


ORIGINAL ARTICLE

Exploratory study of fathers providing Kangaroo Care in a Neonatal Intensive Care Unit

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Abstract

Aim and Objectives: To explore fathers' views and experiences of providing Kangaroo Care (KC) to their baby cared for in a Neonatal Intensive Care Unit (NICU).

Background: Kangaroo Care has been known to improve the health outcome for pre-term, low birth weight and medically vulnerable term infants and achieve the optimal perinatal health wellbeing for parents and infants. Historically, mothers are considered as the dominant KC providers, whereas fathers are spectators and have been overlooked. Little is known about the fathers' perspectives in providing KC in NICUs.

Methods: Individual semi-structured interviews were conducted with 10 fathers who delivered KC to their baby when in the NICU. Data were analysed using Braun and Clarke's six-phase thematic framework. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was followed to report this qualitative study.

Findings: Fathers in this study identified they were passing a silent language of love and connecting with their baby by the act of KC in a challenging environment. Three themes emerged: 'Positive psychological connection', 'Embracing father-infant Kangaroo Care' and 'Challenges to father-infant Kangaroo Care'.

Conclusion: The findings of this study show KC enhances the bonding and attachment between fathers and infants. The conceptualisation of the paternal role in caregiving to a newborn is evolving as a contemporary practice. Further research is warranted to confirm or refute the study findings. Policies and facilities should be modified to include father-infant KC within the fields of neonatal care.

Relevance to Clinical Practice: It is important for nurses and other health professionals to support and enable fathers to give KC. Father-infant KC is recommended in neonatal care settings

KEYWORDS

fathers, Kangaroo Care, Neonatal Intensive Care Unit, neonates, newborn, skin-to-skin

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1 | INTRODUCTION

In Australia, around 300,000 babies are born each year. Approximately one in five babies require intensive care due to premature or critical medical conditions (Australian Bureau of Statistics, 2021; Australian Institute of Health and Welfare, 2021). The Neonatal Intensive Care Unit (NICU) clinical environment has been shown to increase the risk of a detrimental effect on neurological and psychosocial development for premature and medically vulnerable infants and a barrier to parent–infant bonding (Givrad et al., 2021; McMahon et al., 2012; Smith et al., 2011). Kangaroo Care (KC) has been globally recognised as a standard practice across neonatal care settings to support babies' optimal neurodevelopment (Ludington-Hoe, 2013) and also an approach to reduce parents' mental stress caused by separation (Givrad et al., 2021). However, in NICU settings, the traditional pattern of KC is mother–infant KC; thereby, the research till date has tended to focus on mothers and babies rather than fathers; there is little published data on the understanding of father–infant KC.

Kangaroo Care is also referred to as skin-to-skin or kangaroo mother care, adopted from the marsupial caregiving model; it seeks to mimic the mother's womb to provide warmth and security to babies (Conde-Agudelo et al., 2016). During KC, the naked baby (wearing a nappy only) is placed onto the caregiver's bare chest in the upright and prone position and secured with a cotton cloth (Conde-Agudelo et al., 2016; Ludington-Hoe, 2013). This pouch-like method has shown various benefits since 1978, when Drs Rey and Martinez initiated it in response to the high nosocomial infection rate and subsequent mortality rate at the Instituto Materno Infantil of Bogota, Colombia (Whitelaw & Liestøl, 1994). As a safe and economic neonatal intervention, KC can provide a variety of benefits for preterm, low birth weight (birth weight is less than two kilograms) and term infants. Furthermore, benefits also include lower mortality and morbidity rates, a reduction in illness-related infections, higher rates of exclusive breastfeeding and an enhancement of mother–infant bonding (Boundy et al., 2016; Conde-Agudelo et al., 2016).

Kangaroo Care has been reported to support self-regulation of sleep, improve the wake–sleep cycle and increase calmness for mother and baby (Ludington-Hoe, 2013). During KC, the gentle skin to skin touch between chests, shoulders and forearms activates the C-afferent receptors (nerve receptors in mammal skin that respond to harmless mechanical stimulation) to initiate a pleasant hormonal response. Therefore, reducing pain and stress for the baby and KC caregiver (Löken et al., 2009; Ludington-Hoe, 2013). Furthermore, in an observational cohort study, KC was found to support the regulation of the parents' heart rate and blood pressure and relieve their stress (Jones & Santamaria, 2018).

In relation to parents' roles in childcare, John Bowlby asserted that a child has an innate need to connect with one primary attachment figure, which is generally the mother (Bowlby, 1958; Bretherton, 1992). Mothers in turn have been known as the main KC providers due to traditional conceptualisation of a primary carer. However, traditional family structures have changed over the past few decades. Changes include socio-economic status and diverse social norms, where

What does this paper contribute to the wider global clinical community?

