996) found that social support was more critical for mothers of preterm infants than for mothers of full-term infants. Further research examining social support following discharge is particularly warranted, as May (1997) found that mothers of preterm infants expressed a strong desire for more support after discharge and Pinelli (2000) established that social support is available more often during the acute phase of having a preterm infant than at any other time during the experience. Another study by Kim (2018) showed that mothers were in need of social support associated with informational, belonging, and emotional supports.

Social support in form instrumental, emotional, appraisal and informational has direct impact on health and wellbeing because human needs are provided and social support can decrease levels of maladaptation hence improving health by reducing pressure or tension (House, 1981). It has been noted that social support increases the caring practice, has potential of reducing stress and it helps mothers adjusts to life challenges as well as a critical coping resource associated with preterm births (Rowe & Jones, 2010). In a systematic review by Seidman et al. (2015), indicated that social support from family members, peers, and other mothers, was one of highest-ranked enabler to practice and the top enabler of KC practice. This support takes different forms, family members have provided hands on help by taking turns and holding the infant in KC position to make a mother to rest. Family members also take care of other tasks that the mother would otherwise have had to deal with including child care and housekeeping thus giving mother a relief from overworking (McMaster, Haina, & Vince, 2000). A study by Effend, Ichwan, and Sukandar (2016) found that social support type influenced in the choice of KC and significant relationship was found between the social support type, including tangible support type ($p < 0.001$, RP 3.22, 95% CI: 1.22-8.51), informational support ($p < 0.001$, PR 4.00, 95% CI: 1.48-10.48), and emotional support ($p = 0.002$, PR 3.36, 95% CI: 1.01-11.25) with choosing KC. Informational support was the factor that influences the choosing of KC (PR 35.39, 95% CI: 5.15-243.22). While a study by Wakse (2016) found positive association between social support and KC although only information support ($r = 0.521$, $p = 0.000$) and appraisal support ($r = 0.440$, $p = 0.00$). Another study by Leahy-Warren and McCarthy (2011), of four dimensions of social support, only information ($r = 0.40$, $p < 0.20$) and appraisal support ($r = 0.20$, $p < 0.05$) had positive significant relationship with confidence in various infant care tasks. In addition, a study by Nguah et al. (2011) conducted in Ghana among women who were allowed to practice KC at home, women reported good spousal, family received spousal help in a form of instrumental aid support which enabled them to practice KC effectively and had positive neonatal outcomes in all follow up visits (OR: 1.6, 95%CI: 1.1 to 2.4, $p = 0.007$).

This study focused on two variables, maternal self-efficacy and social support in relation to Kangaroo Care. Several gaps exist in the studies of maternal self-efficacy, social support and Kangaroo care. Firstly, known studies about self-efficacy and

kangaroo care, were done in NICU among hospitalized preterm infants and there was no study on self-efficacy and KC among mothers discharged home. Secondly, previous studies were done to describe the relationship between maternal self-efficacy and infant care practices which incorporated KC as a part of infant care practices. Hence the study on the direct relationship between maternal self-efficacy and KC among mothers with preterm infants at home is needed. Secondly, previous studies investigating relationship between social support and KC were more interested in few dimensions of social support, unlike studying the whole dimensions of social support, and there is no study conducted in Malawi. Another study conducted on relationship between social support and kangaroo care were done on teenage mothers, therefore the study on different group of mothers apart from teenage is required. The purpose of the study is to determine relationships among maternal self-efficacy, social support, and kangaroo care among mothers of preterm infants in the republic of Malawi. The results of this study are beneficial for nurses and other health care workers to have a better understanding social support and maternal self-efficacy and how they can affect KC so that nurses can provide appropriate care to promote kangaroo practices at home among women of preterm infants.

Research Objectives

1. To describe Kangaroo Care among mothers of preterm infants.

2. To determine the relationship between maternal self-efficacy and kangaroo care among mothers of preterm infants.

3. To determine the relationship between social support and kangaroo care among mothers of preterm infants.

Research Questions

1. What are the patterns of Kangaroo Care among mothers of preterm infants?

2. Is there any relationship between maternal self-efficacy and Kangaroo Care among mothers of preterm infants?

3. Is there any relationship between social support and Kangaroo Care among mothers of preterm infants?

Definitions of Terms

Maternal self-efficacy referred to the perceptions of mothers regarding their ability to successfully complete specific tasks of care giver for preterm infants including taking procedures, evoking behaviours, reading behaviours and situational beliefs. It was measured using the Perceived Maternal Parenting Self-efficacy tool developed by Barnes and Adamson-Macedo (2007) which was translated to Chewa language.

Social support referred to the perception of mother regarding assistance in form of informational, instrumental, appraisal, and emotional support that she received from people within her social network during she is practising Kangaroo care. It was measured by the Perinatal Infant Care Social Support Scale developed by Leahy-Warren (2005) which was translated to Chewa language.

Kangaroo Care referred to the duration (total hours per day) of providing skin–to–skin contact between the mother/surrogate and preterm infant (dressed in a nappy and hat) in a strictly vertical position with infant's head turned one side between a mother's breasts and under mother's clothes (MOH, 2009). It was measured by English version of Kangaroo Care Practice Questionnaire developed by the researcher which was translated to Chewa language. Kangaroo Care was classified into three patterns as follow;

No KC referred to the mother/surrogate was unable to provide KC.

Partial KC referred to the mother/surrogate was able to provide KC for less than 20 hours per day.

Full KC referred to the mother/surrogate was able to provide KC for at least 20 hours or more per day.

Mother of preterm infant was defined as a woman practicing kangaroo care to an infant born before 37 and more than 32 weeks of gestation (WHO, 2014), weighed between 1,800 and 2500 grams, those allowed to practice KC at home being monitored and coming for follow up at the tertiary hospitals of Malawi.

CHAPTER 2

Literature Review

This chapter describes the literature review and conceptual framework of the study. In the part of the literature review, there are four main issues to be explained. The conceptual framework for the study is illustrated at the end of this chapter.

1. Preterm births
    1.1 Incidence of preterm birth
    1.2 Causes of preterm birth
    1.3 Impact of preterm birth
    1.4 Management of preterm infants
2. Kangaroo care
    2.1 Definition and components of kangaroo care
    2.2 Benefits of kangaroo care for preterm infants
    2.3 Health care delivery system and situation
    2.4 Factors related to kangaroo care among mothers of preterm infants
    2.5 Measurements of kangaroo care
3. Maternal self-efficacy
    3.1 Definition of maternal self-efficacy
    3.2 Maternal self-efficacy among mothers of preterm infants
    3.3 Maternal self-efficacy and kangaroo care
    3.4 Measures of maternal self-efficacy
4. Social support
    4.1 Definition and components of social support
    4.2 Social support among mothers of preterm infants
    4.3 Social support and kangaroo care
    4.4 Measures of social support

Preterm Birth

WHO (2014) defined preterm birth as all births occurring before 37 weeks of gestation or less than 259 days from last menstrual period (LMP). It is a condition where by pregnancy fails to reach expected period of gestation and can also be referred as an undesirable pregnancy outcome. Preterm birth is an adverse pregnancy outcome by which fetus fails to reach maximum utero growth potential. A condition that is unpredictable, it occurs in every group of women in reproductive age in both high and low risk pregnancies and there is a certain proportion of women that can give birth to premature infants irrespective of health status. (Vogel et al., 2018).

Incidence of Preterm Birth

The global incidence of preterm birth is approximately 15 million per year. Asia and Africa has the highest rates of preterm birth which accounts over 60%. The top 10 countries with highest rates of preterm birth per 100 live births are Malawi, Comoros, Congo, Zimbabwe, Equatorial Guinea, Mozambique, Gabon, Pakistan, Indonesia, and Mauritania and the rate of preterm birth in these countries is approximately above 15% per 100 live births and Malawi has highest 18.1% (WHO, 2018). Of the 10 countries with preterm birth rates of over 15%, two are in sub-Saharan Africa. In addition, the average of 12% babies are born too soon in the poorest countries compared with 9% in higher-income countries for example in the United States, nearly 1 in 10 babies is born preterm (WHO, 2018). The Republic of Malawi, one of countries in Africa, has highest rate of preterm births in the world with the incidence of 1 preterm of 5 births (March of Dimes, PMNCH, Save the Children, & WHO; NSO, 2017; WHO, 2018).

Causes of Preterm Birth

There are many associated factors related to preterm births. It was found that socio-demographic, medical causes, pregnancy complications, and environmental factors have been shown to increase the risk of ineviatable preterm birth, however its etiology is not known (Vogel et al., 2018). For socio-demographic factors, the evidence from a systematic review has indicated that there is association between ethinicity and preterm birth (Schaaf, Liem, Mol, Abu-Hanna, & Ravelli, 2013). A woman's age, adolescent

and advanced maternal age pregnancies, also increases risk for preterm birth (Waldenström et al., 2014). Findings from meta analysis of cohort studies reveal that first pregnancy in women and those under 18 years are at high risk of preterm birth across all age and parities (Kozuki et al., 2013). Low maternal education is also a contributing factor although low maternal education alone is difficult to isolate it as factor on its own but to some extend it is linked with low maternal age (Ruiz et al., 2015). On medical factors, it was found that infections occuring during pregnacy risks a woman for preterm labour which end up in preterm birth including untreated HIV/AIDS, bacterial infections such as vaginosis, and urinary tract infections. Viral and protozoa diseases including hepatitis C and malaria may contribute to preterm birth (Haahr et al., 2016). Pregnancy complication including pre-eclampsia and eclampsia, diabetes during pregnancy, cervical conditions, anemia, and some vitamin deficiencies, for example Vitamin D are likely to cause preterm birth (Wei, Qi, Luo, & Fraser, 2013). Previous delivery of premature infant also contribute to preterm births (Kazemier et al., 2014). Pregnancy with obstetric complications including placental abnormalities and uterine abnormalities during pregnancy, and fetal conditions have also been associated with preterm birth (Fox et al., 2014). Environmental factors causing preterm births are chemicals and pesticides used for various purposes. In addition, treatment of drinking water with chlorine results in the release of by-products, such as trihalomethanes (THM), which can also be hazardous. A number of studies investigated the relationship between these contaminants and preterm birth (Ferguson, O'Neill, & Meeker, 2013).

Impact of Preterm Birth

The birth of a premature infant has various undirarable outcomes including neonatal and infant mortality, short and long term physical problems, and financial problems for the family and health care systems. For neonatal and infant mortality, it is estimated that complications of preterm birth are the major leading cause of underfive, neonatal deaths, the estimates are 16% of all deaths in infants below five years of age and 35% of these deaths occur in newborns (UNICEF, 2017) . In developing countries the prevalence of preterm birth may be under-recognised such that the prevalence of preterm birth where neonatal mortality is high, the estimates may be biased. As for Malawi the neonatal

mortality rate is 22 deaths per 1,000 live births ,complications from prematurity accounts for 37% of deaths.

Short term physical problems include increased risks of respiratory distress and sepsis which are the result of immature developmental physiology and selected organ functional systems (Raju, 2012). Late preterm born between 34-36+6 weeks have higher risk of undisirarable health outcomes than term infants (Saigal & Doyle, 2008). This group of infants have thermo instability as a result of reduced fat to generate heat, they are at risk of hyporthermic state leading to cold stress, metabolic acidosis, hypoxemia and hyporglycemia (Raju, 2012).

Long term complications can be caused by neurological impairements which can affect neurodevelopental outcomes of the preterm infant including retinopathy of prematurity, celebral palsy, and sensor hearing loss (Jarjour, 2015). Neurological conditions such as periventricular leukomalacia, seizures, and hypoxic ischemic encephalopathy, feeding difficulty, visual and hearing problems are among many complications (Mwaniki, Atieno, Lawn, & Newton, 2012). Other longterm complications of prematurity are; poor neurodevelopmental outcomes, have behavioral social-emotional problems, and face learning difficulties in their infancy (Moreira, Magalhães, & Alves, 2014). Some infants develop autism that is a group of speech disorders that affect speech, social skills and behaviour (March of Dimes et al., 2013). In addition , as most preterm infants are admited in neonatal intensive care unit (NICU) for close medical treatment and care, they are separated from their parents for sometime hence they lose contact which results into poor attachment and bonding (Bicking & Hupcey, 2013; Karimi et al., 2016). Finally, the birth of a premature infant also has a negative impact on financial problems for the family and health care systems. The services rendered leads to high costs in health systems as well as causes financial problems for the caregivers of preterm infants (Petrou, Abangma, Johnson, Wolke, & Marlow, 2009).

Management of Preterm Births

Management of preterm ranges from simple feasible care to intensive care which depend on clinical condition and gestation age of the infant. WHO (2010) indicates that most premature infants are late preterm born between (32-37) weeks of gestation and

accounts 80 % and most of them die as a result of lack of affordable basic care such as proper thermo stability or warmth and breastfeeding and feeding support. Firstly, obstetric care at birth from a skilled health care worker is vital and crucial for both women and infants and all providers. There is a need to have required competencies to care for both mother and baby, promoting warmth, early and exclusive breastfeeding, cleanliness, and resuscitation if required (WHO, 2010). These practices are essential for full-term infants, but for premature infants missing or delaying any of this care can rapidly lead to deterioration and death.

More than seventy-five percent of preterm infants, which represent the majority of preterm, can be saved with feasible, cost-effective care, such as essential care during child birth and in the postnatal period for every mother and infant, antenatal steroid injections for pregnant woman with premature labor to strengthen fetal lungs. WHO (2003) developed new guidelines to ensure good outcome for infants born preterm, some of the issues included in guidelines are thermo and feeding support (exclusive breast feeding through direct feeding or expressed breast milk) and other care which is the core focus on this paper. The guidelines include treatment given to the mother e.g. steroid injections before birth, antibiotics when premature labor occurs and magnesium sulfate to prevent future neurological impairment of the child – as well as management of the infant this can be thermal care, feeding support and kangaroo mother care (WHO, 2003). As many preterm infants are born after 33 weeks of gestation this group of infants are physically stable, they are in need of supportive care. So kangaroo care is best option as an evidenced based approach it has been scientifically accepted and many health care workers utilize this approach to help mothers to nurse their preterm infants. Kangaroo care has been adopted to minimize the effects of preterm infants and it is also a method that improves neonatal outcome (Boundy et al., 2016). To prevent hypothermia there are a number of interventions including mummification, nesting, using warmers, delayed bathing, and for stable late preterm infants KC is recommended. For feeding support, mothers who have given birth to preterm infants are advised to give breastmilk only either through direct breast feeding or expressed breast milk through tube feeding, cup. Feeding support is emphasized because this group of infant their suckling reflex is poor, and can not coordinate between suckling and swallowing and if care is not taken the infants can end up feeding insufficient feeds which could lead to malnutrition (MOH, 2009; WHO, 2003).

Another care for this group of infant is infection prevention and monitoring of danger signs, infection prevention include use of clean utensils, clean environment, wiping waste as soon as infants wets itself. mothers are told to monitor danger signs such as jaundice, convulsing, lerthargic, refusing to eat, vomiting any feed, signs of fever (MOH, 2009).

Kangaroo Care

Kangaroo Care (KC) was firstly started off in 1978 in Bogotá, Colombia as an alternative for incubators for both preterm and LBW infants (Charpak et al., 2005). The intervention is affordable and costs are low this has been adopted worldwide including Malawi and several parts of Sub Sahara Africa, as a low cost alternative to the management of premature and low birth weight infants particularly those physically stable (Charpak et al., 2005).

Kangaroo Care is defined by WHO as early, continuous, and prolonged or intermittent skin–to–skin contact between the mother or surrogate (kangaroo position) both in hospital and after early discharge, and exclusive breastfeeding (ideally) or feeding with expressed breastmilk (kangaroo feeding) (WHO, 2015). World Health Organisation strongly recommends KC for the routine care of stable infants weighing ≤ 2000 g as soon as they are clinically stable, the KC method has been scientifically proven to be effective in improving preterm birth outcomes (WHO, 2015).

According to Malawi KC guideline (MOH, 2009), for an infant to be initiated on KC has to meet the following criteria: physically stable, not having major illnesses, between 1500 to less 2500 grams of body weight, breastfeeding has to be well established either direct breastmilk, cup feeding or bottle feeding. For mothers has to accept the practice and should be mentally stable and during hospitalization has shown competence in performing KC adding to that mothers and other family members have to undergo KC lessons and be observed for proper implementation of the practice. Women are also taught the danger signs of such as lerthargic, jauindice, refusing to eat, vomiting, uncounciouness, bleeding from the cord, sunken eyes and bulging fontanelle so that if these signs are observed the need to seek medical care without delay. As a requirement every mother and close family member is trained and later is observed in the hospital until she is competent in following all KC steps.

Components of Kangaroo Care

The Malawi National KC guidelines were developed from the World Health Organizations in 2003 and reviewed by Ministry of Health in 2009. The Malawi KC guideline (MOH, 2009) describes four main components as follows:

Kangaroo positioning. Based on Malawi KC guideline (MOH, 2009), kangaroo position or skin to skin contact between a mother or surrogate and a preterm infant in a strictly vertical position with infant's head turned one side; infants trunk has to face in between mothers breasts and under her clothes; infant is dressed in a nappy and a cap on its head; the infant is secured with wrapper that goes around mother's back which is secured by a knot at the back; for more comfort or warmth extra blanket or shawl is added on top of the wrapper. Mothers clothes is open on the front of the chest for easier accomodating the infant. The position for the infant is upright always when walking, sleeping (with back of the bed raised semi fowlers postion), and sitting (MOH, 2009). This is initiated in the hospital soon after birth of the preterm or low birth weight infant sometimes health care workers wait until infant is stable. Skin to skin contact can be of two types that is continuous or intermittent. For the continuous type is used as an alternative to care in an incubator for the preterm who had serious health complications and later are adapting to extra uterine life. This type of infants should be able to suck and swallow while for an intermittent skin to skin contact is offered in divided times, a mother can rest and put an infant on skin to skin at other time (MOH, 2009).

Duration. As a replacement to incubators, preterm infants are kept on KC position for at least 20 hours or more. Family members are advised to help a mother with the KC practice. The woman is advised to sleep in semi reclined position where by a bed is raised at head side, at an angle of 45˚ to prevent the gastro reflux since it is common in the preterm. The position is maintained until the preterm reaches an extend that infant can no longer tolerate and refuses the position. If the continuous is not possible, the intermittent is preferred at least 2 hours per session until reaching 20 hours. However, sessions lasting less than 60 minutes are discouraged since they bring stress to infants, interruption is allowed only for changing diapers, feeding and when mother wants to bath (MOH, 2009; WHO, 2003). Based on Kangaroo care guidelines KC practice is divided into three patterns including full practice which refers to mother performs KC more than

20 hours; partial practice which refers to mother performs KC less 20 hours; and no practice means mother is not practicing KC at all.

KC is recommended when mother and infant are comfortable with the method, skin-to-skin contact can continue for long to the maximum potential of a woman , firstly it can be practiced at health facility, then at home. It can be done until an infant reaches term gestation age around 40 weeks . After an infant reaches term, it shows signs that KC is no longer needed. The infants may flaunder to show uncomfortability, pulls her legs and arms out, cries and refuses every time the mother tries to put her back skin-to-skin. This is best time to advise mother to wean an infant on KC but it comes more safe if weaning is gradual. However breastfeeding continues. Mother can perform KC when necessary, for example, after a bath, when its cold or when an infant catches flu or cold (MOH, 2009).

Caring the infant on KC. Infection prevention need to be involved with KC. Health care providers need to teach mothers the basic precedures for infection prevention including washing hands before and after feeding infant, before and after changing nappies, after using the toilet, clean or wipe baby daily (head to toe). Mothers have to ensure that an infant always wears clean and dry napkins. All utensils like cups and feeding equipment are clean before and after use. Nurses teach mothers how to ensure warmth of the infants by maintaining KC position approximately 20 hours or longer, and ensure that infants are wrapped in a blanket while head is covered with a cup and feet with socks. Mothers are strictly advised to observe for the following signs; difficulty breathing, chest in-drawing, tachypnea, hyporthemia, difficulty feeding: the infant is extremely weak, refuses to eat or vomits, convulsions, diarrhoea and has jaundice (MOH, 2009).

