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REVIEW ARTICLE

An integrative review of parent-partnerships within neonatal care facilities in low- and lower-middle-income countries

Tom Coghlan[1,2*], Tracey A. Mills[3] and Carol Bedwell[3]

[1]BAO Queen's University Belfast, Belfast, UK; [2]International Public Health, Liverpool School of Tropical Medicine, Liverpool, UK; [3]Centre for Childbirth, Women's and Newborn Health, Liverpool School of Tropical Medicine, Pembroke Place, Liverpool, UK

Essentials

- Neonatal mortality in low-income nations accounts for the majority of deaths in children under 5.
- Increased parental-participation in neonatal care can improve developmental outcomes for babies.
- Kangaroo Mother Care (KMC) is the predominant form of parent-partnership used in resource-scarce neonatal facilities.
- An adapted model of neonatal healthcare that facilitates parent-partnership could reduce mortality.

Abstract

***Background*:** Neonatal deaths in low-income countries account for a disproportionate percentage of all-mortality rates of children under 5. Parental-participation in neonatal care has been proven to improve outcomes for key developmental factors that influence morbidity and mortality of infants.

***Objectives*:** This review aims to explore the current models of parent-partnership used in neonatal care facilities and identify factors that influence effective utilisation in low-resource nations.

***Methods*:** This Integrative Review was performed by searching the databases of CINAHL, Medline and Global Health. The search was conducted using key-terms relating to Neonatology, Kangaroo Mother Care and Parent-Partnerships. Papers published between 2011 and 2021, from lower- and lower-middle-income countries, were included.

***Results*:** The search identified 336 publications. Following screening and full-text review, 24 studies were identified that satisfied the inclusion criteria. Data were quality-appraised using the Mixed-Methods Appraisal Tool and extracted utilising the framework described by Whittemore and Knafl.

The analysis produced nine key themes – KMC as the predominant model of parent-partnership; the positive impact parent-partnerships have upon infants; the positive impact for parents; positive impact for nursing staff; enabling and limiting factors that influence implementation; pre-existing social and cultural barriers; task-sharing between staff and family; and how education influences perceptions.

***Conclusions*:** Economic, social and cultural factors have been identified that strongly influence and inhibit the widespread use of parent-partnerships in neonatal care facilities. KMC is the predominant model of parent-partnership. A future or adapted form of healthcare in these facilities should include a structured approach of education, empowerment, enhanced male and community involvement that simultaneously accommodates to the psychosocial needs of the family unit.

Keywords: *health facilities*; *infant*; *Kangaroo Mother Care*; *neonatology*; *newborn*

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Introduction

In 2021, 27 babies died for every 1000 live births in Sub-Saharan Africa. In the United Kingdom, this number was 2.7 [1]. These statistics represent the Neonatal Mortality Rate (NMR), used to assess the number of infants who have died within the first 28 days of life, per year. Globally, the current published data confirm that the NMR has more than halved between 1990 and 2021, now standing at 18 [2]. The United Nations 'Every Newborn Action Plan' has been extremely successful in improving global rates of neonatal death. Despite this, there still exists significant and pervasive inequality between high- and low-income regions. Neonatal deaths make up 45% of all deaths of children under the age 5; the majority of these in the poorest countries on earth [3]. There is a clear incentive to assess the models of care that influence the

NMR, with the aim of improving health outcomes for the most vulnerable infants in low-income regions.

Neonatology is the medical discipline dedicated to the care of sick and preterm infants. The modern intensive care methods required for these infants are expensive, requiring a highly skilled workforce and strong infrastructure. Modernised care includes the use of specialised incubators alongside standard intensive care methods. This necessary level of care relates to the unique vulnerability associated with these infants, as they are most at risk of death within the first days of life. Due to illness, prematurity or both, they are at risk of hypothermia, sepsis and malnutrition [4]. The primary cause of death for a baby in the neonatal period is preterm birth [5]. Global health inequality and the high cost of modern neonatal care mean that in resource-poor countries, infants often do not receive care that is equivalent to those in higher-income nations [6].

