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"I was doubtful of being the true father of the preterm baby": factors affecting fathers' involvement in the care of preterm babies admitted in the neonatal unit at Kawempe National Referral Hospital, Uganda. a qualitative study

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Abstract

Background Fathers' involvement in the care of preterm babies has been associated with good health outcomes for the mother and the baby. However, fathers' involvement in the Neonatal Unit (NU) in Uganda remains sub-optimal and factors influencing this are not well understood. Therefore, this study aimed at exploring the factors affecting fathers' involvement in the care of preterm babies admitted in neonatal unit at Kawempe National Referral Hospital (KNRH).

Methods This was a qualitative exploratory study conducted in the NU at Kawempe National Referral Hospital between April and July 2023. It included fathers whose preterm babies were admitted in the NU and were stable at the time of study. Data was collected using an in-depth interview guide with 24 fathers of preterm babies and key informant interview guide with the nine health workers who were working in the NU. Data was analyzed using manual thematic analysis.

Results The fathers in this study had a mean age of 33 years, most of them were married and were employed in the informal sector. The perceived and actual roles of fathers of admitted preterm babies reported in this study mostly included providing financial support, direct childcare activities, providing emotional and physical support to the mother. The key facilitators to fathers' involvement in the care of the preterm babies were; at individual level; improvement in health condition of the preterm baby, desire to fulfil responsibility, at interpersonal level, support from friends and relatives; at health facility level, the good quality of service delivery; and at community level, the positive cultural and religious beliefs. Barriers included the fear of preterm babies, financial constraints, busy work

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schedules of fathers, discouragements from peers, poor relationship between couples; poor attitude of hospital staff, long hospital stay and inhibiting interaction between the father of preterm and mother-in-law.

Conclusion Most perceived roles were actually played by fathers whose preterm babies were admitted in the NU and various facilitators encouraged them to get involved in the care. However, fathers faced multiple barriers which needed to be resolved to increase their involvement.

Keywords Factors, Fathers' involvement, Preterm babies, Neonatal unit, Roles, Support

Introduction

Globally, over 15 million preterm babies are born annually [1, 2]. The survival chances of these babies born preterm each year vary dramatically depending on where they are born. In a recent study, an estimated a range of 12.3 to 18.1 million babies were born preterm globally [3]. Most of the preterm babies are born in South Asia and sub-Saharan Africa where half of the global live births occur [3]. In fact it was estimated that the highest preterm birth burden was found to be among nine sub-Saharan African countries out of the eleven affected countries [4] Around half of these babies are born at home, even for those born in a health clinic or hospital, essential newborn care is often lacking [5]. Thus, exposing these babies to a high risk of mortality and morbidity hence overwhelming the parents and the healthcare workers [6]. The risk of a neonatal death due to complications of preterm birth is at least 12 times higher for an African baby than for a European baby [7]. In Uganda, preterm neonatal mortality accounts for 31% of all neonatal deaths and compared to other countries in the region, this mortality rate is considered high, particularly when compared to countries with better healthcare infrastructure and access to neonatal care within Sub-Saharan Africa [8].

In Sub-Saharan African countries, the role of the father to preterm babies in neonatal unit (NU) may be influenced by the context, country of origin and personal preferences [9]. More than three-quarters of preterm babies could be saved with feasible, cost-effective care, and further reductions are possible through neonatal care. The family centered care, is a team-oriented and multi-disciplinary approach which involves integration of parental care in breastfeeding, kangaroo care, care planning, and limitless presence alongside their preterm babies. In addition, it enables the family members to take care of their preterm babies with less expenses and optimal quality. It is also very crucial for the preterm babies' survival and psychological satisfaction of both parents [10].

Mothers to these babies are often very ill during intensive care period of their babies, meaning there is need for the father to take part in the care for these babies [5, 11]. Fathers are usually not prepared for anything less than the coming of a healthy newborn and thus delivery of a preterm baby is usually an unexpected occurrence that profoundly influences individual and family life in parenting, couple's relationship and that with relatives. The preterm birth occurs when parents are psychologically premature [12]. The preterm birth and the presence of serious illness, all of which may require admission into hospital is a source of stress and anxiety for families and has been reported to have long term implications for both the mother and the father [13]. Compared to parental presence in the NU, mothers participate more than fathers in the care of preterm babies. Most evidence on parental reactions to birth of preterm babies and to hospitalization of the newborn in NUs have involved mothers. However, emotional responses and behaviors of fathers are equally important [11]. In cases where the mothers are critically ill or are unable to provide care, it has been shown that fathers take on the roles of mothers such as kangaroo care, cleaning of the baby, feeding and also the domestic activities, in addition to their continued roles as providers for the family [14].