- Kangaroo Care (KC) enhances the bonding and attachment between fathers and infants. The paternal role in caregiving to a newborn is evolving as a contemporary practice.
- The views and experiences of fathers in a Neonatal Intensive Care Unit (NICU) setting have provided insights and some evidence of health and wellbeing benefits when father–infant KC is implemented.
- Increased awareness of the father's parental role and ability to give father–infant KC in NICU settings.
- Policies and facilities should be modified to promote father–infant Kangaroo Care within neonatal care settings.

it is increasingly common for the profile of a household to be co-parenting, single-parent or same-sex (Lamb & Tamis-Lemonda, 2004; Yogman et al., 2016). Additionally, paid paternal leave policies within Australia, and some European countries, encourage fathers to care for their children and develop a father–child bond as early as birth (Penelope, 2013; Yogman et al., 2016). Thereby, the conceptualisation of fatherhood has been evolving and fathers in the 21st century play an active and supportive role in the care and development of their children (Yogman et al., 2016). The divergence in the father's position as the primary income earner enables fathers to be involved in their baby's care in neonatal care settings (Yogman et al., 2016). Jesus et al. (2015) reported that KC might increase fathers' confidence in caring for their baby in NICU and enhance paternal involvement. Furthermore, fathers' timely participation in their baby's early life is reported to be prominent in paternal affective and mental health (Filippa et al., 2021). Additionally, fathers may take an alternative role in providing KC when mothers are unavailable due to a medical condition (Erlandsson et al., 2007; Shorey et al., 2016) or cultural restrictions such as postpartum confinement for women in China who commonly rest in bed for a month to recover from birth (Deng et al., 2018).

Although there is increasing recognition of fathers caring for infants, barriers to their engagement include limited parental leave and traditional views of mothers as primary caregivers (Filippa et al., 2021). Shorey et al. (2016) reported little knowledge about the father's perceptions associated with KC in NICU settings. Only seven studies were identified (published between 2008 and 2020) that explored KC in NICU settings, five of which were conducted in Northern Europe (Denmark, UK and Sweden) (Blomqvist et al., 2012; Fegran et al., 2008; Helth & Jarden, 2013; Magee & Nurse, 2014; Olsson et al., 2017). One of which was undertaken in South America (Jesus et al., 2015), and the other one was held in Southeast Asia (Günay & Coşkun Şimşek, 2020).

Therefore, this study is the first qualitative study to examine the fathers' views and experiences of KC in an Australian NICU setting.

Furthermore, it is also a component of the primary researcher's master thesis.

2 | METHODS

2.1 | Aim

This study aimed to explore fathers' views and experiences of providing KC to their baby cared for in an Australian NICU.

2.2 | Design

An exploratory study using a qualitative descriptive approach was adopted for this study. This type of methodology was chosen to investigate participants' views and experiences in a specific role rather than empirical investigations required in a quantitative study (Colorafi & Evans, 2016; Steen & Roberts, 2011). The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist (Data S1) was followed (Tong et al., 2007).

The research team included the primary researcher (Q.D.), a neonatal nurse (undertaking a Master-Degree for Research), an experienced senior researcher who has a vast amount of expertise to undertake both qualitative and quantitative research and an experienced principal supervisor (M.S.), two co-supervisors, who have qualitative research expertise D.W., A.E. The primary researcher Q.D. was responsible for developing the study design, data collection, analysis, and interpretation. M.S. assisted in the development of the study design and contributed to data collection and analysis. D.W. provided input for the study design and data analysis. A.E. assisted with the data analysis and interpretation of data.

2.3 | Setting

Interviews were conducted in the NICU at Women's and Children's Hospital, a tertiary referral centre in South Australia over 6 weeks in 2021. This unit has the capacity of 18 beds providing level 6 neonatal care (Victorian Government, 2015) for preterm and ill infants and focuses on family-centred care that enables parents and caregivers to engage in the care of their babies. During the interview time, there were 42 babies admitted to this NICU.

2.4 | Participants

Purposive sampling was used to recruit participants for this study. This type of sampling effectively selects a target group with similar experiences according to a pre-designed selection criteria in a specific environment, to obtain information-rich data to inform the research (Schneider et al., 2016).

The nursing staff, including the primary researcher, Q.D., recruited participants. A study information pack was provided and given to fathers when visiting the NICU. This pack contained a study flyer, participant information sheet, and a consent form. Time was allocated to enable fathers to read the information and make an informed consent to participate in the study. This preparatory stage provided potential participants an opportunity to consider what participation in the study would involve.

Participants for this study were fathers who met the inclusion criteria: (1) above 18 years old; (2) proficient in English and (3) experienced at least one episode of KC with their baby for more than 1 h in this NICU. A total of 15 eligible participants were provided with the study information. Of the 15 fathers, one declined to be contacted as his baby was transferred out of the NICU, leaving 14 to be contacted by researcher Q.D. A meeting was arranged to provide further information about the study and these 14 potential participants were given an information sheet to read and an opportunity to ask questions. Time was provided for the fathers to make an informed choice regarding participation in this study. All the participants who provided written consent were informed that they had the right to withdraw from the study at any time without affecting their care or baby's care and treatment. One declined to participate as he explained he had limited time available and had to return to work. A sample of 13 fathers provided written consent to participate. However, one father later withdrew, and two were not followed up as data saturation had been reached at a sample of 10 (Guest et al., 2006; Hennink et al., 2017).

