

Kangaroo Mother Care in Bangladesh

Experiences of Caregivers and Healthcare Providers

Johanna Sjömar



UPPSALA
UNIVERSITET

Dissertation presented at Uppsala University to be publicly examined in H:sön-Holmdahlsalen, Dag Hammarsköldsväg 8, ingång 100 Akademiska Sjukhuset, 753 09 Uppsala, Friday, 3 May 2024 at 09:00 for the degree of Licentiate of Philosophy. The examination will be conducted in English.

Abstract

Sjömar, J. 2024. Kangaroo Mother Care in Bangladesh. Experiences of Caregivers and Healthcare Providers. 56 pp. Uppsala: Uppsala University.

Kangaroo Mother Care (KMC) is an evidence-based intervention, recommended by the World Health Organization, with the potential to prevent neonatal deaths and morbidity among low-birthweight and preterm babies. In Bangladesh, where the number of neonatal deaths is high, KMC is identified as a priority intervention to be scaled up in the country. Our aim was to explore the experiences of caregivers and healthcare providers (HCPs) of KMC in Bangladesh. We conducted semi-structured interviews in two hospitals in Dhaka, where KCM service was provided. **In Study I**, we interviewed fifteen caregivers. The results showed conducive conditions for caregivers to perform KMC at the hospital and at home, but support is needed from both healthcare providers and their families. Caregivers felt empowered and motivated when they observed improvements in the child's well-being. However, there are challenges to KMC implementation due to the struggle to keep the baby skin-to-skin, pain after caesarean section, delayed initiation of KMC, and routines that promote an initial separation between the mother and baby. **In Study II**, we interviewed eleven HCPs. The results showed that HCPs experienced KMC as a continuous process that requires both support and counselling, adapted to caregivers' needs. Commitment, supervision, and training are necessary. However, there are structural conditions that challenge KMC implementation, including clinical routines that promote the initial separation of the mother and baby, staff shortages, and incomplete follow-up. **In conclusion**, the findings from this exploratory research can inform the design of interventions for scaling up KMC in Bangladesh. Caregivers' and HCPs' experiences show that continuous support, counselling, and family involvement are essential in the care, and that providing KMC empowers caregivers. Their experiences also indicate that KMC is sub-optimally implemented due to structural conditions and routines that need to be addressed to scale up KMC in the country by avoiding the initial separation of mother and baby, meeting the mothers' needs for care and support, and strengthening the follow-up. Our results also suggest a need to update clinical practices in line with the new WHO recommendations.

Keywords: Kangaroo Mother Care, skin-to-skin care, experience of care, provision of care, caregiver, healthcare provider, neonatal health

Johanna Sjömar, Department of Women's and Children's Health, Akademiska sjukhuset, Uppsala University, SE-751 85 Uppsala, Sweden.

© Johanna Sjömar 2024

URN urn:nbn:se:uu:diva-525272 (<http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-525272>)

To my beloved sons, Isak and Adam, and the newborns

List of Papers

This Licentiate thesis is based on the following papers, which are referred to in the text by their Roman numerals.

- I. **Sjömar, J.**, Ottesen, H., Banik, G., Rahman, A. E., Thernström Blomqvist, Y., Rahman, S. M., Målvist, M. (2023) Exploring caregivers' experiences of Kangaroo Mother Care in Bangladesh: A descriptive qualitative study. *PLOS ONE*, 18(1):e0280254
- II **Sjömar, J.**, Thernström Blomqvist, Y., Talha, T. U. S., Rahman, S. M., Målvist, M. Healthcare providers experience of Kangaroo Mother Care in Bangladesh- A descriptive qualitative study. Submitted.

All published articles have been published in open-access journals that allow reproduction in this thesis without requiring further permissions.

Contents

Summary Bengali.....	11
Sammanfattning Svenska.....	13
Preface	14
Introduction.....	15
Neonatal health – A Global Perspective.....	15
Kangaroo Mother Care.....	15
WHO recommendations for application of KMC	16
Benefits of Kangaroo Mother Care	17
Psychological and physiological outcomes	17
Promoting breastfeeding.....	17
Facilitates bonding and attachment	17
Involvement of parents and family in the newborn care	17
Barriers and facilitators to KMC implementation.....	18
Bangladesh context	19
Quality of care.....	20
The Quality-of-Care framework.....	21
Ethical Considerations	22
Rationale for the thesis.....	23
Overall aim and specific aims.....	24
Overall aim.....	24
Specific aims for study I.....	24
Specific aims for study II.....	24
Material and Methods	25
Overview of the included studies	25
Design for Study I and Study II.....	25
Settings for Study I and Study II.....	25
Recruitment and participants.....	26
Study I.....	26
Study II	26
Data collection.....	27
Study I.....	27
Study II	28

Data analysis	29
Study I.....	29
Study II	29
Results.....	30
Results from Study I – Caregivers’ Perspective.....	30
Conducive conditions	31
An empowering process	32
Suboptimal implementation.....	32
Results from Study II – Healthcare providers’ perspective.....	33
A continuous process is needed.....	33
Staff commitment is decisive.....	34
Supporting KMC is challenged by structural conditions.....	34
Discussion.....	36
Caregivers’ and healthcare providers' experiences of KMC – summary of the main findings.....	36
Provision and Experience of Care.....	36
Evidence-based practices for routine care and management of complications.....	37
Effective communication.....	38
Respect and preservation of dignity	38
Emotional support.....	39
Competent and motivated human resources	39
Essential physical resources available	39
Implementation of KMC	40
Methodological considerations.....	40
Trustworthiness	40
Pre-understanding and reflexivity statement	42
Conclusions.....	43
Clinical implications	44
Future research.....	45
Acknowledgements.....	46
References.....	47
Appendix I. Interview questions for caregivers, in-ward interviews	53
Appendix II. Interview questions for caregivers, follow-up interviews	54
Appendix III. Interview questions for healthcare providers	55

Abbreviations

CRC	Convention on the Rights of the Child
FCC	Family Centred Care
HCPs	Health Care Providers
iKMC	Immediate Kangaroo Mother Care
KMC	Kangaroo Mother Care
LBW	Low Birth Weight
NICU	Neonatal Intensive Care Unit
SSC	Skin-to-Skin Care
SDG	Sustainable Development Goal
WHO	World Health Organization

Summary Bengali

বিশ্ব স্বাস্থ্য সংস্থা দ্বারা সুপারিশকৃত ক্যান্সার মাদার কেয়ার বা কেএমসি একটি বিজ্ঞানভিত্তিক গুরুত্বপূর্ণ প্রক্রিয়া কেননা; যথোপযুক্ত কেএমসি প্রয়োগে একইসাথে নবজাতক মৃত্যুর হার কমে এবং সময়ের আগে জন্ম নেয়া এবং জন্মের সময় কম ওজনের শিশুর বিভিন্ন শারীরিক জটিলতাও কমান সম্ভাবনা থাকে। বাংলাদেশে নবজাতক মৃত্যুর হার বেশি, তাই বাংলাদেশ সরকার কেএমসিকে নবজাতক মৃত্যুর হার কমানোর জন্য একটি গুরুত্বপূর্ণ প্রক্রিয়া বিবেচনা করে সারা দেশে কেএমসি কার্যক্রম শুরু করার পদক্ষেপ গ্রহণ করেছেন। এইসকল তথ্য বিবেচনা সাপেক্ষে, আমরা দুটি গবেষণা করি এবং আমাদের গবেষণার উদ্দেশ্য ছিল বাংলাদেশের প্রেক্ষাপটে কেএমসিপ্রদানকারী এবং স্বাস্থ্যসেবা প্রদানকারীদের কেএমসি সংক্রান্ত অভিজ্ঞতা অনুসন্ধান এবং বিশ্লেষণ করা। গবেষণা দুটিতে, আমরা ঢাকার এমন দুটি হাসপাতাল হতে অর্ধ-কাঠামোগত সাক্ষাৎকারের মাধ্যমে ডাটা নিয়েছি যেখানে কেএমসি সেবা পূর্বেই চালু ছিল। প্রথম গবেষণায়, আমরা পনেরজন কেএমসিপ্রদানকারীর সাক্ষাৎকার নিয়েছি। সেসকল সাক্ষাৎকার হতে প্রাপ্ত ফলাফল অনুযায়ী, কেএমসি প্রদান করার মত অনুকূল পরিবেশ হাসপাতাল এবং কেএমসিপ্রদানকারীর বাড়িতে রয়েছে। তবে, ফলাফলে; হাসপাতালে স্বাস্থ্যসেবা প্রদানকারীদের এবং বাড়িতে পরিবারের অন্যান্য সদস্যদের কেএমসিপ্রদানকারীদের প্রতি আরও সহযোগী হবার পরামর্শ উঠে এসেছে। কেএমসিপ্রদানকারীদের মতে তারা যখন তাদের নবজাতককে কেএমসি নেবার ফলে সুস্থ হতে দেখে তখন তারা কেএমসি প্রদানে তাদের ভূমিকা সম্পর্কে আরও সচেতন হয়ে উঠেন, এবং কেএমসি প্রদানে আরও উৎসাহিত বোধ করেন। এছাড়াও, কেএমসিপ্রদানকারীদের সাক্ষাৎকার হতে প্রাপ্ত তথ্য অনুযায়ী, তাদের মতে কেএমসি সংক্রান্ত গুরুত্বপূর্ণ চ্যালেঞ্জগুলো হচ্ছে, বাচ্চা কে অধিক সময় ধরে বুকের সাথে বেঁধে স্কিন-টু-স্কিন প্রদান করা, সিজারিয়ান সেকশন হয়েছে এমন মায়ের ক্ষেত্রে অপারেশন পরবর্তী ব্যথা, জন্মের অনেক পরে কেএমসি শুরু করা, এবং বাংলাদেশের প্রচলিত স্বাস্থ্যব্যবস্থা যেখানে জন্মের পরপরই বাচ্চা এবং মা কে পৃথক রাখা হয়। দ্বিতীয় গবেষণায়, আমরা এগারোজন স্বাস্থ্যসেবা প্রদানকারীর সাক্ষাৎকার গ্রহণ করেছি। সেখান থেকে প্রাপ্ত ফলাফল অনুযায়ী, স্বাস্থ্যসেবা প্রদানকারীগণ কেএমসিকে একটি দীর্ঘ প্রক্রিয়া বিবেচনা করছেন, তাই কেএমসিপ্রদানকারীদের সুবিধা এবং প্রয়োজন সাপেক্ষে তাদের সার্বক্ষণিক সহায়তা এবং কাউন্সিলিং এর ব্যবস্থা করা প্রয়োজনীয়। একই সাথে, কাজের প্রতি নিষ্ঠা, সুপারভিশন এবং প্রশিক্ষণ প্রয়োজন। তবে, স্বাস্থ্যসেবা প্রদানকারীগণ মনে করেন, কিছু কাঠামোগত ত্রুটি কেএমসি ইমপ্লিমেন্টেশনকে বাঁধার সম্মুখীন করছে, আর সেগুলোর মধ্যে উল্লেখযোগ্য হল, মা হতে নবজাতককে আলাদা রাখার ক্লিনিকাল প্র্যাকটিস, লোকবলের স্বল্পতা এবং কেএমসির অসম্পূর্ণ ফলোআপ। পরিশেষে, এই এক্সপ্লোরেরটরি গবেষণা থেকে প্রাপ্ত ফলাফল বাংলাদেশে কেএমসি সেবা স্কেল-আপের পরিকল্পনা কে অবহিত এবং সমৃদ্ধ করতে পারে। কেএমসিপ্রদানকারীদের এবং স্বাস্থ্যসেবা প্রদানকারীদের হতে প্রাপ্ত ফলাফল অনুযায়ী কেএমসি কে বেগবান করার লক্ষ্যে সার্বক্ষণিক সহায়তা, কাউন্সিলিং, এবং পরিবারের সদস্যদের সহায়তা গুরুত্বপূর্ণ ভূমিকা পালন করে এবং কেএমসি প্রদানের ফলে কেএমসিপ্রদানকারী; শিশুর সুস্থতা নিশ্চিত নিজেদের ভূমিকা সম্পর্কে আরও সচেতন হন। একইসাথে, ফলাফল অনুযায়ী, কাঠামোগত কিছু সমস্যার কারণে বাংলাদেশে কেএমসি সেবা সন্তোষজনকভাবে এখনো শুরু করা সম্ভব হয়নি, তাই কেএমসি সেবাকে দেশব্যাপী সৃষ্টিভাবে স্কেল-আপ করার জন্য মা হতে নবজাতককে আলাদা রাখার ক্লিনিকাল প্র্যাকটিসকে বন্ধ করতে হবে, এবং মায়ের যত্ন এবং সাহায্য নিশ্চিত করা এবং কেএমসি ফলোআপ কে জোরদার করার জন্য পদক্ষেপ গ্রহণ করতে হবে। এছাড়াও, আমাদের ফলাফল বিশ্ব স্বাস্থ্য সংস্থার নতুন সুপারিশকৃত ক্লিনিকাল প্র্যাকটিসগুলো আপডেট করার পরামর্শ দেয়।