Mothers' involvement in preterm care has been well studied in Uganda [15]. There is still limited data on fathers' involvement in the care of preterm babies admitted in NU as noted from other setting [16]. Studies indicate that fathers' involvement in the NU has good outcomes for former NU babies, including later positive patterns of interacting with the baby, and better baby cognitive development [17, 18]. Fathers' involvement provides psychological support, emotional support, security and encouraging the female partner to her new role as a mother [19]. This involvement also extends positive effects on mental health to the fathers themselves [17, 18].

Some factors have been found to facilitate fathers in the involvement in the care of their preterm babies and these included, being a father to twins, desire to become used to the baby, any form paternity leaves /holiday, and positive experience from previous NU hospitalization [20].

The fathers have to handle challenges ranging from keeping safety at home, providing financial support, basic needs and resolving conflicts. In case of other siblings at home, the father has to take care of them too. In all these roles, he is usually left alone, despite not being psychologically stable [19]. Studies have shown that fathers to these preterm babies experience high levels of anxiety,

depression, and stress which may affect their involvement [20, 21].

After a preterm birth, the father's worry and uncertainty tends to continue ranging from the admission time in NU throughout the discharge and up to home where they find out that they have to continue taking care of their premature who may need more medical attention and this becomes a difficult moment. Furthermore, father's roles in NU keep being underestimated by health workers who consider pregnancy and childbirth as a mother's problem [22]. It is against this background that the study sought to explore the factors affecting fathers' involvement in the care of preterm babies admitted in NU at Kawempe National Referral Hospital, Uganda.

Methods

Research design

The study employed a qualitative exploratory study design. This was chosen because of its suitability in generating detailed insights [23] about fathers' involvement in the care of preterm babies admitted in the NU.

Study setting

The study was conducted in the neonatal unit of Kawempe National Referral Hospital in Uganda between April and July 2023. The hospital is located in Kawempe division, one of the five administrative Units of Kampala Capital City Authority (KCCA). This location is approximately 12 km, by road, north of the city's central business district, along Kampala-Gulu highway. The hospital was recently upgraded to a National Referral Hospital, following the renovation and re-organization of Mulago National Referral Hospital into a Specialized Referral Hospital. It was built from 2014 to 2016 and made of ten floors and an official bed capacity of 170 beds. It offers Maternal and Newborn health services, including Obstetrics and Gynecology, a level 3 Neonatal unit, Laboratory, Pharmacy and Radiology services. It is also one of the main teaching sites for Makerere University students. It was selected because it is one of the busiest maternity and neonatal centers in the country [24]. The Neonatal unit admits all neonates from all social economic statuses but mostly those from the low- and middle-income societies in Kampala, Wakiso and their surrounding districts. NU has a total bed capacity of 70 in all the 4 cubicles, the first cubicle usually has new neonatal admissions, the 2nd cubicle has stable preterm babies awaiting discharge 3rd cubicle is for critically ill neonates and 4th cubicle has stable term babies. On average the neonatal unit admits about 400 newborns a month, of which about 200 are preterm neonates and therefore an overflow occurs and thus babies are forced to share beds in pairs or more. The common reasons for admission include; prematurity and its complications, birth asphyxia and its complications and sepsis.

Participants

All fathers to preterm babies that were admitted in Neonatal unit (NU) and the attending health workers at KNRH that gave informed written consent and were present during the study period.

Sample size

The study was conducted amongst Twenty-four [25] fathers of hospitalized preterm neonates at the neonatal unit of Kawempe national referral hospital. Data collection continued until data saturation was attained when additional interviews did not generate new information in the line with methodological literature on saturation of qualitative data [25, 26]. In addition, 9 health workers participated in the interviews as key informants [26].

