Improving Preterm and Low Birth Weight Care Practices in Lubumbashi, Democratic Republic of Congo, Using a Family-Centered Model: A Qualitative Study

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Abstract

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Introduction

Neonatal mortality remains high in the Democratic Republic of Congo (28 per 1000 live births) and preterm birth complications is still the leading cause of all newborn deaths. Lubumbashi, the capital city of the Haut-Katanga province, is among the cities much affected by this issue. Between 2011 and 2018, 63% of all newborn deaths in the region were attributed to complications related to low birth weight. To address the issue, innovative healthcare interventions are needed. Numerous studies have shown that the family-centered care (FCC) approach has a positive impact not only on the infant but on parents and on the health facility as well. The aim of this research study is to assess health facilities readiness to implement this model of newborn care in Lubumbashi.

Methods

The study used qualitative data collection and analysis techniques to assess healthcare providers' perceptions of and experiences with key components of the FCC model in maternity wards and neonatal intensive care units in the city of Lubumbashi, and to assess current care standard to identify factors that

may affect parents and healthcare providers' adherence to elements of the FCC model of care. Nineteen interviews were conducted with healthcare providers in ten health facilities across nine Health Zones in the city during August and September 2022. All the interviews were conducted in French. The records were transcribed and translated in English and later analyzed using Atlas.ti (23.1.1).

Results

Data analysis revealed that healthcare providers' expectation of families' participation in their newborn care are currently restricted to thermal protection (i.e. prolonged skin-to-skin contact) and breastfeeding. Findings also revealed potential enablers and challenges to the successful implementation of a FCC model. These enablers/challenges include hospital infrastructure and environment, newborn care practices, parents' empowerment, health workers' attitudes, families' economic challenges, families' religious/cultural beliefs, parents' mental health challenges, and fathers' irregular presence at health facilities.

Conclusions

Findings showed that families' participation in preterm/Low Birth Weight infants' care in Lubumbashi is minimal. The study also helped identify challenges related to newborn care that might affect the successful implementation of a FCC model in this region. Both families and medical facilities would greatly benefit from this care approach and thus maximize the chances of survival of preterm and low birth weight infants. But for this model of care to be effective, it must be adjusted to the situation and the evidence obtained on the ground.

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ABBREVIATIONS

DRC: Democratic Republic of Congo

FCC: Family-Centered Care

HCP: Healthcare Provider

KMC: Kangaroo Mother Care

PNSR: Program National de Sante de la Reproduction (*National Program of Reproductive Health)*

LBW: Low birth weight

NICU: Neonatal intensive care unit

PTB: Preterm birth

UNILU-SPH: University of Lubumbashi- School of Public Health

INTRODUCTION

Preterm birth (PTB) and low birth weight (LBW) are two critical risk factors for newborns mortality[1] and psychological distress in parents.[2] The World Health Organization (WHO) defines preterm as babies born alive between 28 and 37 weeks of pregnancy (in low income countries),[3] and low birth weight as "weight at birth less than 2500g".[3] Globally, prematurity is the leading cause of disability and ill health later in life, [3] and LBW is a major contributor to child death. [3] In the Democratic Republic of Congo (DRC), 382,000 preterm babies are recorded every year, and nearly 10% die due to complications.[4] The country is currently ranked fourth in the world for the number of babies dying from preterm birth complications annually,[4] and among the top ten countries with the highest infant mortality rate (60.85 deaths per 1,000 live births). [5] These rates vary per region, with some provinces scoring higher than others. Lubumbashi, the capital city of the Haut-Katanga province in the southeast region of the DRC, and the second largest city in the country, is among the cities with high rates of neonatal deaths due to prematurity and LBW. Between 2011 and 2018, 63% of all newborn deaths in the region were attributed to complications related to low birth weight.[6]

Childbirth is a major life event that can significantly affect the health and wellbeing of close family members. Moreover, preterm births have been found to be major stressors for most parents. As stated by Ionio and colleagues, "Preterm birth is a multi-problematic event that presents two main consequences: first, the medical and neurophysiological conditions of the newborn put the child in danger (particularly for infants with a weight lower than 1,500g and with a gestational age less than 32 weeks); second, it could have a negative impact both on the parents' relationship and on parent–child interactions". [7] To address prematurity, the focus, therefore, should be, not only on the baby, but also on providing resources and tools to parents and empowering them to make decisions about their newborns' care, especially once they are discharged from health facilities.