Kangaroo breast feeding. This is provision of breast milk to the kangarooed infant as soon as oral feeding is possible. For very preterm infants between 30 and 32 weeks of gestational can take feeds from a small feeding cup. On this method for an infant can be taken out of mother's chest, while maintaining warmth by wrapping infant in a warm blanket and returned to the kangaroo position after the feed. Infants can also be fed by direct milk expression directly into the baby's mouth, this advantageous because a mother maintain KC (MOH, 2009; WHO, 2003).

Infants of about 32 weeks are capable of suckling from the mother's breast. Mothers are advised to breastfeed and give expressed breast milk, to ensure that the infant gets all that he needs. When infants start suckling effectively, sometimes pauses when feeding and this can take long time to start feeding again. A mother is advised to take leave on the breast so that the baby can resume feeding. Mothers need to be taught how to be patient so that infant sucks enough milk. After sucking an additional feed can be given in a cup. A mother has to ensure that breastfeeding is done in a good position, and attachment may make effective suckling possible at an earlier stage. Late preterm infants born between 34 to 36 weeks' gestational age or have no problems in feeding can suckle effectively (MOH, 2009; WHO, 2003, 2015).

There are various ways of breastfeeding the preterm infants, firstly is expressed breastfeeding, baby is fed expressed breast milk directly into his mouth or giving expressed breast milk or formula by cup or bottle. A health care provider demonstrates methods of expressing breast milk and she does the return demonstration. Infants are fed at least every 3 hours, 8 times in 24 hours including during the night. Secondly, cup-feeding, this method can be used to feed even very small infants, as long as they swallow the milk. Mothers easily learn this technique and feed their infants with enough amounts of milk. Cup-feeding is advantageous over bottle-feeding because of it does not interfere with suckling, a cup is easily cleaned with soap and water, if boiling is not possible, and enables the infant to have control on the amounts it can consume. Thirdly, bottle-feeding, this method is not allowed due to its disadvantage of interference with suckling (MOH, 2009).

The amount of breastmilk is calculated based on infant's body weight and age and mothers are given cups calibrated to show exact amount of breastmilk they are supposed to give to their preterm infant. Frequency of feeding is done depending on body weight and age of the infant. The guide provides a feeding guide for infants starting from birth to day 14 after birth, for infants weighing less 1500 grams, are fed every 3 hours, while above 1500 grams feeding is every 2 hours. Fortification is allowed when mother has insufficient breast milk due to poor sucking the overall goal is to provide exclusive or nearby exclusive breast milk but for mothers who are allowed to continue the practice at home, the health workers make sure breastfeeding is fully established.

Benefits of Kangaroo Care

Kangaroo care has benefits for both preterm infants and mothers.

Benefits of KC to preterm infants. KC has been known to have thermo stability for the preterm infants, the mechanism of KC or SSC is related to neuro endocrine mechanism and is directly related to oxytocin secretion which is released by sense of touch, light pressure and warmth experienced by the infant in the kangaroo position when breastfeeding. Skin to skin contact stimulate the sensory nerve impulses responsible for touch, warmth and odor this is a powerful stimulant that aid into release of maternal oxytocin (Winberg, 2005). Oxytocin causes increased circulation on the skin overlying the breast, causing warmth and temperature of the mother's breast to rise, providing heat to the infant (Uvnas-Moberg & Eriksson, 1996). This circulation is aided by oxytocin and neurologic triggered vasoactive peptides mediates the cutaneous vasodilatation (Uvnas-Moberg & Erickson, 1996). Evidence has demonstrated reduced risk of hypothermia by greater than 90% when nursed by KC rather than conventional care (Ibe, Tang, & Goggins, 2004). The practice has demonstrated that it maintains a normal body temperature during SSC. However, ambient humidity is lower during SSC than during incubator care. Insensible water loss through trans epidermal diffusion is higher during SSC than incubator care (Pennel et al., 2012). Similarly, in Mores study in 2012, findings indicated that infants in the SSC group achieved rapid thermal control as compared to the control group at 24 hours and 48 hours after birth (Moore, 2012).

Preterm infants on KC have fewer perceptions of pain as oxytocin works on the k- and σ opioid receptor in the brain and has an analgesic effect. This has been demonstrated in different studies for example in a study to examine the effect of kangaroo mother care on pain response in preterm neonates and to determine the behavioral and physiological responses to painful stimuli in preterm neonates the results showed that the pain scores were significantly lower in the KC group than in the control (Choudhary et al., 2016).

Preterm infants on KC have demonstrated a weight gain, since oxytocin increases suckling ability and plus warmth provided by the mother activates production of gastro intestinal enzymes or endocrine system which aid in digestion, absorption and finally weight gain and growth is attained (Holst, Lund, Petersson, & Uvnas-Moberg, 2005).

Normal physiological parameters have also been observed to infants being nursed in KC, the mechanism is enhanced by hormone oxytocin which works on the parasympathetic nervous system, that has direct impact on cardiovascular system such as lowering blood pressure and pulse rate of infants. For the preterm infants receiving KC, they have normal physiological parameters such as vital signs (temperature, heart rate, respiratory rate, and oxygen saturation) (Flacking et al., 2011). In addition, evidence has indicated that in preterm infants receiving KC, cortisol level (stress hormone) reduces by ≥60% (Beijers, Cillessen, & Zijlmans, 2016; Mooncey, Giannakoulopoulos, Glover, Acolet, & Modi, 1997).

Long duration of kangaroo care practice has been associated with increased breast feeding duration, increased weight gain, and fewer hospital-acquired or nosocomial infections (Flacking et al., 2011). Kangaroo care has been demonstrated to greatly improve the nurturing of premature infants and comparatively reduce the risk factors of oral related problems (Zhang & Liu, 2012). Another beneit is period spent in a deep sleep state and quiet awake states as compared with simply being held in their parents arms (Bastani, Rajai, Farsi, & Als, 2017). Evidence has aslo indicated that skin to skin practice could significantly reduce the time which infants spends on phototherapy for infants with jaundice, which might be helpful for the care of neonatal jaundice. KC has aslo proved to have an impact on blood flow to the brain or has cerebral hemodynanamics there by improving blood flow thus it might aid in the structure and promotes development of premature infants brain (Korraa, El Nagger, Mohamed, & Helmy, 2014).

Benefits of KC to parents. The benefits of KC extends to care givers and community at large, KC promotes parent–child attachment and bonding, it also improves parental confidence as caregivers. As the evidence has demonstrated that improvement of attachment occurs at the same time anxiety in mothers about the condition of the baby is reduced. The practice is simple and acceptable to mothers and it can be continued at home (Karimi et al., 2016). In a systematic review by Athanasopoulou and Fox John (2014) evidence has indicated that mothers in KC group are competent in looking after their babies and have less stress compared to the control groups. Moreover, mothers in KC groups indicated that, they had less stress and perceived their infant as normal, but in control groups demonstrated stress. Mothers who practises KC demonstrates to be

calmer, stronger, more energetic, feels to be contentented, they seemed to be clearer headed and these mothers feels more relaxed, attentive, and happier so these characteristics could not be displayed to mothers who were in control gruops (Athanasopoulou & Fox John, 2014). Fathers of preterm infants who are given an opportunity to be close to the infant in the NICU, they feel that they are in control of a situation which help fathers to attain a paternal role and also cope with unexpected situation (Blomqvist, Rubertsson, Kylberg, Jöreskog, & Nyqvist, 2011).

Health Care Delivery System and Situation of KC in Malawi

Malawi officially the Republic of Malawi, is a landlocked country in south east Africa that was formerly known as Nyasaland. It is bordered by Zambia to the northwest, Tanzania to the northeast, and Mozambique on the east, south and west. Malawi spans over 118,484 km2 (45,747 sq mi) and has an estimated population of 18,091,575. Majority of the population is composed of young people aged between 1-14 years, represented by 46.34%, which is the population at risk of various health problems, seconded by 15-24 years, which represents 20.55%, thirdly, 25-54years which is about 27.41%, lastly, 55-65 years and above represented by 2.69% (NSO, 2017).

Malawi has adopted decentralization health system which are modelled along these health divisions. At central level the Ministry of Health take charge of policy formulation, policy strengtherning support, regulation, establishment of standards, training and curriculum development and information representation of Malawi health issues. Malawi's Ministry of Health is responsible for healthcare system in Malawi. Malawi government through Ministry of Health is responsible of sixty two percent of health services and Christian Health Association of Malawi (CHAM), provides 37% the remaining part is provided by private sector and non-governmental organizations (NGOs) which provides paying servirces (Kalinga, 2012). The public health system has three levels of care which are; primary, secondary, and tertiary care. The levels of health care determines hiarachy and complexity and expertise in care of a health condition. Primary care, covers large population of which many are in rular areas, the services consists of outreach services, dispensaries and maternity, urban health centers and primary health centers. (WHO, 2013). At the primary level, health centres have waiting beds, maternity and post-natal beds, holding wards and inaddition to that they provide out-patient

services. If the patient's condition is beyond scope of primary care the case is transferred to secondary level for further management. Secondary level care in Malawi is in 28 districts, in case of absence of a district hospital CHAM facilities act as secondary care and there is a service agreement between MOH nad CHAM. Inaddition to providing services as the primary care these hospitals are equipped to provide extra care that primary cannot e.g radiology services, operating theatres, and laboratory services and the bed capacity for department is atleast 30. The tertiary level of care is provided by central hospitals and some few private sectors which has more specilised services . Community hospitals and at the community level the health system is organised around health surveillance (HSA) serving the health care needs of villagers. Tertiary level includes, central hospitals and other private hospitals with specialist services (MOH, 2010).

Kangaroo care was introduced in Malawi in early 1990s, due to neonatal deaths the method was templarily discontinued (Zimba et al., 2012), later was reintroduced in 1999 at Zomba Central and Bwaila hospitals to address issues of NICU congestion and high neonatal mortality in the nurseries; inadequate staff to care for and monitor infants, infants stayed too long in nurseries for 2-3 months instead of surviving the infants died (Zimba, 2007). In 2002-2006, MOH through Reproductive Health Unit, with partners such as Save the Children and other partners, advocated for KC. Later KC guidelines were developed in 2005 and revised in 2009, and KC was part of training programme in schools, inservice training and curriculum for nurse-midwives and doctors in 2005. Community sensitization campaign was done throughout the nation, additionally counselling materials and job aids for mothers were given, which enhanced the KC practice (Zimba et al., 2012).

The revised national KC guideline (MOH, 2009) was developed with the main aim of facilitating the use of KC for stable preterm and lowbirth weight infants at various levels of care. The guide provides the eligibility criteria for admission, when to start KC, it states that all LBW and preterm infants less 2500 grams physically stable be started on KC. However, the eligibility criteria differs in the levels of health care service. As for tertiary level, district and CHAM hospitals states that all infants (preterm/LBW) weighing less 2000g, physically stable and mothers or surrogates accepts the practice should not be admitted but initiated on KC and be refereed for community support, while for infants

1500g, physically stable, and breastfeeding should be well established, mothers should show the competence in the practice then an infant can be initiated on KC, but this should go with monitored for a few days, then allowed to go home on condition that they come to referal centre for monitoring of progress (MOH, 2009). While for primary health care, infants less 1800grams be refered to secondary level of care for proper management, so at primary level KC is allowed for infants weighing above 1800 and physical stability of the infant is criteria for KC practice at primary level (MOH, 2009). At this level KC is not allowed when the facility has no 24 hour coverage of health services at this level follow up visits are done at every 3 days till infant is stable then a weekly follow up. At this level all infants can be referred at a higher level if a baby is less than 1800 g, not stable, sick, mother or surrogate does not accept KC, mother is very sick and with no surrogate to help, 24 hours coverage with a health worker is not there

The services provided at followup visits as part of postpartum care for preterms on KC include checking for increase of weight which is supposed to be 15 grams weight gain per day, the nurses takes mothers history to ensure KC was practiced at home this is done by asking questions to the mother and a nurse asks about duration of KC at home in terms of hours. Health workers also finds out how mothers ware positioning the infant at home, how womans manages low temperatures, feeding practices frequency and amount of feeds although feeds depends on infants weight, asks signs of KC intolerance e.g being too active, health care providers also ask about neonatal danger signs e.g jaundice finally, nurses do physical assessment. If KC practice at home is a failure infants are readmitted on KC unit, only if the following signs appears; less weight gain (<15 g/day) in 2 consective follow ups, weight loss, appearance of danger signs (infections, neonatal jaundice etc), mother not complying to KC practice as required and infant is less 1800 g. After successful KC practice women and their infants are discharged or discontinued if infants weight reaches 2500 g, and the preterm is 37 weeks corrected age of gestation and there is no physical illness (MOH, 2009).

Evidence has indicated a significant decrease in-hospital mortality with KC, and reduction in mortality rates in low-resource settings like Malawi and other subsahara countries (Worku & Kassie, 2005). Due to the benefits of KC it was proposed that the uptake of KC in Malawi be increased inorder to reduce neonatal mortality rates, as of

2006 the KC uptake was at 33% according to MICS report (as cited in Chisenga et al., 2015). As KC practice is allowed at home but the practice faces a number of challenges such as; poor growth rate, hyporthermia, post discharge death rate, readmission (Blencowe, Kerac, & Molyneux, 2009; Blencowe & Molyneux, 2005). According to Chisenga et al. (2015), findings indicated that women could face early discontinuation reasons being lack of assistance of skin to skin care and being overwhelmed by household chores. While Manjanja (2013) pointed out that some women could do KC at night only due to household work, instead of providing KC they provided alternative ways of administering warmth such as heat from charcoal, this study also highlighed some women practised mixed feeding instead of kangaroo feeding which is breastfeeding only.

Factors Related to KC Among Mothers with Preterm Infants

There are many associated factors that enhence the implementation and practice of KC. The factors act as facilitators of KC practice including education and counselling, social factors e.g, presence of family, social norms related to infant care. Maternal factors include maternal self-efficacy, educational status, and health status. Environmental factors include surroundings of a woman (Raajashri et al., 2018).

To promote uptake of the KC, counselling of the mother is vital element this can be done in groups or individual counselling (Thukral et al., 2008), this involves the giving of information related to KC and it is from the counselling session that a woman makes a decision to embrace the practice. Chisenga et al. (2015) pointed out that counselling can be advantageous for the counsellor to motivate the mother to develop beliefs that can enhence mothers skills hence the mother can evaluate the benefits based on the outcome of the practice. The counselling brings to light the benefits of KC; hence, this motivates majority of the participants to comply and continue with KC. In addition, education on KC significantly affects the mother's confidence and her ability to implement and practice KC at home (Kenanga Purbasary, Rustina, & Budiarti, 2017). In a study done in rural india, the results indicated that KC champions helped parents to build self-efficacy to administer Kangaroo Care this was done by leading training sessions and they actively encouraged mothers to initiate KC (Soni et al., 2016)

Support from family, friends, and other mothers is one of the most effective enabler to perform KC (Seidman et al., 2015). This support would take many different forms ,the family members would support by taking turns holding the infant in KC to give the mother a rest from the practice, assisting a woman emotionally is another form of support which is important and crucial enabler to practice. Study done in Ghana the performance of KC after hospital initiation remained stable through out all four follow up visits because of the community and spousal support who accepted the practice. (Nguah et al., 2011). Another study by Chan, Labar, Wall, and Atun (2016) observed that among families, the KC uptake was promoted by community acceptance of spousal participation in infant care, by family and community acceptance of kangaro care and by the availability of dedicated health-care workers. The result has shown that spousal participation contribute a large role in uptake by sharing of labour or by helping the mother feel comfortable.

Evidence has shown that lack of support decreases KC uptake because women are overwhelmed with house hold chores such as cooking, clean the house, and harvest maize in the fileld. With all these household chores it might be difficult to continue and comply hence the need for social support (Chisenga et al., 2015; Raajashri et al., 2018). Similary, the Chisengas findings concurs with a systematic review which highlighted that lack of assistance with KC practice and other work have been the top barrier to the practice of KC (Seidman et al., 2015). Some barriers include maternal feelings that KC invades privacy unlike in the hospital women are protected in NICU environment without anyone seeing them expose their breasts, some women felt the method not safe and the practice is exhaustive (Raajashri et al., 2018).

In a systematic review of barriers and ebablers of KC practice, the review highlighted some barriers like societal norms in countries like Zimbabwe where by fathers expressed unease in performance of KC because they believe that child care was the role of women (Chan et al., 2016). Some socio cultural contexts in which carrying the infant on the back is common, it appears strange to place the infant on the front, and in some contexts, it is considered unclean to have the mother carry the infant on her chest without a diaper (Chan et al., 2016).

Measurement of KC Practices

Kangaroo care practices can be measured by tools that were developed based on the component of kangaroo care. Bajaj, Nanavati, Sureka, Ranjan, and Kabra (2015) developed a tool which comprises of 7 items like duration of KC, practices of KC with cord, benefits, knowledge of spouse, husband as helper, husband allowing KC at night. The questionnaire has dichotomus answers yes or no. According to the author, indicated that the tool was tested for its use in the study, but the reliability and validity was not indicated in the paper.

Nguah et al. (2011) developed a tool to measure KC practices at home. The questionnaire had 5 items, measures the following; practising KC at night, support of KC, barriers of KC practices, breastfeeding and weight gain. The article does not mention the reliability and validity of the instrument. (Nguah et al., 2011).

The above mentioned instruments do not mention of the psychometric properties interms of validity and reliability. The nature of questionnaires are dichotomus (yes or no) which might not be suitable for statistic to use as the study intends to determine relationship inaddition to that through out the search of studies no instrument was found mostly could measure health worker practice of KC not mother. Therefore the researcher developed instrument for the study based on literature from practice guidelines and other studies. The researcher developed tool to measure skin to skin practices in terms of duration on which a woman practices skin to skin contact for both intermittent and continous Kangaroo Care. It was classified into three patterns including No KC refered to the mother/surrogate was unable to provide KC. Partial KC refered to the mother/surrogate was able to provide KC for less than 20 hours per day. Full KC refered to the mother/surrogate was able to provide KC for at least 20 hours or more per day as indicated in Malawi National KC guidelines (MOH, 2009). The instrument compromised of items that inquire of KC practice when sleeping, travelling, doing household chores, sitting down and when breast feeding, These items inquired on patterns of practice such as not practicing, meaning that client is not able to practice, partial practice meaning that client is able to practice but not reaching required expectation as prescribed in the protocol and full practice meaning that client practices according to protocol (MOH, 2009).

Maternal Self-efficacy

The concept of self-efficacy emerged from the work of Bandura, described self-efficacy as persons belief in his ability to successfully execute a behavior and achieve a desired outcome (Bandura, 1977). Bandura further postulated that self-efficacy strongly influences which behaviors one will initiate, how much effort one will spend, and how long one will persist in the face of challenge and stress. Furthermore, he proposed that self-efficacy is context and task specific and could be modified through interventions (Bandura, 1977). However, Bandura identified five main constructs that enhance self-efficacy, (a) previous experience, (b) vicarious experience, (c) verbal persuasion, (d) physiological state and (e) affective state.

In order to enhance maternal self-efficacy, previous experiences with a challenge acts as instrumental in building strong beliefs in one's personal self-efficacy. The second contributing factor of strengthening maternal self-efficacy is through other people's experiences, which comes from comparing with someone who had similar experiences or someone who has ever faced a similar challenge and during the time of someone experiences, she mentors the new person in the challenge and acts as a helper in the challenge. For example, to enhance maternal self-efficacy, mothers with preterm infants could spend time with other mothers in similar circumstances could be encouraged to do the same as they used to do in performing a certain task. The third way of strengthening people's beliefs is through verbal persuasion. By verbal persuasions people are capable of accomplishing a task and master and are more likely to sustain much effort than focusing on the challenges. The physiological, affective stability is also related to self-efficacy. These have impact on the ability to perform a task, for example, sickness can lead to poor performance. Physical and psychological wellbeing enhances self-efficacy (Leahy-Warren, McCarthy, & Corcoran, 2011).

Definitions of Maternal Self-efficacy

The concept of maternal self-efficacy emerged from the work of Bandura (1997), followed by few theorists that described self-efficacy interms of mothering (maternal). Others came with concept of parental self-efficacy which include father, mother or other care givers, only few individuals described self-efficacy based on maternal component.

Maternal self-efficacy by Leahy-Warren (2005) is defined as cognitive beliefs that mothers have in their abilities to care for their infant. This concept was based on Bandura then a number of theorists come up with different concepts such as parental self-efficacy, maternal self-efficacy, maternal parental self-efficacy but all these concepts relates to how parents excecute care to their children.