Sampling and recruitment

The participants were enrolled through purposive sampling to collect information rich data. Recruitment of participants was purposively based on different ages, number of children, number of wives, religion, education level and ethnic background. Fathers were identified by the 2 neonatal unit staff who referred them to the principal investigator or research assistants to assess them for eligibility of the study and obtained consent. For the key informants, it involved recruitment of health workers purposively according to cadres which included doctors and nurses working in the NU. There were 2 Medical Officers, 2 Senior House Officers, 2 Enrolled midwives, 1 N/O (Nursing officer),1 R/N (Registered midwife) and 1 Pediatrician.

Data collection Data was collected using in depth interview guides and key informants' interview guides. Interviews were conducted by the principal investigator with support from two experienced male qualitative research assistants who were social scientists. These were trained for one day about the objectives of the study, selection of study participants, the consenting process and the data collection approach and tools. Interviews were conducted in a private room in the hospital so as to allow participants engage in a comfortable conversation with the principal investigator and research assistants. Interviews were conducted in the participants' language of choice (English or Luganda) and audio recorded. The recordings were transcribed and translated into English by the research assistants. The interviews with fathers were conducted first before the health workers (Key informants) because they were the primary study group and provided an opportunity to probe for some of the concerns raised by fathers during interviews with health care providers.

Trustworthiness of the study

To ensure credibility, the principle investigator checked the data collection tools, pilot-tested them to see if they would gather data that they were aimed for. The interview process was guided, audio recorded, and participant's representative quotes from the interviews were included in the report. Confirmability was ensured through the maintenance of an audit trail (i.e. notes about the interviews and decision-making during the data collection). Transferability of the findings was ensured through varied description of participant's socio demographic details, methodology and the setting.

Data analysis

Initially, socio-demographic characteristics of participants were described. Data analysis and collection were done concurrently and the Socio-ecological model(SEM) was the theoretical frame work that guided this analysis [27]. At the end of each day of data collection, the research team held a de-brief meeting to share emerging issues and identify areas of further data collection. The recordings were transcribed verbatim and the transcripts were rigorously reviewed by the researcher as they were being transcribed and performed quality control by checking each transcript against the audio-recording to ensure that there is no misrepresentation of data and confirm accuracy of information. Further data analysis was done by manual thematic analysis where themes of the study were generated. Using an inductive approach, we read the transcripts several times, came up with meaningful units which we condensed into codes and aggregated to come-up with sub-themes and themes. In addition to the thematic analysis, triangulation was done which involved comparing findings from fathers of preterm babies and key informants. Each major theme generated was illustrated using quotations from the participants. The identities of individual study participants were masked with initials for confidentiality and all records were kept secure by the principle investigator's password protected personal computer.

Table 1 Socio-demographic characteristics of fathers to preterm babies admitted in NU at KNRH

Variable	Frequency($N=24$)	Frequency (%)
Age (years)		
21–40	20	83.3
41–50	4	16.7
Tribe		
Ganda	12	50
Basoga	6	25
Ankole	4	16.7
Lugbara	2	8.3
Religion		
Moslems	13	54.2
Christians	11	45.8
Marital status		
Unmarried/single	1	4.1
Married	21	87.5
Widower	2	8.4
Education level		
Degree	6	25
Secondary	10	41.7
Primary	8	33.3
Employment		
Formal employment	4	16.7
Informal employment	20	83.3
Number of children		
1 child	6	25
More than 1 child	18	75
Length of stay in the NU		
1-7days	19	79.2
8-14days	5	20.2
Number of wives		
1 wife	20	83.3
More than 1 wife	4	16.7
Address		
Central region	22	91.7
Eastern region	2	8.3

Results

Baseline characteristics of participants

This study included 24 fathers of preterm babies that were admitted in the NU at KNRH, with a mean age of 33 years, a standard deviation of 8.2 and a range of 22 to 50 years. Characteristics of the preterm babies born to these fathers ranged from 26weeks gestation to 36weeks. Days spent in the NU ranged from 1 day to 14days. For detailed participant demographics (See Table 1).

The key informants included health workers that had worked in the NU and their ages ranged from 24years to 63years, with an average of 5 years in service, and these included; 1 pediatrician, 2 SHOs (Senior House Officers), 2 MOs (Medical Officers), 1Nursing Officer (In charge), 1 Registered nurse and 2 E/MW (Enrolled Midwives).

Perceived and actual roles played by fathers during the care of preterm babies admitted to the neonatal unit at KNRH

There were 6 major themes that were identified as the perceived and actual roles played by fathers of the preterm babies admitted in NU at KNRH as shown in the Table 2.