2.5 | Ethics

Ethical approvals were obtained both from the Women's and Children's Health Network Human Research Ethics Committee (Application ID: 2021/HRE00020) on 27 May 2021 and the University of South Australia's Human Research Ethics Committee (Application ID: 204014) on 12 July 2021.

Aligned with the National Statement on Ethical Conduct in Human Research (2007), privacy and confidentiality were adhered to throughout the study. All the data pertaining to this research, such as audio-recordings, and consent forms were stored in a locked cupboard in a locked office. The software used to analyse the data was password protected and data de-identified. The data were used in the coding process and data interpretation. All the data collected from this research will be disposed of 5 years after publication in accordance with data management policy (University of South Australia, 2009).

2.6 | Data collection

Data were collected by using semi-structured interviews as this format enabled the researcher to steer the interview process and content without standardised questioning (Schneider et al., 2016).

Face-to-face interviews were undertaken by the primary researcher Q.D. using social distancing protocols due to COVID-19 restrictions. Nine interviews were held in a private room at the study hospital, one in a father's home, where the primary researcher Q.D. conducted an interview accompanied by a neonatal nurse from the study unit. At the beginning of the interview, the primary researcher Q.D. introduced herself and asked some get-to-know-you questions to build trust and put a participant at ease. A participant was then asked some demographic details. While interviewing a participant, an interview question guide was used to direct the discussions (Table 1) (Steen & Roberts, 2011). This guide consisted of 11 questions, developed by the primary researcher Q.D. The questions were based on current literature (Dong et al., 2022), revised by M.S. and D.W., and reviewed by several expert practitioners and the ethics committee at the study site. All the questions were relevant to fathers' K.C. experiences. This approach enabled the primary researcher Q.D. to facilitate the interviews and encouraged fathers to take the lead in the discussion and express their views and experiences of providing K.C. The primary researcher had undertaken training to conduct research interviews. No pilot or repeated interview were conducted.

Additionally, field notes were written by the primary researcher Q.D. to record observations to assist with interpretation of data analysis. Cross-checking was conducted with each participant at the end of an interview to avoid misunderstanding and misreporting. All the interviews were audio-recorded with participants' consent and then transcribed verbatim by a professional transcriber. The median time for each of interviews was 50 min. The interview transcripts and audio files were imported into the NVivo plus software, an effective tool to enable researchers to organise and analyse qualitative data (University of South Australia, n.d.). Moreover, the primary researcher Q.D. and M.S. used a codebook to recognise the codes and sub-themes from the fourth participant, no new information emerged from the tenth participant and data saturation was reached during this interview (Hennink et al., 2017).

TABLE 1 Interview question guide

1. Had you heard of Kangaroo Care before your baby was born?
2. How would you describe Kangaroo Care?
3. What experience have you had with Kangaroo Care?
4. How was your first Kangaroo Care session with your baby organised?
5. What did you like about having Kangaroo Care with your baby?
6. Was there anything you did not like or that went wrong when having Kangaroo Care with your baby?
7. What would you like to do differently next time, if anything?
8. Would you recommend Kangaroo Care to other fathers and why?
9. What is it like giving Kangaroo Care in the NICU environment?
10. What's the difference (if any) between a mother giving Kangaroo Care to a father?
11. Is there anything else you would like to share

2.7 | Data analysis

Data analysis was guided by Braun and Clarke's (2006) six-phase analytic framework. The reading between the texts was iterated, and a fortnight meeting was held regularly between research team members during the analysis process. The details of the analysis stages are as below:

1. Q.D. and M.S. independently read the first four transcribed verbatim several times; some sub-themes were created.
2. Having immersed in the 10 interview transcripts, Q.D. manually generated the initial sub-themes and themes using NVivo plus software.
3. Q.D., D.W. and A.E. further developed sub-themes and themes.
4. All researcher members further refined the representation of all sub-themes and themes to meet the research question: 'What impact does KC have upon fathers whose babies are cared for in the NICU?' The final thematic framework emerged.
5. The research team reviewed all the sub-themes and themes to reach a consensus.
6. The data analysis findings were reported narratively by Q.D. and confirmed by the research team.

2.8 | Trustworthiness

A qualitative study is commonly evaluated by trustworthiness, including credibility, confirmability, dependability and transferability (Elo et al., 2014). In this study, credibility and confirmability were achieved as the factual interviews were audio-recorded, transcribed verbatim and checked by the primary researcher for consistency between recordings and transcripts, plus the cross-checking undertaken between the primary researcher and the participants. The themes generated from data were reviewed and refined with the three secondary researchers. Thus, reflexivity was incorporated into the data analysis process to balance the bias that the researchers' subjective thoughts were influenced by their backgrounds, experiences and beliefs. For example, the first author (Q.D.) is a neonatal nurse working at the study site who knew some participants while caring for their babies and has knowledge of the current literature on father-infant KC. Therefore, her bias might affect the nonprobability sampling approach and unintentionally influence participants' responses during an interview. In addition, dependability and transferability were attained by the transparent method and the participants' demographic details, which might allow auditing and replicating to have occurred in other settings.

