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The Effect of Nursing Education on the Utilization of Kangaroo Mother Care and Weight Gain of Preterm and Low Birth Weight Infants

Jhenalynn Valete

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Jhenalynn Vargas Valete

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Professor Deborah Meshel

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Abstract

Aim: The goal of this quantitative study is to investigate if educating nurses about the significance of KMC will increase its utilization and promote weight gain in low birthweight and preterm infants. Additionally, it aims to find the optimal duration of KMC required to maximize health outcomes for the infant. This research proposal aims to provide nursing professionals with valuable insights, allowing them to effectively educate parents on practices that promote maximal weight gain in neonates.

Background: This is a cost-effective and natural way to enhance health outcomes such as temperature regulation, weight gain, respiratory function, pain mitigation, and facilitation of breastfeeding for the neonate. While it is evident KMC yields significant benefits for infants, there is a lack of extensive research regarding the optimal duration of this intervention. Due to the fact that the optimal duration of KMC is not yet established, parents are unable to decipher if they are practicing it for an adequate length of time. In addition, nursing staff may have limited knowledge regarding KMC which creates challenges in effectively educating parents

Methods: The literature critique focused on KMC regarding its importance, duration, and nurse education and how each enriched the health of infants. Further, quantitative research regarding nursing education about KMC and its effects on usage as well as optimal duration of KMC required to boost weight gain in infants will be proposed.

Results: It is assumed that educating nurses about the importance of KMC directly causes an increase in the weight gain observed in neonates due to its increased utilization and longer duration.

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Background

Kangaroo Mother Care (KMC), often referred to as skin-to-skin contact, is an intervention for preterm and low birth weight infants, involving the practice of the mother or caregiver holding the newborn against their bare chest (Cleveland Clinic, 2023). Prematurity has emerged as the top leading cause of death among kids under the age of 5. Each year, 15 million infants are born preterm and over 20 million infants are born with a low birth weight (World Health Organization, 2022). KMC has been established to reduce mortality rates in hospitalized infants weighing less than 2 kilograms by as much as 40% once they have been stabilized (N Engl J Med, 2021). This is a cost-effective and natural way to enhance health outcomes such as temperature regulation, weight gain, respiratory function, pain mitigation, and facilitation of breastfeeding for the neonate (Jefferees et al., 2012). While it is evident KMC yields significant benefits for infants, there is a lack of extensive research regarding the optimal duration of this intervention. Because the optimal duration of KMC is not yet established, parents are unable to decipher if they are practicing it for an adequate length of time. In addition, nursing staff may have limited knowledge regarding KMC which creates challenges in effectively educating parents. This information prompts the following question: “Can Nurse Education about the importance of Kangaroo Mother Care increase its utilization and promote weight gain in low birthweight and preterm infants?”

Purpose

The objective of this quantitative study is to determine if educating nurses about the importance of KMC will increase its utilization and promote weight gain in low birthweight and preterm infants. Additionally, it targets the optimal duration of KMC required to maximize health outcomes for the infant. This research proposal aims to provide nursing professionals with

valuable insights, allowing them to effectively educate parents on practices that promote maximal weight gain in neonates.

Hypothesis

Educating nurses about the importance of KMC directly causes an increase in the weight gain observed in neonates due to its increased utilization. Similarly, in neonates who receive a longer period of KMC, a greater weight gain is expected.

Literature Critique

Introduction

The following literature critique examines if educating nurses about the importance of KMC increases the duration and utilization of KMC, therefore improving the extent of weight gain in preterm and low birthweight infants. The articles that were evaluated in this critique were obtained from the Dominican University of California's Archbishop Library database which includes CINAHL, Pubmed, and Google Scholar. Within each database, the following key phrases were used: "neonates", "preterm", "low birth-weight", "health outcomes", "nursing education", and "duration". A literature critique table can be found in Appendix A.

The following criteria required for the articles include:

- Published within the last 10 years, one of which is a seminal study
- Primary research articles
- Peer reviewed

All of the six articles selected for this critique were organized into three subcategories:

- KMC and its importance
- Duration and how it improves health outcomes
- Nurse education and how it enhances health consequences

KMC and its Importance

This subcategory of articles explores the benefits and importance of KMC and how it increases survival rates of preterm and low birth weight babies.