Providing financial support

Most of fathers in this study acknowledged that provision of financial support to meet the basic needs of the mother and the admitted baby at the health facility such as food, pampers and drugs was one of their key roles that they perceived in the care of preterm babies.

Table 2 Thematic presentation of the perceived and actual roles played by fathers of preterm babies admitted in the NU at KNRH

Theme	IDI		KII	
	Perceived	Actual	Perceived	Actual
Providing Financial support	√	√	√	√
Direct childcare activities	√	√	√	√
Providing emotional support to the mother	√	√	√	√
Providing Spiritual support	√	√	X	X
Protecting baby and mother through engagement with health workers	√	√	√	√
Providing Physical support to the mother	√	√	√	√

Key; √ = Role that was reported, X = Role that was not reportedly done.

> *"First, he has to provide help in terms of finance, why? Because everything you look at, it is associated with money, if they send you to buy the drugs that will help the baby, you will use money, if you say the baby needs clothes, money is needed, wife needs clothes money is needed. That means the need for money is too important in the care of these preterm babies" (IDI-1, 1st time father 24).*

Furthermore, most of these fathers mentioned financial support as a role they actually played in the care of their preterm babies in terms of looking for money and provide it to their wives to buy food, diapers and whatever they needed.

> *"Everything that my wife needed, I have been providing from the start, the money I give her and tell her to go and get what she wants" (IDI-8;47years, father of 4).*
> *"As the father, I have looked for the money. It is needed in life for example to buy food, diapers, hot water and even her as a mother needs to be taken care of. There are things you need to buy for her and put them there, and clothes to take them and they wash them" (IDI-12;25years, father of 2).*

The health workers also acknowledged that these fathers were expected to provide financial support to the mother and baby and they actually provided the support in terms of money to buy drugs and other things that were not readily available in the hospital so as to ease management of the preterm babies.

> *"Probably when there is some treatment we don't have and you know for some premature we need caffeine for better breathing, so they tell them to go and purchase, that is why I have told you financial support. We tell them to go and purchase caffeine so that we can work on their babies." (KII-3,31years, E/MW).*

Emotional support to the mother

Providing emotional support was a perceived as a role by most fathers during the care of their admitted preterm babies. Fathers affirmed that their physical presence and words of encouragement through counselling soothed the minds of mothers and brought a feeling of solidarity in the care of preterm babies.

> *"First of all, I would think as a father it's my role to make sure that I comfort my wife, mother of the baby to know that it's not an error or mistake for her to give birth to a premature baby" (IDI-4,38 years, father of 3).*

Most of the fathers in the study confirmed that providing emotional support through giving hope and comforting the wife, physically being present as a sign of solidarity was an actual role they played in the care of the preterm babies.

> *"Physically I come and give my wife hope and I show her that we are together in this situation and we shall be winners." (IDI-1, 24 years, 1st time father).*
> *"As a father, what I did is always to comfort this woman, for example whenever they would put a nasogastric tube on a baby, the mother thinks they have got another illness, so my role there is to comfort her that this thing will get away, there is no any effect, and also helping the mother to use it since some of the women don't know how to use it" (IDI-13;23years,1st time father).*

The health workers also affirmed that the presence of fathers of preterm babies at the neonatal unit would provide continuous emotional and psychological support to the mothers of these babies so that they don't get stressed up to the point of lacking breastmilk and also to continue caring for them.

> *"We expect them to provide psychosocial support which should be continuous because whenever the mothers get stressed and the fathers are not involved they even end up lacking breast milk because if the mother is not stable and they cannot move from where they have been operated to the NU where the baby has been placed, so here we expect the fathers to continue supporting these mothers physically and emotionally". (IDI-8,31years, SHO).*

Direct childcare activities

Interestingly, a reasonable number of fathers interviewed in this study acknowledged that providing direct care to the preterm babies was one of their key roles they perceived during their time of care. The fathers expected to engage in child care activities like monitoring, changing the babies, changing babies' diapers whether the mother of the baby was present or absent.