3 | FINDINGS

The sample size was 10, as no new information emerged after the 10th interview (Fusch & Ness, 2015). Given the range of parameters of saturation (purpose of the study, study population) were relatively

TABLE 2 Summary of participants' demographic details

Age	Country of birth	Cultural background	Employment type	First-time father	Level of education	Current relationship with baby's father	Australian citizen	Residential areas
F1 18–25	Australia	Italian, Australian and Scottish	Full time	Y	Masters	Y	Y	Urban
F2 26–35	Australia	Australian	Casual	N	Year 11	Y	Y	Urban
F3 26–35	Australia	Australian	Part time	Y	Year 12	Y	Y	Rural
F4 26–35	Australia	English	Part time	Y	Year 11	Y	Y	Urban
F5 26–35	Australia	English	Full time	N	Year 12	Y	Y	Urban
F6 26–35	Australia	Australian	Full time	Y	Year 12	Y	Y	Urban
F7	Cambodia	Cambodian	Full time	N		Y	Y	Urban
F8 46–55	Vietnam	Vietnamese	Full time	N	Masters	Y	Y	Urban
F9 26–35	Australia	Australian	Full time	Y	Year 12	Y	Y	Urban
F10 36–45	Australia	English	Casual	Y	Year 10	N	Y	Rural

uncomplicated, a sample of 10 fathers was considered adequate to answer the research question and ensure credibility (Guest et al., 2006; Hennink et al., 2017). Amongst the participants, six were first-time fathers and four had previous children. Fathers' median age range was 26–35 years. The participants were all Australian citizens, with eight born in Australia and two born overseas (Cambodia and Vietnam). Diverse ethnic origins were identified from the data. One father had an Italian, Australian and/or Scottish cultural background, three Australian, three English, one Cambodian and one Vietnamese. Of the sample, six fathers reported a full-time job, two part-time and two casual workers. Additionally, eight (80%) of the participating fathers had a minimum of high school education and the majority of them lived in urban areas ($n = 8$, 80%). In the study, nine fathers reported they were currently in a relationship with the baby's mother, and one was not. One father did not disclose his age and education level. See Table 2 for a summary of participants' demographic details.

The characteristics of the participating fathers' KC experiences were reported from the data. At the time of data collection, the number of KC experiences that the participants had engaged in ranged from one to four. Seven fathers had their first experience of KC with their baby in this NICU within 7 days of birth, one in a baby's second week of life, one in the third week and one in the fourth week. Six fathers provided KC while their baby was receiving respiratory support. Three fathers had prior awareness of KC, and seven did not. The babies involved in this study were born between 24 + 3 weeks and 39 weeks gestation. Birth weight ranged from 540 to 4370 g, seven were female and three were male. All babies were currently hospitalised at the time of the interviews, and the length of stay ranged from 3 days to 8 weeks. See Table 3 for the details of the characteristics of KC's experiences in the NICU.

3.1 | Key themes

By undertaking Braun and Clarke (2006)' six stages of thematic analysis, three key themes and eight sub-themes emerged from the views and experiences as reported by the sample of fathers. The first theme was a positive psychological connection involving four sequential emotions: feeling nervous, experiencing calm and relaxation, enjoying the connection and engaging with confidence. The second theme was embracing KC, in which fathers described processes of experiential learning and reimagining the paternal caregiving role. Finally, the third theme encompassed challenges to father–infant KC, which included competing priorities and physical discomfort. See Figure 1 for the identified thematic framework.

3.1.1 | Positive psychological connection

The fathers were unexpectedly introduced to the NICU environment, which they described as overwhelming and reported

TABLE 3 The characteristics of KC experiences in the NICU

	KC times	First KC in NICU	Respiratory support	KC awareness prior to NICU admission	Baby's gestational age (weeks)	Baby's sex	Baby's birth weight (g)	Baby's LOS in hospital at the time of interview
F1	4	<3Weeks	Y	N	24 + 3	Female	540	4 weeks
F2	1	<3Days	N	N	35 + 4	Female	2540	7 days
F3	2	<4Days	N	Y	39 + 6	Female	3350	7 days
F4	3	<2Weeks	N	N	31 + 6	Female	1150	4 weeks
F5	3	<1 Week	N	N	28 + 3	Male	1090	8 weeks
F6	1	<4Weeks	Y	Y	39	Female	4370	6 weeks
F7	3	<3Days	Y	N	32 + 1	Female	1630	6 days
F8	1	<7Days	N	N	32 + 6	Female	1150	2 weeks
F9	1	<3Days	Y	Y	34 + 6	Male	2750	3 days
F10	1	<5Days	Y	N	36 + 6	Male	3370	5 days

Abbreviations: KC, Kangaroo Care; LOS, length of stay; NICU, Neonatal Intensive Care Unit.

subsequent feelings of anxiety and powerlessness. However, during intimate contact with their baby through KC, they encountered a positive psychological connection that saw their journey to happiness and, ultimately, self-assurance. This connection developed and the process is hierarchal and sequential, from feeling nervous to experiencing calm and relaxation, then enjoying the connection and finally reaching a stage of engaging with confidence.