Arya et al. (2021), conducted a randomized controlled trial with an aim to observe the safety and efficacy of KMC for low birth weight babies immediately after birth. The population included 3,211 low birth weight infants. Infants with a birth weight between 1.0 and 1.799 kg from five different hospitals located in Ghana, India, Malawi, Nigeria, and Tanzania were split into two groups. One received KMC right after birth either stable or unstable and the other group received conventional care in an incubator until they were stable, and then they received KMC. The following criteria was measured: mortality, hypothermia, hypoglycemia, suspected sepsis, time to clinical stabilization, exclusive breast-feeding at the time of discharge, exclusive breast-feeding at the end of the neonatal period (at 28 days of age), maternal satisfaction with care, and maternal depression (Arya et al., 2021).

Researchers found that KMC improved neonatal survival by 25% as compared with KMC that was initiated after stabilization. There was no remarkable difference between the intervention and control groups regarding feeding outcomes, stabilization time, and hypoglycemia episodes (Arya et al., 2021). One limitation to this study is limited generalizability. These findings may not be applicable to low birth weight infants in well-resourced areas as these infants were from low-resource areas. Another limitation is that it is difficult to separate the intervention, immediate KMC after birth, from the mere presence of the mother. Both of which are essential to the infant's health. Despite these limitations, this study also has notable strengths such as being a randomized controlled trial. Additionally, its

population of interest is quite large and the participants are from a variety of low-resource countries. Most of the outcomes were objectively measured, which reduces measurement bias.

Kristofferson et al. (2023) implemented an open label randomized controlled trial to assess safety, viability and physiological effects of skin-to-skin contact (SSC) from birth between mothers and very preterm infants in an affluent environment. The population consisted of 108 preterm infants at gestational age of 28-31 weeks and birth weight >1000g delivered vaginally or by cesarean section. After birth, the infants were assessed and stabilized before randomizing them into the two groups. One group received SSC immediately while the second group was sent to the NICU in an incubator. Safety was measured by the episodes of hypothermia and the need for mechanical ventilation. The physiological measurements included heart rate, respiratory rate and oxygen saturation (Kristofferson et al., 2023).

Researchers observed that immediate SSC for preterm infants was safe and viable. Instances of hypothermia and hyperthermia were increased in the standard care group in comparison to the SSC group which proves that early initiation of SSC improves thermoregulation. There was no need for mechanical ventilation, so safety was not compromised (Kristofferson et al., 2023). A limitation of this study is the fact that the physiological measurements were collected intermittently, therefore there are gaps in the data collection. Another constraint of this study is that the total duration of SSC was not recorded, making it difficult to pinpoint the ideal time frame. However, incorporating a randomized controlled trial component is a strong advantage of this study. Furthermore, these trials were executed at three different medical centers, which makes the results more generalizable.

Duration and How it Improves Health Outcomes

The following articles in this section explore how an extended duration of KMC improved the health of neonates.

El-Farrash et al. (2020) organized a mixed methods research design with a random controlled trial component to explore the effect of kangaroo care (KC) and its duration on the neurobehavioral performance, stress response, breastfeeding outcomes, and vital signs of premature infants. The participants were 120 stable preterm neonates with gestational age between 31 and 35 weeks at the Neonatal Intensive Care Units (NICU) of Ain Shams University Hospitals. Vital signs were gathered both before and after the administration of KC, while daily physical examinations were conducted. The assessment of breastfeeding success was undertaken using the Breastfeeding Assessment Tool (El-Farrash et al., 2020).

No remarkable differences were observed between the examined groups regarding maternal characteristics, neonatal demographic data, and anthropometric measurements. Oxygen saturation and temperature were increased in the KC-120 min group in comparison to the KC-60 min group. Following KC across both neonate groups, there was a decrease in cortisol levels, notably pronounced in the KC-60 min and KC-120 min groups (El-Farrash et al., 2020). Several limitations are associated with this study. The outcomes cannot be applied to unstable infants. Additionally, the evaluation period was 7 days, which requires further investigation into the long-term implications. The comparison was limited to only two brief durations, which calls for more research into more extended periods of KC. As far as strengths, in the hierarchy of evidence-based research, randomized controlled trials are the gold standard. Moreover, another strength of this study is its substantial sample size.