> *"The woman might have been operated and she has no energy, she is already sick like the baby, now it is you the father who remains there monitoring the baby, changing the diapers and also changing the baby and you make sure the baby is given the necessary care like that of a mother if she was present… even if the mother is present, the father has to go along with her and attend to the baby, also the care given by the father is big enough that if he doesn't push the mother, she might not be in good position to take care of the baby." (IDI-18,27years,1st time father).*

Most of the fathers reported that they are directly involved in feeding babies, change of diapers and ensuring that health workers administer the drugs in time by giving reminders at the right time.

> *"I also sometimes get involved in the baby's care like changing the pampers when he has soiled it, and sometimes the baby may not be breathing well, immediately I go and inform the healthy worker, so those are some of the roles I have played" (IDI-3, 40years, father of 3).*
> *"For the first two days, my wife was too weak so it was me coming to clean the baby and doing all the roles that the mother would have done…the rest of the things we are equally responsible for the babies." (IDI-4,38years, father of 3).*

The health care providers greatly appreciated the fathers for this great role. They expected the fathers to be involved directly in child care activities and actually most fathers were seen providing care to these babies such as feeding, changing diapers, cleaning babies and even do kangaroo for stable babies.

> *"fathers have been a great part in taking care of the babies, let me say doing the routine work, there are some fathers who alternate with mothers in taking care of these babies for example a mother can be so tired and sleepy particularly a father may come along, let's say at 2pm to change the baby's diapers, beddings, to give the expressed breastmilk that the mother has provided" (KII-5,32years R/N).*

Providing spiritual support

Most of the fathers reported that one of the key roles they expected to play in the care of preterm babies was to provide spiritual support through prayers. Fathers reported that praying for both the baby and her mother to give hope where there seems no hope was a necessary role for them to get involved in the care of preterm babies.

> *"One, they are expected to give a hand of assistance to the mothers, it is two ways; it is both spiritual and emotional, you look at the spiritual part of it, the mothers need keeping in prayers, keep encouraging them, keep giving them hope because it is such a trying moment whereby there seems to be no hope, so with that we have to put trust in God and we have to put God first…." (IDI-5, 38 years, 1st time father).*

They provided spiritual support in terms of praying for the mother and baby to get better, comforting the mother. This was one of the roles these fathers actually played as they hoped for healing from God during the care of their preterm babies.

> *"You help the mother by comforting her spiritually, praying for the baby. I try to pray for him while I talk to him and tell him, Elisha, this is just for while we are moving out of this place victoriously, we are going to make it together and daddy is around and above all God is around." (IDI-5,38years, father of 2).*

Protecting baby and mother

Most of the fathers that participated in this study reported that it was their role to protect the health of both the mothers and the preterm babies. This was reported to have been done through various ways like being physically present and monitoring babies' condition, various engagements with the health workers where they informed them of the health status of both the mother and the baby.

> *"I take responsibility to know how they are doing, then I talk to the health workers depending on how they are, I can inform the nurse when the baby is not breathing well because even then, there many babies so when you are around you can notice and call the nurse to intervene." (IDI-14, 26 years, father of 3 with twins).*

Consulting the health workers and getting instructions on how to manage their babies even when discharged was one way they protected their babies from harm.

> *"Yes, so the doctor writes on a sheet what I will use to help these children when I reach home, because now,*

as am in Kawempe am supposed to ask the doctor the drugs am supposed to use for the preterm babies while we are discharged home." (IDI-21,45years, father of 5).

The health workers confirmed that the presence of the father fills up the gap that might have been left by the mother while instructions are being given by health providers in the care of the babies.

"If the mother forgets anything, the father will be there to fill the gap that is why we need fathers to be there, at least the mother may not be a first learner but at least the father can be there to pick up the knowledge." (KII-4, 63years, N/O).

Providing physical support to the mother

The fathers interviewed in this study also reported that it was their role to offer physical support to the mothers of preterm babies. The physical support that was expected involved helping them to catch time for visiting the babies, supporting them to move from their resting place to the NU and carrying food for mother of preterm babies.

'They should help mothers in one way or the other. For example, helping them cleaning babies as they also prepare themselves to breast feed, also help mothers in catching time when coming to the breastfeeding unit, helping mothers in acquiring various facilities for example food, and also helping them in moving long distances from different levels of the hospital. Since at times most of them are operated, they find it hard to move swiftly as a normal one can do." (IDI-13,23years, 1st time father).

The fathers actually played a supportive role to the mothers of the preterm babies as they helped in carrying for them food and luggage plus physically being around.