Several evidence-based interventions have been developed in recent years and implemented in countries with high rates of newborn deaths due to prematurity and LBW complications. The most significant interventions include administration of antenatal corticosteroids, skin cleansing with chlorhexidine, kangaroo mother care (KMC), and home-based newborn care. [8] The focus of these interventions has, in most cases, been on the newborn alone. In 1995, a new care approach was developed by the U.S. Health Resources and Services Administration, based on the concept of "family-centered care" (FCC). The principle of FCC in neonatal intensive care units is to empower parents through "unrestricted participation in their infant's care, shared decision making, and collaboration between parents and health staff". [9] Key components of the FCC model include respect and dignity for families, zero separation policy, capacity building, effective communication, involving parents in decision-making, training in hygiene, nurturing care and basic newborn care practices including KMC. The FCC model has since been recognized as "the standard for pediatric care practice in the context of families and hospitalized children".[10]

In 1999, the DRC Ministry of Public Health (MoPH) officially included KMC in the national standard of care for preterm and LBW babies. Several studies have been conducted in recent years to assess the use of KMC in hospitals across DRC and identify bottlenecks affecting the scale-up of this method.[11] Issues identified include staff shortages, space constraints, lack of clear admission and discharge criteria, absence of standard care protocols within units, and no patient follow-up after discharge.[12] However, there hasn't been any research done on the FCC model as a whole including how its various components are perceived by healthcare providers and parents, or what factors are likely to affect the implementation or scale-up of this model particularly in neonatal intensive care units.

This study was jointly developed and implemented by the University of Washington Department of Global Health and the University of Lubumbashi School of Public Health with the following two aims: (1) to assess healthcare providers' perceptions and experiences with key components of the FCC model

in maternity wards and neonatal intensive care units in the city of Lubumbashi; and (2) to assess current care standard to identify factors that may affect parents and healthcare providers' adherence to elements of the FCC model of care.

CONCEPTUAL FRAMEWORK

This study is based on Atun and colleagues' conceptual framework for integrating targeted health interventions into health systems.[13] Influenced by the various research methodologies developed to assess healthcare interventions, they claimed that adoption and diffusion of any health intervention is influenced by its complexity, how it is perceived by the adopters, contextual circumstances, prevailing cultural norms, beliefs and values of key actors, and institutions within the adoption system.[13] A family-centered model of care for newborns is a targeted healthcare intervention that requires the participation of both healthcare providers and families. The present research that seeks to assess perceptions and factors affecting the adoption of a FCC model of care by parents of PTB and LBW babies and healthcare providers in Lubumbashi will use this framework for investigation at the individual, interpersonal and institutional levels.

RESEARCH PHILOSOPHY

Zukauskas and colleagues define a research philosophy as "the basis of the research, which involves the choice of a research strategy, formulation of the problem, data collection, processing, and analysis".[14] The research philosophy, thus. outlines the researcher's beliefs as the research is being conducted and offers a foundation for how the data will be collected and analyzed.

The research at hand was carried out using the phenomenology research tradition. While some methods seek to develop concepts through hypotheses, phenomenology seeks to discover how individuals construct meaning of the human experience, according to Moerer-Urdahl and Creswell (2004),[15] or to investigate contextual meaning through the situational knowledge of individuals being studied, according to Creswell (2009).[16] The phenomenological design provided the opportunity to gain insight on healthcare

providers' perceptions and experience with key components of the FCC model in maternity and neonatal intensive care units in Lubumbashi, and to understand factors that may influence their adherence to this healthcare intervention. The knowledge generated after data analysis is bound to the context, culture and values of the population being studied.