It has been recognised that this highly specialised and resource-intensive care for ill and preterm infants interrupts a vital aspect of infant development, bonding [7]. The first few weeks of life are viewed as vital for the establishment of a strong parent–infant bond. The interruption to bonding has been shown to impact upon foetal growth, neuro-development, breastfeeding rates, admission-length and overall morbidity [8]. All of these crucial developmental factors are thus intrinsically linked to the health outcomes of babies cared for in neonatal units. The separation of sick babies from parents, although necessitated by illness and prematurity, disrupts bonding and consequently impacts upon the overall health outcomes measured for neonates in these intensive healthcare settings [9].

More recent developments in neonatology have seen a resurgence in focus upon this parent–infant bond. New models of care have been developed and trialled, in an attempt to establish and nurture this important developmental factor between parent and child. These models attempt to establish the parent as an equal partner in the neonatal unit in what can be viewed as a 'Parent-Partnership' [10]. In high-income countries, there has been the creation and proliferation of a model known as Family Integrated Care (FICare). It establishes the parent as the main caregiver for their child, whilst they are a patient. The nursing and allied healthcare workers are there to teach and guide them. This model of care is currently being implemented in neonatal intensive care units across the world in developed nations, and high-quality, randomised-control trials have confirmed its efficacy for key neonatal outcomes [11].

The core philosophy of FICare puts parent-participation at the centre of treatment. It primarily involves the creation of an equal partnership between healthcare worker and parent; the parent provides much of the care and shares tasks with and under the guidance of the medical and nursing teams. This is in contrast to traditional intensive neonatal care methods. FICare focuses on parent-delivered care that includes feeding, bathing, changing, weighing and measuring, as well as actively participating in ward rounds [12]. It has been shown to improve rates of weight gain in cared for infants as well as increasing the rates of breastfeeding at the time of discharge [13]. It can also decrease the length of hospital stay and has positive impacts upon the cognitive behaviours of the infant at 18 months of age [12, 14]. Multi-country analysis of FICare has established that it is a proven and successful model for neonatal care on a global scale [15].

In low-income countries, there already exists an established and globally renowned model of parent-centred care for sick and preterm infants, Kangaroo Mother Care (KMC). It is a simple and inexpensive method of care for premature, sick and low-birth-weight babies. It was first developed and used in Columbia [16]. It utilises the warmth of a parent, usually the mother, being utilised as a full-time incubator to maintain the temperature of their sick child. Providing heat, food and safety by wrapping the infant tightly upon the chest, this method is simple and economical. This method of 'Parent-Partnership' is advocated by the World Health Organization (WHO), recommending that all hospital facilities should have a KMC ward [17].

KMC pre-dates the creation of modern healthcare models like FiCare. It was created as a solution to an economic and social problem, namely, improving the mortality rates of sick and preterm infants in resource-limited facilities. There is now a well-established body of research, which confirms its efficacy for a multitude of positive neonatal outcomes, including reduced mortality and rates of sepsis [18], improves bonding and early breastfeeding [19–22] and reduces rates of post-natal depression [23].

Despite these recognised benefits, limitations exist. KMC is widely perceived to be the predominant form of neonatal parent-partnership occurring in Low-Middle-Income Countries (LMICs), but its implementation is inconsistent [24]. Research has been undertaken in the previous decade by various institutions to analyse this issue [25, 26, 27]. These reviews, although useful, have been limited by their geographical scope and in the assessment of parental involvement in care. In addition, high-quality Randomised Controlled Trials (RCTs) assessing KMC that have occurred in LMICs predominantly occur in large, tertiary hospitals [28] and, thus, are less applicable to secondary and community care settings. The experience of parental involvement using KMC in low-income countries is also not a primary focus of current research, with recent research only focusing upon the barriers faced by healthcare workers [29, 30].

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Hence, there is a need to carry out a new review that addresses parent involvement in neonatal care in LMICs. It remains unclear if parents are treated as partners when using the KMC method. There is limited published data regarding how parents are educated regarding the care of their babies using KMC. Opportunities exist to provide a model of parent-partnership that facilitates all levels of need within a neonatal setting. This can be developed by gaining greater insights into neonatal parent-partnerships, including those facilitated through KMC. A formative base of knowledge is required within this field if strides are to be made in LMICs to improve neonatal care and lower the NMR. This review aims to help in gaining a broader understanding of neonatal care practices and to provide recommendations for future research projects.