Feeling nervous

The babies were characterised as fragile by their fathers, as they were receiving special treatment from unfamiliar equipment and machines in the NICU. The surrounding sounds of alarms and fear of possible emergencies meant that most fathers initially felt nervous when providing KC to their baby. However, their role as a father drove the participants' desire to want to do something helpful for their children. This nervous feeling was not experienced in isolation but combined with excitement, as demonstrated in the following statement:

'She's my daughter, I've been waiting for that experience... Excited to do it but nervous in a way that it was a new experience... Yeah because she still had an intravenous line in her and all that kind of stuff, I didn't want to hurt her in any way... when she was on me, I was worried... I didn't want to mess anything up in a way because I knew that she was still recovering'. (F6).

Experiencing calm and relaxation

The fathers all stated that their baby settled and slept well during KC. This filled fathers with ease and satisfaction, resulting in a state of relaxation.

'I think after all the stress when I have skin-to-skin, I can actually calm down a little bit. I sit down and relax, I can cuddle my child and it's just a little bit of a happy

place for me as well as him to calm down, not to do any work all the time, not to be stressed out. There's other things on my mind all the time but it's time to relax and turn off a little bit.' (F5).

One father made a statement that clearly described the emotional transition from feeling nervous to experience the calm in response to KC.

'She nuzzled around a bit, kind of got my smell I guess and then literally fell asleep. It was great. It was very comforting for both I guess for her and myself because how nervous I was or whatever like that just faded away because she was comfortable enough to fall asleep and it was good. Big relief really that we're able to do it.' (F6).

This relative calmness lingered after KC provision, according to one father's statement as below:

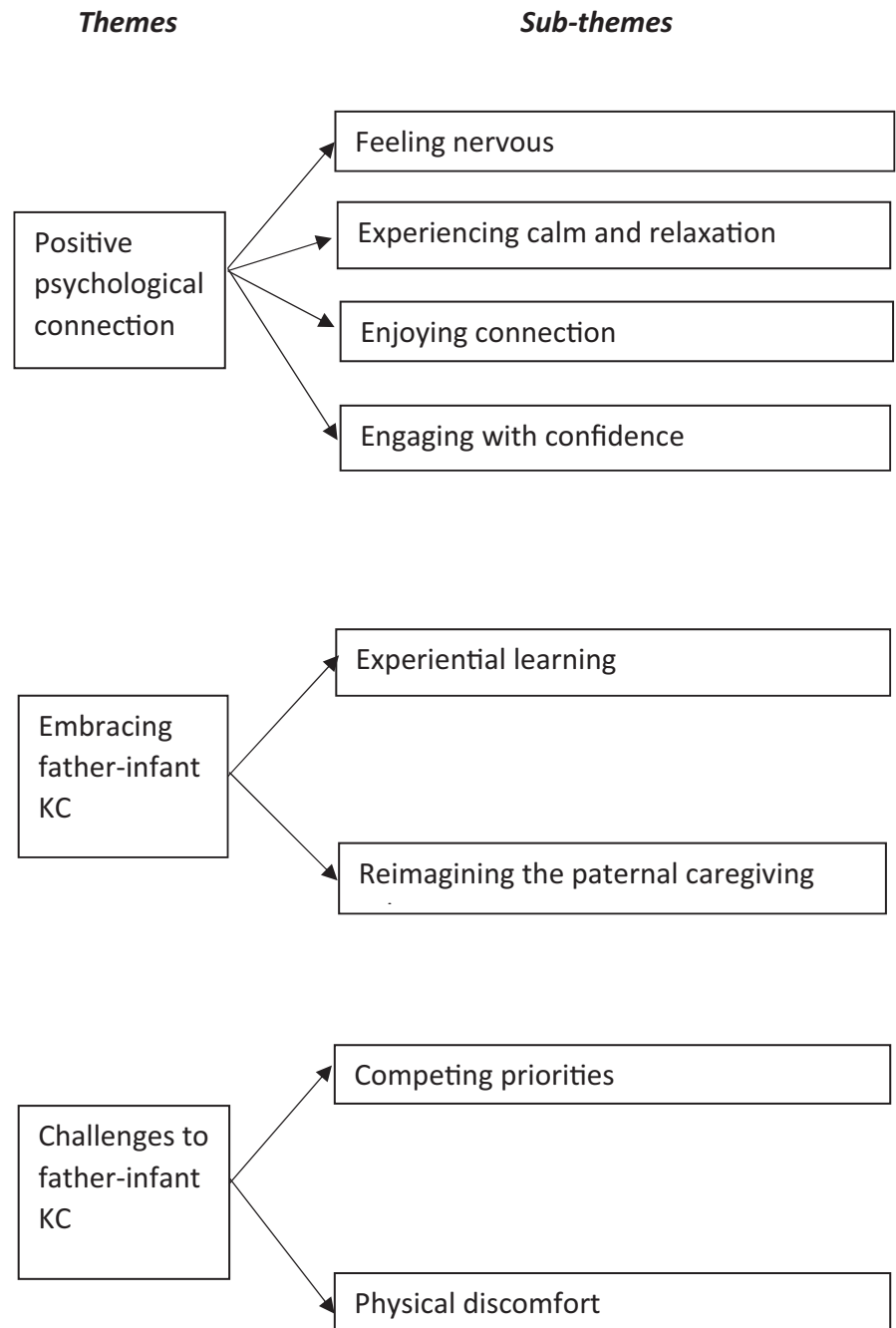
'... it was a few days later still made me feel really relaxed and appreciative and sort of let me sort of reflect on the last few days that we'd had.' (F3).