METHODS

This study was conducted from August to September 2022, in Lubumbashi, in the Democratic Republic of Congo, a francophone country in central Africa. The data was collected across nine Health Zones.

- **Positionality and role**

I am a Cameroonian American from Sub-Saharan Africa. My first language is French. I am not from the Democratic Republic of the Congo, and I do not speak Swahili or any of the country's native languages. I worked with UW and UNILU faculty to create the research proposal and interview guide for this project. In Lubumbashi, I also worked closely with a team of research assistants to recruit participants and collect data. I was in charge of data transcription, transcripts translation, data analysis, and the final write-up.

- **Study setting**

Ten health facilities, located in nine Health Districts in Lubumbashi, were selected for this study. These facilities were chosen based on their status as a "General" hospital in the Health District, as well as whether they offer maternity or neonatal intensive care services. The sites included general hospitals (public and private), a university teaching hospital and a national health directorate. *[See table 1]*. In addition, we interviewed a representative from the National Program on Reproductive Health for the Haut-Katanga division, who oversees the design, implementation, monitoring, and evaluation of newborn care practices in the city.

Table1 *Selection of Study Participants by Health facility*

Name of Health facility	Facility Type	Number of Providers interviewed
Hopital General de Reference (*general reference hospital*) Katuba	Public hospital	1
Centre Medical Bakhita (HGR)	Public hospital	1
Jason Sendwe Provincial General Hospital	Main public hospital with GRH status	5
Hopital La Foi	Private catholic hospital	2
HGR Kamalondo	Public hospital	2
HGR Kenya	Public hospital	2
Cliniques Universitaires de Lubumbashi *(University Medical Center)*	Public- university teaching hospital	1
Centre de sante Mama-Wa-Uruma	Private hospital	2
Hopital Sainte Bernadette	Private hospital	1
HGR Kampemba	Public hospital	1

- **Study population**

Only health care providers (18) and officials from the National Program for Reproductive Health (1), who by their positions were knowledgeable about or involved with care for preterm and low-birth-weight babies, were included in the study. Individuals with no prior experience in the care of preterm and LBW babies were excluded. Participants interviewed included three physicians, nine nurse managers, and seven nursing assistants/midwives. All participants were female, full-time workers and with work experience ranging from 5 to 25 years.

The Jason Sendwe General Hospital was chosen as the primary site for participant recruitment because it is the largest government-owned facility in Lubumbashi, has a NICU that cares for PTB and LBW infants, and because previous studies on the use of KMC had been undertaken there. Participants were also recruited from other public and private healthcare facilities across the city that offer care services to PTB and LBW babies.

- **Data collection**

The data was collected through semi-structured individual and group interviews. According to Turner (2010), “Interviews provide in-depth information pertaining to participants' experiences and viewpoints of a particular topic”.[17] Group interviews, according to Stewart and colleagues (2007), are helpful when there’s a need to learn about groups dynamics and the way in which particular groups talk about topics among themselves.[18] The format used for group interviews was the Nominal Group Technique (NGT). This format, according to Maguire and colleagues (2022), is “designed to ensure participants have the same opportunity to engage and provide their opinions”.[19] The NGT assists researchers in collecting data in a way that minimizes the possibility of some participants influencing what others say.

A team of three people conducted the interviews at hospital sites using an interview guide [*see Appendix]* that contained an opening question, an introductory question, a transition question, specific key questions, and concluding questions. All the interviews were recorded with the oral consent of the participants, and notes were taken by hand during the process. The notes included elements that might be helpful during the analysis process such as body language, physical demeanor, passionate comments, head nods and other non-verbal clues that would indicate agreement or disagreement.[20] Prior to each interview, oral consent was obtained from each participant. The interviews were conducted in French, and they lasted between 25 to 60 minutes.