Maternal self-efficacy by Barnes abd Adamson-Macedo (2007) based on Bandura's concept of self efficacy referred to the perceptions of mothers regarding their ability to successfully complete specific tasks of care giver for preterm infants including taking procedures, evoking behaviours, reading behaviours and situational beliefs.

Maternal self-efficacy, domain-general maternal parental self-efficacy is defined as parent's judgments about their capability to care and parent their child and be successful in the parenting role (Hess et al., 2004).

Maternal self-efficacy can also be described as beliefs that mothers hold about capabilities to arrange and carryout tasks related to infant parenting . The ascribes of parental self-efficacy can be identified as belief of a person, capailities and power , and ability to arrange and carryout actions that can produce impact (Leahy-Warren, McCarthy, & Corcoran, 2011).

Maternal self-efficacy has been defined as the perceptions mothers have of their ability to successfully complete a specific task of care giving; so for instance, maternal self-efficacy has to do with mothers feelings of competency in the maternal role (Al-Kandari & Al-Qashan, 2010).

Parental self-efficacy is a beliefs a parent holds of their capabilities to organise and execute a set of tasks related to parenting a child. The attributes of parental self- efficacy have been identified as personal beliefs; capabilities and power; ability to organise and execute actions which produce results; and are situation- specific. Parental efficacy is key to enhancing parenting and supporting parents in their parenting role (Bloomfield et al., 2005).

Among different definitions, the definition of maternal self-efficacy by Barnes and Adamson-Macedo (2007) based on Bandura's concept of self efficacy was used in this

study as it focused on the perceptions of mothers on their ability to complete their tasks of care giver for their children. Therefore, maternal self-efficacy in this study referred to the perceptions of mothers regarding their ability to successfully complete specific tasks of care giver for preterm infants including taking procedures, evoking behaviours, reading behaviours and situational beliefs.

Maternal Self-efficacy and Kangaroo Care

Maternal self-efficacy has been identified as determinant of positive competent caring practices behaviors (Gao et al., 2014). Strong evidence indicate that MSE is an important determinant of good caring practices, and is related to a variety of outcomes for both mothers wellbeing and the infants development (Haslam, Pakenham, & Smith, 2006). As preterm infants are physiologically immature, for their survival, mothers need to develop high self-efficacy to care them. Caring practices such as KC prevents preterm infants from adverse outcomes due to immaturity. Mothers performing KC have physical contact with their preterm infant, and it is shown to improve the mother-infant relatioshiop which allows mothers improve the caring process, and also mothers have confidence in the care of the premature infant (Lee & Bang, 2011). In the study of maternal perceptions in the kangaroo method: skin-to-skin contact, and self-efficacy; the results indicated that KC hospital practices enhanced mother's self-efficacy improvement acquisition, which enabled interaction and care for their infants (Flacking et al., 2012). Similarly, the KC practice does not only improve maternal self-efficacy but also in psychological wellbeing of the mother, that help to improve their self-efficacy and mother-child bonding which may result in more effective in infant care (Gathwala, Singh, & Balhara, 2008; Mazumder et al., 2017).

Bandura (1997), recognized the existence of maternal self-efficacy and emphasized that for a person to enact a caring behavior successfully, they must believe that their actions will have the desired outcome and have confidence in their ability to perform specific behaviors or skills. For example, in a study by Roberts et al. (2000), results indicated that mothers who were admitted in NICU those with high safe efficacy scores performed KC. Another study in scotland in which the researcher explored the mothers experiences of preterm birth and development of self-efficacy in infant feeding behaviours the results indicated that self-efficacy helped women in behaviour change

with potential behavior change techniques used in practice to improve maternal confidence in the NNU (Swanson et al., 2012). Self-efficacy develops when a tasks is repeated and routinely performed this helps mothers develop competency in a task, a systematic review has revealed that infant care behaviours commonly performed (such as holding the infant) had the highest self-efficacy mean scores, whereas those that are much less routinely performed (such as recognising croup) receive the lowest self-efficacy mean scores (Leahy-Warren & McCarthy, 2011).

Results from Froman and Owen (1990, as cited in Leahy-Warren & McCarthy, 2011) indicated that mothers age predicts maternal self-efficacy, as mother age increases the self-efficacy does the same however this agrees with Banduras concept of self-efficacy that previous and vicarious experience may influence the practice. The study by Leahy-Warren and McCarthy (2011) showed statistically significant differences between maternal self-efficacy and the different demographic subgroups such as education level, employment status, household income, education at antenatal and parity. The findings showed that primparas had lower MSE than multiparas. Also, the mothers with primary (six years of elementary education) or secondary (nine years of elementary education) level education had the highest MSE with no statistically significant difference between the junior college and university degree subgroups. A study on maternal self-efficacy in mothers of preterm infant found that mothers with preterm infants had low self-efficacy while those with term infants had high maternal self-efficacy (Gross et al., 1989).

A study by Izadirad, Niknam, Zareban, and Hidarnia (2011) found that there was a direct relationship between maternal self-efficacy and infant cares ($p = 0.000$, $r = 5.38$) in this study infant care practices incorporated a wide range of activities including practices in Kangaroo. Dlamin and Zind (2017) found positive moderate association between self-efficacy and kangaroo care among parents who were nursing their infants in NICU ($p = 0.000$, $r = .368$). A study by Roberts et al. (2000) aimed to compare KC and conventional cuddling care in premature and small-for-gestational-age infants, the results indicated that mothers who had high self-efficacy scores performed KC and those with low self-efficacy did not.

A gap of knowledge exists pertaining to studies on maternal self-efficacy and its association with kangaroo care, known studies were done in western countries but could

not give correlation between these variables instead were descriptive in nature. In Africa, of the studies identified found positive correlation between self-efficacy and Kangaroo care but was conducted on teen mothers whose infants were in NICU. Few studies were conducted to describe relationship between maternal self-efficacy and Kangaroo care.

Measurements of Maternal Self-efficacy

Since maternal self-efficacy is defined in different ways, several tools were reviewed as follows:

The Self-Efficacy Questionnaire is a 10-item measure that was adapted from the Maternal Self-Efficacy Scale (Teti & Gelfand, 1991) to include both mothers and fathers responses. The Maternal Self-Efficacy Scale has a satisfactory internal consistency with a Cronbach's alpha of 0.79 and 0.86 (Teti & Gelfand, 1991). Parents are asked to rate "how good" they are at the 10 general areas of parenting and "how good" they are at 10 general areas of parenting in comparison to other parents in general. The 20 ratings were summed together to obtain a total score (out of 80), a measure of parental self-efficacy. This questionnaire was considered to measure domain-general parental self-efficacy and it was developed for parents of infants born at term.

The Preterm Parenting & Self-Efficacy Checklist was developed by Pennell et al. (2012) to measure the parental self-efficacy for special tasks performed by parents for who have premature infants. The 36 item checklist was created based on a review of the literature and identification of general care principles for parents prior to an infant's discharge from hospital. The Preterm Parenting & Self-Efficacy Checklist was reviewed by experts in the field. A total of three subscales were developed that measured parent's self-efficacy, importance of tasks and self-perceived parental competence (i.e. successful performance of the tasks). For example "How confident were you at bathing your baby? (1 = not at all confident and 7 = very confident), "How important do you feel this skill was for you to be a good parent to your baby?" (1 = not at all important and 7 = very important), and "How successful do you feel you were at bathing your baby?" (1 = not at all successful and 7 = very successful). The self-efficacy items were summed to form the self-efficacy subscale. The task success items were summed to form the self-perceived parental competence subscale. The importance questions were used as a validity check

and were used to compare the importance of tasks across the very preterm, preterm and term groups to identify if particular tasks were preterm specific. Cronbach's coefficient alpha was used to calculate internal consistency reliability estimates for the self-efficacy (0.75) and self perceived parental competence (0.56) subscales. Two split half reliability tests for the domain-specific self-efficacy subscale (0.75) and the self perceived parental competence subscale (0.58) were conducted. Split half reliability is the correlation between two halves of a test (Brown, 1910, Spearman, 1910). Both subscales were found to have appropriate split half reliability estimates.

Maternal self-efficacy Scale is a duty specific self-efficacy measure that has been formed by Teti and Gelfand (1991). It is also known as domain specific- self-efficacy which focuses on parents perceptions of their own competence related to descrete tasks within the domain of parenting (Coleman & Karater, 2003), the tool focuses on specific parenting tasks associated with infant care. Although the measure was intended to be used by mothers, the tool was modified to be used with fathers thus creating paternal self-efficacy scale (Teti & Gelfand, 1991). To determine the construct validity, exploratory factor analysis was used. The reliability was determined in terms of reproducibility via Intra-class correlation coefficient (ICC) by test–retest and internal consistency (Cronbach's alpha). CVI and CVR were 0.91 and 0.94 respectively. Further, the reliability was approved both in terms of reproducibility (ICC = 0.98) and internal consistency ($\alpha = 0.89$). Construct validity was confirmed using exploratory factor analysis (KMO = 0.90, Bartlett's test $p < 0.001$) for the scale.

Perceived Maternal Parenting Self- Efficacy (PMP S-E) tool. It was developed by Barnes and Adamson-Macedo (2007) has twenty items the tool is generated from Bandura self- efficacy theory, the tool development was guided by reviews from literature, expertise and specialist knowledge, and adaptation and further development of the two most relevant scales, the instrument has four subscales of mothering, caring and parenting the subscale titles are: Care taking procedures, Evoking behaviour(s) Reading behaviour, Situational beliefs. Responses to each item are rated on a four point likert scale ranging from 'strongly disagree' (score 1) to 'strongly agree' (score 4). A low score on this scale indicates a low maternal self- efficacy (Barnes & Adamson-Macedo, 2007).

Internal consistency (Cronbach's alpha) has an acceptable level (0.91), above the recommended acceptable level 0·7 for new instruments. The internal consistency reliability for each of the subscales were also acceptable [subscale 1 (0.74), 2 (0.89), 3 (0.74) and 4 (0.72)]. In addition, item whole correlation revealed that all items correlated statistically significantly with total scores (ranging from 0.3-0.77) (Barnes & Adamson-Macedo, 2007).

External/test retest reliability. Spearman's rho rank correlation was used, and the results of test- retest reliability indicated that the two time points were correlated ($r_s = 0.96$, $P < 0.01$). For subscales was found to be: care- taking procedures ($r_s = 0{\cdot}92$, $P < 0{\cdot}01$); evoking behavior(s) ($r_s = 0.92$, $P < 0.01$); reading behavior(s) or signaling ($r_s = 0.93$, $P < 0.01$); and situational beliefs ($r_s = 0.88$, $P < 0.01$) (Barnes & Adamson-Macedo, 2007). In addition, percentage/proportion of agreement test identified that all attributes related to parental self-efficacy on the PMP S E tool were above the recommended 90% threshold and within a range of ±1 from test to retest score (Nevill, Lane, Kilgour, Bowes, & Whyte, 2001).

The tool is fit for the sample, the research intends to study self-efficacy in mothers with preterm infants and the self-efficacy tool was specifically developed for care takers who have preterm infants. The tool has been used in several studies specifically for mothers with preterm infants. The tool has good internal consistency and reliability, and many studies have used this tool to measure maternal self-efficacy among women in the postpartum period (Zheng, Morrell, & Watts, 2018), where by women were discharged to care their infants during postal period (Leahy-Warren & McCarthy, 2011). Similarly, the tool will be used to measure self-efficacy of women in the postpartum period but specifically preterm as the tool was developed to measure self-efficacy of women with preterm infants. The instrument was also used in a study by Shorey, Chan, Chong, & He (2014) which the researcher examined the correlation between self-efficacy and social support as well as predictors of self- efficacy in the early postpartum period, but infants were not preterms but newborns of all types.

According to literature review, there are several instruments to measure maternal self-efficacy. However, the PMP S-E instrument has been found to measure general self-efficacy on preterm and newborn care in the postpartum period, although the tool

originally was to measure self-efficacy on hospitalized preterm infants several studies have used to measure self-efficacy on mothers with preterm at home and hospital for infants receiving KC (Spencer, 2012).

Social Support

Definition and Components of Social Support

Social support based on House (1981) has been defined as an interpersonal transactions including affect, affirmation, and aid. However social support is a concept that has many dimensions and its conceptualization is difficult (House, 1981). Affect refers to expressions of like, admiration, respect, or love. Affirmation refers to the expressions of agreement or acknowledgement of the appropriateness or rightness of some act or statement of another person. Aid refers to transactions in direct aid, help is given to somebody in need, including things like money, information, time, and food, assisting work and other forms of direct aid. House (1981) analized the components of social support behaviours and proposed four supportive behaviours which include; informational instrumental, appraisal and emotional support. informational (information provided to another during a time of stress), instrumental (the provision of tangible goods and services or tangible aid), appraisal (the communication of information which is relevant to self-evaluation rather than problem solving), and emotional support (the provision of caring, empathy, love, and trust).

A definition by Cohen referred social support as “a social network's provision of psych and material needs in which its intention is to benefit someones ability to cope with life stressors” (Cohen, 2004). Availability of perceived support tends to be one of the possible mechanism that social relations and support can improve someones both physical and psychological weelbeing (Thoits, 2011). It also refers to the commitment, caring advice and aid provided in personal relationships (Ross, Mirowsky, & Goldsteen, 1990). The social support depends on the relationships that an individual has in a social network in which that particular individual belongs, and those individuals must be highly connected to people that provide her with support, the support could be in a form of information that will help an individual in crisis.

Social support by St-Jean-Trudel, Guay, and Marchand (2009) is defined as the intimate contact among people or the relationships that exists among people and how they relate to each other. Through contact with relevant people can help someone to be provided with various needs that are essential to relieve a problem, social support is a type of important resource used to cope and alleviate life challenges such as; health related problems, and stressors, so in recent years, it has become a concept to be focused both in domestic and international researchers in many disciplines, such as health, education (St-Jean-Trudel et al., 2009).

Social support, defined as when someone's needs are met by presence of others who interacts with that particular individual e.g spouses, members of the family or peers (Kaplan, Cassel, & Gore, 1977). According to Caplan (1974) stated that social support is in different forms of help rendered by family members, friends, neighbors, and others. Three main themes involved in supporting are; helping the individual mobilize psychological resources; helping the mastery of emotions related to stressors; sharing the individuals' chores and providing extra supplies such as money, materials aid, skills and guidance.

Definition of social support by Cobb (1976) states that social support is information that can be provided to someone which leads the subject to believe that someone is cared for and loved, esteemed and is a part of social network of mutual obligations. Social support is conceived to be information belonging to one or more of the following three classes (Cobb, 1976); 1) Information leading the subject to believe that he is cared for and loved; 2) Information leading the subject to believe that he is esteemed and valued; and 3) Information leading the subject to believe that he belongs to a network of communication and mutual obligation.

Social support is the caring or help from others that someone can have a feeling, can notice or accept (He, Guan, Kong, Cao, & Peng, 2014). This can come from any member of the social networks, who can provide with physical care e.g. helping someone to take care of a sick baby, providing a sick person with food at the hospital and many more.

In this study, social support based on House (1981) was used which referred to the perception of mother regarding assistance in form of informational, instrumental, appraisal, and emotional support that she received from people within her social network during she is practicing kangaroo care.

Social Support and Kangaroo Care

Social support is remains important when intervening on health related issues and it's a good technique, if health workers tend to promote wellbeing among individuals with various health problems. Various types of social support brings desirable impacts among mothers facing challenges when it comes to caring preterm infants on KC. Social support is an important component in using KC, since the method itself renders high barden of care to mothers practicing kangaroo care (Koenraads et al., 2017). There is need for mothers to be supported so that their self confidence is raised more specifically to managing premature infants, this may include; the administering of KC effectively. Social support comes from different sources such as health workers, family, and other people. It will be hard for mothers with preterm to do KC successfully without their supports (WHO, 2003). Information support could be a special factor in choosing a positive and effective health action (Effendi et al., 2012). Literature has revealed that social support is one of enabling to practising Kangaroo Care more especially when mothers are allowed to practice KC at home, for instance in the findings by Nguah et al. (2011) women did not cease to practice in all the four follow up visits, since that had community acceptance who indirectly reinforced the practice, at the same time they had spousal support. Research has indicated that parents with preterm infants are more in need of social support, for intance in a study by Kim in which he researcher explored the various social support needs among fathers whose wives were discharged from NICU findings showed that fathers were in need of social support associated with informational, belonging, and emotional supports (Kim, 2018), this is important because social support enhances the caring practice, reduces stress and mothers adjusts to life situation as well as a critical coping resource associated with preterm births (Rowe & Jones, 2010). Because of the above benefits therefore social support is useful in helping families with preterm infants (Coppola, Cassibba, Bosco, & Papagna, 2013).

In a study by Hunter et al. (2014) which was conducted in rural Bangladesh, the findings indicated that social support promotes uptake of KC practice among mothers, fathers and families, this is due to acceptance by community and spouse participation in various infant care tasks, by family and community acceptance of kangaroo mother care and by the presence of engaged health-care workers (Hunter et al., 2014). Other studies have revealed that social support plays a role in KC uptake in communities where gender specific responsibility is not an issue (e.g. Scandinavian countries), where by fathers can perform without any barrier to practice KC (Blomqvist, Frölund, Rubertsson, & Nyqvist, 2012; Calais, Dalbye, Nyqvist, & Berg, 2010). Some studies have indicated that support in form of paternal involvement plays a large role in uptake –this is done by dividing household chores, making the mother feel comfortable. One study in Brazil reveals that support from grandmothers, sisters and other family members enhances the KC practice, these family members are responsible for taking care of household chores and help with the various neonate tasks. The systematic review highlighted that peer support from the maternity ward, promotes KC through sharing their KC experiences helps promote acceptance (Chan et al., 2016).

On studies on association of social support and kangaroo care, found that social support type influenced mothers in the choice of KC and significant relationships ware found between the social support type, including tangible support ($p < 0,001$, RP 3.22, 95% CI: 1.22-8.51), informational support ($p < 0.001$, PR 4.00,95% CI: 1.48-10.48), and emotional support ($p = 0.002$, PR 3.36, 95% CI: 1.01-11.25) with choosing KC. Informational support was the factor that influences the choosing of KC (PR 35.39, 95% CI: 5.15-243.22) (Effend et al., 2016). In a study by Wakse (2016) found positive moderate association between social support and KC, only information support and appraisal support had significant relationship ($p = 0.000$, $r = 0.521$, $p = 0.00$, $r = 0.440$), respectively. Another study by Leahy-Warren and McCarthy (2011), of four dimensions of social support only information and appraisal support had positive significant relationship with confidence in various infant care tasks and these taks included only a few components of kangaroo care ($r = 0.40$), $p < 0.20$ and $r = 0.20$ and $p < 0.05$, a study by Nguah et al. (2011) conducted in Ghana among women who were allowed to practice KC at home, women reported good spousal, family received spousal help in a form of

instrumental aid (OR: 1.6, 95% CI: 1.1 to 2.4, p = 0.007) support which enabled them to practice KC effectively and had positive neonatal outcomes in all follow up visits.

Among the studies done, there were only few studies examining association between social support and kangaroo care, and some studies centred on social support and infant care practices not kangaroo care seprarately. Of the studies that found relationship between social support and kangaroo care were done on teen mothers not mothers of all age groups, and setting of the study were Asian and north of African countries of which its difficult to apply to Malawi. Another gap existed on studies that find relationships among the whole component of social support, as some studies were interested on only two dimensions of social support.

Measurements of Social Support

Since social support is a concept that involves so many aspect as a result there are multiple instruments used to measure it. The instruments to measure social support depends on the researchers area of interest for example some researchers may be interested to measure informational support while leaving the other dimensions of social support.

The Inventory of Socially Supportive Behaviors (ISSB) is a measure of how frequent someone receives a wide variety of informational and behavioral expressions of social support, mainly used to measure social support in the general population (Barrera & Ainlay, 1983). The ISSB was designed on the basis of evidence from research verifiable by observation and experimentation (Gottlieb & Bergen, 2010), and literature regarding the types of assistance and support people get from members of their social networks. Items emerged from previous findings were reviewed and written again to maximize behavioral specificity, and its use was to make sure to avoid vocabulary applicable only to specific populations. The instrument had 40 items, believed to tap the range of important supportive functions. The 40 item tool consist of six main functions of support: material aid, behavioral assistance, intimate interaction, guidance, feedback, and positive social interaction (Barrera & Ainlay, 1983). Internal consistency, with Cronbach's alpha coefficients between .93 and .94 for the first and second testing sessions, respectively.