Sammanfattning Svenska

Att vårda förtidigt födda och underviktiga barn kontinuerligt hud-mot-hud, den så kallade kängurumetoden (KMC) är en evidensbaserad intervention och vårdmetod som rekommenderas av Världshälsoorganisationen och som har potential att förhindra neonatal död och sjuklighet bland barn med låg födelsevikt och förtidigt födda barn. I Bangladesh är antalet neonatala dödsfall högt och KMC pekas ut som en prioriterad insats som ska utökas i landet. Vårt syfte var att undersöka vårdnadshavares och sjukvårdspersonals erfarenheter av KMC i Bangladesh. Vi genomförde semistrukturerade intervjuer på två sjukhus i Dhaka där KMC tillhandahölls. I **Studie I** intervjuade vi femton vårdnadshavare. Resultatet visade att det finns gynnsamma förutsättningar för vårdnadshavare att utföra KMC på sjukhuset och i hemmet men att stöd behövs både från vårdpersonalen och anhöriga. Vårdnadshavarna kände sig stärkta och motiverade när de såg hur barnet mårde. Det finns utmaningar för implementeringen av KMC på grund av svårigheter att vårda barnet hud-mot-hud, smärta efter kejsarsnitt, försenad initiering av KMC och rutiner som främjar den initiala separationen mellan mor och barn. I **Studie II** intervjuade vi elva sjukvårdspersonal. Resultatet visade att vårdpersonalen upplevde KMC som en kontinuerlig process som kräver både stöd och rådgivning, anpassad efter vårdnadshavarens behov. Engagemang, handledning och utbildning är nödvändigt. Det finns dock strukturella förutsättningar som utmanar implementeringen av KMC såsom kliniska rutiner som främjar den initiala separationen av mor och barn, brist på personal och ofullständig uppföljning. **Sammanfattningsvis** kan resultaten från dessa studier ligga till grund för utformningen av interventioner för att utöka KMC i Bangladesh. Vårdnadshavarens och sjukvårdspersonalens erfarenheter visar att kontinuerligt stöd, rådgivning och familjens engagemang är avgörande i vården, och att KMC stärker vårdnadshavarna. Deras erfarenheter tyder också på att KMC inte är optimalt implementerat på grund av strukturella förutsättningar och rutiner som behöver åtgärdas för att skala upp metoden i landet genom att undvika den initiala separationen av mor och barn, tillgodose mammornas behov av vård och stöd samt stärka uppföljningen. Våra resultat tyder också på ett behov av att uppdatera klinisk praxis enligt WHO:s nya rekommendationer.

Preface

As a paediatric nurse with a keen interest in global health, I welcomed the opportunity to travel to Bangladesh to gather data on the experiences of caregivers and healthcare providers with Kangaroo Mother Care (KMC). This was the beginning of my research journey. I have extensive experience working as a paediatric nurse at the Children's Hospital in Uppsala, as well my experience from working in low-income settings with a non-governmental organisation in West and East Africa.

Being a mother with personal experience of breastfeeding and caring for a preterm and low birth weight baby in a skin-to-skin position both in the neonatal intensive care unit and at home, I felt empowered to make a difference for my preterm newborn baby. I am grateful for the support I received from healthcare staff and my family, which enabled me to provide skin-to-skin care during the first weeks of his life. With this personal experience and my professional knowledge, I am driven to contribute to research about a topic that is very important to me. Knowing the benefits of Kangaroo Mother Care, I am motivated to contribute to further the understanding of this practice, which might help more babies to receive Kangaroo Mother Care.

Introduction

Neonatal health – A Global Perspective

Despite the remarkable progress in improving child health during the Millennium Development Goal era between 1990 and 2015, more than 2.3 million newborns died in 2022 (1) before reaching their first month of life. This time is the most vulnerable period for child survival. The major causes behind neonatal deaths are preterm birth (born before 37 completed weeks of gestation) and low birth weight (LBW) (a birthweight less than 2.5 kg (2)). Every year, 15 million babies are born preterm, and 20 million are born with LBW, with half of them born in Asia (3, 4). The estimated global preterm birth rate in 2014 was 10.6%, while the rate for LBW in 2015 was 14.6%, with wide variations among regions (5). Beyond mere survival, preterm birth and LBW pose significant risks for both short-term and long-term health consequences, including infections, sepsis, cerebral palsy, visual and hearing problems, and also problems during adulthood such as obesity and diabetes (4, 6). Without addressing this major cause with concerted efforts, it will be difficult to achieve the 2030 Sustainable Development Goal (SDG) number 3, with a specific target to reduce neonatal mortality to 12 per 1,000 live births or below (5). To help in this work, the World Health Organization (WHO) has endorsed the Every Newborn Action Plan (7). It is a global commitment to work towards the SDGs, and all countries have a responsibility to “leave no one behind” (5). The Convention on the Rights of the Child (CRC) states in Article 6 that every child has the right to life and in Article 24 that all children have the right to the highest attainable standard of health. CRC goes hand in hand together with the Sustainable Development Goals (SDGs). SDG 3 aims to ensure healthy lives and promote well-being for all ages, including universal health coverage, access to quality essential healthcare services, and eradication of preventable deaths among newborns and children under 5 years of age (8). Kangaroo Mother Care (KMC) is an intervention targeting both SDG 3 and CRC Articles 6 and 24.

Kangaroo Mother Care

Kangaroo Mother Care (KMC) is recommended by the World Health Organization (WHO) for caring for all LBW and preterm infants. The method can

be implemented and initiated either in the hospital or at home (9). It is an evidence-based and low-cost intervention that is both safe and capable of reducing neonatal mortality and morbidity (10, 11). KMC includes three main components: early, continuous, and prolonged skin-to-skin contact between the mother and the baby or other caregiver and the baby, exclusive breastfeeding, and early discharge from the hospital (11, 12).

KMC was first described by two neonatologists, Edgar Ray and Hector Martinez, in Bogota, Colombia, in the 1970s. They wanted to address the high infant mortality rate in their hospital in Bogota. They implemented skin-to-skin care and named it KMC, first with the components of mother, love, and warmth, and later added the components of breastmilk and early discharge. The implementation of KMC in their hospital resulted in a remarkable 70% reduction in infant mortality rates. Today, this method is widely used and is recommended as part of standard care routines (13).

WHO recommendations for application of KMC

The skin-to-skin care (SSC) should be continuous, lasting from 8 to 24 hours a day, or as long as possible; moreover, it should be initiated immediately after birth unless the baby is critically ill (9). When the child is cared for skin-to-skin, the baby should be positioned naked and placed skin-to-skin in an upright position on the chest of the mother or another caregiver (11, 12). Breastfeeding should be initiated as soon as possible, and support should be provided for exclusive breastfeeding or giving breastmilk feeding to the baby by expressing breastmilk from the mother's milk in the first place. Discharge should be timely, either to home or a lower level of care, and the skin-to-skin contact should continue at home, and follow-ups should be done regularly (9).

In 2003, the WHO (12) released a practical guideline for KMC, with updated recommendations for preterm babies in 2015 (11). The latest recommendations for the care of preterm or LBW babies were issued in 2022 (9). Some things have been changed and are worth highlighting. According to the first guideline and the recommendations in 2015, KMC should be introduced when the child is clinically stable and weighed from 2000grams or less. However, the last recommendations from the WHO proposes KMC for all preterm and LBW babies weighing less than 2500 grams. They also propose Immediate Kangaroo Mother Care (iKMC), starting within the first hour after the baby is born, even before the baby is clinically stable. The recommendation of iKMC is based on evidence from different countries, showing that preterm babies who receive iKMC have lower mortality rates and can be given before stabilisation. However, it is important to note that iKMC is contraindicated for critically unstable newborns (14).

Benefits of Kangaroo Mother Care

KMC has several positive benefits for the baby, mother, and family, providing both physical and psychological advantages for the baby and the well-being of the caregivers. It also increases survival, and reduces the length of hospital stays, allowing families to go home earlier to care for their baby in a familiar environment (10). KMC is proven to be cost-effective compared with conventional care (15).

Psychological and physiological outcomes

KMC has a positive impact on weight gain, stabilises the heart rate and breathing, helps the baby to regulate the body temperature, and reduces the risk of hypothermia. It further decreases stress, infections, and the response to pain. In a longer perspective, research has shown that KMC improves the brain and neurodevelopment of the child (10, 16). Studies have also shown KMC's ability to reduce the risk of postpartum depression for mothers (10, 17) and postpartum haemorrhage (18).

Promoting breastfeeding

Breastfeeding has many positive effects both for the baby and the mother (19, 20), and KMC promotes breastfeeding (10). Placing the child in a skin-to-skin position enables the mother and baby to initiate and continue breastfeeding (21). Studies have found that the duration of SSC correlates with the duration of breastfeeding (22), and early initiation of SSC is associated with a longer duration of SSC during the hospital stay (23).

Facilitates bonding and attachment

KMC facilitates bonding between the baby and the mother, father, and other caregivers, empowering them to care for the baby (10). A study already from the 1970s describes increased maternal affection through SSC introduced within 12 hours after birth (24). By engaging in SSC for the baby, attachment between the baby and mother can be improved, enabling the mother to easily discern signals from the baby. KMC can influence attachment, interaction, and foster a stronger bond between the baby and the caregiver (25).

Involvement of parents and family in the newborn care

The WHO suggests the involvement of parents and family in the care of newborns (9). KMC allows the mother, father, and family to be involved in the care of their newborn baby and to take a central place, empowering them in

their parenteral role (26). Family involvement also strengthens the parent-infant closeness (27). Both the newborn and the parents have a fundamental need and right to physical and emotional closeness (28). However, there are many factors affecting the parent-infant closeness in neonatal units (29). Engaging in SSC for the baby prevents separation between the baby and parents, as evidence shows that separation between the baby and mother, caregiver, should be avoided (30-32). Separation has been described to affect the baby's vital parameters negatively and to cause stress for both the baby and the parents (31). Family involvement has been associated with positive neurodevelopmental outcomes for infants (33) and other positive outcomes for both the baby and the parents (34-36). Involving parents in the care reduces their stress and anxiety (25). Family involvement can occur in all settings and at all levels of newborn care, for example, when it comes to being involved in medical decision-making and direct hands-on care provided by parents, even if it is in a crowded ward where a chair can be placed for the caregiver. Family involvement means the participation of the mother, father, or other family members in the routine care of the newborn in a health facility (9). A model to care for the baby and family together is Family Centred Care (FCC), recommended by the WHO (11). In FCC, the mother, family, and healthcare providers work together. FCC emphasises the presence of the caregivers and their involvement in the care (37, 38). To be able to care for the mother, family, and baby together as one unit, there is a need to redesign the newborn units. This might require an extra initial cost that needs to be included in the budget by the government for programmes that cover maternal, newborn, and child health (26). A study conducted in India found FCC to be both feasible and acceptable by parents, families, and healthcare providers (39).