- **Data Management and Analysis**

All the recorded interviews were transcribed verbatim in French. Each transcript was then translated into English. Both steps were completed by the researcher who conducted the interview to ensure fidelity and quality of data and to maintain the accuracy of the original information. The qualitative analysis software Atlas.ti (23.1.1) was used to code each transcript. An initial codebook was created and tested before being imported into the software, along with all translated scripts. The codes were then manually applied to the data, and the codebook was updated with additional codes during this process. A

coding report with relevant quotes and their associated codes was generated. The next step involved going through the report to identify trends and patterns and draw connections. This process served as the basis for answering the research questions. The next step after this was the theming and reporting of findings.

According to Sutton and Austin (2015), "theming refers to the drawing together of codes from one or more transcripts to present the findings of qualitative research in a coherent and meaningful way".[21] Codes were organized into categories, which were further organized into themes and sub-themes. For the reporting step, themes and sub-themes were analyzed, interpreted, and presented into a coherent story supported by relevant quotes.

- **Ethical considerations**

The study received IRB exemption from the University of Washington Institutional Review Board, and IRB approval from the University of Lubumbashi Ethics Committee. Oral consent was obtained from all the participants.

RESULTS

Two main themes emerged from the data: (1) Healthcare providers' expectation of families' participation in their newborn care, and (2) potential enablers and challenges to successful implementation of a FCC model. For the first theme, two sub-categories were extracted: a) thermal protection (i.e. prolonged skin-to-skin contact) and b) breastfeeding. For the second theme, the eight sub-categories that were extracted include: (a) hospital infrastructure and environment, (b) newborn care practices, (c) parents' empowerment, (d) health workers' attitudes, (e) families' economic challenges, (f) families' religious/cultural beliefs, (g) parents' mental health challenges, and (h) fathers' irregular presence at health facilities.

Theme 1: Healthcare providers' expectation of families' participation in their newborn care

Thermal protection (prolonged skin-to-skin contact)

The data revealed that healthcare providers rely on parents of newborn care to provide thermal protection to their infants. Prolonged skin-to-skin, incubators, and hot water bottles are the three common thermal protection techniques used in most of the healthcare facilities surveyed. These methods are used to attempt to ensure that the baby maintains a normal body temperature of 36.5- 37.5°C (97.7 to 99.5^0 F) to facilitate a rapid weight gain. Families' involvement is limited to applying skin-to-skin contact with the newborn (which some providers refer to as Kangaroo mother care or Kangaroo method (although skin-to-skin contact is only one element of KMC), or filling up hot water bottles and placing them around the baby to keep him/her warm. The prolonged skin-to-skin contact appeared as health providers preferred thermal protection method. This method is also one of the few FCC elements that the providers said to have more experience with:

"We do the skin-to-skin method, and we use hot water bottles as well."

"So, the method we prefer here and that we apply with LBW babies is the kangaroo method, because that's the method recommended."

In most hospitals visited, the skin-to-skin method is practiced in a common room where all mothers sit together with their newborns. The average duration of the skin-to-skin contact is between 30 and 60 minutes per day and varying from one facility to the other. This occurs during the first three to six days of the in-patient stay.

Some providers shared that most facilities do not allow other family members in the common room during skin-to-skin sessions.

"*They (family) are not allowed in the room! If the mother gets tired, we place hot water bottles which warm the baby".*

"*Family members are allowed to visit the mother, but usually we want the mother to be alone for KMC, because we are here to assist her and help if there's any need*".

Healthcare professionals also discussed difficulties they have when it comes to parents adhering to the skin-to-skin contact method. Some mothers are said to refuse to perform the method for a variety of reasons, such as being too tired. When asked about the specifics of mothers who refuse to perform KMC, the responses varied. Some healthcare providers shared that, *"Younger mothers are more cooperative; Older mothers would act like they have experience, especially in situations involving low-birthweight or premature babies. But younger women are more receptive. They accept KMC easily*".

However, the experiences of other healthcare providers differ as stated here: "*The 25- to 35-year-olds [mothers], yes, they adhere easily to the kangaroo method. But for the younger ones, those under 20, that's a problem! unless they're educated. Those who have never set foot in a classroom are a much bigger problem. They won't even accept their baby to begin with. They are a real problem, a headache for us."*

Additionally, it was revealed that some women with unintended pregnancies tend to reject their babies and refuse to participate in the skin-to-skin contact exercises.