Enjoying connection

Participants identified KC as an integral step in relationship building, and the feeling of closeness to their baby through KC encouraged affection and happiness in the fathers. They described KC as amazing, unbelievable and an ecstatic experience in the interviews.

'Of course, they can hear your heartbeat and all that kind of stuff, of course warmth you know body warmth and all that kind of stuff so it's, yeah, it's being close with your baby, I think that would be the best way of building a relationship early...' (F6).

FIGURE 1 Identified thematic framework



One father described KC as a silent language to express 'love' to his baby.

'Yeah, that's right, it's a silent thing which you tell that's actually your love and you're caring for her even though you can't say it that's actually another way of actually saying it.' (F8).

Engaging with confidence

As fathers moved through this positive emotional process, they developed the confidence to engage and provide KC to their baby. Participants felt that providing KC afforded them the opportunity to learn their baby's cues. Having journeyed from a place of perceived

powerlessness to understanding the potential for connection with their baby, fathers expressed a realisation of their capabilities in relation to KC.

'... you get to hold your kid... you get to have a bit of a head start on understanding a baby's needs and understanding, you know, how they like to be touched, where they like to sit on you, all that sort of stuff you know, you understand that relationship with your child already'. (F1).

'Of course. Well, you've got all those questions in your head when you're about to have a baby, Am

I going to be a good father, Can I do this, Can I do that, and by doing these simple little things like this or new experiences like that and it works out for your benefit and the baby's benefit, it's massive'. (F6).

3.1.2 | Embracing KC

Through the provision of KC to their children in the NICU, the fathers developed first awareness of KC and then knowledge regarding the process and rationale. The more they anticipated KC, the more learning they tried to achieve. Their experiences with KC then shaped their understanding of the paternal caregiving role.

Experiential learning

Seven of the 10 participants had no prior awareness of KC, so, their learning was experiential in that they became familiar with the concept and process through practice. Once they had experienced the benefits of KC, fathers reported feeling eager to seek further KC knowledge. Some fathers proactively used resources such as google to build their understanding.

'No, I'd never heard of it before; I had heard of the concept of skin-to-skin but that was only once I started to get involved with the hospital a little bit'. (F1).

'But I didn't know that dads could be involved with it, I thought it was more when the mother is pregnant or whatever that that's what happens, the baby goes straight to the mum, so he knows who his mum is. I had no idea that men can get involved with it as well because they are an important part of the baby's life as well, so they're their dad which is good'. (F9).

Some fathers expressed their wishes in relation to promoting father-infant KC in this specific circumstance.

'... because of the unit background noise, made me not hear heartbeat during KC ... then I wouldn't actually feel much closer to my daughter..., a single room would be ideal ...' (F8).

'I think the fact of fathers can also involve in Kangaroo Care could also be potentially...

mentioned in the antenatal classes as well, I think that would be very important because then more fathers would get involved with the whole process...' (F9).

Reimagining the paternal caregiving role

Through physical closeness with their babies during KC, participants' roles as paternal caregivers were affirmed, and this appeared to broaden their understanding of the paternal role in their child's development.

'I think that was the most things that I find with the cuddling, helping me to get closer to her and doing my part as a father, helping out more'. (F7).

One father described that KC was a life-changing experience regarding the parenting style. He felt he would have modelled his own father's traditional role as a 'breadwinner', if he had not experienced KC. However, having had the experience of connection through KC, he felt he would now like to involve himself in his child's development from birth.

'... I think back in the day it was the father goes to work, the father works hard, comes and sees the baby after work to support the family, that's fine you can do that to support them in that role, but I kind of feel now that I want to be a bit more hands on with my child, I want to make sure that I'm there for him when he needs me the most, as much as my wife ...' (F9).

Three fathers felt that through KC, they contributed as much as the mothers in caring for their child, while two considered their roles as supportive of the mother-infant dyad.

'It's a starting, the skin-to-skin is a starting point to show that I guess that you want to be involved with the child's life just as much as the mother'. (F9).

'So what I'm trying to do now is we're trying to do it on a daily basis for both myself and my partner, but if there's somebody that has to miss out I'll miss out for my partner..., you know to carry the tubes, tape the tubes behind your partner's head, make sure it's being facilitated the correct way, get the pillow, get the chair, the blankets and all this sort of stuff so you know you're involved'. (F1).

3.1.3 | Challenges to father-infant KC

In providing KC, the fathers did confront several challenges, including competing priorities and physical discomfort as a male.