Barriers and facilitators to KMC implementation

There are different challenges to KMC implementation. A systematic review summarises barriers to KMC from the caregivers' perspective. It concludes that if KMC benefits are not clearly described, caregivers may perceive that the baby does not enjoy KMC. Other barriers perceived were a lack of support from healthcare workers, or that the older generation did not find KMC to be a suitable method for infant care. Additional barriers identified were household duties for caregivers at home, economic constraints affecting follow-up visits, and the medical condition of both the mother and baby, which could impact KMC implementation (40). Another systematic review describes barriers from the healthcare perspective, such as health workers' belief that newborn care was not a priority at their ward, inadequate support from experienced nurses, parents, and facility leadership. Other barriers were staff shortages, limited visiting hours for relatives, nurses' reluctant to implement KMC if they believed it could harm the baby, inadequate and inconsistent training,

and lack of communication among health workers (41). A study from Tanzania and Bangladesh on KMC implementation found that only 9% of eligible children received KMC. The authors in this study also emphasise the importance of preparing health facilities and adopting a family centred approach when scaling up KMC (42). A model to scale up KMC from Ethiopia proposes a continuum of care (from pregnancy, during delivery, and after delivery), linking the steps before admission, during admission, and after the hospital stay (43). To follow up on the implementation of KMC, it is important to monitor and evaluate the care (44). An observational study was conducted in Bangladesh, Nepal, and Tanzania to assess barriers and enablers to filling in registers. It found that the registers can be used to monitor the coverage of KMC, but a consensus is needed on definitions which should be prioritised to get quality data (45). To increase the uptake of KMC, research has shown the importance of adapting to the specific context (46, 47). The support from the government plays a crucial role in the KMC implementation (48). The recommendations for scaling up KMC emphasise that it should be integrated into the standard care, and the aim when scaling up is to reach all preterm and LBW babies (9).

Bangladesh context

Bangladesh is a lower middle-income country (49) in South Asia, with around 170 million inhabitants. Around 90% of the country is below sea level, and therefore vulnerable to floods. Additionally, more than half of the population does not have access to clean drinking water (50). Bangladesh suffers from one of the highest neonatal mortality rates in the world. Preterm birth is the leading cause, accounting for 29.7% of all newborn deaths in Bangladesh (51). With more than 600,000 preterm births per year, Bangladesh ranks as one of the top ten countries with the highest burden of preterm birth. Despite constituting 2.3% of global live births, Bangladesh contributes to 4% of the total estimated preterm births globally (3). Low birth weight is a major problem in Bangladesh, and associations have been found with maternal poverty, antenatal care, and place of delivery, assisted by health workers (52). LBW was found to be around 14.27% among singleton births from national data from 2017 to 2018 and also that it varied among regions in the country (53).

In 2013, the Government of Bangladesh committed to reducing child deaths by signing “A Promise Renewed”, aiming to reduce child deaths to 20 per 1000 live births by 2035. However, national data reports a number of 30 neonatal deaths per 1000 live births (51). Since 2016, KMC has been integrated as an essential service in facility-based care, with continuation at home for low-birthweight neonates and preterm babies as part of the strategy to address preventable neonatal deaths. Currently, KMC is available at 142 facilities in

Bangladesh, and 132 of them report monthly KMC data. The coverage benchmark for KMC has been determined to be 50% by 2020. National data from Demographic Health Service 2019 suggest that out of 18,445 newborns with a weight less than 2000 grams, only 3,402 received KMC services (51). A national guideline for KMC was developed in 2014 and updated in 2021. In a study looking at the KMC implementation from the uptake, around 20% of babies met the criteria for KMC, with a low number of follow-ups (54). Despite government initiatives to implement KMC, targets are not being met locally regarding the number of women adopting KMC, the number of days they remain in a facility to continue KMC, and the number of women continuing the practice at home. Still, it is not clear why the uptake remains low. The challenges hindering the uptake of KMC practice from the viewpoint of caregivers and healthcare providers need to be explored.

Quality of care

Reducing neonatal mortality and maternal mortality is a global priority. Both outcomes are connected to the quality of care provided and require a continuum of care. The continuum of care covers the period before pregnancy, during pregnancy, during childbirth, and the time after birth. Many neonatal and maternal deaths could be prevented through delivery at healthcare facilities staffed by skilled personnel and by enhancing the overall quality of care (55). The postnatal period covers from birth to 42 days after birth and is identified as a critical period for the baby, mother, parents, and families. To advance quality of care, the healthcare that is provided must be safe, effective, equitable and person-centred (56). In the global position paper on Kangaroo Mother care, identified as a transformative innovation in health, it has been found that there is a need to improve both the quality and coverage of KMC and to develop global indicators for monitoring KMC (26).

The WHO has issued new recommendations since 2022 on maternal and newborn care to ensure a positive postnatal experience. These recommendations should be seen as a necessary part in the work of the continuum of maternal, newborn, and child healthcare and to address the SDGs aimed at reducing maternal mortality and avoiding deaths that could be preventable among newborns. The WHO highlight the need to address the quality of care, including both provision and experience of care. Ensuring a positive postnatal experience for women, newborns, parents, and families by providing information and support through dedicated staff, healthcare workers, as well as through adequate resources and a flexible healthcare system that addresses their needs and their cultural preferences (57).

The Quality-of-Care framework

The Quality-of-Care framework is a framework prepared by the WHO, aiming to improve the quality of care for mothers and their newborn babies throughout pregnancy, delivery, and the postnatal period. The focus is on two main dimensions that are linked to each other: the *provision of care* and the *experience of care*. To work towards quality of care, eight quality standards have been identified under these two dimensions. The quality standards are: 1. Evidence-based practices for routine care and management of complications; 2. Actionable information systems; 3. Functional referral systems; 4. Effective communication; 5. Respect and preservation of dignity; 6. Emotional support; 7. Competent, motivated human resources; and lastly, 8. Essential physical resources are available. The Quality of care is affected by the structure of the health system, the process that covers the care provision and the experience of care, and the outcomes at both individual and facility-levels. It is also important to consider the local context and adapt the standards to the context (58). The studies within this thesis explore aspects of both provision of care and experience of care through the perspectives of caregivers and HCPs regarding KMC in Bangladesh.

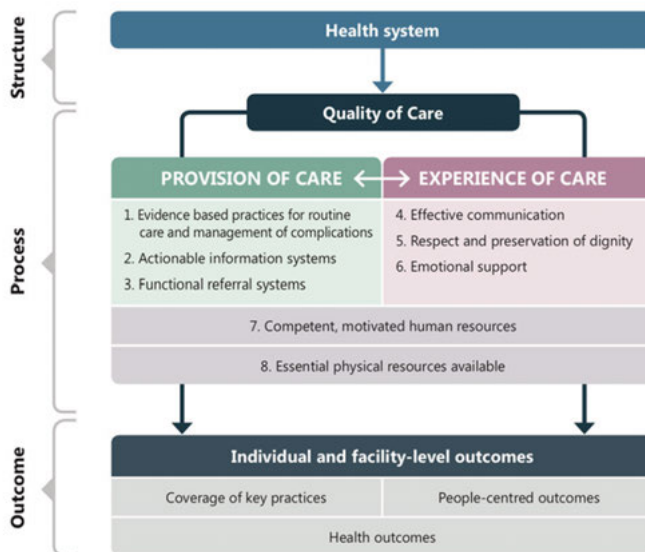


Figure 1. The WHO framework for the quality of maternal and newborn health care. Reprinted from the Standards for Improving Quality of Maternal and Newborn Care in Health Facilities, p.16 (58).

Ethical Considerations

This project was a collaboration between the Department of Women's and Children's Health at Uppsala University (KBH) and the International Centre for Diarrhoeal Disease Research, Bangladesh, (icddr,b). One of the authors in the research team from KBH is affiliated with icddr,b. and is the link between the organisations.

Ethical approvals were obtained from the Ethical Review Board at icddr,b (PR-1990 and PR-20013) for the studies before data collection was performed. Ethical approval for processing the data in Sweden was approved by the Swedish Ethical Board Swedish Ethical Board Dnr 2022-05496-01. The research was performed according to the principles outlined in the Helsinki Declaration (59). The principle of accessibility was applied by healthcare professionals and caregivers during the period of datacollection; they could refuse to participate or withdraw from the study at any time. They were also informed about participation being voluntary, the maintenance of confidentiality of the data would be strictly practiced, and restrictions on access to data would be enforced. They all gave written consent to participate before the interviews started and after being introduced to the research team, and informed about the aim of the study, methods, risks, and benefits of the study. The transcription and translation of the data was done in Bangladesh. The anonymised and decoded data were processed in Sweden. The original data are stored and managed by icddr,b according to the Ethical approval.

Information provided by the respondents will be used for research purposes only and will not be shared anywhere by the name of the participant. The data collection was done in the hospitals, which could have affected the daily routines. However, efforts were made to minimise this through close collaboration with hospital management. The researchers and data collectors were independent from the hospitals where the data collection took place.

Rationale for the thesis

Studies have shown an association between economic growth and child mortality, and it can be argued that both these entities reinforce each other (60). It is, therefore, important to find ways to improve child health. If fewer children die, fertility will decrease, leading to more efforts and investments directed towards each child's well-being. This will, in the long-term perspective, promote social and economic development, ensure healthy lives at all ages, empower all women and girls, and address the Sustainable Development Goals (SDG) 3 and 5.

KMC has the potential to reduce neonatal mortality and morbidity, emerging as a global priority. The implementation and adoption of KMC are related to health service delivery, leadership, financing, and cultural practices. To facilitate effective implementation, it is important to explore factors that could enhance or challenge its adoption within specific local contexts and to devise tailored solutions (61). KMC has been introduced in several places in Bangladesh for the care of low birth weight and preterm children, but its uptake remains low. Since KMC is an identified priority intervention in Bangladesh and to our understanding, there is a gap of knowledge, it is high time to explore the experiences of KMC further to gain a better understanding of what strategies are effective and what challenges hinder its implementation in the country to improve neonatal health outcomes and survival rates.

Overall aim and specific aims

Overall aim

The overall aim of the thesis was to explore the experiences of KMC in Bangladesh.

Specific aims for study I

To explore caregivers experiences of performing KMC in both hospital settings and at home in Bangladesh and to identify enablers and barriers to optimal implementation of KMC.

Specific aims for study II

To explore healthcare providers experiences of facility-initiated KMC in Bangladesh.

Material and Methods

Overview of the included studies

This Licentiate thesis comprises two studies employing a descriptive qualitative design, using semi-structured interviews to explore participants' experiences of KMC. An overview of the two studies is presented in Table 1. Study I focus on the experiences from the caregivers' perspective and Study II focuses on the experiences from the healthcare providers' perspective.

Table 1. Overview of the design, methods, participants, and analysis of the studies

Study	Design	Participants	Data source	Analysis
I	Qualitative, descriptive methodology	15 caregivers	Semi-structured interviews	Thematic analysis
II	Qualitative, descriptive methodology	11 healthcare providers	Semi-structured interviews	Qualitative content analysis

Design for Study I and Study II

Both studies adopted a descriptive qualitative design using semi-structured interviews, which can be a good way to explore individuals' perspectives on a given topic (62, 63).