Patawat et al. (2023) executed a before-and-after intervention study in order to extend the duration of KMC at home. The population was 180 neonates with a birth weight < 2.0 kg from

India. Three sets of interventions were tested by using the plan-do-study-act cycle (PDSA). The first intervention involved extensively educating mothers about the advantages of KMC. The second intervention was to alleviate maternal stress and anxiety by increasing the amount of female staff and instructing the mothers about how they can wear their gowns properly. The third intervention addressed lactation challenges and environment temperatures with lactation counseling and warming of the nurseries (Patawat et al., 2023).

Interventions were determined through PDSA cycles and analyzing the needs of the KMC providers. By doing so, KMC duration increased in hospital and at home. Continuous communication with the KMC provider also increased duration. The length of KMC can be improved by counseling, policy, and support of KMC providers, all of which can be tailored to their specific needs. Community health care workers supporting KMC can greatly influence the practice. An additional finding was that KMC duration and weight gain were positively correlated (Patawat et al., 2023). A noteworthy limitation of this study is there is no control group. This makes comparison challenging because the interventions may not be the only cause for the results. There were also confounding variables other than the interventions. For instance, when doctors provided counseling, there was a significant increase in KMC. A strength of this study is its practicality as before-and after intervention studies are easier to conduct. This also makes them more cost effective because there are less resources needed. Another strength would be how quickly results can be obtained.

Nurse Education and How it Enhances Health Consequences

The next two articles highlight how education is imperative to enhance health consequences for all patients. Nurses must possess the knowledge required to effectively educate their patients.

Küçükoğlu and Çelebioğlu (2014) conducted a study in a quasi-longitudinal experimental way to observe the impact of breastfeeding education for mothers of low birth weight infants in regards to breast-feeding self-efficacy level, breast-feeding success, and the growth of the infants. The population selected for this study included 85 mothers and their low birth weight infants from two different hospitals in Turkey. All of which had lower income and low education. The mothers were split into two groups. One group received 30 minutes of breastfeeding education for their first 5 days of their stay at the hospital and the other did not receive any. Home health nurses continued to provide care with both groups until the infants reached the age of 6 months. Measurements were taken using the following tools: Personal Information Form, Breast-feeding Self-Efficacy Form, LATCH Breast-feeding Assessment Tool, Breastfeeding Follow-Up Card Infant Anthropometric Measurement Form, infant weighing scale, infant height measurement ruler, and head circumference tape (Küçükoğlu & Çelebioğlu, 2014).

The study revealed that breastfeeding education had increased the mother's knowledge, management of breast-feeding practice, breast-feeding self-efficacy, and infant growth. Remarkably, 85.7% of mothers from the control group exclusively breast fed their infants for a minimum of 6 months (Küçükoğlu & Çelebioğlu, 2014). A limitation of this study is that there are challenges of generalization. This is due to the lack of randomization of the mothers as they were not randomly selected which means the results may not be applicable to mothers from similar circumstances. Additionally, there is a possibility of selection bias because certain characteristics could have influenced which mothers participated, potentially affecting the results. Another limitation would be that there is a lack of control of extraneous variables. This means that other factors could have also influenced the observed results. A strength of this study

is the ethical approach to the research. Consents were obtained from the hospitals, the participating mothers, and they received approval from the ethical committee. In addition, the researchers thoroughly explained all the elements of the study and addressed any questions the mothers had. Furthermore, because it is a quasi-experimental study, the researchers were able to study the changes over an extended period of time.

Sivapriya et al. (2007) carried out a one group pre-test and post-test design experiment to assess the knowledge of mothers regarding kangaroo mother care and to evaluate the effectiveness of an education program regarding KMC. The participants of this study included 35 mothers of preterm infants. A validated questionnaire, supported by pediatric experts, was given to the group of mothers. Additionally, a curriculum was developed by the investigator. After three days of receiving the curriculum, the questionnaire was re-administered to the mothers (Sivapriya et al., 2007).