Methodology

The aim of this integrative review is to explore the current parent-partnership models of care utilised in neonatal care in LMICs. An Integrative Review, using pre-defined methods, was chosen to assess the varied methods of research that would be produced by the search strategy. This type of review allows for the assessment and synthesis of qualitative and quantitative research data that can be relied upon by future researchers [31]. The structure of the review was divided into 5 stages; these were problem identification, literature search, evaluation, analysis and presentation, as described by Whittemore and Knafl [32]. This analysis followed the PRISMA [33] checklist for reporting reviews, and the flow diagram is displayed in Fig. 1.

Literature search

The search terms were divided into three sections using the Population, Exposure, Outcome (PEO) framework. Table 1 gives an example of the key terms used. 'Medical Subject Headings' (MeSH) terms were used when searching Medline. The literature search utilised the databases of Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Global Health. Google Scholar was then utilised for backward citation searching. The search tool was accessed through a well-established university search engine, which allowed access to the listed online databases.

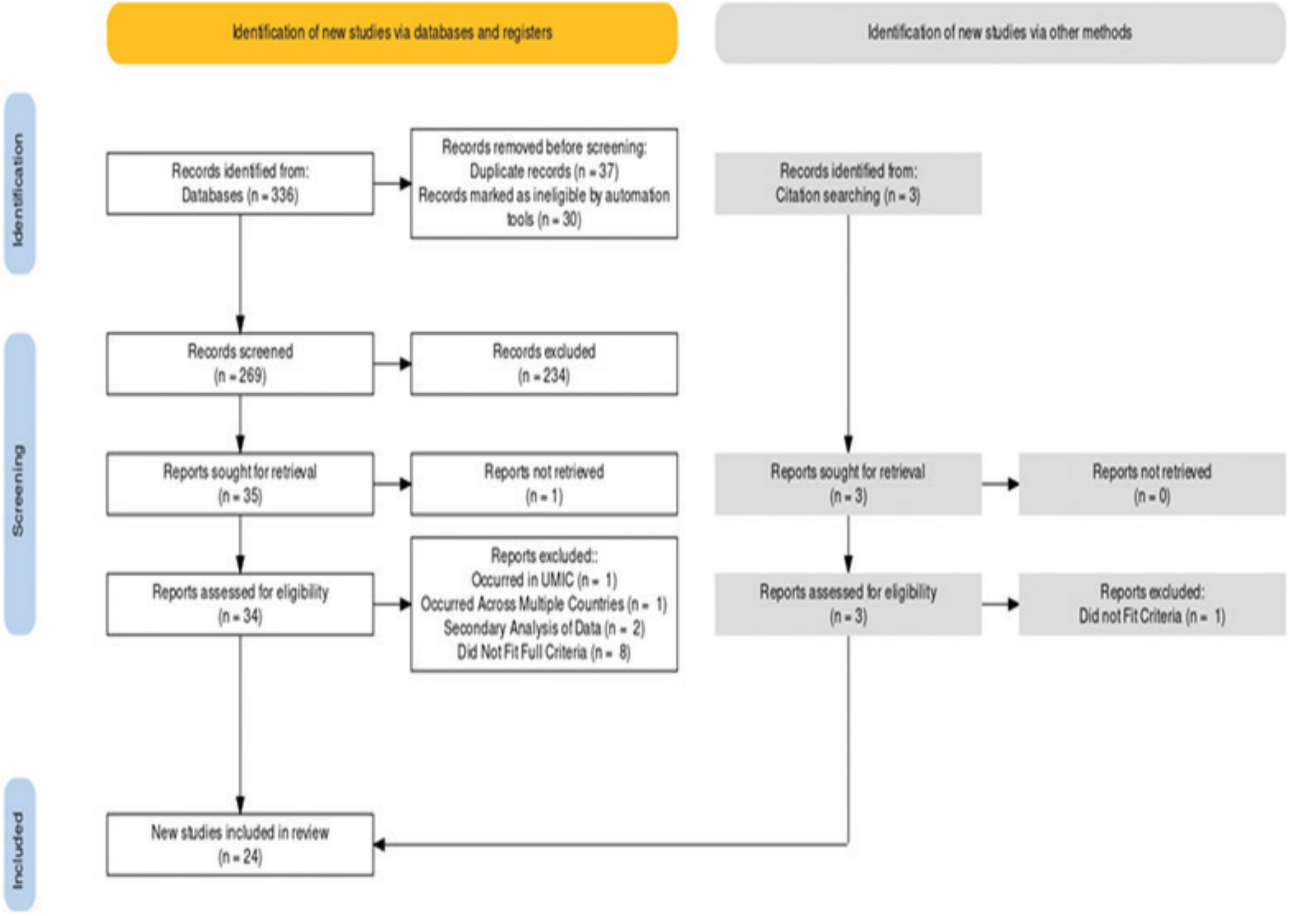

Fig. 1. PRISMA diagram representing the identification of eligible studies.

Table 1. Key search terms that formed the basis of the search strategy

Search terms relating to **Exposure**				
Parent-Partnership	Nurse-parent Partnership	Nurse-Parent Relations	Nurse-Parent Collaboration	Parent-Participation
Clinician-Parent Partnership	Physician-Parent Partnership	Professional-Parent Partnership	Provider-Parent Partnership	Parent-Involvement
Kangaroo-Mother Care	Family Integrated Care	Family Centred Care	Patient-Centred Care	
Search terms relating to **Population**				
Neonatal	New-Born	Premature	Preterm	Low Birth Weight
	Incubator	Very Low Birth Weight		
Search terms relating to **Outcome/Area**				
Developing Country	Developing Nation	Low and Middle Income	Low to Middle Income	LMIC
Low Income	Middle Income	Low Resource	Less Developed Country	Less Developed Nation
Rural Population	Neonatal Intensive Care			

Inclusion criteria