Settings for Study I and Study II

The studies were conducted in two hospitals located in the Dhaka district of Bangladesh; “Mohammadpur Fertility Services and Training Centre” (MFSTC) and the “Institute of Child and Mother Health” (ICMH). MFSTC (hospital A) is a secondary-level hospital with 100 beds, including six beds dedicated to newborns, and of them, three beds exclusively for KMC in a KMC corner. Approximately five patients received KMC each month at MFSTC, where the care was provided free of charge. ICMH (hospital B) is a

tertiary-level public hospital with 200 beds, of which 55 beds were dedicated to newborns and 15 beds were allocated for KMC in a separate KMC ward. Approximately 50 newborns receive KMC each month at ICMH, where the caregivers had to pay a daily fee for hospital admission in hospital B. The two hospitals were purposively selected in consultation with the National Newborn Health Programme and the Integrated Management of Childhood Illness section of the Directorate General of Health Services. The selection of the hospital was based on the availability to capture patients coming from different socioeconomic areas. Both hospitals offered a weekly follow-up programme for 4 weeks after discharge for KMC patients. At hospital A, the staff had responsibility for the paediatric ward, including the KMC corner, while at hospital B, the staff were dedicated to the KMC ward. At hospital A, there was no neonatal intensive care unit, and they had to refer sick children to a nearby hospital, while hospital B had a neonatal care unit (NICU). Monitoring of KMC services was in place in both hospitals, as well as with regular staff meetings held weekly and monthly. Hospital A allowed visitors in the KMC corner during daytime hours. Hospital B had a mother's room where the mothers could sleep and rest. Their female relatives could be there during the daytime, and female relatives could visit the KMC ward.

Recruitment and participants

Study I

Participants for Study I were caregivers who performed KMC for their newborn baby or caregivers who had performed KMC in the hospital and returned for a one-week follow-up after discharge. In total, 15 caregivers were included in the study, of which 10 were in-ward interviews and five were follow-up interviews. Six participants were from Hospital A and nine from Hospital B. Convenient sampling was used among available and willing caregivers during the period of data collection. All participating caregivers were mothers, except one father and one aunt.

Study II

Participants for Study II were healthcare providers (HCPs) working in the KMC ward or at the KMC unit within the hospitals. In total, 11 HCPs were included in the study. Snowball sampling was used among suggested, available, and willing healthcare providers during the period of the data collection. Five of the HCPs were from Hospital A and six were from Hospital B. Among the HCPs, three of them were males and eight were females. Two were paediatric consultants, three were medical officers, and six were nurses.

Data collection

Study I

Data collection for Study I took place in two periods with two different data collection teams. During the first period, data were collected in August 2019 with a team consisting of myself, a paediatric nurse with a master's in Public Health and previous experience in conducting interviews, a male anthropologist and researcher from icddr,b, and a female researcher from icddr,b both with previous training and experience of conducting interviews. This first period covered in-ward interviews with caregivers from both hospital A and B. The data for the second-period were collected in March 2020 with a team consisting of a medical student and a female anthropologist, both with previous training in conducting interviews. This second period covered the follow-up interviews with caregivers from Hospital B.

Two different semi-structured interview guides were developed in English and Bengali (see Appendix I and II for interview questions in English), in collaboration between myself, the medical student, and researchers at KBH and icddr,b. covering questions about caregivers' experiences with performing KMC for their babies in the hospital, (in-ward interviews) or having cared for their baby in the hospital and then being discharged and returning for the first follow-up after one week, (follow-up interviews). The focus was on factors that enabled and hindered practicing KMC, as well as caring for the newborn baby, including aspects such as giving breastmilk, caring for the baby skin-to-skin both in the hospital and at home, and procedures surrounding discharge and follow-up. The second interview guide was developed from the first interview guide and included some additional questions that were not used in this study. The first interview guide was pilot-tested and the interview not included in the results. Both interview guides were written in English and thereafter translated into Bengali, the local language. All interviews with the caregivers were performed in Bengali with the Bengali-speaking persons in the data collection teams. My role as well as that of the medical student was to be present and get a feel for the atmosphere, write fieldnotes, discuss the outcomes of the interviews afterwards, and sometimes add or clarify questions when it was considered useful. The in-ward interviews took place around the caregivers' beds in the KCM ward or the KMC corner. Efforts were made to prevent overhearing among caregivers by maintaining space between the beds and having the data collection team sit close to the caregiver, and kindly requesting staff not be present in the room during interviews. We did not want to separate the caregiver and the child; therefore, the mother could continue caring for the child skin-to-skin during the interview. The in-ward interviews lasted between 16 and 41 minutes, with an average duration of 31 minutes. Data collection ended when saturation was considered to be achieved after

discussions within the data collection team and with one of the senior researchers from icddr,b. Follow-up interviews were conducted in a separate room to ensure privacy. These interviews lasted between 33 and 47 minutes, with an average of 36 minutes. The interviews started after participants provided their consent to participate. The consent forms were both in English and Bengali. The interviews with the caregivers started with an icebreaker question followed by specific questions. Data collection was promptly ended due to the coronavirus outbreak, and saturation of the data was considered to have been achieved afterwards when the in-wards and follow-up interviews were put together. All interviews were audio recorded and thereafter transcribed and translated verbatim by persons requested by icddr,b for the first data collection period and by the female anthropologist for the second data collection period. The interviews were checked for accuracy of both the transcription and translation.

Study II

Data collection for Study II took place at the same time as the first period for Study I, in August 2019, with the same data collection team as for the in-wards interviews with the caregivers. This data collection covered interviews with HCPs from both hospital A and hospital B.

A semi-structured interview guide in English and Bengali (see Appendix III for interview questions in English) was developed collaboratively by myself and a researcher from KBH and icddr,b. The guide covered questions about HCPs' experiences with providing KMC in the hospital, supporting breastfeeding, caring for the baby skin-to-skin both in the hospital and at home, as well as procedures concerning discharge and follow-up. The focus was on identifying the facilitators and barriers to providing KMC. The interview guide was pilot-tested and the interview was included in the results. Interviews were conducted in the participants' native language, Bengali, except for one participant who preferred to be interviewed in English. The interviews started after participants provided consent to participate. The consent forms were in both English and Bengali. Each interview began with an icebreaker question, followed by specific questions. My role was to be present and get a feel for the atmosphere, take field notes, discuss the outcomes of the interviews afterwards, and sometimes add or clarify questions when it was considered useful. The interviews with the HCPs were conducted either in a separate room or near the nurses' desk to ensure privacy. The interviews lasted between 36 and 63 minutes, with an average of 48 minutes. Data collection ended when saturation was considered to be achieved after having discussions in the data collection team and with a senior researcher who was present at icddr,b. The interviews were audio-recorded and thereafter transcribed verbatim and translated by individuals requested by icddr,b and checked for accuracy.

Data analysis

Study I

The analysis used for Study I was a thematic analysis with an inductive and reflexive approach, as described by Braun and Clark (64). Word and Excel were used to sort the data. The thematic analysis includes six different steps, with a recursive process observed throughout these steps. First, the text was read several times to get familiarised with the data. Thereafter, initial coding was performed systematically to capture the semantic content of the data. Next, themes were identified by looking for repeated patterns and relationships, with potential themes outlined accordingly. Themes and sub-themes were then reviewed and refined, returning to the data to ensure everything had been covered within the themes. Thereafter, the themes and sub-themes were defined and further refined. The last step was to write the report and to tell a story with extracts from the interviews giving voices to the participants. The research group met several times and discussed the findings until a consensus was reached.

Study II

The method used for Study II was Qualitative Content Analysis with an inductive approach, as described by Elo and Kyngäs (65). Word and Excel were used to sort the data. There are three main phases in qualitative analysis: preparation, organisation, and reporting. In the first phase, after reading the text several times, the units of analysis were selected, and the text was coded. In the second phase, the codes were sorted into categories and sub-categories with some level of abstraction. Thereafter, the last phase is a description of the categories to clarify the phenomena that have been explored, and the report was written. Several of the authors met and discussed the analysis and findings until consensus was reached.

Results

The results of Study I show the experiences of caregivers regarding Kangaroo Mother Care, while Study II focuses on the HCPs' experiences of KMC in Bangladesh. The findings reveal themes and categories that can be seen as supportive conditions for KMC, which include conducive conditions an empowering process (caregivers' perspective), a continuous process, and staff commitment (HCPs' perspective). Conversely, challenges for KMC include suboptimal implementation (caregivers' perspective) and obstacles posed by structural conditions (HCPs' perspective). The results will be presented with the main themes for Study I and the main categories for Study II. When referring to caregivers, it includes mothers, father, and aunt. When referring to HCPs, it either includes all professions involved, such as nurses, medical officers, paediatric consultants, or some of these professions.

Results from Study I – Caregivers' Perspective

In total, there were 15 interviews with caregivers, comprising ten in-ward interviews and five follow-up interviews. The caregivers were aged between 18 and 39 years, and all had experience providing KMC for their babies. The analysis conducted in Study I resulted in three main themes and three to four sub-themes for each team, describing various aspects of the experience from the caregivers' perspective on KMC, initiated in the hospital with a continuation at home. See Figure 2.

Conducive conditions	An empowering process	Suboptimal implementation
<ul style="list-style-type: none"> • Displaying acceptance • Supportive healthcare staff • Facilitating structures • Importance of social networks 	<ul style="list-style-type: none"> • Becoming motivated • Strengthening interaction with baby • Instilling agency 	<ul style="list-style-type: none"> • Struggling to succeed • Disregard for mothers' needs • Delayed initiation

Figure 2. Overview of the themes and sub-themes representing caregivers' experiences with KMC

Conducive conditions

According to the caregivers, they found the conditions for performing KMC to be conducive. They expressed they had no previous knowledge about KMC, but after counselling, they displayed an acceptance of the method, particularly regarding caring for the baby skin-to-skin, both in the hospital and continuing at home. They mentioned that they trusted the healthcare providers and diligently followed their instructions. The healthcare providers were perceived as supportive, both by helping them tie the binder to get the baby in the right position and providing information about the benefits of KMC. The caregivers experienced the hospital structure as facilitating, since everything they needed was readily available, and being in the hospital gave them protected time to focus on their baby without the distraction of other duties they would have at home. The caregivers also stated that family support was needed, both during their hospital stay and at home, in order to effectively care for the baby skin-to-skin. This support could be the presence of a female family member during the hospital stay or the husband coming to pay for expenses in the hospital and also helping to care for the baby at home, as well as other family members helping care for the baby at home or with household chores.

An empowering process

KMC was perceived as empowering by the caregivers. They expressed they felt motivated when they saw improvements in their child, such as weight gain and being able to breastfeed, which encouraged them to continue with the KMC. They felt that the interaction with the baby was strengthened, benefiting both themselves and the baby. They felt good when they were close to the baby. KMC helped instil a sense of agency among the caregivers. They felt confident and positive about caring for the baby skin-to-skin. They saw possibilities to perform skin-to-skin even while doing light household chores at home. Moreover, they viewed themselves as advocates of the KMC method, both within their own families at home and also with their neighbours.

Suboptimal implementation

The caregivers expressed different barriers, which indicate that KMC is not fully implemented. They mentioned difficulties in keeping the baby skin-to-skin and struggling to hold the baby in that position for longer periods. When the mother returned home, they found it difficult to continue holding the baby skin-to-skin in the binder due to other duties at home and the need to care for other children. It was an extra challenge when providing skin-to-skin care with twins. In the hospital, the caregivers stated that they needed assistance from the healthcare staff to tie and untie the baby from the binder. They also had difficulties staying in the ward for as long as needed due to financial constraints and the need to go home to take care of the household and family. The interviews revealed that there was a disregard for the mothers' needs, which affected skin-to-skin care. Some caregivers felt uncomfortable during breastfeeding, they felt too warm in the ward or had pain, particularly after a caesarean section. Sometimes, when they needed support from the staff, they said no one was present. Many caregivers felt that it took several days after delivery before the skin-to-skin contact was initiated, often resulting in the baby's condition deteriorating before commencement. They stated that they were not allowed to be in the NICU together with the baby, except during breastfeeding sessions. In cases of caesarean sections, it could take several days before they could meet the baby in the KMC ward.