"Yeah, more so when it comes to helping the mother, as she is doing her breast feeding by supporting her with the luggage, helping her whenever she needs something like, distilled water to clean the umbilical cord and also comforting the baby most" (IDI-5;38years, father of 2).

Health workers too confirmed that the few fathers that come to the NU are seen supporting their partners to the NU through carrying luggage and a few things they need to use in the NU.

"Those few that come, at least you see them coming in with their wives, giving them support, help carrying like a few things that they need to carry when they are coming here at the unit and some of them you are able to see them around for a few days." (KII-7,30years, SHO).

Facilitators to fathers' involvement in the care of preterm babies admitted in the NU at KNRH.

There were 5 major themes that were identified in this study as the facilitators to fathers' involvement in the care of preterm babies admitted in the NU at KNRH. These included Baby related factors, father-related factors, friends and family related factors, healthy facility related factors and community related factors, as shown in the Table 3.

Individual level factors

These included babies related and father related factors that positively influenced father's involvement in the care

Table 3 Thematic presentation of facilitators to fathers' involvement in the care of preterm babies admitted in the NU at KNRH

SEM level	Themes	Subthemes
Individual	Baby related factor	• Improvement in health condition of the baby
	Father related factors	• Fulfilling the responsibility as fathers • Desire to know progress of baby's health • Desire to support the wife • Love for the baby and mother • Desire to have more babies in future • Joy of giving birth to a firstborn • Desire to learn to take care of preterm baby • Critically ill or death of the spouse
Interpersonal	Friends and family related factors	• Support from family members (Financial, physical, and emotional support) • Good relationship between couples
Organizational/health facility	Health facility factors	• Good quality of services offered, in terms of availability of equipment and good attitude of health workers • Motivation from health workers
Community /societal level	Community factors	• Positive cultural and religious beliefs • Counseling and support from community

of their babies. These factors involved the improvement in the health condition of the baby, fulfillment of the father's responsibility, the desire to know the progress of baby's health, desire to support the wife, Love for the baby and mother, the joy of giving birth to a firstborn, desire to learn to take care of preterm babies, critically ill or death of the spouse and the desire to have more babies in future.

Improvement in the health condition of the preterm baby

Most fathers that were interviewed acknowledged that improvement in the health status of the preterm baby was a major motivator in their involvement in the care. This was noticed through the baby's actions that were reassuring such as crying loudly, ability to look, and increase in size; and this gave them the hope to stay and continue caring.

> *"The baby promises like, when I go there and I see he is well, like the baby can look at you, the baby is having a good breath, I also become happy, the baby can cry and the sound is heard, then in my heart I also become happy other than finding the child when the situation is not good. But every time you leave when the child is in good condition then you get strong that even if it is a month or for how long, I will be there and care." (IDI-3,40years, father of 2).*
> *"what is amazing is that after like one week you keep on noticing the improvement, like there is something that has grown like the cheeks, fingers for example, my baby was produced when is so small but after two weeks now the baby has improved and grown fat, you can see the chest is growing big. This keeps us moving." (IDI-18, 27years,1st time father).*

Fulfilling the responsibility as fathers

The desire to fulfill their responsibility as fathers facilitated their involvement in the care of the preterm babies. Fathers reported that it's their full responsibility to take care of their babies and thus their involvement in the care of preterm babies.

> *"As me, I have been around in taking care of my baby, even if I find some challenges with some health workers, I cool down knowing it is my responsibility to care for my baby." (IDI-16,27years, father of 2).*
> *"It's just responsibility, so any person who fails to do it, he is just irresponsible. However much you can get various helpers, you as the father must get involved in the care of your preterm baby at the hospital. It's just responsibility, there is nothing else." (IDI-13, 23years, 1st time father).*

Health workers also acknowledged the fact that most fathers want to fulfill their responsibility as a father of the baby to physically be present and being responsible for their babies as some mothers may still be critically ill. This has highly motivated them to participate in the care of their admitted preterm babies.

> *"The love for their babies because it's their responsibility towards their babies, yeah…and depending on the mothers' condition especially to these mothers that cannot come in immediately for example the caesarian mothers, the critically ill maybe in ICU, HDU" (KII-2,24years, E/MW).*
> *"You know most of them say," am the father of the baby I must be there to see my baby", that's how they come in." (KII-4,63years, N/O).*

Desire to know progress of baby's health

Fathers also acknowledged that their desire to know the health progress of their babies also facilitated their involvement in the care of preterm babies. They really wanted to know what happens to the baby as the treatment progresses and how they are doing health wise.