Competing priorities

The fathers had to manage conflicting needs to provide KC to their baby in the NICU. Participants commonly reported choosing between KC provision and family responsibilities or travel. These

competing demands for their time negatively impacted their mental wellbeing.

'... Sometimes the fathers are stuck at work, and they can't do Kangaroo Care because they can't get there until the weekend or something like that...' (F5).

'... You cannot spend too much here otherwise you get so tired, so you have to actually go home and rest... you have to travel back and forth from the hospital... especially if your wife just had surgery and then obviously you have to go home and look after her as well'. (F8).

One father described the difficulty of seeing his baby cry after being returned to the cot following KC.

'... The fathers, do the Kangaroo cuddle and they put them back, sometimes they do cry because they want more of the Kangaroo cuddle... time is not really on our side to be honest'. (F5).

3.1.4 | Physical discomfort

The participants had physical characteristics specific to masculinity, for example, a flat chest with hair, and they felt these made the process physically uncomfortable. Moreover, sweat was reported by two fathers during KC. The Metal part of ECG leads, and prolonged sitting periods were also mentioned as uncomfortable features of the experience.

'You know those little tabs on the ends of those lines, if you put a little bit of padding on the end of them it would probably mean a little bit more time [providing KC]'. (F5).

4 | DISCUSSION

A qualitative descriptive methodology was deemed appropriate for this study; to explore fathers' perspectives associated with KC in the neonatal context. This approach enabled fathers to have a voice and express their views. The study's findings support the transferability of findings in earlier reviews (Anderzén-Carlsson et al., 2014; Shorey et al., 2016). It is noteworthy that these reviews identified a lack of qualitative studies exploring fathers' views and experiences of KC and specifically studies relating to fathers from diverse backgrounds. Conducting semi-structured interviews enabled the researcher to guide the interview process rather than lead and standardise the process, consequently gaining exploratory data rather than specifically defined data (Steen & Roberts, 2011). The heterogeneous

nature of the sample listed in Table 2 also contributed to the data information richness.

Generally, the three main themes indicate the application of KC had a positive, non-partisan and adverse effect on fathers in this NICU. These themes appear to be interwoven and connected. For instance, a positive psychological connection encourages fathers to embrace father–infant KC rather than reprobate it. The theme of the challenge to father–infant KC was aligned with the other themes. Additionally, all sub-themes that emerged were inter-connected and provided a data-mapping network relating to paternal role and involvement.

The findings of this study described four emotions that fathers had experienced during KC provision, including nervousness, calmness, connection and confidence, which support evidence from previous studies (Blomqvist et al., 2012; Günay & Coşkun Şimşek, 2020; Olsson et al., 2017). The shift from feeling nervous to experiencing calm is resonated in the literature that associates KC with a drop in fathers' stress and anxiety levels (Cong et al., 2015). Previously, KC has been demonstrated to positively affect paternal bio-behaviours, as an elevated oxytocin level during and post KC episode (Cong et al., 2015). Oxytocin, also known as the 'love' hormone, plays a critical role in social bonding (Magon & Kalra, 2011) and human sociality, such as caring and empathy (Fisher et al., 2018). In turn, KC provides opportunities for fathers to initiate and enhance connection, bond with their baby, experiences affection and happiness and actively be involved in the baby's care to communicate with their baby using a silent language of love and connecting—father–infant KC. These positive benefits agree with earlier studies that emphasised that KC facilitation enables fathers to understand their babies better and establish a healthy and positive relationship thus resulting in a proactive engagement rather than being a powerless bystander (Blomqvist et al., 2012; Jesus et al., 2015). Noticeably highlighting the crucial benefits of fathers engaging in KC is a positive outcome of these interviews and may aid in informing policies, particularly in countries with limited paternal leave.

A salient point in this study was the fathers experienced these four emotions sequentially when participating in KC, which implies that it is a hierarchical psychological process when developing connection and love for their baby. It may be that these participants benefitted from being newly involved in father–infant KC. As illustrated in Table 2, one to four KC events were only reported by the fathers being interviewed. However, the variation of the emotions synchronises the physiological changes, as supported by Varela et al. (2018), who found a remarkable reduction in cortisol and blood pressure level in fathers receiving the first KC experience with their babies. These findings may help fathers mitigate their hesitancy to initiate KC for their vulnerable babies in a timely manner.

Fathers' involvement in childcare has increased in response to socio-economic changes (Yogman et al., 2016). However, most participants in this study were unaware that fathers could provide KC and assumed it was mothers who do this in the NICU settings. Fathers underwent an experiential learning process to help them facilitate KC and were subsequently compelled to pursue further

knowledge. These findings are in accord with recent studies indicating that KC application was a structure of education for fathers (Jesus et al., 2015; Olsson et al., 2017).