The study found that after the structured education program about KMC, there was an increase in knowledge. Important implications have resulted from this study. Education regarding KMC should be taught to all mothers of low birth weight infants which can positively impact health outcomes. Hospitals should consider enforcing the education of KMC for all mothers as nurses can educate and provide them with support. Nursing education should also involve an increased amount of curriculum surrounding KMC so they can continue to promote KMC (Sivapriya et al., 2007). A limitation to this study is there is no control group. This makes it challenging to determine if the curriculum was the sole reason for the results or if there were other unaccounted variables that had influence. Another limitation is its relatively small sample size which decreases generalizability. A strength of this study lies in its simplicity. This was a fairly easy study to conduct which required less resources. It was also able to assess the mothers'

knowledge before the curriculum which established a baseline of information. This was helpful when assessing the influence of the curriculum.

This literature critique exposes the significance of KMC as well as how duration and educating nurses can impact the health of infants. However, there are a few gaps in the literature that include the optimal duration of KMC and if educating nurses about its value can augment its application.

Theoretical Framework

The theoretical framework that best supports this proposed study is Jean Watson's Caring Theory. This theory focuses on the care that nurses provide to patients and how it facilitates healing. Watson places a strong emphasis on holistic care because it can enhance health outcomes by nurturing well-being via health promotion (Nurseslabs, 2023). Caring is a trait that is essential to the nursing profession as it helps to promote health, oftentimes more effectively than medical intervention alone. This places patients at the focus of care over technology (Psych-Mental Health Hub).

One aspect of Watson's theory that supports this proposed research study is Transpersonal Caring. Educating nurses about the importance of physical and emotional bonding between infants and their caregivers through KMC can foster the improvement of health outcomes for the neonate. Caring Science is another facet of this theory that emphasizes the value of holistic care in nursing. KMC is a natural intervention that involves emotional and psychological benefits for both the infant and the parents. Moreover, the concept of Transpersonal Teaching-Learning is another feature that supports this prospective research study. This is the notion that educating nurses about KMC equips them with the tools required to effectively educate parents.

Research Proposal

The aim of this quantitative study is to ascertain if educating nurses about the significance of KMC will enhance its utilization, subsequently promoting further weight gain in low birthweight and preterm infants. In addition, this study aims to find the optimal time of KMC that maximizes health outcomes. Although there is an extensive amount of research about the emotional and physiological benefits of KMC, there is insufficient research about nursing education regarding KMC and how it affects utilization.

Research Design

This proposed study will be utilizing a quasi-experimental design. The sample population will consist of 100 pairs of caregivers and their preterm/low birth-weight infant. This will be a convenience sample as all participants will be from two different hospitals, specifically on the NICU floor, in San Francisco. Inclusion criteria will be as follows: infants born <37 weeks gestation, infants weighing <2500 g at the time of birth, and all infants are required to be stable.

The first 50 pairs will be from hospital A and the second half of the 50 pairs will be from hospital B. The nurses in hospital A will be receiving education regarding KMC while the nurses in hospital B will not. Within hospital A, caregiver-infant pairs will be randomly split into two groups where group one will receive one hour of KMC daily, while group two will receive two hours. The pairs in hospital B will receive conventional care according to their hospital's policies. Prior to the nurses receiving education about KMC, all caregivers from each hospital will be evaluated on their current utilization of KMC including estimated duration. The bed scale will be used to measure the weights of the infants, while the nurses' knowledge and attitudes regarding KMC will be recorded. All of this information will be used as a baseline when comparing results.

Data Collection

Tools that will be used for measurement include: the Likert Scale for both caregivers and nurses to gauge their attitudes and beliefs toward KMC, bed scale for measuring weight, and the Fenton Growth Chart to measure the overall growth of the infant. All measurement tools will be used at the beginning of the study and one month following the initial data that was collected. Notably, all tools used in this study are reliable and validated, as each of these were used in the studies that were discussed in the literature critique.

Anticipated Outcomes

For this proposed research study, the independent variable will be the educational intervention that is provided for the nurses regarding KMC, while the dependent variable will be the utilization of KMC as well as the weight gain of the infants. Additionally, another set of variables will involve duration of KMC as the independent variable, and weight gain as the dependent variable. It is expected that the educational intervention will enhance the utilization of KMC, consequently increasing weight gain within the infants. It is also assumed that group two will have an elevated weight gain as they are receiving an extended time of KMC. Descriptive statistics will be used to analyze the mean values of KMC utilization rates and the infant weights from both data sets– pre-intervention and post-intervention. Furthermore, to include inferential statistics, a T-test will be used to compare the results of both data sets which will establish a p-value. If the p-value is <0.05, the results will be statistically significant, supporting the hypothesis that educating nurses about the importance of KMC directly causes an increase in the weight gain observed in neonates due to its increased utilization and longer duration, thus rejecting the null hypothesis.