Results from Study II – Healthcare providers’ perspective

In total, there were 11 interviews with HCPs. The HCPs were aged between 25 years and 64 years, and all had received training on KMC and had experience working with the provision of KMC care. The analysis in Study II resulted in three main categories, each containing three to five sub-categories, describing aspects of the experience from the HCPs' perspective of KMC initiation in the hospital. See Figure 3.

A continuous process	Staff commitment is decisive	Supporting KMC is challenged by structural conditions
<ul style="list-style-type: none"> • Repeated counselling and demonstration facilitate acceptance • Useful to invest time in motivational work • Being attentive to changing needs 	<ul style="list-style-type: none"> • Training and supervision make staff better • Low intensive care requires endurance • A method to believe in and a source of pride 	<ul style="list-style-type: none"> • Lack of facility readiness • Clinical routines promote initial separation • Contextual factors affect breastfeeding and breastmilk routines • Pull factors to a non-conducive environment at home • Incomplete follow-up routines

Figure 3. Overview of categories and sub-categories representing healthcare providers’ experiences with KMC

A continuous process is needed

The HCPs' experience indicated that repeated counselling and demonstrations facilitated the acceptance of KMC among families and emphasised the importance of initiating it as soon as the baby arrives at the KMC unit. It could take some time before acceptance among families, underscoring the need to involve the whole family, as the mother alone cannot make the decision. Potential co-providers were identified, and often, mothers-in-law or other family members helped in this role. The repetition of counselling was experienced as necessary and demanded time and effort from the HCPs. They counselled on the benefits for both the baby and mother, as well as other advantages for the family, such as economic aspects compared to care in an incubator. The HCPs found it useful to invest in motivational efforts, promoting the benefits of increased bonding between the mother and baby, as well as the overall well-

being of both the mother and baby. They identified illiteracy as a barrier to accepting the method, as caregivers were often unfamiliar with KMC before being admitted to the hospital. Motivational efforts aimed at caregivers and families facilitated follow-up and acceptance to commence with the KMC. The HCPs stressed the importance of being attentive to the caregivers' changing needs and adapting care accordingly. This could involve adjusting the temperature in the KMC unit, addressing pain after caesarean sections, or ensuring privacy in the wards, especially when the mothers are breastfeeding.

Staff commitment is decisive

The interviews with the HCPs revealed that their commitment to KMC is crucial, and that they were positive about the method. They talked about KMC as a method they believe in and as a source of pride. They were happy when they saw the babies doing well. They also talked about how KMC had a positive impact on the mothers when they could be close to their babies compared to if the baby was in an incubator. The training and supervision were seen as necessary and helped the HCPs to perform well, giving them motivation as well. They expressed a need for refresher training and more practical sessions. Additionally, they mentioned that there could be hesitancy to work in the KMC ward, but this decreased over time since the start of KMC at the ward. Sometimes, they felt bored in the KMC ward, and they noted that mothers could feel the same. Nevertheless, the HCPs did their job, which required endurance.

Supporting KMC is challenged by structural conditions

The HCPs described different things that challenged KMC. Lack of facility readiness, including lack of staff and basic equipment in the ward, as well as lack of binders, were raised in the interviews. They also stated that staff rotation could hinder continuity of care, suggesting assigning specific staff to the KMC ward as a beneficial strategy. The HCPs pointed out clinical routines that could promote an initial separation between the mother and the baby, such as the mother's and child's conditions, which could be a hindrance. They expressed following national guidelines, stating that skin-to-skin care could only start once the child was considered stable. Some contextual factors affecting breastfeeding and breastmilk were also mentioned and privacy was a concern. The HCPs explained that counselling on breastfeeding was provided regularly, and they tried to strive for privacy for the mothers during breastfeeding or when expressing breastmilk. No males could be present in the ward when mothers were expressing breastmilk. Some contextual issues arose regarding the donation of breastmilk; donation could not be done if the mothers had different religions (Muslim or Hindu), or if the child's gender differed from that of the donor (boy or girl) Various pull factors were raised in the interviews

that affected the length of the stay in the hospital and the possibility of performing KMC at home. Economic aspects, including the costs related to the hospital stay and the need to take care of family members at home, especially siblings, sometimes caused the mothers to return home earlier than advised by the doctor. Additionally, family demands, such as having to take care of the home and do household work, could affect the mother's ability to provide skin to skin care to the baby at home. The HCPs noted that the hospital stay provided an opportunity for mothers to focus solely on the child without other distractions. However, incomplete follow-up for four consecutive weeks after discharge was mentioned by the HCPs to be a problem. It was hard to make families attend follow-up sessions. It was mentioned that more patients attended the first or second follow-up sessions, but fewer attended the third or fourth. The distance to the hospital was one factor affecting follow-up attendance. Families did not always see the need to attend follow-ups when the child was healthy, even though they were counselled about their importance. HCPs made suggestions to increase follow-up rates, including having a system where follow-ups could be conducted closer to the families' homes and involving nurses in the follow-up process, which would increase their motivation towards KMC. Although they had a system in place to send text reminders to families who did not come for the follow-up appointment, this was sometimes overlooked when there was a high workload.

Discussion

Caregivers' and healthcare providers' experiences of KMC – summary of the main findings

These two explorative studies in this thesis present the perspectives of both the caregivers' experience (Study I) and the healthcare providers' experiences (Study II) with Kangaroo Mother Care initiated in the hospital with a continuation at home in Bangladesh. There are both similarities and differences between the caregivers' and HCPs' perspectives regarding the themes and categories, and the findings mutually support each other. The results show different aspects of provision and experience of care, as well as different aspects that support and challenge KMC care. Caregivers' and HCPs' experiences of KMC in Bangladesh reveal that continuous support and counselling for caregivers, as well as involving other family members in the KMC care, are essential. The empowerment experienced by caregivers facilitates KMC care. Moreover, commitment among the HCPs is needed, with supervision being important. The caregivers' and HCPs' shared experience point out that KMC is challenged by structural conditions and suboptimal implementation, which need to be addressed. Clinical routines promoting initial separation and delayed initiation of KMC, as well as pull factors affecting mothers' hospital stay, and incomplete follow-up, were identified as issues.

Provision and Experience of Care

The WHO framework for quality improvement of maternal and newborn care, as presented in the background, will be the basis for the discussion part of this thesis. Certain results will be highlighted in connection with this framework. We investigated both the experiences of healthcare providers and caregivers regarding KMC within the interlinked dimensions *provision of care* and the *experience of care* outlined in this framework. In this thesis, six of the eight quality standards were explored. These include evidence-based practices for routine care and management of complications, effective communication, respect and preservation of dignity, emotional support, competent and motivated human resources, and the availability of essential physical resources (58, 66).

Evidence-based practices for routine care and management of complications

The three components of KMC are affected by the practices of routine care. Our studies revealed that clinical routines often promote initial separation and delayed initiation of skin-to-skin care, which poses a challenge to KMC. In Bangladesh, the parents and the family members have to accept the method before the KMC can be initiated, and it is not included in the standard care. Caregivers often described that KMC started several days after birth due to the baby's medical condition. The importance of promptly identifying eligible LWB and preterm babies for KMC has been highlighted (67). Supporting skin-to-skin care for longer periods is crucial, yet our results show that mothers struggled to care for the baby skin-to-skin for longer periods. A multi country study looking at KMC initiation in facilities found the support for infant feeding to be insufficient (45). Similar is found in our studies where both the caregivers and HCPs stressed that the privacy could be improved in the wards during breastfeeding.

The HCPs in our study emphasised that they were following the national guidelines, which require the child to be stable before initiation of KMC. However, since these studies took place, the WHO has introduced new recommendations proposing iKMC immediately after birth, even before stabilisation (9). Therefore, our studies underscore the need to adapt clinical routines and national guidelines in Bangladesh to be in line with the new recommendations from the WHO. The fact that mothers were only allowed to be in the NICU while breastfeeding promotes separation. Consequently, caregivers expressed that they felt stressed being separated from their babies. In the study involving the caregivers, it was highlighted that mothers wanted to be close to their babies. The separation of mother and child has been described in the literature as harmful to both the baby and the mother and should be avoided (31, 68). Through family involvement and FCC, this can be prevented, and parent-infant interaction can be strengthened. This is supported by the new guidelines from the WHO (57). The staff may need to change their attitude towards family involvement and understand that their role is to support the caregiver in performing KMC. Families have described a need for support when caring for their baby in the NICU. To support family involvement, it might help with specific interventions designed to support parents caring for their preterm baby in the NICU. An example of such a family-supported intervention is the "Early Collaborative Intervention" developed by Sahlén Helmer, et al. (69). This intervention is introduced in the NICU and aims to increase parental awareness of the baby's needs and help parents feel empowered in their parenthood.

Before discharge, HCPs counselled the mother and family members to make them feel comfortable going home and continuing with the KMC. By doing the counselling at the right time, the child can go home early and timely, as proposed by the WHO (9). Follow-up is an essential part of KMC care and needs extra focus, as studies have pointed out that it is not working optimally and needs to be strengthened. Insufficient follow-up has also been described in a study from Bangladesh (54), highlighting the need to increase awareness of its importance. A study from rural Uganda investigated KMC both in hospital and its continuation after being discharged. They found that community follow-up for these babies was important, as well as peer support from mothers who had previously performed KMC successfully (70, 71). In our study, HCPs suggested finding solutions for follow-up near the family's home if they lived far from the hospital. Similar suggestions are made by the WHO, advocating for a clear link between the facility and the community (67).

Effective communication

Continuous counselling and support to caregivers and other family members were deemed necessary for both accepting and supporting KMC, and had to be done repeatedly. Results from the two studies show that KMC is a well-accepted method, and both caregivers and HCPs have positive experiences with it. However, both studies also reveal that caregivers did not have any previous knowledge of KMC, which has been described as a barrier (43, 72). The counselling involved caregivers and family members, and without involving other family members, the mother could not decide by herself to start the KMC. A study from Bangladesh described that mothers were not sufficiently involved in the decision-making process, and the HCPs had a preference for counselling husbands or mothers-in-law instead of the mother. This shows the crucial role of communication in supporting KMC (73).

Respect and preservation of dignity

From the caregiver's perspective, the study revealed concerns about disregarding the mothers' needs, particularly regarding pain after caesarean section and discomfort. HCPs acknowledged that privacy could be improved, especially when the mothers were breastfeeding, which was supported by the caregivers who described feeling uncomfortable during breastfeeding. In line with our findings, the WHO emphasises in their new recommendations the importance of respectful maternity care and ensuring a positive postnatal experience (9, 57), as well as meeting the mothers' needs (67). This is something that should be taken into account in the KMC care. A review by Mathias et al. recommends providing quiet, comfortable units for KMC where privacy can be assured (74).

Emotional support

The support from the HCPs was found to be very important for the caregivers, and it should also be adapted to the caregiver's specific needs. This should be seen as a continuous process to support KMC. In our study from the caregivers' perspective, we found that mothers struggled to keep their babies in a skin-to-skin position and wanted more support than they received. Research indicates that parental readiness can be strengthened by supportive HCPs (40). Furthermore, family support, both in the hospital and at home with household chores, was found to be vital, as highlighted in the literature (75, 76). A study from Bangladesh found that grandmothers were often involved in keeping the infant in a skin-to-skin position in Bangladesh, and this study indicates that the grandmothers should be involved in the counselling and be seen as potential co-providers when necessary. (45). The caregivers in our study felt empowered by providing KMC for their babies and felt they could be advocates of the methods, this is sometime to lift as facilitating for the care. Working with peer support for caregivers has been described in previous research to strengthen them (67) and was also highlighted by the caregivers in our study.