The Multidimensional Scale of Perceived Social Support was designed by Zimet, Dahlem, Zimet, and Farley (1988). It specifically addresses the subjective assessment of social support suffinciency the amount of quality of social support. Was designed to assess perception of social support adequacy from three different sources who are close to a person, that is family, friends, and others important to the person, it contains three items. The MSPSS is easy to administer, it can work fast if the researcher has limited time (Zimet et al., 1988). The internal consistencies of the entire scale are good, with a Cronbach's α of 0.91 overall, and with sub-scales of 0.91, 0.83 and 0.86. In the four week retest reliability check, the intra-class correlation coefficient (ICC) was calculated for 72 students and found to demonstrate a satisfactory stability, with an ICC of 0.84 (95% CI, 0.756, 0.897).

Perinatal Infant Care Social Support Scale. The PICSSS was develped by Leahy-Warren (2005) social support as defined by House (1981). Measures informational, instrumental, emotional and appraisal social support according to House (1981) conceptualization of social support. The functional support scale is composed of 22 items in four subscales according to dimension of social support; these are informational support (7 items), instrumental support (7 items), emotional (4 items) and appraisal support (4 items).The items are rated on a four-point Likert scale. The whole functional social support scores are between 22 and 88 and 22 representing minimum and 88 maximum. The scores of the informational and instrumental subscales are between 7 to 28, and those of the emotional and appraisal subscales, from 4 to 16.

The subscales of PICSSS within the social support functional scale are scored by the sum score of each sub scale. For both the informational and the instrumental support subscale the scores ranges from the lowest at 7 to the highest at 28. For the instrumental subscale, the scores ranged from the lowest at 4 and the highest at 16.

Part 3, askes participants to identify from the list provided, the people from whom they obtain up to four types of functional support since the birth of their child. That is number of persons who provides at least one type of functional support is taken as the total informal structural support score.

Measure of Social Support in general (ranging from 22 to 88)

Functional Questionnaire

Q1-Q4 – Informational Support (Min score of 7, max score of 28)

Q5-Q8 – Instrumental support (Min score of 7, max score of 28)

Q9-Q12 – Emotional Support (Min score of 4, Max score of 16)

Q13-Q16 – Appraisal Support (Min score of 4, Max score of 16)

Structural Questionnaire. The structural support scale mainly identified those that suppor mothers and has nine items. The two scales of the subscales of the structural support scale has formal and informal source of support. For the formal sources are health workers and informal members are family members and friends.

The internal consistency of the PICSSS by cronbachs alpha was 0.80. The PICSSS has been used in a number of studies such as in examining the predictors of maternal self-efficacy among primparas in the early postpartum period, the results indicated that social support played a role in predicting maternal self-efficacy (Shorey et al., 2015). The choice of the instrument is based on the characteristics of the sample who are women in the postpartum period with preterm infants. A pilot study was carried out with respondents' (n = 20) to test the face validity of the instrument.

The PISSS is an excellent fit for the study because it intend to measure social support according to house concepts (instrumental, emotional, informational and appraisal), was designed for mothers who are in postnatal period, who are nursing newborn infants, just as it is for this study, it has good psychometric properties, various studies have used the instrument to measure social support (Leahy-Warren, 2005, Leahy-Warren & McCarthy, 2011; Shorrey, 2009).

Conceptual Framework

The conceptual framework for this study was based on Bandura's self-efficacy (1997), social support based on House (1981) and literature review. According to Bandura, human behavior is predicted by overall self-efficacy of an individual, which has been conceptualized into four, care taking procedures, evoking behaviours, situational beliefs and reading behaviours. Thus KC practice which is providing skin–to–skin contact between the mother/surrogate and preterm infant can be determined by maternal self-efficacy. Maternal self-efficacy refers to the perceptions of mothers regarding their ability to successfully complete specific tasks of care giver for preterm infants on KC. Social support was conceptualised in terms of both structural (sources of support) and functional components (informational, instrumental, emotional and appraisal) and were treated as two variables of the construct social support (House, 1981), that mothers with preterm infants received from people within her social network during the period she is practising KC. Mothers of preterm infants with higher maternal self-efficacy and social support are more likely to perform KC at home.

CHAPTER 3

Methodology

This chapter discribes research methods used in this study including research design, population and sample recruitment, research settings, research instruments, protection of human subjects, data collection procedure, and data analysis.

Research Design

A descriptive correlational study design was used to describe the relationship between maternal self-efficacy, social support, and kangaroo care.

Place for Data Collection

The study was conducted in the following hospitals: Bwaila in Lilongwe, Zomba and Mzuzu Central Hospitals in the republic of Malawi.

Time Duration for Data Collection

The process of data collection took 2 months from March to April 2019.

Population and Sample

The population of this study were mothers of preterm infants aged between 32-36 weeks and allowed to continue KC practice at home and coming for follow up at the hospitals of Malawi.

Sample

The samples of this study were mothers of preterm infants aged between 32-36 weeks and allowed to continue KC practice at home and coming for follow up at Bwaila in Lilongwe, Zomba, and Mzuzu Central Hospitals in the republic of Malawi and met the following criteria:

1. Mothers being between 20 to 40 years of age
2. Delivered vaginally
3. Having preterm infants between 32-36 week, weighed between 1,800 and 2500 grams, no complication such as major congenital anomalies, respiratory distress syndrome or sepsis
4. Coming for first time follow up at the first-week or second-week appointment
5. Willing to participate and able to read and write Chewa language

Exclusion criteria: preterm infants whose possible need for neonatal intensive care.

The sample size of this study was determined using approximate sample sizes necessary to achieve levels of power as a function of estimated population value of p. In Polit and Hungler (1999), sample size requirements for various powers and effect sizes in situation in which Pearsons r was used. With an $\alpha = .05$, power= .80, and effect size=.30, the estimated sample of study was 88. However, in any study a researcher expected some participants to withdraw from the study, as a result it affected the sample and representatives of the population, so the acceptable attrition was 20% (Polit & Beck, 1999), for this study the sample size was adjusted to 105.

From the Malawi Distict Health Information System for July 2016 - July 2017, indicated that total preterm births from the 3 tertially hospitals was approximately 871 preterms, and Lilongwe (Bwaila) which had 460, followed by Zomba Central Hospital 239 and Mzuzu 172. Calculations were made using simple proportion to get average sample to be collected at each hospital the following were the sample sizes for each hospital.

Hospital	Yearly average	Sample size
Lilongwe (Bwaila)	460	55
Zomba	239	29
Mzuzu	172	21
Total Sample Size		105

However, out of 105 mothers of preterm infants, there were 96 participants completed questionnaire.

Research Instrument

In this study, the instruments used were a set of questionaire composed of three parts:

Demographic Data

The demographic data questionaire was developed by a researcher which had three parts including mother's information, pregnancy and birth information, and infant's information. Mother's information included age, marital status, level of education, occupation, family income, ethnicity, and religion. Pregnancy and birth information consisted of gravidity, parity, gestational age at birth, and baby's birth weight. Infant's information included age at discharge home, age at birth, and breastfeeding information.

Perceived Maternal Parenting Self-Efficacy (PMP S-E Tool)

The PMP S-E tool was developed by Christopher Barnes (2007) consist of 20 items (scoring ranges 20-80) with four theorized subscales including care taking procedures (4 items), evoking behavior (6 items), reading behavior or signaling (7 items), and situational beliefs (3 items). Response to each item use a four-point Likert scale from: 1, strongly disagree to 4, strongly agree.

The interpretation of the scores. Total scores ranged from 20 to 80; a higher score indicates a higher level of maternal self-efficacy. The interpretation of scores was low self-efficacy, moderate self-efficacy and high self-efficacy. The original scores ranged from 0 -19.99 as low, 20-59.99 as moderate, and 60- 80 as high self-efficacy (Barnes, 2007).

Perinatal Infant Care Social Support Scale

The PICSSS was develped by Leahy-Warren (2005) based on the social support defined by House (1981) including informational, instrumental, emotional and appraisal social support. The functional support scale had 22 items in four subscales which were

informational support (7 items), instrumental support (7 items), emotional (4 items) and appraisal support (4 items). Items were rated on a four-point Likert scale . The total functional social support scores were between 22 and 88. The scores of the informational and instrumental subscales were between 7 to 28, and those of the emotional and appraisal subscales, from 4 to 16. The structural support scale mainly identified those that support mothers and has nine items. The two subscales of the structural support scale included formal and informal source of support. For the formal sources were health workers and informal were family members and friends.

The interpretation of the scores. The minimum score was 22 and a maximum score of 88 as the highest of social support. The scores were categorized into low (0-22.99), moderate (23-59.99), and high (60-80) levels of social support (Leahy-Warren & McCarthy, 2011).

Kangaroo Care Practices

The researcher developed the Kangaroo Care Practice Questionnaire based on KC guideline (MOH, 2009) with 6 items. The questionnaire included the duration (total hours per day) of providing skin–to–skin contact between the mother/surrogate and preterm infant (dressed in a nappy and hat) in a strictly vertical position with infant's head turned one side between a mother's breasts and under mother's clothes. The instrument comprised of 6 items of KC practice when sleeping, travelling, doing household chores, sitting down when breast feeding and duration per day. These items inquired on patterns of practice including no KC practice meaning that client was not able to practice, partial KC practice meaning that client was able to practice but not reaching required expectation as prescribed in the protocol, and full KC practice meaning that client practices according to protocol (MOH, 2009).

Interpretation of KC practice. KC was classified into three patterns including Non-KC practice refers to the mother/surrogate is unable to provide KC. Partial KC refers to the mother/surrogate able to provide KC for less than 20 hours per day. Complete KC refers to the mother/surrogate is able to provide KC for at least 20 hours or more per day (MOH, 2009).

Validity and Reliability

Validity of the instruments. Perinatal Infant Care Social Support Scale (PISSS) and Perceived Maternal Parenting Self-efficacy (PMP S-E) had been already tested for validity at satisfactory results by the developers. These instruments were used in this study without any modification, so the validity was not retested. For the Kangaroo Care Practice Questionnaire which was developed by researcher was tested for validity. The researcher invited 3 experts in the field with vast experience to review the initial questionnaire, conceptual and operational definitions. The expert rate content relevant of each item in a 4 Likert scale with 1= not relevant, 4= very relevant. The CVI was used to calculate the level of content validity evidence, with the acceptable level of .80 (Polit, Beck, & Owen, 2007. After the questionnaire was reviewed, rated each item and reached content relevant level of 3 and 4 and finally the CVI for the whole questionnaire was 1.0.

Reliability of the instruments. All above instruments including the PMPS-E tool, the PICSSS tool, and the KC Practice Questionnaire was tested for reliability using Cranach's alpha coefficient with 10 mothers with similar inclusion area to the samples from the secondary level (Lilongwe District hospital in Malawi). The reliability of .70 was to be considered acceptable level (Polit & Hungler, 1999) for the KC Practice Questionnaire. The reliability of .80 was to be acceptable for the PICSSS tool and the PMPS-E as there were old instrument (Polit & Hungler, 1999). The reliability was tested for all instruments and the results were as follows: The PMP S-E was .85, the PICSSS was .94, and for KC was .94.

Back Translation of the Instruments

The forward and back translation process was used to translate from English language to Chewa language (Sperber, 2004). The original version of the English instruments was translated into Chewa by 2 experts. Then Chewa version was then translated back into English by another translator 2 experts to check consistency and same meaning of the instrument and discrepancies were not identified (Burns &Groove, 2010).

Preparation of Research Assistants

The 3 research assistants were more important for collecting data for this study since the period of data collection occurred in three research setting at the same time. The researcher selected research assistants who were registered nurses and had experience in conducting research. They were given the information about the study including the objectives of this study, the inclusion or exclusion criteria of the potential subjects, inform consent, data collection process. Later, researcher demonstrated how to select sample fitting inclusion criteria and methods of administering questionnaires.

Human Rights (Ethics)

Ethical approval in this study was requested from the research committee of the faculty of Nursing Chiang Mai University, Thailand. An approval in a form of written document was granted, an approval from National Health Sciences Research Committee (NHSRC) was granted. After that permission was granted from the three hospitals (Bwaila in Lilongwe, Zomba, and Mzuzu Central Hospitals). All mothers and other relevant were informed about the purpose and methods used of the study. The participants were informed of the benefits and risks, a consent form was given for each participant to sign as indication of agreement to participate in the study. Subjects were informed of the right to withdrawal at any point they want. Initially, there were 105 women willing to participant in the study but there were only 96 participants completed answering the questionnaire. Confidentiality was observed by not disclosing the mother's information; mother's information will not be specified in any publications.

Data Collection Procedure

The procedure for data collection was carried out by the researcher and research assistants in the following steps:

1. After getting an approval from the faculty of nursing ethics committee, another approval was given from NHSRC, lastly approval was taken from three study sites, the researcher also introduced herself to the unit matron and also present a copy of letters of approval to her.

2. Then permission was taken from the unit matron who introduced the researcher to other staff working from kangaroo unit, later explained the purpose of the study, methods, and the process of obtaining data. Then the research assistants were introduced to the women who participated in the study.

3. The research assistants invited the mothers meeting inclusion criteria by providing an information sheet concerning the research objectives, method of data collection, data analysis, publications, concerning human right, confidentiality and anonymity.

4. Participant who agreed to participate in the study were asked to sign a consent form.

5. Participants were allowed to complete self-report questionnaires which took 15-30 minutes to complete.

6. The research assistants checked for the completeness of the questionnaire. For those who did not complete the questionnaires were not included for analysis, for those will to complete were given another chance to complete, out of 105 mothers only 96 participants completed questionnaire. The whole process was monitored by researcher and where not clear researcher clarified. Each research setting was visited by researcher before data collection and during data collection to ensure quality.

Data Analysis

The overall level of significance was set at the coefficient alpha .05. The data was analyzed with the following procedure:

1. Demographic data was analyzed using descriptive statistics including frequency, percentage, mean, standard deviation and range.

2. The scores of overall maternal self-efficacy, social support, and KC practice were analyzed by using frequency, percentage, mean, standard deviation, and range.

3. All variables were tested for normal distribution using Kolmogorov-Smirnov test and all showed normally distribution with significance of above .05 and there were

no outliners on scatter plots. The relationship between social support and KC, maternal self-efficacy and KC were analyzed using Pearson product moment correlation. Additionally, the variance along line of best fit remained similar as moved along the line (homoscedasticity). The Product-Moment Correlation Coefficient (r) were interpreted as follows:

r = .00 - .19 is regarded as very weak correlation

r = .20 - .39 is regarded as weak correlation

r = .40 - .59 is regarded as moderate correlation

r = .60 - .79 is regarded as strong correlation

r = .80 - 1.00 is regarded as very strong correlation

CHAPTER 4

Results and Discussions

This chapter presents results of the study and illustrates discussions respectively. The purposes of this study were to describe kangaroo care among mothers of preterm infants and to determine the relationship between maternal self-efficacy, social support and KC among mothers of preterm infants in the 3 tertiary hospitals of Malawi. There are four parts of the study results in the following order:

Part 1: The characteristics of mothers of preterm infants

Part 2: Kangaroo care among mothers of preterm infants

Part 3: The relationship between maternal self-efficacy, social support, and kangaroo care among mothers of preterm infants

Results of the Study

Part 1: The Characteristics Of Mothers of Preterm Infants

The sample for this study consisted of 96 mothers of preterm infants. The demographic data of the subjects is presented in Table 4-1.

Table 4-1

Frequency, Percentage, Mean, Standard Deviation, and Range of the Participants Categorized by Demographic Characteristics (N = 96)

Demographic Characteristics	Frequency (n)	Percentage (%)
Age (Years) (Mean = 27.16, SD = 4.919, Range = 20-40)		
20-24	36	37.50
25-29	28	29.16
30-34	22	22. 92
> 35	10	10.42
Marital status		
Single	1	1.04
Married	93	96. 88
Divorce	1	1.04
Un married partners	1	1.04
Education level (school)		
No education	8	8.33
Primary	33	34.37
Secondary	52	54.17
Diploma	3	3.13
Type of employment		
House wife	64	66.67
Daily labors	4	4.17
Civil service	2	2.08
Business	21	21.88
Nongovernmental organization	5	5.20

Table 4-1 (continued)

Demographic Characteristics	Frequency (n)	Percentage (%)
Monthly income in Malawi Kwacha		
No income - < 1,000	48	50.00
1,000-20,000	6	6.25
20,001-40,000	8	8.33
40,001-60,000	15	15.63
60,001-80,000	6	6.25
>80,000	13	13.54
Ethnicity		
Chewa	41	42.71
Lomwe	14	14.58
Tumbuka	11	11.46
Yao	7	7.29
Ngoni	17	17.71
Others	6	6.25
Religion		
Not religious	1	1.04
Christian	75	78.13
Muslim	20	20.83
Kangaroo education		
Not educated	2	2.08
Educated	94	97.92
Gravidity		
Prim gravida	27	28.13
Multigravida	69	71.87
Parity		
Primparas	27	28.13
Multipara	69	71.87

The Demographic characteristics of the participants were presented in Tables 4-1. The average age was 27.17 years old age (SD =4.919; range 20-39). Majority of the participants were married which was represented by 96.90%. Most subjects, 54.20%, reached secondary school. Majority of the study participants were house wives who comprised of 66.66% of the subjects. Half of the subjects had no income which was 50.00 %. The majority of the study participants comprised of the Chewa tribe that was 42.70%. Christian religion comprised of over 78.10% of the subjects. Over 97.90% of the women received Kangaroo Care education and only 2.10% missed the education. The majority of subjects were multiparas (71.90%).

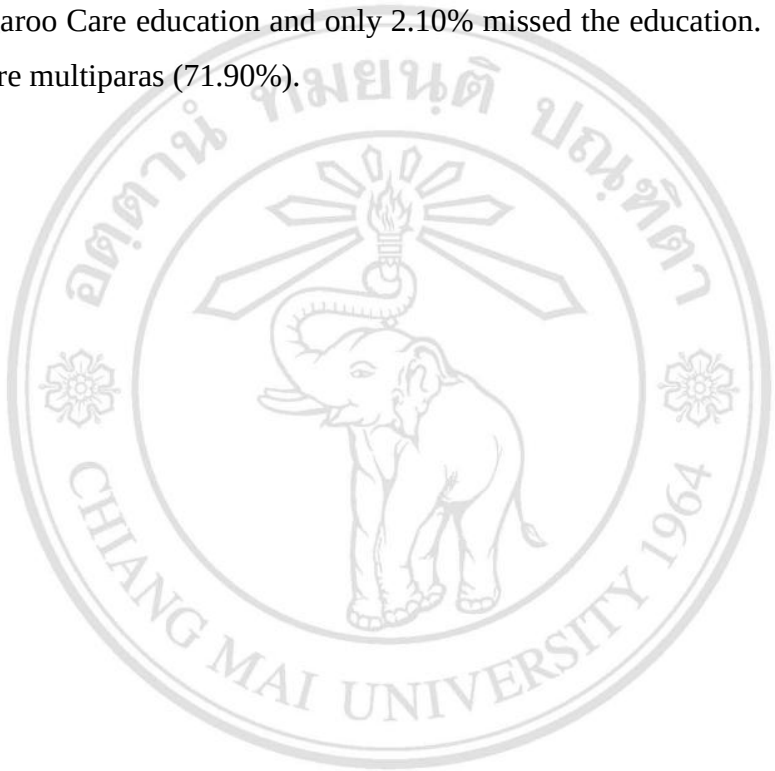

Table 4-2

Frequency, Percentage, Mean, Standard Deviation, and Range of the Participants Categorized by Childbirth Information (N = 96)

Childbirth information	Frequency (n)	Percentage (%)
Gestation at birth (weeks) (Mean =31.95, SD= 2.36, Range=26-36)		
Extremely preterm	1	1.04
Very preterm	57	59.38
Late preterm	38	39.58
Birth weight in grams (Mean = 1973.25, SD = 251.14, Range = 1650-2450)		
1500-1800	27	28.13
1801-2000	23	23.96
2001-2200	31	32.29
2201-2400 or more	15	15.62
Age at discharge in days (Mean = 5.83, SD = 5.31, Range = 3-28)		
1-7 days	72	75.00
8-14 days	14	14.58
15-21 days	7	7.29
22-28 days	3	3.13
Infant age at first visit in days (Mean = 14.68, SD = 5.95, Range = 7-34)		
7-14 days	71	73.96
15-21 days	14	12.50
22-28 days	7	9.38
28-35 days	3	4.16

Majority of the infants were born very preterm at the gestation age of between 28-32 weeks these represented 60.42%. Birth weight of preterm infants differed among different babies, majority of them were delivered between 2001-2200 grams that was 32.29%. The age at discharge was different among infants many were discharged between 7-14 days representing 73.96%. Majority of the participants attended the first follow up visit when their infants were between 9-12 days old of which was 50.00% of subjects.