Ethical considerations

This research proposal includes a vulnerable population, therefore, ethical considerations are crucial. Before participation, informed consent is required. The informed consent form for parents will include the purpose of the study, how the data will be managed and used, and the right to withdraw. All of which will be written in simple terms. The study will be presented to each of the hospital's Institutional Review Boards (IRB) as well as Dominican University of California's Institutional Review Board (IRB) prior to the collection of data, in order to gain ethical permission to proceed. The purpose of the IRB is to protect the rights and safety of all participants in the study. Notably, it would be ethically unjust for infants in Hospital B to be deprived of the best of care. Therefore, if KMC is included in the conventional care they receive, it will not be restricted. After the experiment is conducted and results are found to be either statistically significant or not, it will be shared with the control hospital.

Limitations

It is important to note that there are limitations to this research proposal. Generalizability is limited as this study will utilize convenience sampling to find participants, which may not be representative of the broader population. Additionally, this study will be performed in two hospitals, which indicates that the results might only be applicable to our specific participants. Furthermore, the utilization of the Likert scale is another limitation as the response options of "strongly agree", "agree", "strongly disagree", and "disagree" may make it difficult for respondents to distinguish their level of agreement. Further, conventional care that the infants receive in Hospital B may include KMC which has the potential to alter the results.

Conclusion

The goal of this proposed research is to assess if educating nurses can increase the usage of KMC therefore optimizing and facilitating weight gain in preterm and low birth weight

infants. It aspires to offer key insights about KMC to nurses, empowering them to competently educate parents. KMC has been known to yield numerous health advantages for the infant but it has been shown to not be utilized as much as it should be. The gap in research in regards to the optimal duration of KMC needed to increase weight gain needs to be further explored. Nurses should be equipped with the education required to continue to educate parents to enhance the outcomes of these infants. As a result, prematurity death rates can be decreased. Further research opportunities lie in additional vulnerable populations such as the implementation of KMC for unstable infants as well as infants in low income areas. Another area of observation can include a longitudinal study to examine the long term health outcomes for infants that receive longer periods of KMC.

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Appendix A: Literature Critique Table

Citation: 10.1038/s41390-019-0558-6

Title of Article: Longer duration of kangaroo care improves neurobehavioral performance and feeding in preterm infants: a randomized controlled trial (2019)

Purpose/Objective of the study: To explore the effect of kangaroo care (KC) and its duration on the neurobehavioral performance, stress response, breastfeeding outcomes, and vital signs of premature infants.

Sample- population of interest and sample size: 120 premature infants

Study Design: The study employed a mixed methods research design with a randomized controlled trial component.

Study Methods: The participants were 120 stable preterm neonates with gestational age between 31 and 35 weeks at the Neonatal Intensive Care Units (NICU) of Ain Shams University Hospitals. Vital signs were gathered both before and after the administration of kangaroo care, while daily physical examinations were conducted. The assessment of breastfeeding success was undertaken using the Breastfeeding Assessment Tool.

Major Findings: No remarkable differences were observed between the examined groups regarding maternal characteristics, neonatal demographic data, and anthropometric measurements. Oxygen saturation and temperature were increased in the KC-120 min group in comparison to the KC-60 min group. Following kangaroo mother care (KMC) across both neonate groups, there was a decrease in cortisol levels, notably pronounced in the KC-60 min and KC-120 min groups.

Strengths: As far as strengths, in the hierarchy of evidence-based research, randomized controlled trials are the gold standard. Moreover, another strength of this study is its substantial sample size.

Limitation: Several limitations are associated with this study. The outcomes cannot be applied to unstable infants. Additionally, the evaluation period was 7 days, which requires further investigation into the long-term implications. The comparison was limited to only two brief durations, which calls for more research into more extended periods of kangaroo care (KC).