Screening was performed by three reviewers. Only peer-reviewed, published journal articles were included in this review. Studies had to relate to a Neonatal 'Parent Partnership'. This was not limited to only KMC but must have included collaboration between parents and healthcare workers occurring in a neonatal facility for the care of a newborn infant. Studies came from either low- or low-middle-income countries. These definitions were taken from the World Bank [34]. Only papers first published in English were included. The pre-defined range for the date of publication was from 2011 to 2021.

Exclusion criteria

Studies that analysed secondary data were excluded. Published articles that included multi-country analyses of data were also excluded. The intention of this was to exclude literature reviews of multiple research publications. This review did not include publications from Upper-Middle-Income-Countries, which included papers originating from Iran, China, Brazil and Colombia.

Data extraction and quality appraisal

Quality Appraisal was performed using the 'Mixed-Methods Appraisal Tool' (MMAT) [35]. Full appraisal of each paper was performed in collaboration with two additional reviewers. The strengths of this tool are that it facilitates the assessment of broad research methods spanning qualitative and quantitative data sets. The papers were scored as per the MMAT tool on a scale of 1-5. Individual scores were then translated to a final percentage rating. An Integrative review aims to report on a broad spectrum of research papers from all available information. For this reason, papers were not excluded at this stage based on the quality appraisal score. The data were first extracted from the papers and then displayed, coded and organised into 9 themes and 20 sub-themes. These evolving themes were then further analysed using a 'Constant-Comparison' method.

Results

A total of 336 research papers were generated through the search strategy. After removal of duplicates, 269 papers were screened for inclusion. A final set of 34 papers were then gathered for full-text screening. This process was undertaken in collaboration with 2 independent reviewers to ensure reliability. Two studies within the finalised set of papers referenced previous work undertaken by the study team as formative research. Backwards citation searching was used via Google Scholar and identified three additional papers. Two of these three papers were assessed and included in the final cohort of research papers. After screening, 24 papers (Table 2) remained for full-text analysis.