> *"We always come here after every 4hrs to check on the baby. So, I will be wanting to know how the babies are doing, and once you find one of them is not doing well, then you talk to the health workers." (IDI-14,26years, father of 3 with twins).*
> *"So, I feel I should always come to check on the baby and see how she is doing and look at how other people are taking care of their kids and learning other things…" (IDI-4;38 years, father of 3).*

Desire to support the wife

The majority of the fathers in this study reported that it's their responsibility to support their wives. Supporting their wives involved things like helping them to learn the hospital environment and providing her with the needs. This facilitated their involvement in the care of preterm babies as a way of standing with the mothers in solidarity.

> *"Me I left my work to come and be around because the wife doesn't know anything about this hospital but for me, I know how I can figure out certain things." (IDI-15,25years, father of 1).*
> *"Have been up and down, bring this and that, and I have to look for money to get them food, so you have to be there because the wife can also get tired" (IDI-17,26years, 1st time father).*

Some fathers reported that their facilitation to get involved in the care was to help the mother of the babies

reach out to health workers for any support since some fear health workers.

> *"Maybe one of the other factors that has motivated me apart from responsibility is helping this mother, because at times they have that inferiority complex and fear to reach to the health workers in time, they can say that they will abuse me, so whenever I could see that, I could reach out to health workers so that all the necessary facilitation is given." (IDI-13, 23years, 1st time father).*

Love for the baby and mother

The love for both the baby and the mother was reported by most fathers to be among the facilitators of father's involvement in the care of preterm babies. The majority of the fathers acknowledged that it's because they love their mothers and their babies alive, so this motivated their involvement in the care.

> *"Me, what makes me come is my baby and the wife, I need them alive, that is what makes me come, maybe I wouldn't be here if she wasn't my wife whom we started this together." (IDI-12,25years, father of 2).*

On top of the love for their babies and mothers, a few fathers were excited for having had twins as a source of facilitation to getting involved in the babies' care.

> *"The love of the babies. The love of the twins since I had never got twins before made me come and take care of these babies. (IDI-20,36years, father of 4)*

This was also supported by health workers in the NU, as they reported that fathers are compelled to take care of their babies because of the love for them and their mothers.

> *"Just like mothers, fathers do love their babies as well, others are getting babies for the first time" (KII-5,32years, R/N).*
> *"The love for their babies because it's their responsibility towards their babies, yeah" (KII-2,24years, E/MW).*

The joy of giving birth to a firstborn

Some fathers acknowledged that the joy of giving birth to a first-born baby was one of the facilitators to their involvement in the care of preterm babies. Fathers felt that they were highly excited to take good care of first born as a new happiness to their marriage.

> *"What motivated me is because it's my first born, if I don't give him that care, then will I give it to the last-born? so am very happy for that, as you can see the mother is still a young girl, and her family members are far, that side of Mbarara, so you have to be there for her as well." (IDI-17,26years, 1st time father).*
> *"Yes, I have some other work to do but I needed to be there for her so that in our marriage we have a child… she has other children but for me, that is the first child with her, so that keeps me moving." (IDI-23,35years, father of 3).*

Health workers also confirmed that the love and excitement of having their firstborns was a major driving force for a few fathers who are seen involved in the care of their babies.

> *"But for the few fathers that I have seen being involved, it is always their first-born babies. Many of them come to check on their first born. Usually I think that they are still excited and they have not seen a baby before…that's their driving factor, first babies really (KII-8,31years, SHO).*
> *"Maybe it is their first born or a precious baby, those men come. Every baby is precious but there are those who are like the first born, they have been looking for a child for a long time and they were not finding, so they have gotten one." (KII-6,38years, pediatrician).*

Desire to learn to take care of preterm babies

Fathers' desire to learn how to take care of such preterm babies also facilitated their involvement in their care. Fathers reported that they needed to be very close and learn exactly what is needed to take care of such babies such that even when they are discharged from the hospital, they can handle while at home and others felt that they could use that knowledge as a precaution incase another incidence of the same kind happens in future.