"There are instances where a woman gives birth, and it is obvious that she does not like her baby. She would say 'let him cry' when you asked her to soothe the baby down when he is crying. Don't even bother trying to ask her to practice skin-to-skin contact with her baby. She would refuse."

With regards to fathers, most interviewees stated that fathers of preterm/low birthweight babies would normally decline to participate in skin-to-skin contact for a variety of reasons, including conflicting responsibilities, or feeling unwelcome in this environment by mothers and staff. "*Well, usually fathers are not available. So, he could be there and then at some point he'll slip away to go look for money to support the family".*

According to another interviewee, "*Fathers? No! They don't get involved here, maybe at home. Also, fathers don't go into the maternity ward because women don't want them in. People are very superstitious here. They say that fathers can look at their babies with an evil eye, they say, they don't know where those fathers come from or what their spirit is like.*"

Breastfeeding

As stated earlier, breastfeeding is another method that is widely used in Lubumbashi as part of the newborn care routine. All healthcare professionals who were interviewed stated that they preferred breastmilk to formula. They also stressed the need to encourage mothers to breastfeed despite that most of the providers agreed that women would typically breastfeed their infants without raising any concerns. The usual protocol of care is that the newborn should be placed on the mother's breast within an hour of delivery, and the mother should be encouraged to breastfeed for as long as the baby needs to. However, some participants brought up the issue that some mothers object to breastfeeding as expressed by one participant: ”*Hmm! Well, sometimes it's the older women and sometimes it's the younger women, whether they're multiparae or not. They simply cannot tolerate being around their child at all. Asking them to put their baby on breastmilk within an hour of giving birth is a problem”.*

Theme 2: Potential enablers and challenges to successful implementation of a FCC model

Our research revealed more challenges than enablers for a successful implementation of the FCC model in Lubumbashi’s healthcare facilities.

Hospital infrastructure and environment

The environment and health infrastructure in Lubumbashi is said to significantly have an impact on the adoption and implementation of the FCC model. All participants interviewed stated poor health infrastructure as a challenge to their work. For example, when asked about conditions in the primary NICU in the area, one HCP provided the following statement:

“The room is too small; despite having 34 babies at the moment, we only have 7 incubators installed”.

It was also expressed that most facilities do not provide an appropriate setting for mothers to practice skin-to-skin contact. Instead, all preterm/LBW newborns are separated from their mothers in most facilities visited. The skin-to-skin contact would take place in a shared room with all the mothers seated together. An enabler factor they shared would be a comfortable chair at the baby’s bedside in the NICU.

Newborn care practices

HCPs interviewed shared a series of challenges pertaining to newborn care practices that might affect the implementation of a FCC model. These include the lack of adequate equipment, hospital referral challenges and documentation-related issues. All interviewees voiced that their facility lacks adequate equipment to care appropriately for premature babies. For example, nine out of twelve facilities visited did not have a functional incubator. All premature and very low birth weight neonates born in a facility without an incubator are transported to facilities with higher resources, thus disrupting the continuity of treatment. Providers feel that providing what they consider to be suitable equipment to facilities will aid in maintaining continuity of care, which is crucial for the effective implementation of a FCC model: *"We definitely need a room that is well-equipped, with things like a heating table to keep the baby warm, incubators, and a generator to handle ongoing power outages. We need to be able to handle preterm/LBW cases on our own. However, as of right now, we are unable to do so due to a lack of adequate equipment".*

Most premature and extremely low birthweight babies are referred to the NICU at Sendwe Hospital, the largest government-owned hospital in the area. Healthcare professionals in the transferring hospital listed additional difficulties they encounter with families throughout the referral process. These difficulties include lack of funding, lack of suitable transportation, and parents not complying with the transfer procedure. All participants acknowledged that their facility does not have an ambulance, so transportation becomes the most difficult part of the referral process. Often, it is the parents' responsibility to manage the transfer. When parents are unable to afford the cost of a referral transfer, it could result in negative outcomes as illustrated by the following quote: "*Not everyone would agree to go to Sendwe hospital when we refer them there. Parents prefer to go to the smaller centers. Then, you'll later find out that the baby has passed away. It is exceedingly challenging to persuade individuals in this country to take good care of their premature infant".*