Competent and motivated human resources

Our study with HCPs pointed out that their commitment was essential in supporting KMC, with caregivers expressing trust in the HCPs and respecting their competence, which facilitates KMC. Both caregivers and HCPs are essential in the baby's care and should be seen as valuable resources, requiring motivation for increased KMC implementation. Both caregivers and HCPs were positive towards KCM, recognising its benefits for the baby, which further motivated them in their care efforts. The staffs' attitudes matter, as described in other studies (72, 77). To increase motivation among HCPs, it was suggested to involve nurses in the follow-up work to get feedback on the child's condition. This is a new finding to our knowledge. For the caregivers, it was expressed that feedback on the child's weight and health was important for their motivation. The results from the HCPs revealed that some of the HCPs felt bored with KMC, viewing it as low endurance care. Supervision and training were deemed very important for optimising their work. The important role of supportive supervision has been described in another study (74).

Essential physical resources available

The caregivers expressed they had what they needed in the KMC ward and KMC unit, but they wanted more support from the staff. They noted that sometimes the HCPs were not present when they needed them. At the same time, HCPs witnessed they had a shortage of staff, equipment, beds, and binders, as

well as a lack of facility readiness, and had to leave the KMC ward to bring medicines and equipment, which acted as barriers to KMC. The importance of service and facility readiness has been described in other studies and should be ensured by providing an adequate number of staff and equipment needed (67, 78). Insufficient supplies pose a barrier to KMC (48). Having a dedicated place for KMC when caring for the newborn babies and staff rotation for newborn care have been highlighted in a study from Ethiopia as facilitators for the initiation of KMC (79). The HCPs in our study suggested having separate staff for the KMC patients assigned to the KMC ward, which is somewhat contradictory to the study from Ethiopia (79) but is supported by other studies (40, 80).

Implementation of KMC

The Quality-of-Care framework for quality improvement of maternal and newborn care can be used to identify areas that need to be improved in the work towards increased uptake of KMC. The XIII International Kangaroo Mother Care Conference in 2022 shed light on the inequity in care between low-middle and high-income countries and advocated for KMC to be implemented and given to LBW babies all around the world. It was also suggested that KMC should be included in the standard care to help towards reaching the Sustainable Goals 3.2, aiming to reduce neonatal mortality (81, 82). The WHO's implementation strategy also highlights the equity aspect and access to healthcare as central to KMC implementation (67). Quality of care has also been pointed out as important for promoting equity and the right to health for women and children (83). Despite the well-known benefits of KMC, it is not yet fully implemented globally from a health system perspective (45). So far, in Bangladesh, it is a priority but not included in the standard care, even though evidence from Bangladesh shows that KMC can be feasible within the country's healthcare system (84). Successful implementation of KMC by using a co-creation process among different stakeholders and parents as partners in design has been observed in Ethiopia (85). Gill et al. recommend KMC to be included in the standard care protocols and point out factors to be addressed at different levels, from parents and healthcare professionals to the healthcare system, to ensure successful KMC implementation (86).

Methodological considerations

Trustworthiness

In qualitative research, it is important to describe in detail all the steps during data collection and analysis, and to be transparent to strengthening the results.

To describe *trustworthiness* in qualitative research, the terms credibility, dependability, confirmability, and transferability are used (87, 88). *Credibility* refers to the extent to which the results reflect reality. This was sought to be increased by involving participants with various experiences and perspectives. *Dependability* refers to the extent to which the study can be repeated to achieve the same result in the same context, using the same method and participants. To achieve dependability was attempted by providing a detailed description of the two chosen methods, including all the steps and by pilot-testing the interview guides for both studies. *Conformability* refers to objectivity. This was sought throughout the process by reading the field notes and checking recordings for accuracy throughout the process, and by discussing the findings from the interviews objectively among the research team (authors of the papers). *Transferability* refers to the extent to which the results can be transferred to a similar setting based on the reader's interpretations. To increase transferability, we have tried to provide an extensive description of the context (setting, participants).

Semi-structured interviews were chosen for both studies as they can provide extensive knowledge about the participants' views on a topic (63, 87). As described in the method section, we had two different data collection teams during two periods. The in-ward interviews and follow-up interviews were merged after data collections to provide a broader perspective on caring for the baby both in the hospital and at home. A strength of the studies is that they offer two different perspectives, both from the caregiver and healthcare providers, in two different hospitals with a broad uptake of patients. Convenience sampling among the available caregivers and snowball sampling for the HCPS were adopted and considered to be effective methods to recruit participants. Interviews for both studies were performed in Bengali (except one interview), transcribed verbatim, and thereafter translated into English. To be interviewed in the participants native language is a strength but there is a risk that some nuances of the voices of the caregivers and healthcare providers could be lost during translation. We tried to avoid this by having one of the research team's native Bengali speakers check some parts of the interviews against the audio files. Additionally, the people in the research team represents different professions and have different experience in in research methodologies and settings, and discussions about the findings among them can be seen as a strength. The native Bengali-speaking authors could verify that the interpretation of the results is consistent with the findings. The data collection teams were not connected to the hospital or ward, which can be seen as a strength. There were two different analysis methods used for the studies: thematic analysis from the caregivers' perspective and qualitative content analysis from the healthcare providers' perspective. Both methods were chosen to enable learning two different approaches, and they aligned well with the research questions. Qualitative content analysis is useful for explorative research and is commonly used

in nursing research. It provides the freedom to choose the level of interpretation and abstraction desired within the different steps of the method (89). Thematic analysis, however, is a flexible method that allows freedom in identifying themes from the data (90).

Pre-understanding and reflexivity statement

Pre-understanding and *reflexive approaches* are discussed in qualitative research, referring to the potential impact on interpreting the results. Bias can be due to the researcher's background and professional experience. I had a pre-understanding of the context due to my previous work in low-income countries and as a paediatric nurse and a mother, providing me with both professional and personal knowledge about Kangaroo Mother Care. Being a research student coming from a different context might have had an impact on the participants' answers. The caregivers may have felt a power imbalance when there were three people in the data collection team (including myself) during the first data collection period, and two people during the second data collection period with the follow-up interviews. The caregiver may not have felt free to express what they felt when in a vulnerable situation caring for their newborn baby in the hospital. Having female Bengali-speaking researcher for the caregiver interviews, we tried to make the women feel comfortable. The HCPs may not have felt free to express and share their experiences fully. They might have withheld some things they did not wish to share with the data collection team, or might have said things they thought we wanted to hear. They might have felt a power imbalance as well. This can be seen as a limitation of the study. During the analysis, I tried to be aware of my pre-understanding while reading the interviews and interpreting the results. I tried to have a reflexive approach and this was adopted during the analysis through discussions of the findings among the authors. When conducting research, it is important to be aware of how you look at the research and to be transparent. When looking at these two studies in this thesis and analysing the results, I have done this from an interpretive and constructivist approach. This epistemological perspective asserts that the reality of the world around us must be interpreted to discern the underlying meaning of phenomena, seeking common and universal interpretations (91, 92).

Conclusions

The findings from the two studies included in this Licentiate thesis shed light on the experiences of caregivers and health providers regarding KMC in Bangladesh, where both groups play a central role in KMC care. Emphasising their important role and their experience is necessary in the work towards improving KMC in the country. There are conducive conditions for caregivers to perform KMC, and they feel empowered to be involved in the care. Committed HCPs are crucial, and supportive supervision is important. However, the results also revealed different challenges in KMC implementation that need to be addressed. These include emphasising the importance of continuous counselling and support from the HCPs to meet the caregivers' needs, working towards early initiation of KMC, and caring for the mother and baby together by involving the family in the care. Additionally, finding adapted solutions for follow-up care is necessary. The results also suggest a need to update clinical practices in line with the new WHO recommendations.

Clinical implications

Clinical implications arising from this research suggest that the national guidelines and clinical practices need to be updated in Bangladesh to be in line with the WHO's new recommendations for LBW and preterm babies. Efforts should be directed towards strengthening the parenteral involvement and changing the structure around the mother and baby in the healthcare facilities to prevent separation and late initiation of KMC. Furthermore, the studies in this thesis highlight the important roles of HCPs, caregivers, and their families in the KMC care for the LWB and preterm babies. The healthcare worker plays a vital role through continuous counselling and support, while the caregivers contribute by being involved in infant care. Another important area is to meet the needs of the mothers to give them the support they need, pain relief, and privacy. Support to the healthcare workers through training and supervision needs to be highlighted as well. Strengthening follow-up care by finding solutions for the family to come to a nearby facility or by involving nurses in the follow-up to increase their motivation should be considered. To increase motivation among mothers and families, it is important to give repeated feedback on the child's weight and health and to involve nurses in the follow-up. Including KMC as standard care in Bangladesh can lead to increased coverage of KMC in the country, resulting in more preterm and LWB babies benefiting from this care.

Future research

We recommend that future studies should focus on how to overcome the structural conditions that pose challenges to KMC, such as how to care for the mother and babies together, address the mother's needs, and strengthen family involvement in the care. Further research should also explore how the follow-up can be improved and be locally adapted, including the possibilities to involve nurses in the follow-up visits. In the future, it would also be good to investigate the experiences of community workers and family members regarding how support for KMC can be improved, both when initiated in the hospital with a continuation at home, and when initiated within the community.

Acknowledgements

I would like to thank all the individuals at icddr,b who collaborated to make these studies possible. This includes those involved in the ethical application process, facilitating during the data collection process, facilitating transcription and translation of the interviews, and writing the articles. A special thanks to Ahmed Ehsanur Rahman and Goutom Banik as the co-authors of the first paper and to Taqbir Us Samad Talha as the co-author of the second paper and for participating in the datacollection. I also extend my thanks to Jhumpa Ranis and Alifa Ahmed as part of the data collections. Thanks to the managers for facilitating during the data collection at the included hospitals, namely Dr Mozibur Rahman, Md (IMCH) and Dr Munisuzzaman Siddiqui, Md (MFTSTC).

Furthermore, I am grateful to all the participants in the two studies, including the caregivers and the healthcare providers, who shared their perspectives on Kangaroo Mother Care.

Special appreciation to my main supervisor, Mats Målqvist, and my co-supervisors, Syed Moshfique Rahman and Ylva Thernström Blomqvist, for sharing your experience and supporting and guiding me in this whole process with the two studies and the work towards the Licentiate degree.

Thanks also to Hedda Ottesen, for good collaboration on the first paper as first authors.

Moreover, I would like to thank my former and current; teaching colleagues, Ph.D. colleagues, colleagues at the hospital and KBH, friends, and last but not least, my family for all their support throughout this endeavour.