Table 4-3

Frequency and Percentage of the Participants Categorized by Method of Feeding (N = 96)

Method of feeding	Frequency (n)	Percentage (%)
Breastmilk		
Breastmilk only	89	92.71
Breastmilk and formulae	7	7.29
Other feeds apart from breast milk		
No other feeds	89	92.71
Other feeds	7	7.29
Specific feeds given to a preterm infant		
Infant formulae	7	7.29
No infant formulae	89	92.71
Reasons for other feeds apart from breast feeding		
Decided on herself	3	3.13
H/W recommended	2	2.08
Other reasons	2	2.08
Strictly breastmilk	89	92.71

As shown in the table 4-3, majority of mothers fed their infants with breast milk only, representing 92.70 % while 7.30% fed their infants breastmilk and formulae. Among the reason for adding formulae to breast milk were; decision on her own 3.14%, others had recommendation from health workers 2.08%, the other 2.08% represent other reasons. The rest maintained breast milk feeding.

Part 2: Kangaroo Care Among Mothers of Preterm Infants

Table 4-4

Frequency, Percentage, Mean, Standard Deviation, and Range of Overall Kangaroo Care (N = 96)

Pattern of kangaroo care		Frequency (n)	Percentage (%)
Mean= 19.89, SD=3.26, Range=9-23			
Partial practice	1-19	29	30.21
Full practice	20 or more	67	69.79

As shown in the table 4-4, the majority of subjects, 69.79%, demonstrated full KC practice (Mean= 19.89, SD=3.26).

Table 4-5

Frequency and Percentage, of Performance of Kangaroo Care (N = 96)

Kangaroo care	Frequency (n)	Percentage (%)
Sleeping		
Fully practiced	81	84.37
Partiarly practiced	12	12.50
Not practiced	3	3.13
Travelling		
Fully practiced	80	83.34
Partiarly practiced	14	14.58
Not practiced	2	2.08
Doing household chores		
Fully practiced	64	66.67
Partiarly practiced	25	26.04
Not practiced	7	7.29
Sitting down		
Fully practiced	80	83.33
Partiarly practiced	11	11.44
Not practiced	5	5.21
Breastfeeding		
Fully practiced	42	43.75
Partiarly practiced	20	20.83
Not practiced	34	35.41

As shown in the table 4-5, the majority of subjects demonstrated full KC practice during sleeping, travelling, and sitting down which were 84.37%, 83.34%, and 83.33, respectively. Most of subjects, 66.67%, reported full KC practice during household chores while only 43.75% of the subjects demonstrated full KC practice during breastfeeding.

Part 3: The Relationship Between Maternal Self-efficacy, Social Support, and Kangaroo Care Among Mothers of Preterm Infants

Correlations between maternal self-efficacy, social support, and kangaroo care practice among mothers of preterm infants was illustrated in Table 4-6.

Table 4-6

Correlations Among Maternal Self-Efficacy, Social Support, and Kangaroo Care Among Mothers of Preterm Infants (N = 96)

Factors	1	2	3
1. Kangaroo care	1		
2. Maternal self-efficacy	.483**	1	
3. Social support	.606**		1
Information support	.546**		
Instrumental support	.537**		
Emotional support	.422**		
Appraisal Support	.472**		

**p<.01

The results of correlation analysis demonstrated that maternal self-efficacy was moderate positively correlated with kangaroo care (r = .48, p < .01). Social support was strong positively correlated with kangaroo care (r = .61, p < .01).

Discussions of the Study

The discussion of findings includes two sections in accordance with the objectives of the study. The first section is discussed about kangaroo care among mothers of preterm infants. Secondly, the correlations of the independent variables for kangaroo care among mothers of preterm infants are discussed.

Kangaroo Care Among Mothers with Preterm Infants

From the findings shown on Table 4-4, all mothers of preterm infants practiced KC with a mean score of 19.89 (SD = 3.26). Most mothers, 69.79%, demonstrated full practice of kangaroo care while 30.21% of mothers reported partial KC practice. For participants who had full practice, it could be explained that mothers or surrogates provided KC more than 20 hours per day including providing skin to skin contact between the mother/surrogate and preterm infant (dressed in a nappy and a hat) in a strictly vertical position with infant's head turned one side between a mother's breasts and under mother's clothes. Those who had partial practice meant that participants could practice KC less than 20 hours per day.

The patterns of KC practices seen in this study have both positive and negative sides. For the positive side, the findings pointed out that KC uptake had improved from 33% as it was in 2006 (MICS, 2006, as cited in Chisenga et al., 2015) and adding to that by Mathias (2017) that found 34.68% had full practice while 65.32% had partial practice. However, the Malawi Ministry of Health through Malawi Every Newborn Action Plan (MENAP) (MOH, 2015) stated that KC practice should be above 75% by 2020. The reason for not achieving the expected targey stated by MENAP (MOH, 2015) can be explained with four reasons. Firstly, 59.38% of preterm infants in this study were very preterm infants, this group of infants faces problems of breastmilk suckling compared to term infants as a result of physiological and organ immaturity. Mothers of very preterm infants needed to remove their infants on KC position and pump milk for minutes or hours hence decreasing period an infant is supposed to be on KC position. In this study, showed that only 43.75 could breastfeed their infant on KC, while 20.83% could do it partiarly, and 35.41% could not perform breastfeeding on KC position (Table 4-5).

Secondly, the findings of this study showed that 66.67% of mothers could perform full KC while doing household chores, 26.04% had partial practice and 7.29% were unable to perform KC and do household chores at the same time. This explains the reason of not reaching the required target of 75% above as women in Malawian culture have multiple roles including the role of housewives, mothers, and care givers for family members. The multiple roles may affect KC practice. The findings are congruent with a study done in Malawi by Chizenga et al. (2015) which stated that household chores affected KC practice at home. Thirdly, another drop in practice can be explained by a number of participants were business women 21.88% were having small scale businesses, and are not like civil servants who can be given maternity leave and could not have time to practice, its unlike house wives who were majority in this study who have enough time to practice and perform.

Fourthly, although over 90.00% of participants had KC education, there were only 69.79% could have full KC practice. The rate of practice could be affected by primiparas who did not have enough experience in infant caring. However, the findings are consistent with a study conducted in Malawi by Chisenga et al. (2015) in which majority of the participants (81.4%) had been given education and counselling on the benefits of KC, however findings by Chisenga et al. (2015), KC compliance and continuation was difficult this could be explained by demographic characteristics of participants, the researchers study included teenage, primparas and mothers in early twenties of age, between 15-25 years which formed the majority (77%). The National KC guidelines (MOH, 2009), include education for women who delivered preterm and low birth weight infant, education is done to promote uptake of KC, adding to that women are counselled this becomes an essential element and involves giving of information related to KC, this helps to make decisions to embrace the practice (Thukral et al., 2008). Inaddition to that education on KC significantly affects mothers confidence and her ability to implement and practice KC at home (Kenanga Purbasary et al., 2017). Nurses and other health workers; health professions are found to be in supportive when they provide counselling and encouragement and answering questions from women (Reddy & mcInerney, 2007).

Several studies have been carried out about KC practices at home or community, from the above findings, some similarities can be seen from studies which were carried

out from different parts of the world. A study carried out in Ghana by Nguah (2011) findings indicated that mothers had knowledge about KC practice and participants practiced continuous KC though some practiced intermittent while in this study 97.03% received the education and only 69.79% could have full practice. The KC practice was even performed at night in this study, 84.37% performed while a mother is asleep which is similar to a study by Nguah et al. (2011). Similarly, in Maharashtra all mothers continued KC at home once initiated in the hospital, however they had challenges like nuclear families, had to do house work, hence could fail to practice KC for a long time (Rasaily et al., 2017). In this study 26.04% and 7.29 could not have full practice, especially during performing household chores. In addition, the study by Raajashri et al. (2018) estimated the proportion of mothers who continued to practice KC at home and evaluated potential factors influencing this practice; among 200 mothers interviewed, 82.5% continued to practice KC at home after discharge. The mean total duration of KC was 30.2 days and however, average duration per day was 1.3hours. The facilitator factor in this study was support of family members was 70% and lack of privacy at home was hindering in 25% (Raajashri et al., 2018).

Contrary to this, a study by Aranjo (2005), in which the aim was to investigate domestic KC practice results indicated that 66% of mothers had shorter duration on KC practice, less than 8 hours per day. A study by Manjanja (2013) in Malawi, findings showed that some women could practice KC at night, and some provided alternative ways of giving warmth such as adding extra blanket or using charcoal, instead of skin to skin contact. In a large trial carried out in sub-Sahara Africa community settings results indicated that 7.5 % practiced KC for less than 2 hours (Vesel et al., 2013). Some women expressed that KC position was difficult, sitting position was uncomfortable, and they experienced back and neck pains and some said it was difficult to breast feed in KC position as it was the case in this study (Quasem et al., 2003). Similar studies were conducted in Nepal, in this research female community health workers were utilized to coach and support women in provision of KC to their infants at home later the program was assessed. The results showed that they had both positive and negative perceptions. The negative ones' warm weather prevented the practice due to sweat, and also lacked support to keep infant in KC position, workload and absence of mother in-law added another burden and it was difficult to sustain KC and lack of support from fathers. in this

study never assisted in KC (The Cochrane Library, 2003). While in this study, there was support from mother inlaws, spouses and grandmothers, the burden was household chores and breastfeeding on KC postion.

The Relationship Between Self-efficacy and Kangaroo Care

The results of this study indicated that maternal self-efficacy was correlated to kangaroo care with a statistical significance ($p < .01$) the correlation coefficient between maternal self-efficacy and KC was .483 which is moderate positive correlation (Table 4-6). It could be interpreted that mothers of preterm infants with higher maternal self- efficacy are more likely to perform KC at home.

The reason for correlation between maternal self-efficacy and kangaroo practice was majority of mothers (71.90%) were multi paras who had experience in infant care signifying previous experience. Consistent with Bandura's theory, which explains that previous experience enhances self-efficacy, past experiences with a challenge acts as instrumental in building self-efficacy. The results of the study suggest that previous experiences like those that occur with multiparas such as feeding, settling, dressing and many more lead to higher maternal self-efficacy scores. Studies have highlighted that primiparas have low MSE when it comes to various newborn- care tasks. Kapp (1998) found that multiparas had high confidence in infant care tasks than primiparas. Gross, Rocissanao, & Rancoli, 1989 found that mothers of preterm infants have low self efficacy which is contrary to this study, all women had preterm infants and very preterm infants were majority (59.38%). Among the women allowed to go home to practice KC had to practice from a minimum of 7 days to 2 months, due to long duration of the practice this has also enhanced maternal self-efficacy among women this is supported by findings from research by Teti and Gelfand (1991) indicated that maternal self-efficacy improved over time, and experience so mothers develop mastery of challenge and was positively associated with parenting competence (Haslam et al., 2006).

Another explaination is about martenal age, all participants of the study were adults above 20 years of age, this agrees with results by Froman and Owen (1990, as cited in Leahy-Warren & McCarthy, 2011) that maternal age predicts self- efficacy. As age

increases self- efficacy does the same although in this study self- efficacy could be affected by some participants who were prim paras who had little experiences in KC.

Banduras theory explans that verbal persuation is another way of strengthening peoples beliefs which comes from people around, in this study, 96% of the subjects were married, at the time of postnatal period were living with their mothers, and others with mother's in-laws, the presence of these family members could provide verbal persuasion to pursue kangaroo practice. The verbal persuasion factor, Bandura (1997) describes the positive impact that people's words/advice/counselling can have on someone's self-efficacy; telling a mother what she is capable of doing and up to facing any challenge ahead of her can encourage and motivate her, as well as adding to her growing belief in her own ability to succeed. Another form of verbal persuasion came from health workers, such as practice nurse in the hospitals, community nurses, where nurses could correct a mother if she is doing the practice incorrectly and provide some extra lessons to motivate her.

Fairly well perception of maternal self-efficacy might be caused by education of the participants (54.20% had educational level of secondary and a few (3.10%) tertiary level, together with 96% of mothers receiving KC education in taking care of preterm infants. Education impacts knowledge and changes cognitive perception of things, it also changes beliefs, later it influences courses of action, this could be the reason of KC practice. If mothers are imparted with more knowledge and skills, they are more likely to develop a sense of competence in caring performances especially when mothers are in challenging times (Salonen et al., 2009). The provision of education, counselling and demonstrating KC is to help mothers to develop self-efficacy and there is a belief that self-efficacy plays a role in behavior change (Ngai, Chan, & Holroyd, 2011), which results into desired health outcomes (Strecher et al., 1986). Similarly, in a study by Cutrona and Troutman, (1986) explained the impact of the level of maternal education significantly relates to MSE, however it contrasts with Salonen et al. (2009) that found that academics had the lowest MSE scores (Cutrona & Troutman, 1986; Salonen et al., 2009). Thus, they were capable to develop self-efficacy in performing KC. Other reasons of correlation are; women intend to practice KC due to perceived benefits of KC imparted by health workers through postnatal education and Ngai et al. (2011) highlighted the

benefits of attending prenatal lasses in increasing self-efficacy. Therefore, health workers must be attentive to antenatal class promotion. This finding was consistent previous research that found positive relationship between maternal self-efficacy and kangaroo care practice, a study by Roberts et al. (2000) which intended to compare Kangaroo Care and cuddling care (CCC) in premature infants and small for gestation infants found that mothers who had high self-efficacy scores performed the Kangaroo Care than those with low self-efficacy scores.

Adding to the above explanations, KC is a special method of caring preterm and some of the tasks are routines which mothers usually do to the infant born normal and extra tasks are added when an infant is preterm, in this study some of the tasks of the tasks were feeding, dressing, so according to evidence shown in a systematic review revealed that infant care behaviors or routine care done by mothers such as feeding, bathing, handling have high self-efficacy scores compared to those not routinely done. In this case as Kangaroo Care comprises of many tasks such as feeding, holding, wiping, dressing these tasks are commonly done these behaviors could have contributed to high self-efficacy among women (Leahy-Warren & McCarthy, 2011).

Regarding the correlation, it can be explained that mothers have physical contact with their preterm and it is shown to improve the bonding process this contributes mothers to develop confidence in care (Lee & Bang, 2011). In the course of practicing KC mothers develop self-efficacy however this can be determined by period of time mother performs the KC (Spencer, 2012).

The Relationship Between Social Support and Kangaroo Care

The results of this study indicated that social support was correlated to kangaroo care with a statistical significance ($p < .01$). The correlation coefficient between social support and KC was .606 which was strong positive correlation (Table 4-6). information support was strongly positively correlated to KC with a statistical of .537 ($p < .01$), instrumental support was strongly positevely correlated with KC with a statistical significance of .546 ($p < .01$). Emotional support was moderately positively correlated with KC with a statistical significance of 452 ($p < .01$) appraisal support was moderately positively correlated with KC with a statistical significance of .472 ($p < .01$). it could be

interpreted that mothers of preterm infants with higher social support are more likely to perform KC at home.

The major findings of this study is the significance of family support (described in structural support questionnaire) in enhancing caring practice and positively influencing KC practice for mothers with preterm infants. The findings of this study can be explained by availability of grandmothers 44.80%, husbands mothers,14.50% and thier spouses 14.80% these were responsible for providing information regarding kangaroo care. The results are consistent with a study by Effend et al. (2016), which revealed that information support was correlated to KC and enabled women to choose KC practice ($p = 0.000$, $r = 0.521$). Another study by Wakse (2016) found positive moderate association between information support and Kangaroo care had significant relationship ($p = 0.000$, $r = 0.521$. Leahy-Warren and McCarthy (2011) found moderate relationship between information support and and with confidence in various infant care tasks and these tasks included only a few components of kangaroo care ($r = 0.40$), $p < 0.20$. During KC education companions are involved in education and this helps companions to have firsthand information about infant KC practice. According to House (1981) among the forms of support include information support. Information support might become a special factor in promoting a health action as it has been seen in the findings of this study that information support was strongly positively correlated to KC with a statistical of .537 ($p < .01$).

In this study findings indicated that instrumental support was strongly positevely correlated with KC with a statistical significance of .546 ($p < .01$). The findings can be explained by majority of women that indicated that grandmothers (participants mother), were more responsible for providing infant care tasks which is instrumental support (52.10 %), seconded by husband mother 18.80%, thirdly fathers to the babies 8.30%, then sisters to the participant's representing 4.20%. The findings are congruent with studies by Nguah et al. (2011), women reported good spousal, family received spousal help in a form of instrumental aid (OR: 1.6, 95% CI: 1.1 to 2.4, $p = 0.007$) support which enabled them to practice KC effectively and had positive neonatal outcomes in all follow up visits. But inconsistent with findings by Leahy-Warren., (2011) in which instrumental support did not have significant relationship with various infant care tasks. The findings of this study are supported by various studies that showed that instrumental support influences

caring ability for example a systematic review by Seidman et al. (2015), indicated that social support from family, friends, and other mothers, it enhances the practice, this support is in different forms , family members provide direct care to give a mother a break, also provide hands on help by helping household chores this gives a mother a relief from work (McMaster et al., 2000). The findings are also in congruent with a systematic review by Chan et al. (2016) which supports that social support, family support plays a great role in KC performance either by sharing household chores or direct skin to skin assistance by a family member.

The results of this study indicated that emotional support was moderately positively correlated with KC with a statistical significance of .452 ($p < .01$). This can be explained by support they received from grandmothers represented by 20.80%, show love, care, and respect in caring the baby that is emotional support, seconded by mother to the husband 20.60%, then husbands to the participants 13.50% and practice nurses in the hospital 6.30%. the 38.00 % is for neighbors, sisters and brothers, friends, public nurse and women's children. The findings of this study are consisted with a study by Effend et al. (2016), which showed that emotional support helped in choosing KC ($p = 0.002$, PR 3.36, 95% CI: 1.01-11.25) with choosing KC. But inconsistent with findings from Leahy-Warren and McCarthy (2011), in which emotional support was not significant in infant care practices.

This study finding also indicated that appraisal support was moderately positively correlated with KC with a statistical significance of .472 ($p < .01$). The explaination is subjects indicated that they received appraisal support from nurses represented by 33.33%, followed by public nurses 9.40%, then husbands mother 7.30%, and grandmother (participants mother) 7.30%. the rest 10.44% is for friends' neighbors and brothers and sisters. Wakse (2016) found positive moderate association between appraisal support and KC, had significant relationship ($p = 0.00$, $r = 0.440$), respectively. Similarly, Leahy-Warren and McCarthy (2011), of four dimensions of social support appraisal support was one of dimensions that had positive significant relationship with confidence in various infant care tasks and these tasks included only a few components of kangaroo care $r = 0.20$ and $p < 0.05$. relatives. House (1981), explained that social support in a form of appraisal can directly improve health and wellbeing because needs are directly

met and social support can reduce levels of maladaptation hence improving health outcomes by reducing pressure or tension. This is important because social support enhances the caring practice, reduces stress and mothers adjusts to life situation as well as a critical coping resource associated with preterm births (Rowe & Jones, 2010).

CHAPTER 5

Conclusion, Implications, and Recommendation

In this study, conclusions of the study are presented on the basis of the objectives, findings and discussions. Implications for the nursing practice, limitations of the study, and recommendations for future research are also presented.

Conclusion

The descriptive correlational research aimed to describe Kangaroo Care practices, to examine relationship between maternal self-efficacy and Kangaroo Care, Social Support and Kangaroo Care among mothers of preterm infants in the three hospitals of Malawi. The Duration of data collection was two months (March 18th - April 20th 2019), The participants were from Bwaila (Lilongwe), Zomba and Mzuzu central hospitals total participants were 96 those who agreed to participate in the study. The following instruments were used to collect data; demographic data, Perceived Maternal Parental Self-efficacy, Perinatal Infant Care Social Support Scale and researcher developed instrument Kangaroo Care scale. The Cronbach's Alpha coefficient for the instruments were; The Perceived Maternal Parental Self-efficacy was .84, the Perinatal Infant Care Social Support Scale was .93, and for Kangaroo Care was .93.