Citation: https://doi.org/10.7759%2Fcureus.37861

Title of Article: Improving the Duration and Rate of Home-Based Kangaroo Mother Care: A Before-and-After Intervention Study (2023)

Purpose/ Objective of the study: Considering the infrequent implementation of KMC, this study aims to extend the duration of KMC at home.

Sample- population of interest and sample size: 180 neonates with a birth weight < 2.0 kg from India

Study Design: Before-and-after intervention study

Study Methods: Three sets of interventions were tested by using the plan-do-study-act cycle (PDSA). The first intervention involved extensively educating mothers about the advantages of KMC. The second intervention was to alleviate maternal stress and anxiety by increasing the amount of female staff and instructing the mothers about how they can wear their gowns properly. The third intervention addressed lactation challenges and environment temperatures with lactation counseling and warming of the nurseries.

Major Findings: Interventions were determined through PDSA cycles and analyzing the needs of the KMC providers. By doing so, KMC duration increased in hospital and at home. Continuous communication with the KMC provider also increased duration. The length of KMC can be improved by counseling, policy, and support of KMC providers, all of which can be tailored to their specific needs. Community health care workers supporting KMC can greatly influence the practice. An additional finding was that KMC duration and weight gain were positively correlated.

Strengths: A strength of this study is its practicality as before-and after intervention studies are easier to conduct. This also makes them more cost effective because there are less resources needed. Another strength would be how quick results can be obtained.

Limitation: One noteworthy limitation of this study is there is no control group. This makes comparison challenging because the interventions may not be the only cause for the results. There were also confounding variables other than the interventions, such as when doctors provided counseling, there was a significant increase in KMC.

Citation: https://doi.org/10.1136%2Fbmjpo-2022-001831

Title of Article: Skin-to-skin contact in the delivery room for very preterm infants: a randomized clinical trial (2023, PR))

Purpose/ Objective of the study: The objective of this study was to assess safety, viability and physiological effects of skin-to-skin contact (SSC) from birth between mothers and very preterm infants in an affluent environment.

Sample- population of interest and sample size: 108 preterm infants at gestational age of 28-31 weeks and birth weight >1000g delivered vaginally or by cesarean section.

Study Design: Open-label randomized controlled trial

Study Methods: After birth, the infants were assessed and stabilized before randomizing them into the two groups. One group received SSC immediately while the second group was sent to the NICU in an incubator. Safety was measured by the episodes of hypothermia and the need for mechanical ventilation. The physiological measurements included heart rate, respiratory rate and oxygen saturation.

Major Findings: It was observed that immediate SSC for preterm infants was safe and viable. Instances of hypothermia and hyperthermia were increased in the standard care group in comparison to the SSC group which proves that early initiation of SSC improves thermoregulation. There was no need for mechanical ventilation, so safety was not compromised.

Strengths: Incorporating a randomized controlled trial is a strong advantage of this study. Furthermore, another strength was that these trials were executed at three different medical centers, which makes the results more generalizable.

Limitation: A limitation of this study is the fact that the physiological measurements were collected intermittently, therefore there are gaps in the data collection. Another constraint of this study is that the total duration of SSC was not recorded which makes it difficult to pinpoint the ideal time frame.

Citation: 10.1056/NEJMoa2026486

Title of article: Immediate "Kangaroo Mother Care" and Survival of Infants with Low Birth Weight (2021, peer reviewed)

Purpose/ Objective of the study: The aim of this study was to observe the safety and efficacy of KMC for low birth weight babies immediately after birth.

Sample- population of interest and sample size: 3211 low birth weight infants

Study Design: Randomized Control Trial

Study Methods: Infants with a birth weight between 1.0 and 1.799 kg from five different hospitals located in Ghana, India, Malawi, Nigeria, and Tanzania were split into two groups. One received KMC right after birth either stable or unstable and the other group received conventional care in an incubator until they were stable, and then they received KMC. The following criteria was measured: mortality, hypothermia, hypoglycemia, suspected sepsis, time to clinical stabilization, exclusive breast-feeding at the time of discharge, exclusive breast-feeding at the end of the neonatal period (at 28 days of age), maternal satisfaction with care, and maternal depression.