A summary of studies

All of the analysed papers were from either Sub-Saharan Africa [11] or Asia [13]: seven from India; two from Pakistan; two from Bangladesh; one from Nepal and one from Vietnam. There were also three from Malawi, two from Rwanda, one from Uganda, one from Tanzania, one from Zambia, one from Ethiopia, one from Ghana and one from Kenya. There are five RCTs, five qualitative studies, three experimental studies, eight mixed-methods studies and three descriptive studies included in the finalised set of research papers. The final set of research papers were then ordered into an information-table, containing the key characteristics of each study.

KMC was the care model of focus in 18 of the 24 analysed research papers. High-quality RCTs analysed in this review confirm statistically significant results that confer benefits to both mother and baby. This affirms the already recognised benefits that KMC can bring to a healthcare setting. Qualitative research has explored in-depth, the positive role it plays in healthcare settings. It has also shed

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Table 2. The analysed papers, including methodology and appraisal scoring

Author (Citation)	Methods	Country of Origin	Participants	Outcomes	Appraisal
[36]	Qualitative-Phenomenological	Malawi	12	Identification of enablers and barriers to the implementation of KMC	100%
[37]	Qualitative-Phenomenological	Pakistan	81	Identification of barriers and enablers to the implementation of KMC in Pakistan	80%
[38]	Mixed-Methods Observational Study	Uganda	10	Found KMC to be feasible for a small cohort of unstable infants. Identified a number of enabling and limiting factors to performing KMC	100%
[39]	Qualitative Phenomenological	Rwanda	29	Identified factors that relate to the implementation of Parent-partnerships	60%
[40]	Mixed-Methods	Tanzania	80	Identified limitations to the quality of care administered in Neonatal facilities	60%
[41]	Quantitative: RCT	India	91	Identified positive long-term outcomes of infants that received KMC in Neonatal facility	100%
[42]	Mixed-Methods Delphi Study	Rwanda	25	Identified an educative 'Neonatal Curriculum' based on parental feedback and interviews	100%
[43]	Quantitative – SHERPA Analysis	Kenya	12	Tasks including NGT insertion can be shared with the mother on the neonatal unit to facilitate FCC	60%
[44]	Mixed-Methods Longitudinal Qualitative Study	Vietnam	83	Importance of education for parents. Evolving roles of nurses. Barriers to increased inclusion	60%
[45]	Mixed-Methods	India	56	Identified barriers to implementation of KMC and provided recommendations	80%
[46]	Mixed-Methods- Evaluation Action Research Design	Ghana	38	Identified pathway to improve KMC in neonatal facilities	60%
[47]	Quantitative: Descriptive Consecutive Series	Bangladesh	423	KMC can be implemented in a very low-income setting for preterm neonates	100%
[48]	Quantitative – Non-RCT	India	120	KMC improves weight gain of LBW infants when compared to conventional care	40%
[49]	Qualitative: Phenomenological	Malawi	152	Identification of enabling and limiting factors that influence the implementation of KMC	100%
[50]	Quantitative – RCT	India	8402	KMC can improve outcomes of neonates when compared to conventional care	80%
[51]	Mixed-Methods	Zambia	63	Enabling and limiting factors that influence the implementation of KMC in neonatal units	60%
[52]	Quantitative	Malawi	87	Overall KMC readiness of facilities in Malawi is limited. Significant scale-up is required.	80%
[53]	Qualitative Grounded Theory	Ethiopia	144	Barriers and enabling factors identified for the implementation of KMC. A proposed model described to initiate improvement of services	100%
[54]	Quantitative – RCT	India	140	KMC found as comparable to conventional care for rate of weight gain for LBW infants on a neonatal unit	100%
[55]	Mixed-Methods	India	60	Barriers and enablers to KMC explored	60%
[56]	Quantitative Non-RCT	India	200	KMC education protocol improved outcomes against a control KMC cohort	80%
[57]	Quantitative – Non-RCT	Bangladesh	50	KMC improves neonatal outcomes compared to control group	100%
[58]	Quantitative-RCT	Pakistan	140	KMC can lead to weight gain in preterm as well as term neonates	80%
[59]	Quantitative-RCT	Nepal	126	KMC promoted growth in comparison to the control group	100%

light on the barriers that exist in resource-scarce environments. Three quarters of the analysed publications in this review had established aims to assess KMC as a healthcare model. This further highlights the predominance of KMC as a model of neonatal care of significant interest within low-income settings.