The results of this study were presented as follows:

1. Most mothers of preterm infants, 69.79%, demonstrated full practice of kangaroo care with a mean score of 19.89 (SD = 3.26).

2. Maternal self-efficacy was moderate positively correlated with kangaroo care ($r = .48$, $p < .01$).

3. Social support was high positively correlated with kangaroo care ($r = .61$, $p < .01$).

Implications

The results provide useful information regarding KC practices among mothers of preterm infants in the 3 hospitals of the republic of Malawi. Based on the findings of the present study, implications can be made for nursing practice.

1. Nurses should assess kangaroo care practice both duration and performance of kangaroo care, among different groups of preterm infants, especially during doing household chores and breastfeeding in order to identify and investigate the problem of performing KC at home and come up with possible means of improving KC performance.

2. Nurses should also assess both self-efficacy and social support and emphasize the importance of these variables to mothers with preterm infants and those performing KC since the result of this study demonstrated that there was positive correlation between social support and KC among mother of preterm infants.

3. Nurses should also assess all dimensions of social support as this studyfound that information support and instrument support had strong positive correlation with KC compared to emotional support and appraisal support.

Recommendation

Based on the findings of this study the following are the recommendation for further studies.

1. On this study, the researcher examined the relationship between self-efficacy and Kangaroo Care, further research can explore other factors related to KC practice or factors that can predict KC practices among mothers for example such as age, education, family, and others.

2. Further research should be conducted at different levels of health care because this study was conducted at tertiary level of health care where by they have special ward for KC and the setting and health workers managing these cases are specialists therefore further research to be done at secondary level is recommended.

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APPENDICES

APPENDIX A

Questionnaire in English

ASSESSING MATERNAL SELF-EFFICACY, SOCIAL SUPPORT, AND KANGAROO CARE AMONG MOTHERS OF PRETERM INFANTS

****

This survey consists of four parts including:

Part I Demographic data

Part II Maternal parenting self-efficacy

Part III Perinatal infant care social support

Part IV Kangaroo care

The purpose of the questionnaire is to collect how you perceive your self-efficacy, social support, and Kangaroo care. We request you to read each question carefully and tick your answers in the boxes or fill in the blank spaces. There are no right or wrong answers.

Part I: Demographic data

Mother's Information

1. Age: What is your age?..... years
2. Marital Status: What is your marital status?

□ Married □ Separated □ Divorced □ Widowed

□ Other (specify).....

3. Education: What is the highest degree or level of school you have completed? If currently enrolled, highest degree received.

□ No education □ Primary education (grade 1-8)

□ Secondary education □ Bachelors and above

4. Employment: What is your employment status?

□ House Wife □ Civil servant □ Merchant/Non-governmental Organization

□ Daily Labourers □ Business □ Not employed

5. What is your gross monthly family income?.....

6. What is your ethnicity?

□ Chewa □ Lomwe □ Tumbuka □ Yao □ Other (specify)……

7. Religion: What is your religious preference?

□ Christian □ Moslem □ not religious □ Other (specify)……

8. Have you been educated on KMC?

□Yes □ No

Pregnancy and birth information

9. How many times have you been pregnant (including this pregnancy)?.....times
10. How many babies have you had (including this preterm baby)?.....babies
11. What gestation age was your baby born?.....weeks…….. days
12. What was your baby's weight at birth? …….....…….grams

Infant's information

13. At what age was your infant discharged home?.....
14. How old is your infant now?.....
15. How are you feeding your baby?

□ Breastfeeding exclusively

□ Both breastfeeding and feeding breast-milk substitutes

□ Feeding my baby breast-milk substitutes (not breastfeeding at all)

□ Other (specify) ……..……

16. Has your baby been given anything other than breast milk since the baby was allowed to go back home?

□ Yes □ No

17. If yes, what was given? [tick all that apply]

□ Infant formula □ Water or sugar water

□ Other fluids (please tell us what)……

18. Why was your baby given the supplement(s)? [tick all that apply]

□ I requested it. □ My doctor or other staff recommended the supplements

□ Other (please tell us why)…….……

Part II: Maternal parenting self-efficacy

Instruction: Please rate how strongly you agree or disagree with each of the following statements by placing a check mark in the appropriate box that most closely represents your perception of the situation or how you might feel even if you haven't experienced some of the tasks.

	Item	Strongly Disagree	Disagre	Agree	Strongly Agree
1	I believe I can tell when my baby is tired and needs to sleep				
2	I believe I have control over my baby's care				
3	I can tell when my baby is sick				
4	I can read my baby cues				
	.....				
	.....				
	.....				
	.....				
	.....				
17	I am good at feeding my baby				
18	I am good at changing my baby				
19	I am good at bathing my baby				
20	I can show affection to my baby				

Part III: Perinatal infant care social support

Structural Social Support

The following statements ask about the support that is available to you once your baby is born. After reading each statement, please circle the number that you feel is most appropriate. There are no right or wrong answers. Please answer each of the 16 questions

	Item	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I can get information on				
	Feeding	1	2	3	4
	Changing/dressing	1	2	3	4
	Comforting/settling	1	2	3	4
	Bathing	1	2	3	4
2	I can get information on taking care of my body after child birth	1	2	3	4
3	I can learn from other mothers experiences	1	2	3	4
4	I can get consistent information regarding infant care	1	2	3	4
	.....				
	.....				
	.....				
	.....				
	.....				
14	I have people who will show me appreciation for the care I give to my baby	1	2	3	4
15	People close to me understand that it is okay for me to need help	1	2	3	4
16	I can get positive feedback from health care professionals about my ability to care for my baby	1	2	3	4

Structural Social Support

From the following list of people, please indicate the persons who you expect to be supportive and helpful to you in caring your baby

Types of Support Persons *(tick more than one as necessary).* If any of the names below are not applicable or relevant please leave blank *(tick more than one person as necessary)*	Provide information about caring for your baby in relation to feeding, changing, bathing and settling your baby	Carry out infant care tasks, such as feeding, changing, bathing and settling your baby	Show that they care, love and respect you in caring for your baby	Praise you for doing a good job in caring for your baby
(i) Husband/Partner				
(ii) Mother				
(iii) Father				
(iv) Husbands/Partners' mother				
(v)				
(vi)				
(vii)				
(viii)				
(ix)				
(x)				
(xi) Local doctor (GP)				
(xii) Public Health Nurse(s)				
(xiii) Practice nurse(s)				
(xiv) Others *(specify)* ……. …….				

Part IV: Kangaroo care

The following statements ask about how you practice Kangaroo Care while at home. After reading each statement, please fill in the blank spaces and tick your answers in the boxes that most closely represents your practices using the followings:

Not Practiced = You don't do anything pertaining to that procedure
Partially Practiced = Sometimes you do that procedure but not fully as required
Fully Practiced = Anything required is practiced by the mother

1. How many hours per day did you keep skin–to–skin contact to preterm infant (dressed in a nappy and hat in a strictly vertical position with infant's head turned one side between a mother's breasts and under mother's clothes) at home?..... Hours

	Item	Not Practiced	Partially Practiced	Fully Practiced
2	I put my baby on KMC position when I am sleeping.			
3	I put my baby on KMC position when I am travelling			
4	I put my baby on KMC position when I am doing household chores			
5	I put my baby on KMC position when I am sitting down			
6	I put my baby on KMC position when I am breastfeeding			

APPENDIX B

Questionnaire in Chewa

Zipangizo zogwiritsira ntchito mukafukufuku

Mbiri ya banja lamunthu

Cholinga chapepalali ndikutenga uthenga okhudzana ndi inu ndi banja lanu.Chonde werengani mwachifatse ndikuyankha mafunso onse.Pamene pakufunikila muzichonga mutomabokosi timene tili pa mayankho kapena lembani yankho lanu mmipata imene ili pamayankhopo.

1. Zaka zanu: Muli ndi zaka zingati?..... .....
2. Ndinu mtundu wanji wa anthu?

   □ Mchewa □ Mlomwe□ Mtumbuka □ Myao □ Zina tchulani…….
3. Za banja lanu: Kodi ndinu?

   □ Wokwatiwa □ Munasiyana ukwati?□ Banja linatha

   □ Munali pa banja koma amuna anamwalira □ Zina tchulani.....
4. Maphunziro anu: Kodi school yanu munalekera pati? Ngati mukuphunzira sukulu panopa sukulu imeneyi mudzafika nawo patali motani?

   □ Sindinapite ku sukulu

   □ Ndinalekera ku pulayimale (sitandade 1-8)

   □ Ndinalekera ku sekondale kapena kuposera apo

   □ ndinafika ku univesite ndikumaliza ndikutenga degiri
5. Ntchito yanu: Kodi mumagwira ntchito yanji?

   □ Sindigwira ntchito

   □ Ndimagwira ntchito mboma

   □ Ndimagwira ntchito kumabungwe omwe si aboma

   □ Ndimagwira maganyu

   □ ndine wa business

6. Kodi pamwezi mumalandira ndalama zingati?.....

7. Chipembedzo: Ndinu a chipembedzo chanji?

□ Chikhristu□ Chisilamu □ Sindipembedza □ Zina tchulani

8. Kodi munaphunzirapo zakachitidwe ka kangaroo?

□ inde □ Ayi

Mbiri ya mwana ndi uchembere wanu

9.Kodi mwakhalapo ndi mimba kangati kuphatikiza mimba ya mwana uyu?.....

10. kodi mwakhalapo ndi ana angati kuphatikiza uyu

11. Kodi mwana wanu anabadwa liti?.....

Kuyangana mu buku la sikelo

12. kodi mwana wanu analemera bwanji atabadwa……..

Mbiri ya mwana

13. Kodi anakutulutsani kuchiptala mwana wanu ali wamkulu bwanji?.....

14. Mwana wanu ndiwankulu bwanji pano?.....

15. Mwana wanu mukumamudyetsa bwanji?

□ Kuyamwitsa mkaka wammawere okha

□ Kuyamwitsa ndikuonjezera zakudya zina

□ Amangodya zakudya zina sayamwa

□ Zina longosolani …….

16. Kodi mwana wanu anapatsidwa zakudya zina kupatula mkaka wa mmawere nthawi imene munali kuchipatala?

□ Eya □Ayi

17. Ngati mwayankha kuti eya, anamuptsa zakudya zanji? [chongani zones zimene anapatsidwa]

□ Mkaka wamsitolo

18. Ndi chifukwa chain mwana wanu amapatsidwa zakumwa zina zowonjezera? [chongani mayankho onse]

□ Ndinapempha kwa madokotala kuti azimupatsa.

□ Madokotala anaona kuti ndichabwino kuti azimupatsa koma sanafotokoze zifikwa zake.

□ Madokotala anaona kuti ndichabwino kuti azimupatsa pa zifukwa izi; (chonde longosolani zifukwa zake):…….

□ Zifukwa zina tchulani……

Mafunso okhudza kudzikhulupirira pochita njira ya kangaru

Malangizo kwa makolo amene akugwiritsa ntchito njira ya kangaroo posamalira mwana

Munsimu ndi mafunso amene akukhudzana momwe ubale wanu womwe ulili pakati pa inu ndi mwanu . Mukamayankha mafunsowa chongani yankho limene likufotokoza maganizo anu pa zimene mungachite oro momwe mungamvere ngakhale simunazichitepo zina mwa zinthu talemba munsimu. Mwachitsanzo, sindikugwirizano nazo kwambiri, sindikugwirizana nazo, ndikugwirizana nazo oro ndikugwirizana nazo kwambiri.

		Sindikugwirizana Nazo kwambiri	Sindiku gwirizananazo	Ndikugwiri Zana nazo	Ndikugwirizna Nazo kwambiri
1	Ndikukhulupirira kuti ndikhoza kudziwa kui mwana wanga watopa ndipo afuna kugona				
2	Ndikukhulupirira kuti ndili ndi chisamaliro chonse pa mwana wanga				
3	Ndikhoza kunena zoti mwana wanga wadwala				
	.....				
	.....				
	.....				
	.....				
	.....				
17	Ndimatha kumudyetsa mwana wanga				
18	Ndimatha kumusintha zovala mwana wanga				
19	Ndimatha kusambisa mwana wanga				
20	Ndimamuonetsera chikondi mwana wanga				

Perinatal infant care social support scale

Izi ndiziganizo zimene zikukufunsani za thandizo limene lilipo kwa inuyo kuyambira nthawi imene mwana anabadwa. Mukatha kuwerenga chiganizo chilichonse, chonde chongani numbala imene mukuona kuti ndiyoyenera kulingana ndimomwe mumalandilira thandizo. Palibe yankho lowona kapena labodza, chonde yankhani mafunso 16 onsewo

		Sindikugwi Zana nazo kwambiri	Sindikugwi Rizana nazo	Ndikugwi Rizana nazo	Ndikugwi Rizana Nazo Kwambiri
1	Ndimalandira uthenga pa izi: • Kadyetsedwe • Kusintha ndi kuveka zovala mwana • Kuntothothoza • kunsambitsa				
2	Ndimalandira uthenga momwe ndingasamalire mwana kuyambira nthawi yomwe anabadwa				
3	Ndimaphunzira kwa anzanga amene anaberekapo				
4	Ndimalandira chithandizo mowirikiza zokhudzana ndi kasamalidwe ka mwana				
	.....				
	.....				
	.....				
	.....				
	.....				
14	Pali anthu amene amene amaonetsa kuyamikira pa tandizo ndapereka kwa mwana wanga				
15	Anthu omwe andiyandikira amamvetsa zomwe zili zabwino zoti andithandize				
16	Ndimalandira uthenga wabwino kuchokera kwa a zachipatala wondilimbikitsa kusonyza kuti ndachita bwino pakasamalidwe ka mwana				

Mwa anthu awa talemba munsimu chonde nenani amene mukuyembekeza kuti angakupatseni thandizo kapena amene ali othandiza pothandiza mwana wanu.

Mtundu wathandizo(chongani mopitilira kamodzi) Ngati maina ali munsimu Sali oyenera or sathandizapo musachonge. Mukhoza kuchonga mopitilira kamodzi	Perekani uthenga wokhudzana kasamalidwe ka mwana, kukhudzana ndi kadyedwe, kusintha matewera, kusambitsa ndiku mutonthoza	Kusamalira mwana monga kusambitsa ndiku tonthoza mwana	Amene amaonetsa kuti amakusamalirani, amasonyeza chikondi komanso amakupatsani ulemu posamalira mwana wanu	Amene amakutamani, kapena kukuyamikirani pa ntchito yomwe mwagwira posamalira mwana wanu
I. Mwamuna wanu				
II. Amayi anu				
III. Abambo anu				
IV. Abambo a muna anu				
V.				
VI.				
VII.				
VIII.				
IX				
X				
XI. A dokotala a mudzi				
XII. Anamwino a mudzi				
XIII. Anamwino a kuchipatala				
XIV. Ena tchulani				

Kachitidwe ka kangaroo

1. Kodi ndi ma ola angati pa tsiku inu mumaika mwana wanu wosakwana masiku pachifuwa , atavala chipewa ndi thewera ndipo atayikidwa pa chifuwa atayangana mbali imodzi, komanso atayikidwa pakati pamawere muzovala za amai ake?..... nthawi muma ola

2. Ndimamuyika mwana wanga pachifuwa nthawi imene ndikugona.
   1. Sindinapangeko 2. Ndimapanga mwa apo ndi apo 3. Ndimapanga mmene zimafunikilila
3. Ndimayika mwana wanga pachifuwa ndikamayenda.
   1. Sindinapangeko 2. Ndimapanga mwa apo ndi apo 3. Ndimapanga mmene zimafunikilila
4. Ndimayika mwana wanga pachifuwa ndikamagwira ntchito zapakhomo
   1. Sindinapangeko 2. Ndimapanga mwa apo ndi apo 3. Ndimapanga mmene zimafunikilila
5. Ndimayika mwana wanga pachifuwa ndikakhala pansi
   1. Sindinapangeko 2. Ndimapanga mwa apo ndi apo 3. Ndimapanga mmene zimafunikilila
6. Ndimayika mwana wanga pachifuwa ndikamamuyamwitsa
   1. Sindinapangeko 2. Ndimapanga mwa apo ndi apo 3. Ndimapanga mmene zimafunikilila

APPENDIX C

Certificate of Approval from Chiang Mai University

Research Ethics Office
Faculty of Nursing, Chiang Mai University

AF 04-021

No. 039/2019

Certificate of Approval

Name of Committee : Research Ethics Committee, Faculty of Nursing, Chiang Mai University
Address of Committee: 110/406 Intavaroros Rd., Amphoe Muang, Chiang Mai, Thailand 50200

Principal Investigator : Miss Mercy Ndabakse D. Banda
Master of Nursing Science (International Program) Faculty of Nursing, Chiang Mai University

Protocol Title : Maternal Self-efficacy, Social Support, and Kangaroo Care Among Mothers of Preterm Infants in the Republic of Malawi
Research ID: 2019 – 033 ; **Study Code :** 2019 – EXP020
Sponsor : Thailand International Cooperation Agency (TICA)

Documents filed	Document reference
Research protocol	Version 2 Date February 14, 2019
Informed consent documents	Version 2 Date February 14, 2019
Patient information sheet	Version 1 Date January 28, 2019
Instrument	Version 2 Date February 14, 2019
Principal Investigator Curriculum vitae	Version 1 Date January 28, 2019
Advertisements : (if any)	-

Opinion of the Ethics Committee/Institutional Review Board: Expedited Review in January 2019

The Ethics Committee has reviewed the protocol and documents above and give the favorable opinion

Date of Approval : February 15, 2019 Expiration Date : February 14, 2020

Progress report is required to be submitted to the Ethics Committee for continuing review
[ ] at 3 month interval
[ ] at 6 month interval
[✓] annually (in this case please submit at least 60 days prior to expiration date)

This Ethics Committee is organized and operates according to GCPs and relevant international ethical guidelines, the applicable laws and regulations.

Signed : Wichit Sra

(Professor Emerita Dr.Wichit Srisuphan)
Chairperson, Faculty of Nursing, Chiang Mai University

Signed :

(Professor Dr.Wipada Kunaviktikul)
Dean, Faculty of Nursing, Chiang Mai University

GENERAL CONDITION OF APPROVAL:

1. Research Ethics Committee approval is required before implementing any changes in the consent documents or protocol unless those changes are required urgently for the safely of subjects.
2. Any event or new information that may affect the benefit/risk ratio of the study must be reported to the REC promptly.
3. Any protocol deviation/violation must be reported to the REC.
4. Review of close study report is required to be submitted to the REC.
5. Review of progress report to the REC before expiration date at 2 months.

APPENDIX D

Permission to Use PMPSE Tool

On Fri, Oct 19, 2018 at 7:21 PM Christopher Barnes <C.Barnes1@derby.ac.uk> wrote:
Dear Mercy

Thank you for your enquiry to the university about using the PMPS-E scale. As lead author on the paper I am pleased to grant you permission to use it.

If you have any further questions about its use then please do contact me and I will be happy to help.

Best wishes,

Chris

Dr Christopher Barnes (CPsychol, AFBPsS, FHEA)
Senior Lecturer in Psychology & Programme Leader MSc Applied Developmental Psychology
College of Life and Natural Sciences

APPENDIX E

Permission to Use PICSSS Tool

PICSS instrument University of Thailand
Inbox x

Leahy-Warren, Patricia <Patricia.Leahy@ucc.ie> Nov 26, 2018, 1:10 PM

to me, Patricia

Dear Mercy,
thank you for your email and interest in my instrument which is called the Perinatal Infant Care Social Support (PICSS) Scale I grant you the permission to use the PISSS. Who is your supervisor that is supporting your writing of a proposal for 'maternal self-efficacy and kangaroo mother care among women with preterm infants'?

I would be grateful if you could let me know should you decide to use the scale, with what population and in what context and if you would be willing to share your data to further developing its psychometric properties.

The manuscript of the PICSS is currently in review for publication.

Please let me know by return email that you received this email.