Major Findings: It was found that KMC improved neonatal survival by 25% as compared with KMC that was initiated after stabilization. There was no remarkable difference between the intervention and control groups regarding feeding outcomes, stabilization time, and hypoglycemia episodes.

Strengths: The study being a randomized controlled trial is a core strength. Additionally, its population of interest is quite large and the participants are from a variety of low-resource countries. Most of the outcomes were objectively measured, which reduces measurement bias.

Limitation: One limitation to this study is limited generalizability. These findings may not be applicable to low birth weight infants in well-resourced areas as these infants were from low-resource areas. Another limitation is that it is difficult to separate the intervention, immediately KMC after birth, from the mere presence of the mother. Both of which are essential to the infant's health.

Citation: PMCID: PMC4359604 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4359604/

Title of Article: Effect of Natural-Feeding Education on Successful Exclusive Breast-Feeding and Breast-Feeding Self-Efficacy of Low-Birth-Weight Infants (2014)

Purpose/ Objective of the study: The purpose of this research was to observe the impact of breastfeeding education for mothers of low birth weight infants in regards to breast-feeding self-efficacy level, breast-feeding success, and the growth of the infants.

Sample- population of interest and sample size: 85 mothers and their low birth weight infants from two different hospitals in Turkey. All of which had lower income and low education.

Study Design: Quasi-experimental

Study Methods: The 85 mothers were split into two groups. One group received 30 minutes of breastfeeding education for their first 5 days of their stay at the hospital and the other did not receive any. Home health nurses continued to provide care with both groups until the infants reached the age of 6 months. Measurements were taken using the following tools: Personal Information Form, Breast-feeding Self-Efficacy Form, LATCH Breast-feeding Assessment Tool, Breastfeeding Follow-Up Card Infant Anthropometric Measurement Form, infant weighing scale, infant height measurement ruler, and head circumference tape.

Major Findings: The study revealed that breastfeeding education had increased the mother's knowledge, management of breast-feeding practice, breast-feeding self-efficacy, and infant growth. Remarkably, 85.7% of mothers from the control group exclusively breast fed their infants for a minimum of 6 months.

Strengths: One strength of this study is the ethical approach to the research. Consents were obtained from the hospitals, the participating mothers, and they received approval from the ethical committee. In addition, the researchers thoroughly explained all the elements of the study and addressed any questions the mothers had. Furthermore, because it is a quasi-experimental study, the researchers were able to study the changes over an extended period of time.

Limitation: One limitation of this study is that there are challenges of generalization. This is due to the lack of randomization of the mothers as they were not randomly selected which means the results may not be applicable to mothers from similar circumstances. Additionally, there is a possibility of selection bias because certain characteristics could have influenced which mothers participated, potentially affecting the results. Another would be that there is a lack of control of extraneous variables. This means that other factors could have also influenced the observed results.

Citation: NLM UID: 101185960

Title of article: Effectiveness of a structured teaching programme on

Kangaroo care among the mothers of preterm babies (2007)

Purpose/ Objective of the study: The objective of this study was to assess the knowledge of mothers regarding kangaroo mother care and to evaluate the effectiveness of an education program regarding KMC.

Sample- population of interest and sample size: 35 mothers of preterm infants

Study Design: One group pretest and posttest design

Study Methods: A validated questionnaire, supported by pediatric experts, was given to the group of 35 mothers. According to the findings, a curriculum was developed by the investigator. After three days of receiving the curriculum, the questionnaire was re-administered to the mothers.

Major Findings: The study found that after the structured education program about KMC, there was an increase in knowledge. Important implications have resulted in this study. Education regarding KMC should be taught to all mothers of low birth weight infants which can positively impact health outcomes. Hospitals should consider enforcing the education of KMC for all mothers as nurses can educate and provide them with support. Nursing education should also involve an increased amount of curriculum surrounding KMC so they can continue to promote KMC.

Strengths: A strength of this study lies in its simplicity. This was a fairly easy study to conduct which required less resources. It also was able to assess the mothers knowledge before the curriculum allowing there to be a baseline of information which is helpful when assessing the influence of the curriculum.

Limitation: An obvious limitation to this study is there is no control group. This makes it challenging to determine if the curriculum was the sole reason for the results or if there were other unaccounted variables that had influence. Another limitation is its relatively small sample size which decreases generalizability.