The inadequate records management system was also said to be a challenge, making it difficult to share newborns' information between health facilities, particularly during the transfer procedure. This was identified as one of the major issues in the management of PTB/LBW children in the region's main NICU: *"We have a few situations where the parents transferred here have some form of records, but most of the time there is no documentation to accompany the transfer process. All of this puts us in a tough situation. As a result, most deaths tend to be a consequence of poorly handled cases that began in the previous facilities"*.

Parents' empowerment

Findings show that before parents of newborns are discharged from the hospital, they receive counseling on how to care for their infant at home. *"At the time of discharge from the hospital we have to talk with the mothers about how to keep the baby at home, and then we make a follow-up program."* However, no health education is provided to parents while they are in the hospital, and they are not given the chance to actively take part in the care of their child. For example, when asked whether providers teach parents how to take some vital signs while at the hospital or if they involve them in medication administration, one provider responded as: *"No. We, the nursing staff, take care of that. We also have interns who provide assistance when needed"*.

Health workers' attitudes

Health staff attitudes toward parents of preterm/low birth weight babies were identified as a potential challenge to the successful implementation of an FCC model in Lubumbashi. According to a participant, some mothers would object to being transferred to certain facilities because the staff there is infamous for yelling at patients or because they have previously had a negative experience there: *"They [the mothers] usually complain about not being welcomed properly, the staff in those hospital are reportedly rude."*

Families' economic challenges

Findings revealed that most families in Lubumbashi struggle financially, which may limit their ability to help with adequate baby care. Parents sometimes would decide to stop their newborn's care or leave their infant at the NICU in Lubumbashi because they lack financial resources. All participants mentioned that parents' financial constraints are some of the major challenges they encounter when caring for PTB/LBWs.

"We have too many problems here. We receive a lot more poor people, yeah, poor people. Because they are unable to pay for services, the hospital management has to provide resources to take care of those babies. This is a lot of responsibility. We are dealing mostly with poor people, and the hospital also does its part. It's very difficult. We also have abandoned babies. When they are abandoned, the burden still falls on the hospital management!"

Families' cultural/religious beliefs

Most participants mentioned parents' religious beliefs as one of the difficulties they encounter when caring for preterm/LBW at their facilities. One participant stated, *"They [parents] already view a premature birth as witchcraft because of these beliefs, so it can be challenging to persuade them to bond with their child."* When the mother is unable to care for her baby or practice KMC, for example, another participant said that these beliefs make it difficult for them to enlist the assistance of other family members: *"Here, there are some rather taboo stories that the baby should not be seen by everyone when he or she is still small. Parents do not want the infant to be approached by anyone. They would choose to stay alone until they are released. Then they would take their infant to church for prayers. "*

Participants also discussed some common myths parents hold about premature kids that may limit their willingness to assist in their care: *"Parents of premature babies often exaggerate the problem. Even after we assure them that the child won't have any problems and will grow up in a healthy way, they still believe the child will always have health issues because of his early birth. Things are even more*

complicated with parents from rural areas. We usually need extensive chats with them in order to persuade them."

Parents' mental health challenges

Some participants, especially those who worked in NICUs, described the challenge of meeting parents' emotional needs during their stay at the hospital. When asked to describe parents' typical emotional states, one NICU nurse responded as follows: *"They are usually very stressed, because they don't know what to expect. They are aware that this is an intensive care unit, and having a loved one in intensive care can be a very stressful scenario since you never know if he will survive or what the outcome will be. They are typically quite anxious and disturbed".*

Fathers' irregular presence at health facilities

Father's sporadic appearance at the hospital is one of the most significant elements that can have an impact on a family's willingness to participate in an FCC model in Lubumbashi. According to most healthcare professionals, fathers of premature babies are infrequently seen at hospitals, and typically do not participate in direct caregiving.: *"We don't often see them. Maybe they would show up just to take care of prescriptions or other bills. here they think that childbirth is more for women*".