Other methods and models of care were assessed that extended beyond just KMC. Three papers created

and implemented a parent-education programme within a neonatal unit and subsequently assessed benefits to parents, patients and staff [42, 56, 60]. Another assessed the ability of parents to share medical tasks with nursing staff [43]. In addition, other research papers assessed aspects of FICare and Parent-Partnerships [39, 40].

Key themes

Positive impacts upon infant

RCTs included in this review confirm some of the already recognised benefits of KMC. This includes lower rates of mortality when compared to control groups and improved rate of weight gain for the infant when compared to a control group [50, 58, 59]. In addition, the RCTs reported higher rates of breastfeeding at discharge when compared to control groups, although it was not statistically significant. Qualitative data have also reported women describing an improved experience of breastfeeding after practicing KMC [45]. A further RCT [54] reported the benefits of continuing KMC for LBW infants in the community. Table 3 provides a summation of the key statistical findings from each RCT.

Positive impacts upon parent

As with infants, the positive bonding experience of partnerships and KMC was a crucial element of the expressed parental experience. In addition to this, anxiety and stress were a theme common to qualitative analyses [39, 53]. 'There should be a team to comfort mothers because many of them arrive depressed' [39]. This not only included the strain of having a newly born baby admitted to hospital but also involved the wider social implications that included time away from other family members and financial worries. It was implied that being with their child reduced stress and vastly improved well-being for parents, but few research papers then developed this theme. One research paper, advancing the theme of well-being, reported a decrease in parental stress and anxiety, with positive impacts upon their mental health [39].

Positive impacts upon staff

Qualitative information gained from two separate papers addressing neonatal unit staff members, related to solutions for the stress and workload of nurses in under-resourced facilities [39, 44]. It was described that by permitting parents to participate in all forms of care for their infant, there is a subsequent reduction in the impact of stress and time-management upon staff. 'The role of parents is very important. We need the presence of parents in time and support nurses in the care of their babies' [44]. In addition to this, it was described that the parents paying closer attention to their child have benefits for all within the unit, improving work satisfaction of staff and making them feel proud of the work that they do and subsequently improving overall well-being [53].

Enabling factors for KMC

The three key areas relating to enabling Parent-Partnerships, and in particular KMC, can be categorised as relating to bonding and family, religious and community leaders and peer-to-peer influence. The parent–infant bond that KMC facilitates is seen as a crucial for continuation as well as enjoyment of performing it if with their child. 'At first I thought that those people who were doing skin-to-skin care were only trying to show off but when I experienced the same situation I saw that it is beneficial' [49]. Another important area identified in multiple studies was that of sufficient family support to adequately perform KMC [37, 45, 55]. Also discussed in depth was the potential role that religious and community leaders could play in greater implementation around the efficacy, safety and acceptability of KMC [37, 45, 49]. Study participants perceived these leaders to be strong and trustworthy voices within the community and could be utilised by facilities to ensure that knowledge of KMC is disseminated in a factual and beneficial manner.

Social and cultural barriers to practicing KMC

Significant cultural and social barriers exist that prevent the implementation of KMC. The primary barrier

Table 3. Randomised controlled trials assessing the efficacy of kangaroo mother care; principal findings

Reference	Key findings for randomised controlled trials
[41]	KMC showed no statistically significant differences for head circumference or malnutrition at both 6 and 12 months.
[59]	Initiating KMC improves rates of mortality for low-birth-weight infants. Secondary outcomes show lower rates of sepsis 0.82 (0.73–0.93) and lower rates of hypothermia 0.65 (0.51–0.83).
[50]	KMC displayed statistically significant risk reduction for mortality at 28 days (P <0.032) and at 180 days (P < 0.017).
[58]	KMC displayed an increased average weight gain (P = 0.0001) and a lower length of stay when compared to the control group (P = 0.003).
[54]	KMC was found to be as effective as conventional neonatal care when assessing key outcomes of weight gain and mortality for low-birth-weight infants.