References

1. World Health Organization. Preterm birth: Key facts. 2024 [Available from: <https://www.who.int/news-room/fact-sheets/detail/preterm-birth>].
2. Liu L, Oza S, Hogan D, et al. Global, regional, and national causes of under-5 mortality in 2000-15: an updated systematic analysis with implications for the Sustainable Development Goals. *Lancet*. 2016;388(10063):3027-35.
3. Chawanpaiboon S, Vogel JP, Moller AB, et al. Global, regional, and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. *Lancet Glob Health*. 2019;7(1):e37-e46.
4. United Nations Childrens Fund, World Health Organization. UNICEF-WHO Low birthweight estimates: Levels and trends 2000-2015. Geneva; 2019.
5. United Nations Inter-Agency Group for Child Mortality Estimation (UN IGME). Levels and trends in child mortality. Report 2021. [Available from: <https://data.unicef.org/resources/levels-and-trends-in-child-mortality-2021/>].
6. Blencowe H, Krusevec J, de Onis M, et al. National, regional, and worldwide estimates of low birthweight in 2015, with trends from 2000: a systematic analysis. *Lancet Glob Health*. 2019;7(7):e849-e860.
7. World Health Organization. Every newborn action plan: progress report. 2015. [Available from: <https://iris.who.int/bitstream/handle/10665/255559/9789241508728-eng.pdf?sequence=1>].
8. UNICEF. Mapping the Global Goals for Sustainable Development and the Convention on the rights of the Child 2016 [Available from: https://www.unicef.org/agenda2030/files/SDG-CRC_mapping_FINAL.pdf].
9. World Health Organization. WHO recommendations for care of the preterm or low-birth-weight infant. 2022.
10. Conde-Agudelo A, Diaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane Database Syst Rev*. 2016(8):CD002771.
11. World Health Organization. WHO Recommendations on interventions to improve preterm birth outcomes. Geneva; 2015. [Available from: https://iris.who.int/bitstream/handle/10665/183037/9789241508988_eng.pdf?sequence=1].
12. World Health Organization. Kangaroo mother care: a practical guide. Geneva. 2003. [Available from: <https://www.who.int/publications/i/item/9241590351>].
13. Kostandy RR, Ludington-Hoe SM. The evolution of the science of kangaroo (mother) care (skin-to-skin contact). *Birth Defects Res*. 2019;111(15):1032-43.
14. WHO Immediate KMC Study Group, Arya S, Naburi H, et al. Immediate “Kangaroo Mother Care” and Survival of Infants with Low Birth Weight. *N Engl J Med*. 2021;384(21):2028-2038.

15. Ruiz JG, Charpak N, Castillo M, Bernal et al. Latin American Clinical Epidemiology Network Series–Paper 4: Economic evaluation of Kangaroo Mother Care: cost utility analysis of results from a randomized controlled trial conducted in Bogotá. *J Clin Epidemiol.* 2017;86:91-100.
16. Black RE, Liu L, Hartwig FP, et al. Health and development from preconception to 20 years of age and human capital. *Lancet.* 2022;399(10336):1730-40.
17. Charpak N, Ruiz-Pelaez JG. Resistance to implementing Kangaroo Mother Care in developing countries, and proposed solutions. *Acta Paediatr.* 2006;95(5):529-34.
18. Al-Alaa H, Al-Najjar H, Fouly H. Assess the effectiveness of using kangaroo mother care on reducing postpartum bleeding among laboring women: a randomized control trial. *Women Health Care Issues.* 2021;4(6).
19. Victora CG, Bahl R, Barros AJ, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet.* 2016;387(10017):475-490.
20. Rollins NC, Bhandari N, Hajeebhoy N, et al. Why invest, and what it will take to improve breastfeeding practices? *Lancet.* 2016;387(10017):491-504.
21. Moore ER, Bergman N, Anderson GC, Medley N. Early skin-to-skin contact for mothers and their healthy newborn infants. *Cochrane Database of Syst Rev.* 2016;11(11):CD003519.
22. Oras P, Thernström Blomqvist Y, Hedberg Nyqvist K, et al. Skin-to-skin contact is associated with earlier breastfeeding attainment in preterm infants. *Acta Paediatr.* 2016;105(7):783-789.
23. Blomqvist YT, Ewald U, Gradin M, Nyqvist KH, Rubertsson C. Initiation and extent of skin-to-skin care at two Swedish neonatal intensive care units. *Acta Paediatrica.* 2013;102(1):22-28.
24. Hales D, Kennell J, Klaus M, Mata L, Sosa R, Urrutia J. Effect of early skin to skin contact on maternal behavior at 12 hours *Pediatric Research* 1975;9(4):259.
25. Forde D, Fang ML, Miaskowski C. A Systematic Review of the Effects of Skin-to-Skin Contact on Biomarkers of Stress in Preterm Infants and Parents. *Adv Neonatal Care.* 2022;22(3):223-230.
26. World Health Organization. Kangaroo mother care: a transformative innovation in health care. Global position paper. Geneva; 2023. Licence:CC BY-NC-SA 3.0 IGO.
27. Feeley N, Genet C, Niela-Vilén H, Charbonneau L, Axelin A. Parents and nurses balancing parent-infant closeness and separation: a qualitative study of NICU nurses’ perceptions. *BMC Pediatr.* 2016;16(1):1-13.
28. World Health Organization, UNICEF. Baby-friendly hospital initiative: revised, updated and expanded for integrated care. Geneva. 2009. Report No.: 9241594950.
29. Flacking R, Lehtonen L, Thomson G, et al. Closeness and separation in neonatal intensive care. *Acta Paediatr.* 2012;101(10):1032-1037.
30. World Health Organization and the United Nations Children’s Fund (UNICEF). Nurturing care for every newborn 2021. Licence: CC BY-NC-SA 3.0 IGO.
31. Bergman NJ. Birth practices: Maternal-neonate separation as a source of toxic stress. *Birth Defects Res.* 2019;111(15):1087-1109.
32. WHO Immediate KMC Study Group, Arya S, Naburi H, et al. Immediate “Kangaroo Mother Care” and Survival of Infants with Low Birth Weight. *N Engl J Med.* 2021;384(21):2028-2038.

33. Lester BM, Salisbury AL, Hawes K, et al. 18-Month Follow-Up of Infants Cared for in a Single-Family Room Neonatal Intensive Care Unit. *J Pediatr.* 2016;177:84-89.
34. Hei M, Gao X, Li Y, et al. Family Integrated Care for Preterm Infants in China: A Cluster Randomized Controlled Trial. *J Pediatr.* 2021;228:36-43.e2.
35. Itoshima R, Helenius K, Ahlqvist-Bjorkroth S, Vahlberg T, Lehtonen L. Close Collaboration with Parents Affects the Length of Stay and Growth in Preterm Infants: A Register-Based Study in Finland. *Neonatology.* 2024;1-8.
36. North K, Whelan R, Folger LV, et al. Family Involvement in the Routine Care of Hospitalized Preterm or Low Birth Weight Infants: A systematic Review and Meta-analysis. *Pediatrics.* 2022;150(Suppl 1):2022057092O.
37. Ramezani T, Hadian Shirazi Z, Sabet Sarvestani R, Moattari M. Family-centered care in neonatal intensive care unit: a concept analysis. *Int J Community Based Nurs Midwifery.* 2014;2(4):268-278.
38. Franck LS, Axelin A, Van Veenendaal NR, Bacchini F. Improving Neonatal Intensive Care Unit Quality and Safety with Family-Centered Care. *Clin Perinatol.* 2023;50(2):449-472.
39. Maria A, Litch JA, Stepanchak M, Sarin E, Wadhwa R, Kumar H. Assessment of feasibility and acceptability of family-centered care implemented at a neonatal intensive care unit in India. *BMC Pediatr.* 2021;21(1):1-12.
40. Smith ER, Bergelson I, Constantian S, Valsangkar B, Chan GJ. Barriers and enablers of health system adoption of kangaroo mother care: a systematic review of caregiver perspectives. *BMC Pediatr.* 2017;17(1):35.
41. Chan G, Bergelson I, Smith ER, Skotnes T, Wall S. Barriers and enablers of kangaroo mother care implementation from a health systems perspective: a systematic review. *Health Policy Plan.* 2017;32(10):1466-75.
42. Hailegebriel TD, Bergh AM, Zaka N, et al. Improving the implementation of kangaroo mother care. *Bull World Health Organ.* 2021;99(1):69-71.
43. Bilal SM, Tadele H, Abebo TA, et al. Barriers for kangaroo mother care (KMC) acceptance, and practices in southern Ethiopia: a model for scaling up uptake and adherence using qualitative study. *BMC Pregnancy Childbirth.* 2021;21:1-12.
44. Torres LM, Mazia G, Guenther T, Valsangkar B, Wall S. Monitoring the implementation and scale-up of a life-saving intervention for preterm and small babies: Facility-based Kangaroo Mother Care. *J Global Health.* 2021;11:14001.
45. Salim N, Shabani J, Peven K, et al. Kangaroo mother care: EN-BIRTH multi-country validation study. *BMC Pregnancy Childbirth.* 2021;21(Suppl 1):231.
46. Mony PK, Tadele H, Gobezeayehu AG, et al. Scaling up Kangaroo Mother Care in Ethiopia and India: a multi-site implementation research study. *BMJ Glob Health.* 2021;6(9):e005905.
47. Jadaun AS, Dalpath SK, Trikha S, et al. Government-led initiative increased the effective use of Kangaroo Mother Care in a region of North India. *Acta Paediatr.* 2023;112 Suppl 473:6-14.
48. Vesel L, Bergh AM, Kerber KJ, et al. Kangaroo mother care: a multi-country analysis of health system bottlenecks and potential solutions. *BMC Pregnancy Childbirth.* 2015;15 Suppl 2(Suppl 2):S5.
49. World Bank Group. World Bank Country and Lending Groups 2024 [Available from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>].

50. Globalis. Bangladesh 2023 [Available from: <https://globalis.se/laender/bangladesh>.
51. National institute of Population Research and Training, Mitra and Associates, ICF International. Bangladesh Demographic and Health Survey. Dhaka, Bangladesh and Calverton, Maryland, USA; 2017-2018.
52. Khan JR, Islam MM, Awan N, Muurlink O. Analysis of low birth weight and its co-variants in Bangladesh based on a sub-sample from nationally representative survey. *BMC Pediatr*. 2018;18(1):100.
53. Alam MJ, Islam MM, Maniruzzaman M, et al. Socioeconomic inequality in the prevalence of low birth weight and its associated determinants in Bangladesh. *PloS One*. 2022;17(10):e0276718.
54. Ehtesham Kabir A, Afroze S, Amin Z, et al. Implementation research on kangaroo mother care, Bangladesh. *Bull World Health Organ*. 2022;100(1):10-19.
55. Bhutta ZA, Das JK, Bahl R, et al. Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost? *Lancet*. 2014;384(9940):347-70.
56. Tunçalp Ö, Were WM, MacLennan C, et al. Quality of care for pregnant women and newborns—the WHO vision. *BJOG*. 2015;122(8):1045-1049.
57. World Health Organization. WHO recommendations on maternal and newborn care for a positive postnatal experience. Geneva. 2022. Licence: CC BY-NC-SA 3.0 IGO.
58. World Health Organization. Standards for improving quality maternal and newborn care in health facilities. Geneva. 2016 2016. [Available from: <https://iris.who.int/bitstream/handle/10665/249155/9789241511216-eng.pdf?sequence=1>
59. World Medical Association. World Medical Association Declaration of Helsinki. Ethical principles for medical research involving human subjects. *Bull World Health Organ*. 2001;79(4):373-374.
60. Malqvist M. Abolishing inequity, a necessity for poverty reduction and the realisation of child mortality targets. *Arch Dis Child*. 2015;100 Suppl 1:S5-S9.
61. Chan GJ, Labar AS, Wall S, Atun R. Kangaroo mother care: a systematic review of barriers and enablers. *Bull World Health Organ*. 2016;94(2):130-41J.
62. DeJonckheere M, Vaughn LM. Semistructured interviewing in primary care research: a balance of relationship and rigour. *Fam Med Community Health*. 2019;7(2):e000057.
63. Kvale S, Brinkmann S, Torhell S-E. Den kvalitativa forskningsintervjun. Tredje [reviderade] upplagan ed. Lund: Studentlitteratur; 2014.
64. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative research in psychology*. 2006;3(2):77-101.
65. Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs*. 2008;62(1):107-115.
66. Brizuela V, Leslie HH, Sharma J, Langer A, Tunçalp Ö. Measuring quality of care for all women and newborns: how do we know if we are doing it right? A review of facility assessment tools. *Lancet Glob Health*. 2019;7(5):e624-e32.