However, one participant pointed out that there are instances where fathers will agree to assist in caring for their newborn. Additionally, she stated that these fathers are typically educated and aware of the value of being by their child's side constantly: *"Few of them (fathers) do get involved, mostly those who are educated, those who are trained professionals. But the majority would choose not to participate. Some would even give up and disappear. We currently have a case of a mother who has been here for several weeks now. The husband disappeared once the bill was out. He no longer visits, and we have no idea where he might be*".

DISCUSSION

The findings of this study revealed that in Health Zones surveyed in Lubumbashi, family involvement in the care of their preterm or low birth weight infant is very limited and only at the very early stages of active family involvement in care that is a key element of the Family Centered Care model for vulnerable newborn. In all the health facilities surveyed, the family's expected contribution to the care of their newborn is limited to on-and-off thermal (skin-to-skin contact and hot water bottle) care and breastfeeding. Families are not offered newborn health education during the hospital stay. They are not given the chance to experience and empower themselves to actively participate in the care of their infant. Also, most of the components that constitute the FCC model are not implemented for various reasons. Families are not consulted or included in the decision-making process for their newborn care. The health facility's care team is exclusively responsible for decisions regarding the baby's care until the time of discharge when the parent is provided a brief counseling. The results also provided insight into the current standard of care for PTB/LBW in Lubumbashi's maternity and neonatal intensive care units, and how these might negatively impact a successful implementation of a FCC model in this region of the DRC.

The research study contributes to the body of literature already available on the contextual use of FCC model components in LMICs. Our findings are consistent with those of a cross-sectional study on person-centered maternity care in low- and middle-income nations that was carried out in Kenya, Ghana, and India (Abongo, 2019).[22] The results of that cross-sectional study showed that most HCPs do not involve families in the decision-making process, and that the value of respect and dignity for family was simply not upheld because providers never introduce themselves or solicit feedback from families prior to performing a procedure. According to that study, families in these settings were not getting adequate person-centered care, similar to what we discovered in our study in Lubumbashi. As Oude Maatman pointed out that although FCC is beneficial to families and patients, its implementation can be challenging.

Therefore, it is important to know which factors can contribute [to] or withhold the implementation of FCC (Maatman, 2020).[23]

Our findings also revealed that specific elements that could have a substantial impact on the implementation of a successful FCC model include adequate health infrastructure, a good documentation system especially when newborns are transferred from one health facility to another or the NICU, financial burdens on parents, as well as challenges associated with the parents' cultural and religious beliefs and their mental health.

Overall, the findings of this study show that, despite significant government efforts to improve infant care services in these settings, maternity units and NICUs in Lubumbashi still face numerous challenges that might impede a shift toward a model of care that emphasizes an active participation of families. These findings are consistent with a systematic study conducted by Dahab and Sakellariou (2020) on barriers to getting maternal care in low-income African countries which showed that, the most important barriers to maternal health are transportation barriers to health facilities, economic factors, and cultural beliefs, in addition to lack of family support and poor quality of care.[24] Another study on experiences and contextual practices of family-centered care in Ghanaian NICUs revealed that emotional stress, lack of information and coping strategies were all common family experiences (Abukari, 2022).[25]

Premature births are often associated with high risks of long-term intellectual and developmental challenges, along with lung, brain, eye, and other organ issues. Any delay in receiving appropriate medical care may endanger the baby's life. It is, therefore, essential to identify and address health issues as soon as they arise to save premature newborns as well as to help them get prepared to live healthier lives in the future.

STRENGTHS AND LIMITATIONS

The current research study draws its strength from its homogenous sample as well as the quantity of sites covered. Ten medical facilities were chosen for the study, and they were spread within nine of the

eleven Health Zones in Lubumbashi. Sixteen out of the nineteen participants interviewed were nurses, which made it possible to achieve data saturation on most themes.