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described by interviewed women within this research paper was restrictive gender roles, removing men from KMC implementation. These restrictive roles result in exclusion from facility-based KMC programmes. Without the inclusion of men in both hospital-based settings and at home, women are limited in their ability to simultaneously perform KMC whilst also trying to bathe, sleep and care for other family members as well as themselves. 'The problem with men is that they don't go inside the room or ward when their wives or relatives are in the [KMC] ward but instead they stay outside and call their relatives to see them whilst there' [49].

If men are also excluded, they may not understand and may not permit its practice, as illustrated by this quote: 'In our culture women are not even allowed to go to relatives home so, how a woman can practice KMC with half-naked dress pattern?' [37]. A lack of inclusion and understanding also feeds into a broader feeling of mistrust that was detected. Studies in Sub-Saharan Africa identified stigma and cultural ideas around LBW babies as a major impediment to practicing KMC [38, 49, 53]. One quote illustrates this cultural barrier effectively: 'People ask why you gave birth to a baby before its time, and they talk bad things. They say you were ill-talking the babies born before the actual time, so the spirits have punished you' [36].

Parents and staff can share tasks

For parent-partnerships to be successful, a model of healthcare must facilitate successful interactions between parent and staff, namely, with nursing staff. An ability to share tasks for the care of sick infants can represent an effective litmus test to demonstrate this. The types of task can relate to the simple and practical care of the infant, including washing and nappy changing, up to assisting the staff member with clinical tasks. This analysis found multiple examples of effective task sharing. One example includes the feasibility of sharing aspects of Nasogastric tube insertion with parents [43]. As well as this, there was a suggestion that much of the care given to infants in a facility is already performed by parents, mainly mothers, because of a lack of available staff members to provide adequate care to all infants on the ward, 'Because of many patients looked after by one nurse, there are some practices that we don't do because we are so overwhelmed' [39].

Education changes perceptions

A significant number of research papers addressed the importance and need for education of parents within a neonatal facility [37, 39, 43, 45, 49, 56, 57]. Not only was it viewed as an enabler to better practice of KMC, but it was seen as a critical aspect of caring for the child in the facility and also when they are discharged home. In addition, education was found to decrease the stigma surrounding the birth of a preterm infant. Education programmes, created and implemented on the neonatal unit, were observed as an effective way to facilitate this. One research paper performed an interventional trial to assess the efficacy of their educational programme, to improve the quality and uptake of KMC. Their results highlighted the significant benefits that can be conferred to the infant receiving care as well as improving the overall quality of their KMC programme [56].

Facility-based factors influencing parent-partnerships

Facility-based factors appear to have a large impact upon parents' ability to perform KMC. Studies addressing this specific issue reported how a hospital can under-perform in multiple key areas including having appropriate wards that allow for privacy [37], whilst many also lack specific guidelines on how to enrol, prepare and educate parents on how to perform KMC [46, 52]. Wards were also reported to lack sufficient numbers of staff, food and beds, as well as some of the essential tools for KMC, including the required cloth to wrap their sick babies. 'A lack of wrappers for babies prevents KMC from being administered by mothers' [51]

Discussion

KMC is the predominant model of parent-partnership used in neonatal care facilities in LMICs. Seventy-five per cent of papers were related to the implementation of this model of care. These research studies spanned both quantitative and qualitative data and reflect the focus placed upon assessing the efficacy of KMC. In addition to this, the existence of research in the area of qualitative outcomes reflects a need for more focus upon the psychosocial benefits of KMC. There is a clear theme that this important area could be harnessed to improve implementation and uptake. The remaining research papers support this finding. In their assessments of alternative forms of parent-partnership, including FiCare and novel educative schemes, there is an observable focus upon parent-healthcare worker relationships. This signals a recognition by researchers that there are alternative pathways to further improve and enhance parent-participation in the care of their sick infant.