Regards

Patricia

Patricia Leahy-Warren PhD,
MSc (research), Hdip PHN, BSc, RPHN, RM, RGN
Fellow of European Academy of Nursing Science FEANS
Senior lecturer,
Director of Postgraduate Education,
School of Nursing and Midwifery,
Brookfield Health Sciences Complex
UCC

Phone: +353214901461
Fax: +3534901635
Email: patricia.leahy@ucc.ie
http://research.ucc.ie/profiles/C014/patricialeahy
https://www.facebook.com/pages/UCC-School-of-Nursing-and-Midwifery/571243279629454
Member of the Institute of Community Health Nursing
http://www.ichn.ie/

APPENDIX F

Permission Letter to Collect Data at Bwaila

Ref. No.:
Telephone No.: 265 726 466/464
Telefax No.: 265 727817
Telex No.:
E-Mail: lilongwedho@malawi.

In reply please quote NO DZHAMALAWI.
Lilongwe District Health Office
P.O. Box 1274
Lilongwe
Malawi

COMMUNICATIONS TO BE ADDRESSED TO:

20th March, 2019

National Health Science Research Committee
P/Bag 303
Lilongwe 3
Malawi

Dear Sir/Madam

PERMISSION TO CONDUCT A RESEARCH STUDY IN LILONGWE DISTRICT

Approval has been granted to the bearer of this letter: Mercy Ndabakse Banda, i from Chiang Mai University, Thailand to conduct a research study in Lilongwe.

"Maternal self-Efficacy, Social support and Kangaroo Care among Mothers of Preterm Infants Malawi"

Any assistance rendered would be appreciated.

Dr. P.W. Mumba
For: DISTRICT HEALTH OFFICER- LL

APPENDIX G

Permission Letter to Collect Data at Mzuzu Central Hospital

Telephone: 01 320 916 / 878 In
Fax: 320223/320973/270
directormch@malawi.net The

reply please quote No.....

Hospital Director,
Mzuzu Central Hospital,
Private Bag 209, Luwinga,
Mzuzu 2.

04th April, 2019

Mercy Banda

Room 406, Dormitory 55, Faculty of Nursing Campus, Chiang Mai University, Thailand

E-mail : mercyndal 10582@gmail.com, Tel : +66-996257163

Dear Mercy,

APPROVAL TO CONDUCT RESEARCH STUDY AT MZUZU CENTRAL HOSPITAL

Reference is made to your letter Submitted in March, 2019 in which you requested for permission to conduct a study titled ***"Maternal Self-efficacy, Social Support, and Kangaroo Care Among Mothers of Preterm Infants in the Republic of Malawi"*** at our institution (Mzuzu Central Hospital). I am pleased to inform you that your request has been approved.

You may use this as a "Letter of Support from an Institution" to **COMREC/NHSRC.** When you are ready to collect data at our institution, you will be required to present the approval letter and this letter to the in-charge of the department you have selected before you can start your data collection.

Note: Please take note that before implementing your study at our facility you will be required to honor contribution fee of $50 as per our guideline.

Yours sincerely,

Master R.O. Chisale (Research Chairperson for MZCHP committee)

For THE HOSPITAL DIRECTOR

APPENDIX H

Permission Letter to Collect Data at Zomba Central Hospital

Telephone No.: 01 526266/01525195
Telefax No.: (265) 1 524 538
Telex No.:
E-Mail: medzch@malawi.net

Please address all communications to:
The Hospital Director

Zomba Central Hospital
P.O BOX 21
ZOMBA
MALAWI

15th April, 2019

The Chairperson
National Health Science Research Committee
P/Bag 303
Lilongwe 3.
Malawi.

Dear Sir/Madam,

LETTER OF NO OBJECTION

We would like to acknowledge receipt of your letter in which you showed interest to conduct a research study at this institution.

Therefore, we would like to inform you that permission from management team has been granted for you to conduct a research entitled "Maternal Self Efficacy, Social Support and Kangaroo Care Among Mothers of Preterm Infants in the Republic of Malawi.

Therefore, we urge you to adhere to ethical considerations.

We look forward to hearing from you.

DIRECTOR ZOMBA CENTRAL HOSPITAL
15 APR 2019
P.O. BOX 21, ZOMBA

A.Kamanga
PRINCIPAL HOSPITAL ADMINISTRATOR

APPENDIX I

Permission Letter from National Health Sciences Research Ethics Committee

Telephone + 265 789 400
Facsimile + 265 789 431

All Communications should be addressed to:

The Secretary for Health and Population

In reply please quote No

MINISTRY OF HEALTH AND POPULATION
P O BOX 30377
LILONGWE 3
MALAWI

25th March, 2019

Mercy Ndabakse Banda
Chiang Mai University
Thailand

Dear Sir/Madam,

Re: Protocol # 19/03/2240: Maternal Self Efficacy, Social Support and Kangaroo Care Among Mothers of Preterm Infants in the Republic of Malawi

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** your application to conduct the above titled study.

- **APPROVAL NUMBER** : **2240**
- The above details should be used on all correspondences, consent forms and documents as appropriate.
- **APPROVAL DATE** : **25/03/2019**
- **EXPIRATION DATE**
  This approval expires on **24/03/2020**. After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC Secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the NHSRC within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using forms obtainable from the NHSRC Secretariat is required before implementing any changes in the protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on phone number *+265 994 063 425* or by email on mwhsecretariat@gmail.com.
- OTHER: Please be reminded to send in copies of your final research results for our records (Health Research Database).

Kind regards from the NHSRC Secretariat.

2019 -03- 25

P.O. BOX 30377, LILONGWE 3

For: **CHAIRPERSON, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE**
Promoting Ethical Conduct of Research

Executive Committee: *Dr B. Chilima (Chairperson), Dr B. Ngwira (Vice-Chairperson)*
Registered with the USA Office for Human Research Protections (OHRP) as an International IRBIRB Number IRB00003905 FWA00005976

APPENDIX J

List of Experts for Content Validity

Three experts who validate content of Kangaroo Mother Care Scale were as follows:

1. Assistant Professor Dr. Usanee Jintravent
2. Associate Professor Dr. Nantaporn Sansiriphun
3. Associate Professor Dr. Jutamas Chotibang

APPENDIX K

Cronbach's Alpha Coefficient of Perinatal Infant Care Social Support Scale, Perceived Maternal Parental Self-Efficacy Scale and Kangaroo Care

Table K1

Cronbach's Alpha Coefficient of the PICSSS

PICSSS	No. of items	Cronbach's alpha
Overall PICSSS	22	.938
Information support	7	.932
Instrumental support	7	.937
Emotional support	4	.936
Appraisal support	4	.934

Table K2

Cronbach's Alpha Coefficient of the PMPSE

PMPSE	No. of items	Cronbach's alpha
Overall PMPSE	20	.854
Care taking procedures	4	.78
Evoking behaviour(s)	7	.74
Reading behavior(s) or signaling	6	.70
Situational beliefs	3	.80

Table K3

Cronbach's Alpha Coefficient of the Kangaroo Care

Kangaroo Care	No. of items	Cronbach's alpha
Overall kangaroo Care	6	.903

APPENDIX L

Calculation of CVI on Kangaroo Care the Instrument

Expert determination

Questions 1-17 demographic data

1-6 Kangaroo Care

Item	Expert 1 Score	Expert 2 Score	Expert 3 Score	Valid number of Expert agreement	I-CVI
1	4	4	4	3	1
2	4	4	4	3	1
3	3	4	4	3	1
4	3	4	4	3	1
5	4	4	4	3	1
6	4	4	4	3	1
7	4	4	4	3	1
8	3	4	4	3	1
9	3	4	4	3	1
10	4	4	4	3	1
11	4	4	4	3	1
12	4	4	4	3	1
13	4	4	4	3	1
14	3	4	4	3	1
15	3	4	4	3	1
16	3	4	4	3	1
17	3	4	4	3	1
Proportion of agreement of each expert	17/17=1	17/17=1	17/17=1		

S-CVI= 1+1+1=3/3=1

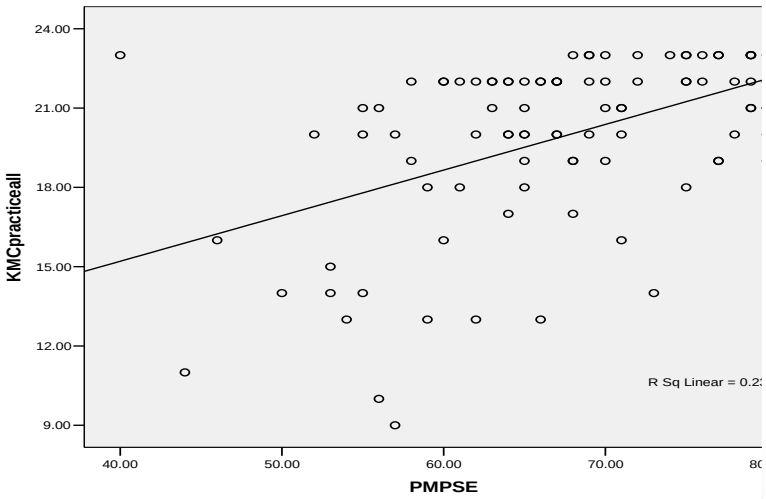
Kangaroo Care

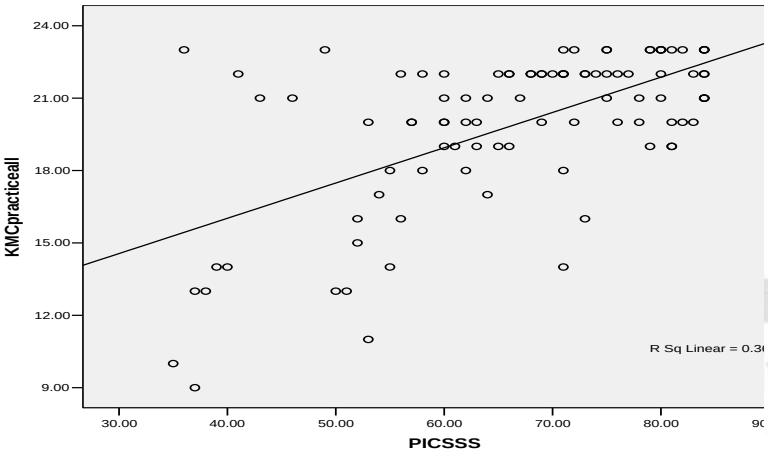
Item	Ex1 score	Ex 2 score	Ex 3 score	Valid number of Expert agreement	I-CVI
1	3	4	4	3	1
2	3	4	4	3	1
3	3	4	4	3	1
4	3	4	4	3	1
5	3	4	4	3	1
6	3	4	4	3	1
Proportion of agreement of each expert	6/6=1	6/6=1	6/6=1		

S-CVI= 1+1+1=3/3=1

APPENDIX M

Assumption Testing Using Normal p-p plot





APPENDIX N

Frequency and Percentages Tables

Datasheet of Maternal Parental Self-efficacy

Table N1

Mean, Standard Deviation, Frequency and Percentage of items in Maternal Parental Self-efficacy as Perceived by Mothers (n=96)

	MPSE	Mean	SD	1 n (%)	2 n (%)	3 n (%)	4 n (%)
	Factor 1. **Care taking procedures**						
16.	I am good at keeping my baby occupied	2.86	1.022	13 (13.50)	18 (18.80)	34 (35.40)	31 (32.30)
17.	I am good at feeding my baby	3.42	0.879	6 (06.30)	7 (07.30)	24 (25.00)	59 (61.50)
18.	I am good at changing my baby	3.76	0.557	1 (01)	3 (03.10)	14 (14.46)	78 (81.30)
19.	I am good at bathing my baby	3.82	4.59	0 (00)	3 (3.10)	11 (11.5)	82 (85.40)
	Factor 2. Evoking behaviour(s)						
5.	I can make a baby happy when he/she is crying	3.16	1.009	11 (11.5)	9 (9.40)	30 (31.30)	46 (47.90)
8.	I can make my baby calm when he/she has been crying	3.40	0.703	1 (01)	9 (9.40)	37 (38.50)	49 (51.00)
9.	I am good at soothing my baby when he/she becomes upset	3.14	0.958	9 (9.40)	11(11.5)	34 (35.40)	42 (43.80)

Table N1 (continued)

	MPSE	Mean	SD	1 n (%)	2 n (%)	3 n (%)	4 n (%)
10.	I am good at soothing my baby when he/she becomes fussy	3.44	0.765	3 (3.10)	7 (7.30)	31(32.30)	55 (57.30)
11.	I am good at soothing my baby when he/she continually crying	3.02	0.767	2 (2.10)	21(21.9)	46(47.90)	27 (28.1)
12.	I am good at soothing my baby when he/she becomes morerestless	3.30	0.822	4(4.20)	10(10.40)	35(36.50)	47(49.00)
14.	I am good at getting my baby attention	3.16	0.886	5(5.20)	16(16.70)	34(35.40)	41 (42.70)
	Factor 3. Reading behavior(s) or signaling						
1.	I believe that I can tell when my baby is Tired and needs to sleep	3.47	0.807	3(3.10)	10(10.40)	22(22.90)	61(63.50)
2	I believe I have control over my baby	3.42	0.804	4(4.2)	7 (7.30)	30 (31.30)	55(57.30)
3	I can tell when my baby is sick	3.56	0.595	0(0.0)	5 (5.20)	32 (33.30)	59(61.50)
4	I can read my baby's cues	3.64	0.600	0(0.0)	6 (6.30)	23(24.00)	67(69.80)
13	I am good at understanding what my baby wants	3.33	0.908	6(6.30)	13(13.50)	31(32.30)	46(47.90)
15	I am good at knowing what activity my baby does not enjoy	2.95	0.988	10(10.40)	19(19.80)	33(34.40)	34(35.50)

Table N1 (continued)

	MPSE	Mean	SD	1 n (%)	2 n (%)	3 n (%)	4 n (%)
	Factor 4. Situational beliefs						
6	I believe that my baby responds Well to me	3.21	0.857	5 (5.20)	12(12.50)	37 (38.50)	42(43.80)
7.	I believe that my baby and I Have A good interaction with each other	3.38	0.837	4 (4.20)	10 (10.40)	28 (29.20)	54 (56.30)
20.	I can show affection to my baby	3.83	0.474	1(1.0)	1(1.0)	11(11.50)	83(86.50)

Datasheet of Perinatal infant care social support scale

Table N2

Mean, Standard Deviation, Frequency and Percentage of items in Social Support (n=96)

	PICSSS	Mean	SD	1 n (%)	2 n (%)	3 n (%)	4 n (%)
	Information support						
1	I can get information on Feeding	3.16	0.977	10(10.40)	9.(9.40)	33(33.40)	44(45.50)
2	I can get information on Changing/ dressing	3.07	0.920	9.(9.40)	10(10.40)	42(43.80)	35(36.50)
3	I can get information on Comforting/ settling	3.09	0.884	7(7.30)	12(12.5)	42(43.80)	35(36.5)
4	I can get information on bathing	3.08	0.925	9(9.40)	10(10.40)	41(47.80)	36(37.50)
5	I can get information about Taking care of my body After child birth	3.27	0.957	10(10.40)	4(4.20)	32(33.30)	50(52.10)
6	I can learn from other mothers experiences	3.08	1.063	13(13.50)	11(11.50)	27(28.10)	45(46.90)
7	I can get consistent information regarding infant care	3.07	0.976	9 (9.40)	15(15.60)	32(33.30)	40(41.70)
	Instrumental support						
8	I can get hands on help with my baby on feeding	2.07	0.776	9.(9.40)	15(15.60)	32(33.30)	40(41.70)

Table N2 (continued)

	PICSSS	Mean	SD	1 n (%)	2 n (%)	3 n (%)	4 n (%)
9	I can get hands on help on dressing	3.05	1.030	12(12.50)	12(12.50)	31(32.30)	41(42.70)
10	I can get hands on comfort Settling	3.07	1.028	11(11.50)	14(14.60)	28(29.20)	43(44.80)
11	I can get hands on help on Bathing	3.03	1.051	13(13.50)	12(12.50)	30(31.0)	41(42.70)
12	I have someone to help me with Routine housework	3.14	0.980	8(8.30)	16(16.70)	27(28.10)	4(46.90)
13	I won't be on my own taking care of my Baby	3.24	0.830	3(3.10)	15(15.60)	34(35.40)	44(45.80)
14	I can make time on myself	3.26	0.909	6(6.30)	12(12.50)	29(30.20)	49(51.00)
	Emotional support						
15	I have people to count on when Things go wrong	3.29	0.820	2(2.10)	16(16.70)	30(31.10)	48(50.00)
16	I have someone to care and comfort me	3.25	0.795	2(2.10)	15(15.60)	36(37.50)	43(44.80)
17	I have someone to talk to How I feel	3.38	0.729	1(1.00)	11(11.50)	35(36.50)	49(51.00)
18	If I need advice there is someone to assist me to work out a plan For dealing with situation	3.26	0.897	7(7.30)	8(8.30)	34(35.40)	47(49.00)

Table N2 (continued)

	PICSSS	Mean	SD	1 n (%)	2 n (%)	3 n (%)	4 n (%)
	Appraisal support						
19	I have people to talk to and share My experiences with	3.19	0.898	7(7.30)	10(10.40)	37(38.50)	42(43.80)
20	I have people who will show Me appreciation for the care I give to my baby	3.19	0.898	8(8.30)	7(7.30)	40(41.70)	1(42.70)
21	People close to me understand That it is ok for me to need help	3.315	0.816	5(5.20)	11(11.50)	46(47.90)	34(35.40)
22	I can get positive feedback from Health care professionals about My ability to care for my baby	3.19	1.009	11(11.50)	8(8.30)	29(30.20)	48(50.00)

Table N3

Structural Support (Number of Persons that Provided Support)

Types of support Persons	Provide information about Caring for your baby in relation to feeding, changing, Bathing and settling your baby	Carryout infant care tasks, such as feeding, changing, bathing and settling your baby	Show that they care, love and respect you in caring for your baby	Praise you for doing a good job in caring for your baby
	n(%)	n(%)	n(%)	n(%)
Husband/partner	43 (44.80%)	50(52.10%)	44(45.80%)	32(33.30%)
Mother	13 (13.50%)	18(18.80%)	13(13.80%)	7(7.30%)
Father	13 (13.50%)	2(2.10%)	2(2.10%)	1(1.00%)
mother in-law	14 (14.60%)	8(8.30%)	4(4.20%)	1(1.00%)
Father in-law	2(2.10%)	4(4.20%)	7(7.30%)	4(4.20%)
Sisters	6(6.30%)	4(4.20%)	10(10.40%)	4(4.20%)
Brothers	2(2.10%)	3(3.10%)	2(2.10%)	6(6.30%)
Friends	0(00)	4(4.20%)	3(3.10%)	0(0.00%)
Neighbors	1(1.00)	0(0.00%)	4(4.20%)	0(0.00%)
Midwives/nurse	2(2.10%)	1(1.00%)	0(0.00%)	0(0.00%)
Local doctor	0(0.00%)	0(0.00%)	0(0.00%)	0(0.00%)
Public nurse	0(0.00%)	1(1.00%)	1(1.00%)	9(9.40%)
Practice nurse	2(2.10%)	1(1.00%)	6(6.30%)	32(33.30%)
Others specify	0(0.00%)	0(0.00%)	0(0.00%)	0(0.00%)

Table N4

Frequency, Percentage, Mean, Standard Deviation and Range of Overall Kangaroo Care (n=96)

Type of kangaroo care		frequency(n)	percentage %
$\bar{X}$ = 19.8854, SD=3.26342, Range= 14			
No practice	0	0	0.00
Partial practice	1-19	29	30.21
Full practice	20 or more	67	69.79

APPENDIX O

Information Sheet for Research Participants in English

Information Sheet for Study Participants	
Research project:	**Maternal Self-efficacy, Social Support, and Kangaroo Care among Mothers of Preterm infants, the Republic of Malawi**

Research Team: Mercy N.D.Banda, Dr. Nonglak Chaloumskuk, and Associate Professor Dr. Piyanut Xuto

Institute: Faculty of Nursing, Chiang Mai University

Research Funding: Thailand International Cooperation Agency (TICA)

NOTE: **For the study this information sheet is translated to Chewa language, Malawian Vernacular language.**

You are being invited to take part in this study because you are an eligible woman with a preterm infant, who has been discharged to continue Kangaroo Care at home while still coming to the hospital for monitoring. The inclusion criteria of the eligible woman are having preterm birth between 32-36+6 weeks, performing KC at home, not having a child with any congenital anomaly, a woman must be mentally stable, able to write and read Chewa language and being between 20 to 40 years of age. The 105 participants who meet this criterion needed for this study will be selected from four tertiary hospitals of Malawi, QUECH, Bwaila/KCH, Zomba, and Mzuzu Central hospitals.