There are also some limitations to this study. First, it's important to keep in mind that the conclusions above reflect how HCPs perceive, view, and experience various aspects of FCC. For a complete picture of the factors under study, it would be necessary to collect perspectives from families as well. Interviews with parents would be the most effective approach for examining issues such as HCPs' attitudes regarding families. Second, all aspects of FCC were evaluated using just one method of data collecting. A different method, such as observation, would be appropriate to evaluate some factors, such as KMC or interactions between parents and HCPs.

CONCLUSION AND RECOMMENDATIONS

Findings showed that families' participation in preterm/LBW infants' care in Lubumbashi is minimal. The study also helped identify challenges related to newborn care that might affect the successful implementation of a FCC model in this region. A Family-Centered style of care should be implemented in maternity units and NICUs in this region. Both families and medical facilities would greatly benefit from this care approach and thus maximize the chances of survival of PTB and low birth weight infants. But for this model of care to be effective, it must be adjusted to the situation and the evidence obtained on the ground. The National Program on Reproductive Health Lubumbashi division, which oversees activities in maternity and neonatal intensive care units, could play a leadership role to develop and implement this model of care at a scalable unit. This unit could serve as a blueprint for others to follow and learn through direct observation.

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APPENDIX

INTERVIEW GUIDE- HEALTH CARE PROVIDERS

Greetings, introduction of participants oral/written consent, recording

Engagement question

1. What is your role in providing care for newborns, including preterm / low birth weight? How do you like working in a neonatal intensive care unit (or maternity ward)?

Exploration questions

2. How do you define premature birth and low birth weight in this facility?

3. What are the different approaches used to provide care to preterm and low birth weight infants in your facility?

4. How do you decide what intervention is the most appropriate? What intervention is the most used? Why?

5. To what extent are parents and families currently involved in newborn/LBW care? What do you think of parents' participation in the care of their preterm/LBW babies in the facility?

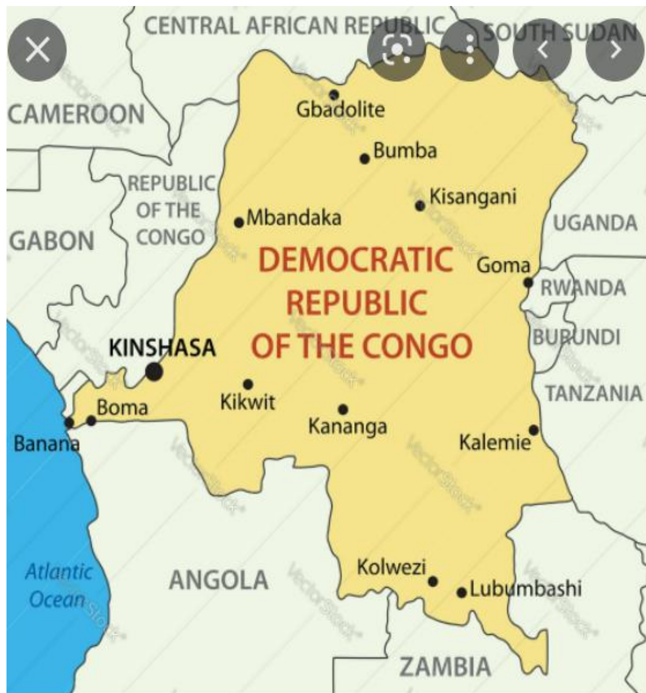
6. (*Ask this question only if KMC not mentioned in the answer to question2)* Is kangaroo mother care (KMC) practiced in your facility? How would you define it? What are the components of this intervention? What are the barriers and facilitators to KMC adoption in your unit?

7. Based on your experience, what barriers do parents face while caring for their infants?

Exit questions.

9. Is there any point we didn't discuss that you feel is important? Do you have any questions for me?

DRC, CONTRY PROFILE



- Located in central Africa
- Capital, Kinshasa
- ~ 90 million people
- Lubumbashi, capital of Haut-Katanga province
- Located in southeastern part of DRC,
- Second largest city
- ~1.8 millions