There is near-universal acceptance of the KMC method. Neonatal care and KMC are both viewed as positive and life-saving interventions. One additional aspect that was derived from the data was the attitudes of parents towards education, with emphasis on how important it is within a Neonatal facility. The importance of receiving education as a positive aspect of KMC implementation has not yet been reported in previous systematic reviews [25, 61, 62]. It is very clear from this assessment that facility-related

limitations weigh heavily upon effective parent-partnerships. Views expressed by both parents and staff indicate that care facilities lack basic necessities that include food and privacy. In addition to this, a lack of space within hospitals and a lack of knowledge by staff members inhibit the implementation of KMC and effective partnerships.

It is evident that in both Asia and Sub-Saharan Africa family, community and culture play an important role in the care of newly born babies. The highlighted limitations of facilities relating to the provision of food, adequate sleeping facilities and privacy indicate that a strong, external support system must be in place to enable a mother to perform KMC within a facility. It can be then inferred that if KMC or another parent-partnership scheme is to be successful, it must engage, communicate and educate family and community members. In addition to this, it is apparent from the qualitative data that men are regularly separated from KMC or parent-educative schemes. This is both due to their absence from neonatal or health facilities, in addition to the existing cultural and gender-norms within LMICs. Furthermore, powerful community and religious figures appear to be influential in the dissemination and acceptance of knowledge regarding the care of sick and premature babies.

When parents are more involved in their child's neonatal care, they appear to become more accepting of practices. They also describe reduced passivity in a healthcare setting classically defined by unequal power dynamics. These power dynamics not only can include those between healthcare staff and parents but also includes a pervasive and gendered dynamic that can be limiting for mothers [63]. By educating and empowering parents in the medical care of their sick child, there is a reported improvement in their experience. A unique finding of this review is the description by parents and caregivers of a feeling of enablement through action as well as education. In addition to this, active participation and learning has been described as reducing some of the cultural stigmas that surround the conception of a premature infant in LMICs. This further emphasises the importance that these key factors can play in the acceptance of parent-partnerships in neonatal care.

During this analysis, the extraction of data revealed key themes that permeated through the majority of papers. What also became apparent was a key issue that appears to have largely been left unassessed. There is a very limited focus upon the psychosocial well-being of parents who participate in the care of their sick baby. In this context, it is predominantly mothers who are overlooked. The needs of mothers in a neonatal facility appear to be regularly unmet through the limited provision of food, space and privacy. These critical unmet needs would logically have a detrimental impact upon physical and emotional health. This key theme then starkly contrasts with the clear research omission relating to focus upon both maternal mental health and emotional well-being. Only one analysed paper in this review included a reference to the psychological health of caring mothers. Without acknowledgement of this issue, there exists a significant gap in knowledge as to the scope of this issue.

Conclusion

From the information gathered, it is possible to make recommendations for future neonatal care models in LMICs. Advocating for Neonatal Parent-Partnerships that include a well-designed and effective education and training protocol for parents and healthcare staff is likely to benefit all parties. This is based on evidence that increasing parent-participation in Neonatal care provides benefits for preterm infants as well as parents. The analysed data indicate that any future care model must be context-specific and would require exploratory research to identify prior cultural barriers and existing stigma regarding preterm and LBW infants. If these models of care are to be successful, they need to involve parents, family-support networks as well as the broader community. In particular, men must become more involved in the neonatal care processes and educative schemes. This could ensure there is a greater sharing of additional family responsibilities and chores, as well as increasing overall acceptance of KMC and supporting the social and monetary capital that is required to effectively care for these infants.

It has been established in this review that KMC is the main neonatal care model for preterm and LBW infants in LMICs. It seems feasible that a more rigorous and adapted model could be designed that encompasses aspects of FICare. This would involve putting parents, particularly mothers, at the centre of medical care, bestowing them with education, power and decision-making capacities. In addition, more attention must be given to the psychological well-being of parents, and future initiatives must invest in research techniques and subsequent services to address this. The identification of significant, facility-related barriers to KMC and Neonatal care, relating to inadequate resources, indicates that significant monetary investment would likely be required for this to occur via well-funded research projects.

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***Tom Coghlan**
BAO Queen's University Belfast
Belfast, UK
International Public Health
Liverpool School of Tropical Medicine
Liverpool, UK,
Email: Tomcoghlan1992@outlook.com