Before you decide to take part in this study, please take your time in reading this information sheet to make sure that you understand what you will be asked to do as part of this study. If you have any questions regarding this study, please feel free to ask the research staff. You are also welcome to discuss this study with someone that you know and trust before you make your decision.

Again, your decision making to participate this study is completely voluntary. (Frame 1)

Frame 1 Taking part in this study is voluntary

- You **can refuse** to participate in this study
- You can **withdraw** from this study at any time

Information related to this study

Kangaroo Care, a method of providing skin–to–skin contact between the mother/surrogate and preterm infant (dressed in a nappy and hat), is recommended both during hospitalization and at home to minimize the effects of prematurity and improve neonatal outcomes on preterm infants. Despite the advantages of home KC practice, there is some resistance to the full implementation of the practice. Maternal self-efficacy is mother's perception of their ability to successfully complete a task of care giving, hence maternal self-efficacy is a feeling of competency in maternal role. As for women allowed to perform KC at home, they need to develop these caring practices, since home setting has its own challenges regarding infant care especially for infant born preterm. Social support is assistance available from other persons within a person's network including informational, instrumental, appraisal, and emotional support. Social support enhances the caring practice and mothers adjusts to life situation as well as a critical coping resource associated with preterm births and hence embracing the kangaroo care practice. There are some studies exploring women experiences of kangaroo care at home. However, these studies were conducted in Asia and Ghana which may be difficult to apply the findings of these studies with Malawi because different in kangaroo care guidelines. Therefore, this study aims to explore the relationship between maternal self-efficacy, social support, and Kangaroo care among women with preterm infants in Malawi tertiary hospitals.

Frame 2 Possible adverse events from this study

No adverse effect from this study

Frame 3 Study design

Descriptive correlational design will be used in this study

Frame 4 Participant Responsibilities

This study will take place for 2 months in February to March, 2019. If you agree to take part in this study, you will be asked to do the following:

You will be asked to fill out a set of questionnaires which consists of four parts including: 1) Demographic Data Form- 16 items, 2) Maternal Parenting Self-efficacy Questionnaire- 20 items, 3) Perinatal Infant Care Social Support Scale- 22 items, and 4) Kangaroo Mother scale- 18 items. Completing the questionnaire should take around 40 minutes. You will be kindly requested to return questionnaires in the sealed envelopes and separate consent form in box provided by the researcher. In addition, the researcher acknowledges the subject voluntary to participate and ethic consideration will be guaranteed.

Frame 5 Anticipated risks and benefits to study participants

The investigator summarizes risks and benefits to study participants

Risks and how the study will minimize or avoid these risks	**Benefits**
- Risks This study will disturb subjects' time for atleast 40 minutes to complete a set of questionnaire. Participants may feel some questions may delay them going - List how participants can minimize or avoid risks The participants will be told in advance about the delay so that they are psychologically prepared .	Direct/ indirect benefits There may be no direct benefits to subjects from this study. However, the results of this study will provide basic information about maternal self-efficacy, social support and Kangaroo Care. It will be used as a guide for nurses and other health care worker to concern the importance of maternal self-efficacy and social support in order to promote Kangaroo Care at home among mothers of preterm infants.

Frame 6 Possible situations that may happen during the study The investigator summarizes the practical guideline or the care of various situations that may happen during the study	
Situations	**Practical guideline**
If you choose to withdraw during the study	You have the right to withdraw from the study at any time. If you decide to leave the study, please inform the investigators and your right and benefits will not be affected.
Release of new and significant information about the study which may affect your decision to take part in the study	If we receiving any new information that is related to or impacts this study, we will present it to you as soon as we can. After you receive this information you will be able to decide whether to continue or discontinue participating in this study. Should state that if the new information will include whether it affects the benefits or risks. A re-consent process should be conducted.

All information collected about you in this study will be kept confidential and your data will be utilized by using a code number. The presentation of study findings at any conference or in a publication will not use your name. However, the Research Ethics Committee, the persons will have the authority to oversee this study. You have a legal right to access your personal information. If you wish to use this right, please inform study staff. Any benefits from this study will provided as allowed by the regulations of Chiang Mai University.

This study provides no payment or compensation for your participation. If you have any questions or experience any side effects before or while participating in this study, you can contact the person in **Frame 7**

Frame 7 Research contact person(s)	
1. Ms. Mercy Ndabakse D.Banda	Mzuzu Health Centre, P.O.Box 299, Mzuzu Phone: +265 999799622 Email: mercynda110582@gmail.com or room 406, dormitory (55), Faculty of Nursing, Chiang Mai University, Thailand, Phone: +66-996257163
2. Dr. Nonglak Chaloumsuk	Faculty of Nursing, Chiang Mai University, Thailand. Email: nonglak.c@cmu.ac.th Phone: (office hour) +6653939128

If you have any questions about your rights before or during participating in this study, please contact the Research Ethics Committee, Faculty of Nursing, Chiang Mai University.

No conflicts of interest associated with this study

Tel. 66-53-936080 (Office hours) or Fax. 66-53-894170

APPENDIX P

Information Sheet for Research Participants in Chichewa

Chikalata cha wotenga mbali mu kafukufuku

Dzina la kafukufuku : **Maternal Self-efficacy, Social Support and Kangaroo Care among Mothers of Preterm infants The Republic of Malawi**

Mayina a wochita kafukufuku: Mercy N.D.Banda, Dr. Nonglak Chaloumskuk, Assist. Prof. Piyanut Xuto

Sukulu yomwe ikuchita kafukufuku: Faculty of Nursing, Chiang Mai University

Omwe apeleka ndalama zochitila kafukufuku: Thailand International Cooperation Agency (TICA)

Mukupemphedwa kuti mutenge gawo mukafukufukuyu chifukwa ndinu ololedwa kutero kamba koti ndinu mzimayi yemwe muli ndi mwana wobadwa nthawi isanakwane amene mwatulutsidwa kuchipatala kuti mukapitilize njira yosamalira ana ya Kangaroo ku nyumba ndi kumabwelabwe ndi mwanayo kuchipatala (ku sikelo) kuti azidzamuyeza. Amayi omwe angalowe mu kafukufukuyu ayenela kukhala otele: omwe ali ndi mwana wobadwa nthawi isakankwane yemwe ali wa pakati pa masabata 32 ndi 37, omwe akugwilitsa ntchito njira yosamalira ana ya Kangaroo ku nyumba, omwe alibe mwana yemwe anabadwa ndi vuto kapena chilema, omwe mutu wao umayenda bwino, omwe amatha kulemba ndi kuwelenga Chichewa komanso akhale ndi zaka zakubadwa zoposa 19. Anthu 105 omwe ali ndi zoyeneleza kuti alowe mu kafukufukuyu, adzasankhidwa kuchokela mu zipatala za boma zikuluzikulu izi QUECH, Bwaila/KCH, Zomba ndi Mzuzu Central.

Musanapange chisankho chotenga gawo mu kafukufukuyu, chonde welengani chikalata cha kafukufukuchi mwachidwi kuti mumvetsetse zomwe mufunsidwe kuchita mu kafukufukuyu.Ngati muli ndi mafunso aliwonse wokhudza kafukufukuyu, khalani omasuka kuwafunsa ogwira ntchito mu kafukufukuyu. Musanapange chiganizo chotenga nawo gawo mu kafukufukuyu, mulinso ololedwa kukambilana za kafukufukuyu ndi munthu yemwe mukumudziwa.

Tikubwelezanso kunena kuti muli ndi ufulu osankha **kutenga gawo mu kafukufukuyu kapena ayi (Frame 1)**

Frame 1 Muli ndi ufulu osankha **kutenga gawo mu kafukufukuyu kapena ayi**

- Mutha **kukana** kutenga gawo mu kafukufukuyu
- Mutha kusankha kutuluka mu kafukufukuyu nthawi iliyonse

Zokhudza kafukufukuyu

Kuthekela kwa mzimayi pa uchembele kukutanthauza m'mene mzimayi amadziwonela pa kuthekela kwake kokwanilitsa kumalizitsa ntchito yosamalira mwana. Izi zikutanthauza kuti kuthekela kwa mzimayi pa uchembele ndi momwe mzimayi amawonela kuti atha kukwanitsa ntchito ya uchembele. Ichi ndi chinthu choyenela kuti mzimayi akhale nacho chifukwa mwana wobadwa nthawi isanakwane imapatsa nkhawa yayikulu kamba koti sizidziwika ngati mwanayo ati akhale ndi moyo kepena ayi komanso ntchito yowonjezela, yoyang'anila mwanayo mu njira ya Kangaroo imafunika kudzikhulupilira kuti utha kukwanitsa uchembele. Thandizo lochoka kwa anthu ena limapezeka kuchokela kwa odziwana nawo. Thandizo lochoka kwa anthu ena limathandiza kuti mzimayi asamalile bwino mwana pogwilitsa ntchito nzelu za ena komanso powona mmene amapelekela chithandizo pa vuto lomweli. Njira yosamalila ana ya Kangarooo inaloledwa kuti izigwilitsidwa ntchito kuti ithandize pa ntchito yosamalira ana ang'ono. Mzimayi ayenela kukhala ndi kuthekela kosamalira ana komanso thandizo lochoka kwa abale ndi amzake kuti athe kugwilitsa ntchito bwino njira ya Kangaroo. Amayi omwe atulutsidwa mchipatala ndi kuwuzidwa kuti akatsate njira ya kangaroo ku nyumba kwao amakumana ndi zovuta pa zifukwa zina. Pachifukwa cha ichi, pali njira ya kangaroo siyimapindilitsa. Kamba ka vuto limeneli, kafukufukuyu akuyang'ana ubale omwe ulipo pakati pa kuthekela kwa mzimayi pa uchembele, njira yosamalila ana ya Kangarooo, thandizo lochoka kwa anthu ena komanso njira yosamalila ana obadwa nthawi isanakwane ya Kangarooo mu zipatala za boma zazikulu ku Malawi.

Frame 2 Zowopya zomwe zingachitike kamba kotenga nawo gawo mu kafukufukuyu

Palibe zowopya zomwe zingachitike kamba kotenga nawo gawo mu kafukufukuyu. Kuchedwa kupita kunyumba kokha ndi komwe kungachitike.

Frame 3 Kachitidwe ka kafukufuku

Kafukufukuyu agwilitsa ntchito njira yotchedwa "Descriptive correlational design."

Frame 4 Udindo wa otenga mbali mu kafukufuku

Kafukufukuyu adzachitika kwa masabata awiri, kuyambira mwezi wa February kulekeza mwezi wa March 2019. Ngati mungalole kutenga gawo mu kafukufukuyu, mupemphedwa kuti muchite zinthu izi:

Mupemphedwa kuti mulembe mayankho a mafunso omwe ali mu magawo atatu, kuphatikizapo izi: 1) Zokhudza inu – zinthu 17, 2) Mafunso okhudza kuthekela kwa mzimayi pa uchembele - zinthu 18, 3) Muyezo wa njira yosamalila ana ya Kangarooo – zinthu 12 komanso 4, Muyezo wa thandizo lochoka kwa anthu ena – zinthu 22. Kulemba mayankho a mafunsowa kukutengelani pafupifupi mphindi 40. Mupemphedwa kuti mubweletsa mayankho a mafunsowa mu enivelopu yomata. Mukupemphedwanso kubweletsa chikalata chosonyeza kulola kulowa mu kafukufukuyu mu bokosi lomwe lapelekedwa ndi ochita kafukufukuyu. Powonjezela pamenepo, ochita kafukufukuyu adzalemekeza ufulu wosankha kutenga nawo mbali mu kafukufukuyu kapena kukana komanso adzawonetsetsa kuti ufulu wa otenga mbali mu kafukufukuyu walemekezedwa.

Frame 5 Ziwopsyezo ndi phindu, zomwe otenga gawo mu kafukufuku angakumane nazo

Ochita kafukufukuyu afotokoza mwachidule **z**iwopsyezo ndi phindu, zomwe otenga gawo mu kafukufuku angakumane nazo

Risks and how the study will minimize or avoid these risks	**Phindu**

Ziwopsyezo komanso momwe kafukufukuyu azichepetsele kapena momwe azipewele	
Ziwopsyezo Kafukufukuyu atenga pafupifupi mphindi 40 za otenga mbali mu kafukufukuyu : nthawiyi ayigwilitsa ntchito poyankha mafunso. Otenga mbali mukafukufukuyu atha kuwona ngati kuti mafunso ena awachedwetsa kuti adzipita kunyumba. Fotokozani momwe otenga mbali mu kafukufukuyu angachepetsele kapena kupewa ziwopsyezosi Otenga gawo mu kafukufukuyu adzawuzidwa za kuchedwaku asanasankhe kutenga gawo mu kafukufukuyu kuti adzakhale okonzeka mu malingaliro awo..	Phindu lomwe otenga mbali mu kafukufukuyu kapena anthu ena angalandire Pakhonza osakhala phindu lomwe otenga gawo mu kafukufukuyu angalandile kuchokela ku kafukufukuyu. Ngakhale izi zili choncho, zotsatila za kafukufukuyu zidzapeleka chidziwitso chokhudza kuthekela kwa mzimayi pa uchembele, thandizo lochoka kwa anthu ena komanso njira yosamalira ana obandwa masiku asanakwane ya Kangaroo. Chidziwitso kapena nzelu zatsopanozi zidzagwilitsidwa ntchito ngati mlozo wa anamwino komanso ena ogwira ntchito za umoyo pokhudza kufunika kwa kuthekela kwa mzimayi pa uchembele komanso thandizo lochoka kwa anthu ena pofuna kulimbikitsa amayi a ana obandwa masiku asanakwane kugwilitsa ntchito njira yosamalira ana ya Kangaroo ku nyumba.

Frame 6 Zinthu zomwe zingathe kuchitika pa nthawi yochita kafukufukuyu

Ochita kafukufukuyu afotokoza mwachidule njira zogwilitsa ntchito kapena thandizo lomwe lingapelekedwe ku zinthu zosiyanasiyana zomwe zingathe kuchitika pa nthawi yochita kafukufukuyu.

Zomwe zingathe kuchitika	**Njira zogwilitsa ntchito kapena thandizo lomwe lingapelekedwe**
Ngati mutasankha kutuluka mu kafukufukuyu	Muli ndi ufulu otuluka mu kafukufukuyu pa nthawi iliyonse. Ngati mutasankha kutuluka mu kafukufukuyu, chondo awuzeni ochita kafukufukuyu ndipo ufulu wanu kapena phindu lanu lomwe mukupeza sizidzasokonezedwa.
Kugawidwa kwa zatsopani ndi zofunika, zokhudza kafukufukuyu zomwe zitha kukhudza chiganizo chanu choti mutenge mbali mu kafukufukuyu kapena ayi	Ngati titalandila zatsopani zokhudza kafukufukuyu, tidzakudziwitsani mwachangu. Mutalandila uthenga umenewu, mutha kudzasankha kupitiliza kapene kuleka kutenga gawo mu kafukufukuyu. Tiyenelanso kukudziwitsani kuti tidadzakuwuzani ngati uthenga watsopanowo ukukhudza phindu kapena ziwopsezo zokhudza kutenga gawo mu kafukufukuyu. Ngati izi zitakhala choncho, tidzakupemphani kuti mupeleke chilolezo china chotengela gawo mu kafukufukuyu.

Uthenga onse okhudza inu omwe titolele tidzawusunga mwa chinsinsi ndipo uthenga wanuwu udzagwilitsidwa nthito pogwilitsa ntchito nambala ya chinsinsi osati dzina lanu. Sitidzagwilitsa ntchito dzina lanu pogawa zotsatila za kafukufukuyu ku misonkhano kapena mu mabuku. Ngakhale izi zili choncho, a bungwe loyang'snila kafukufuku komanso ogwila ntchito ku Thai Food and Drug Administration atha

kudzawona uthenga wanu ndi cholinga chowunika uthenga womwe tatolela komanso kuwona ngati kafukufukuyu anachitika mu ndondomeko yolondola. Muli ndi ufulu otetezedwa ndi malamulo kuti muwone uthenga wochokela kwa inu. Ngati mukufuna kugwilitsa ntchito ufulu umenewu, chonde adziwitseni ogwila ntchito mu kafukufukuyu. Phindu lililonse lochokela ku kafukufukuyu lidzapelekedwa motsata ndondomeko za Chiang Mai University.

Kafukufukuyu sakupeleka malipiro aliwonse kapena chipepeso chilichonse Kamba kotenga gawo kwanu mu kafukufukuyu. Ngati muli ndi mafunso aliwonse kapena ngati mwakumana ndi vuto musanatenge mbali kapena mutayamba kutenga mbali mu kafukufukuyu, mutha kulumikizana ndi munthu yemwe dzina lake lalembedwa mmusimu, mu Frame 7

Frame 7 Omwe mutha kulumikizana nawo pa nkhani zokhudza kafukufukuyu

3.	Ms. Mercy Ndabakse D.Banda	Mzuzu Health Centre, P.O.Box 299, Mzuzu Phone: +265 999799622, Email: mercynda110582@gmail.com or Room 406, dormitory (55), Faculty of Nursing, Chiang Mai University, Thailand, Phone: +66-996257163
4.	Dr. Nonglak Chaloumsuk	Faculty of Nursing, Chiang Mai University, Thailand. Email: Phone: (office hour)

Ngati muli ndi mafunso aliwonse okhudza ufulu wanu musanatenge mbali kapena mutayamba kutenga mbali mu kafukufukuyu, chonde lumikizanani ndi ogwila ntchito yoyang'anira kafukufuku, Faculty of Nursing, Chiang Mai University.

Palibe zomwe ochita kafukufukuyu angathe kupindulako mwapadela Kamba kochita kafukufukuyu .

Tel. 66-53-936080 (Office hours) or Fax. 66-53-89417

APPENDIX Q

Voluntary Agreement Form in English

Volunteer Research Agreement Form	
I have already read the above information thoroughly and have been given an opportunity to ask any questions about the research answered to my satisfaction. I agree to participate in this study by signing my signature in this form as an evidence of my decision making (However, this signature does not mean that I waive any right provided by law)	I certify that the study participant has been given an opportunity to have any questions and has been received answers clearly. The study participant voluntarily agrees to participate in this study.
_____	_____
Name of study participant	Name of a person who requests agreement from study participants (or the investigator)
_____	_____
Signature of study participant	Signature of a person who requests agreement from study participants (or the investigator)
_____	_____
Day/Month/Year	Day/Month/Year

APPENDIX R

Voluntary Agreement Form in Chichewa

Volunteer Research Agreement Form **Chikalata chovomelezela kulowa mu kafukufuku modzipeleka**	
Ndawelenga kale mwachidwi zomwe zalembedwa pamwambapa komanso ndapatsidwa mwayi wofunsa mafunso okhudza kafukufukuyu ndipo ndakhutira ndi mayankho omwe ndapatsidwa. Ndavomeleza kutenga mbali mu kafukufukuyu: ndasayina papepalali posonyeza kuvomeleza kwanga. (Komabe, kusayina kwangaku sikukusonyeza kuti ndilibenso ufulu okhazikitsidwa ndi malamulo) _____ Dzina la wotenga mbali mu kafukufuku _____ Signature of study participant Sayini ya wotenga mbali mu kafukufuku Tsiku/Mwezi/Chaka	. Ndikutsimikiza kuti wotenga mbali mu kafukufuku apatsidwa mwayi wofunsa mafunso okhudza kafukufukuyu ndipo apatsidwa mayankho omveka bwino. Iwo avomeleza kutenga nawo mbali mukafukufukuyu mosakakamizidwa. _____ Dzina la omwe apempha chilolezo kuti anthu atenge mbali mu kafukufuku kapena dzina la wochita kafukufuku. Mercy N.D. Banda Sayini ya omwe apempha chilolezo kuti anthu atenge mbali mu kafukufuku kapena sayini ya wochita kafukufuku. Tsiku/Mwezi/Chaka

CURRICULUM VITAE

Name Miss Mercy Ndabakse Banda

Date of Birth May 11, 1984

Educational Background

2005-2008 Bachelor Degree in Nursing, University of Malawi; Kamuzu College of Nursing, Malawi

Professional Experiences

2009-present Nurse Midwife Officer, Maternal and Child Health Department, Ministry of Health, Malawi