Indeed, the practice of KC appeared to help participants to reflect and re-examine the measure of a father, a phenomenon echoed in the literature conducted in Denmark, UK and Sweden (Blomqvist et al., 2012; Fegran et al., 2008; Günay & Coşkun Şimşek, 2020; Helth & Jarden, 2013; Jesus et al., 2015; Magee & Nurse, 2014; Olsson et al., 2017). Rather than being a bystander, fathers' providing KC was instigated, which is also reported by Helth and Jarden (2013). Therefore, fathers considered themselves capable of a supportive or equal parenting role. This is contrary to the viewpoint of Helth and Jarden (2013), who found fathers were not as important as mothers in providing KC to their baby in a NICU in Denmark. In addition, these disparities are possibly associated with parents' different cultural backgrounds (Table 1), which might strongly affect the understanding of father-infant KC in Australia. Consideration of diverse ethnic groups in Australia will need to be taken into account when introducing and supporting fathers to undertake KC.

The participants provided several recommendations for the future promotion of father-infant KC. One suggestion included advocacy from health professionals throughout the perinatal period, including antenatal classes and NICU orientations as well as the utilisation of resources such as pamphlets and posters and media. It is essential that health professionals keep themselves up-to-date and receive the latest information pertaining to fathers' involvement and the benefits of father-infant KC, as they are the front-line workers in KC facilitation.

The time fathers spent with their babies in the NICU was limited due to their multiple financial, domestic and caregiving responsibilities. This has been previously reported by Lamb and Tamis-Lemonda (2004). These conflicting demands are a significant challenge to father-KC implementation. One possible solution to this may include a father-infant KC plan, whereby fathers and staff communicate to facilitate achievable KC practice. Policies such as free parking near the hospital may further support father-infant KC, and some participants suggested single rooms. The characteristics of a father, such as a flat hairy chest, may make extended episodes of KC uncomfortable and, as such, intermittent KC could be recommended.

4.1 | Strengths and limitations

A strength of this study is that it enabled some fathers to discuss their experience with father-infant KC. However, the sample size was relatively small due to the limited recruitment site—one NICU. Therefore, the findings are not transferrable and represent the study's sample of fathers. In addition, research bias may have influenced the study outcomes. However, a rigorous study design and adherence to ethical considerations reduced the potential for bias. For example, all nursing staff assisted in the recruitment of

participants; and the interview verbatim were transcribed by a professional transcriber. In addition, the first author was supported by experienced researchers who had no conflict of interest during the undertaking of this study.

5 | CONCLUSION

Barriers inherent to the NICU environment make bonding between a father and their newborn infant challenging. The fathers in this study described the act of father-infant KC as a silent language of love in the challenging NICU environment. In turn, this innate contact makes it possible for fathers to connect to their babies from birth, and the paternal role in caregiving is reshaped. Further research is warranted to confirm or refute the study findings. More extensive studies of diverse populations in various settings would be essential to explore cultural beliefs and acceptance of fathers being introduced to KC to promote father-infant KC further. For example, a mixed-methods approach inclusive of a randomised controlled trial and a phenomenological study (lived experience) would facilitate the collection of quantitative and qualitative data and thus provide data for efficacy and acceptability (Spillane et al., 2010; Van Der Borg et al., 2016).

6 | RELEVANCE TO CLINICAL PRACTICE

It is important for nurses and other health professionals to support and enable fathers to give KC to their newborn babies. Father-infant KC education is recommended as one strategy to promote father-infant KC in neonatal care settings. Continual professional education for nurses and other health professionals will increase awareness of the health and wellbeing benefits of father-infant KC, and how to support fathers is also recommended.

AUTHOR CONTRIBUTIONS

Conceptualisation, methodology, investigation, data curation, formal analysis and writing—original draft: QD; project administration, conceptualisation, methodology, formal analysis, visualisation, supervision, writing—review and editing and validation: MS; conceptualisation, methodology, formal analysis, visualisation, supervision, writing—review and editing and validation: DW and AE. The corresponding author is undertaking a master's study, which consists of drafting the study protocol, obtaining ethical approvals, conducting data collection and analysis and writing the paper regarding this study. The co-authors have supervised and guided each study stage and collectively contributed to this paper's evaluation and writing. The final manuscript was reviewed, revised and agreed upon by the co-authors.

ACKNOWLEDGEMENTS

We acknowledge that the contribution from the staff in the Research Secretariat of Women's and Children's Health Network,

the nursing staff in the NICU and Nursing & Midwifery Clinical Practice Development Unit, Women's and Children's Hospital. This study would not have been accomplished without their dedicated support. We are, especially grateful to Registered Nurse, Ms Min Chen, who assisted with the data collection. This study was approved by the Women's and Children's Health Network Human Research Ethics Committee on 27 May 2021 (Application ID: 2021/HRE00020) and the University of South Australia's Human Research Ethics Committee on 12 July 2021 (Application ID: 204014). Open access publishing facilitated by University of South Australia, as part of the Wiley - University of South Australia agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST

The authors have no conflicts of interests to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Dong, Q., Steen, M., Wepa, D., & Eden, A. (2022). Exploratory study of fathers providing Kangaroo Care in a Neonatal Intensive Care Unit. *Journal of Clinical Nursing*, 00, 1–12. <https://doi.org/10.1111/jocn.16405>