67. Darmstadt GL, Kirkwood B, Gupta S; WHO Strategic and Technical Advisory Group of Experts for Maternal, Newborn, Child, and Adolescent Health and Nutrition KMC Working Group. WHO Global Position Paper and Implementation Strategy on kangaroo mother care call for fundamental reorganisation of maternal-infant care. *Lancet*. 2023;401(10390):1751-1753.
68. Nyqvist KH, Anderson GC, Bergman N, et al. Towards universal Kangaroo Mother Care: recommendations and report from the First European conference and Seventh International Workshop on Kangaroo Mother Care. *Acta Paediatr*. 2010;99(6):820-826.
69. Helmer CS, Thornberg UB, Abrahamsson T, Mörelius E. Mothers' experiences of a new early collaborative intervention, the EACI, in the neonatal period: A qualitative study. *J Clin Nurs*. 2023;32(11-12):2892-2902.
70. Kwesiga D, Wanduru P, Ssegujja E, Inhensiko J, Waiswa P, Franck L. Improving Post-discharge Practice of Kangaroo Mother Care: Perspectives From Communities in East-Central Uganda. *Front Pediatr*. 2022;10:934944.
71. Mustikawati IS, Pratomo H, Martha E, Murty AI, Adisasmita ACJ. Barriers and facilitators to the implementation of Kangaroo Mother Care in the community-A qualitative study. *J Neonatal Nurs*. 2020;26(2):109-14.
72. Kinshella MW, Hiwa T, Pickerill K, et al. Barriers and facilitators of facility-based kangaroo mother care in sub-Saharan Africa: a systematic review. *BMC Pregnancy Childbirth*. 2021;21(1):176.
73. Mehjabeen S, Matin M, Gupta RD, Sutradhar I, Mazumder Y, Kim M, et al. Fidelity of kangaroo mother care services in the public health facilities in Bangladesh: a cross-sectional mixed-method study. *Implement Sci Comm*. 2021;2(1):115.
74. Cai Q, Chen DQ, Wang H, et al. What influences the implementation of kangaroo mother care? An umbrella review. *BMC Pregnancy Childbirth*. 2022;22(1):851.
75. Hunter EC, Callaghan-Koru JA, Al Mahmud A, et al. Newborn care practices in rural Bangladesh: Implications for the adaptation of kangaroo mother care for community-based interventions. *Soc Sci Med*. 2014;122:21-30.
76. Nyondo-Mipando AL, Kinshella MW, Salimu S, et al. "It brought hope and peace in my heart:" Caregivers perceptions on kangaroo mother care services in Malawi. *BMC Pediatr*. 2020;20(1):1-11.
77. Strand H, Blomqvist YT, Gradin M, Nyqvist KH. Kangaroo mother care in the neonatal intensive care unit: staff attitudes and beliefs and opportunities for parents. *Acta Paediatr*. 2014;103(4):373-378.
78. Chaulagain DR, Malqvist M, Wrammert J, et al. Service readiness and availability of perinatal care in public hospitals-a multi-centric baseline study in Nepal. *BMC Pregnancy Childbirth*. 2022;22(1):842.
79. Weldearegay HG, Medhanyie AA, Abrha MW, et al. Quality of Kangaroo Mother Care services in Ethiopia: Implications for policy and practice. *PLoS One*. 2019;14(11):e0225258. Published 2019 Nov 22.
80. Alenchery AJ, Thoppil J, Britto CD, de Onis JV, Fernandez L, Suman Rao PN. Barriers and enablers to skin-to-skin contact at birth in healthy neonates-a qualitative study. *BMC Pediatr*. 2018;18(1):48.
81. Pallás-Alonso C, Montealegre A, Hernández-Aguilar MT, et al. XIII International Conference on Kangaroo Mother Care - Different opinions, experiences and related KMC issues: Good practices, stabilisation concept, nutrition and basic respiratory support. *Acta Paediatr*. 2023;112(12):2478-2485.

82. World Health Organization. WHO KMC Scale Up Study Group. Incremental costs of scaling up kangaroo mother care: Results from implementation research in Ethiopia and India. *Acta Paediatr.* 2023;112 Suppl 473:86-94.
83. The second report of the independent Expert Review Group (iERG) on Information Accountability for Women`s and Children`s health. Every woman, every child: strengthening equity and dignity through health. 2013. [Available from: <https://www.who.int/publications/i/item/9789241505949>
84. Akter M, Khandker S, Shaheen M, Mehriban N, Ahmad SA. Management of preterm low birth weight infants in Dhaka: a comparison between Standard Care and Kangaroo Mother Care. *J Pediatr Neonat Individual Med.* 2021;10(1):e100111-e.
85. Gobezyayehu AG, Lijalem M, Endalamaw LA, et al. Creation of a globally informed and locally relevant KMC implementation model for population-impact in Amhara, Ethiopia. *Acta Paediatr.* 2023;112 Suppl 473:42-55.
86. Gill VR, Liley HG, Erdei C, et al. Improving the uptake of Kangaroo Mother Care in neonatal units: A narrative review and conceptual framework. *Acta Paediatr.* 2021;110(5):1407-1416.
87. Polit DF, Beck CT. *Nursing research: generating and assessing evidence for nursing practice.* 9th ed. Philadelphia: Wolters Kluwer Health/ Lippincott Williams & Wilkins; 2012.
88. Elo S, Kääriäinen M, Kanste O, Pölkki T, Utriainen K, Kyngäs H. Qualitative Content Analysis: A Focus on Trustworthiness. *SAGE open.* 2014;4(1):215824401452263.
89. Lindgren BM, Lundman B, Graneheim UH. Abstraction and interpretation during the qualitative content analysis process. *Int J of Nurs Stud.* 2020;108:103632.
90. Clarke V, Braun V. Thematic analysis. *The journal of positive psychology.* 2017;12(3):297-8.
91. Burr V, Dick P. Social constructionism. In B. Gough (Ed.), *The Palgrave handbook of critical social psychology.* 2017:59-80. Palgrave Macmillan/Springer Nature.
92. Braun V, Clarke V. Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health.* 2019;11(4):589-97.

Appendix I. Interview questions for caregivers, in-ward interviews

General question

What do you think of Kangaroo Mother Care? How do you define KMC? What are the benefits of KMC?

Specific questions

1. Do you have any idea regarding skin-to-skin care, position, timing, and duration of skin-to-skin care, and how to bind the baby? From whom did you get this information?
2. What support did you get from healthcare staff to perform:
 - Skin-to-skin (position, teaching from healthcare about the position of skin-to-skin care, how to sit during skin-to-skin care, the timing of skin-to-skin care, initiation, and duration of skin-to-skin care, providing help when the caregivers go to the toilet, preparing food
 - Breastfeeding/ giving breastmilk? (teaching the caregivers about the position and attachment of breastfeeding; giving breastmilk or extracting breastmilk; teaching the mother to provide cup feeding if the baby doesn't suck; initiation and duration of breastfeeding or cup/nasogastric tube
 - What support/facilitation did you get from your family to perform skin-to-skin care at the facility? (coming with prepared meals for mother, taking care of siblings, assisting with skin-to-skin care)
3. What motivates you to perform skin-to-skin care /breastfeeding/giving breastmilk?
4. What are the hindrances for you to perform skin-to-skin care /breastfeeding/giving breastmilk and continuing KMC at the facility? Feeling discomfort in providing skin-to-skin care, Privacy, Behaviour and availability of healthcare staff, Response from healthcare staff; did they listen to you? Support from family members (mother-in-law, husband, other family members, Support from society and culture to perform skin-to-skin care?
5. How can we overcome this hindrance: discomfort, privacy, healthcare staff behaviour, support from family members, society, and cultural support?
6. Are you satisfied with the KMC service at the health facility?
7. What can facilitate you to perform the KMC in the facility?
 - How long should you continue KMC at home after discharge?
 - What can be the hindrance for you to continue KMC at home?
 - What can facilitate you to perform KMC at home?
8. Do you know when you need to bring back/seek care for your baby to the hospital (danger signs)?
9. Do you know about the follow-up visits after discharge? If yes, how many follow-up visits and when? Why are the follow-up visits important for the baby?
10. Do you have any recommendations on how the quality of KMC can be improved?

Appendix II. Interview questions for caregivers, follow-up interviews

Initial question

Can you tell me about your experience of caring for your newborn? What has been difficult? What has worked well?

Larger conversations areas

1. How did the care of your newborn work out at the hospital? What kind of support did you get? What was difficult?

Follow-up:

- Who gave instructions for the care of the newborn, if any?
- Who participated in the care of the newborn?
- How did you manage the routines? Any aides used?
- What do you wish would have been different? Any additional help, instructions, etc.

2. How did the care of your newborn work out when you came home? What kind of support did you get? What was difficult?

Follow-up:

- Was there any difference in caring for the baby at home compared to when you were at the hospital? If so, in what way?
- Who participated in the care of the newborn at home?
- How did you manage the routines? Any aides used?
- What do you wish would have been different? Any additional help, instructions, etc.

3. Did you experience any occasions, either at the hospital or at home, when your baby needed extra care or attention? Like being too cold, having a fever, crying excessively, or similar? If so, can you please tell me what happened?

Follow-up:

- What did you do to solve the problem?
- Did you encounter any problems when trying to solve the problem?
- Who helped you, if anyone?

Appendix III. Interview questions for healthcare providers

Initial question

What do you think of Kangaroo Mother Care? How do you define KMC? What are the benefits of KMC?

Specific questions

1. How do you **motivate** the caregivers to perform KMC? What is the process of that motivation?
2. How do you **support** the parents/caregivers to perform?
 - Skin-to-skin care (teaching the caregivers about the position of skin-to-skin care, how to sit during skin-to-care, the timing of skin-to-care care, initiation, and duration of skin-to-skin care, help given when the caregivers go to the toilet, preparing food
 - Breastfeeding/ giving breastmilk? (Teaching the caregivers about the position and attachment of breastfeeding, giving breastmilk, or extracting breastmilk, teaching the mother to provide cup feeding if the baby doesn't suck, initiation and duration of breastfeeding or cup/ nasogastric tube
3. What are the existing facilities to provide skin-to-skin care (binder, fan, AC, KMC bed, mother waiting area)?
4. What are the existing facilities for expressing breastmilk? (privacy, pump, storage of breastmilk, spoon or cup feeding, nasogastric tube)
5. Do you have a checklist to monitor and track the timing of the skin-to-skin care, for how long the mother is providing skin-to-skin care, how many times the mothers provide breastmilk for the baby, how do you document and how is the reporting mechanism for that? If yes, what are the problems in managing the checklist, monitoring, and reporting?
6. **What can support/ facilitate** KMC to work? (leadership, management). Do you have any external supervisor who is responsible for the KMC? What do they do during the supervision? Do you think this supervision is beneficial in improving the quality of KMC of your facility?
7. **What can facilitate** the implementation of KMC? (training, refresher training, supervision, availability of KMC logistics and supplies, documentation. If unavailable, what are the reasons behind that and how can we strengthen the supervision or monitoring mechanism?
8. What motivates you as healthcare staff to work with KMC/ to continue working with KMC?
9. **What can be barriers/hindrances** for the KMC to work? Barriers for you as

healthcare staff to support parents/caregivers performing skin-to-skin care/breastfeeding/continuing work with KMC in the facility

- How can we overcome these barriers? What are your suggestions?

10. When providing KMC, if the newborn gets sick, how do you identify these babies and how do you manage them? (sending the baby for special care)
11. When do you **discharge** the KMC baby? Which criteria do you follow for discharge?
12. How do you motivate the caregivers to continue in the facility if they want to be discharged by their own decision?
13. How do you motivate the caregiver to continue KMC at home after discharge?
14. Can you give an example of a successful story?
15. Anything else you want to address?