> *"As fathers, we always need to be close to such matters such that we get to know exactly what is going on and to take precautions where necessary if such incidents happen or come in the future yes." (IDI-6, 47years, father of 6).*
> *"…when you get involved in the care of the infant or the baby, you get to discover more, you get to know the formalities which are followed, you get to know how things move on, assuming I sat back I might not know what is going on in this environment or in this area so in other words, it has also made me to know more or to discover more about such infants" (IDI-6, 47years, father of 6).*

This was also emphasized by the health workers that the desire to get knowledge about how to take care of these preterm babies motivated some fathers to getting involved in the care.

> *"Majorly knowledge, they understand something about involving themselves in bringing the mother to hospital and in care of their preterm babies, what they need to know about the condition of the baby and if they don't know anything some of them just come peep and go because they don't know why they involve themselves in the care, and even if they come what are they supposed to do?, they are also supposed to involve themselves in changing the baby, cleaning and also assessing the condition of the baby and learning more of how the progress of the baby is and what they are supposed to do also."(KII-4,63years, NO).*

Critically ill or death of the spouse

A few fathers acknowledged that ill health of the mother to their babies and sometimes the death of their spouses was a key facilitator to their involvement despite them having relatives that could play the role of the deceased spouse in taking care of their admitted preterm babies.

> *"The fact that my wife didn't survive made me dedicate my time to caring for the baby to ensure that everything is under control so no one can do what I am supposed to do because this can lead the baby to contract diseases because of the person who is caring of the baby." (IDI-2, 50 years 1st time father).*
> *"I was supposed to be there since the mother of the baby had died and another thing the baby needed someone to be there for her like me since am the father am the one who has stayed and am the one to take care." (IDI-9,22years,1st time father).*

Health care providers confirmed that one of the motivators of the fathers' involvement was the fact that the mother to the babies are critically ill and they couldn't have substitutes like relatives to step in.

> *"There are those ones whose mothers of preterm babies are critically ill and there are no other relatives. It is the father that has to come around, so this forces them to come and be more involved…" (KII-6,38years, pediatrician).*

Desire to have more babies in future

A few fathers reported that the desire to have more babies in the future was among the facilitators of their involvement in the care of preterm babies. One of the fathers acknowledged that his involvement was partly because he was afraid that if he's not involved in the care of the baby, the wife may become hesitant to bear more children in the future.

> *"What facilitates me most is that we are still young and we still want to have more children, remember if a lady like her sees that I didn't care for our first baby, the next time she will recall that she suffered alone with the first child… so I was like let me get involved in taking care of the admitted baby and the mother so that if things don't go well as planned then next time it will be better." (IDI-3, 40 years, father of 2).*

Interpersonal level factors

Fathers reported about the family/friends support and the good relationship between the couples as some of the interpersonal factors that motivated their involvement in the care.

Family and friends support (financial, physical and emotional support)

Fathers reported that they were motivated to take care of their babies through support from their family relatives and friends. The support was in terms of previous positive experiences, physical presence and encouragement through continued appreciation for their involvement in the care.

> *"The parents, my friends and some of my family members told me to come because they have ever seen others who were born at six months, that one is not the only one and so I also had to continue praying and saying that if God accepts, then this will be done." (IDI-3, 40 years, father of 2).*
> *"My relatives and other community members come to check on me and they appreciate me. That makes me feel motivated because you know when you do something and someone appreciates you feel like you should do more." (IDI-4,38 years, father of 3.)*

Some relatives don't appear physically because they are far but they give support through encouragements by making calls and prayers.

> *My relatives are far but they call, they pray for us and my other wife also prays for our baby to be fine. And I don't blame anyone but they call and encourage you. (IDI-23,35years, father of 3)*

Health workers also confirmed that a good family background propels fathers to get involved in the care of their babies.

I think the fathers' background also influences their care for their newborns at this unit as I am imagining the father who grew up under the care of his mother and father and has both supportive backgrounds, this one feels more propelled to come and check on their preterm babies here at the unit (KII-8,31years, SHO).

Good relationship between couples

Some fathers reported that the strength of the relationship in marriage or at home between the couples would determine their active involvement in the care of the admitted preterm babies. They emphasized that a good relationship between couples motivates fathers to come to the hospital.

"If the relationship is good, the father will come to hospital and bring stuff and take care of them and this can give strength to the mother to take more care of the baby." (IDI-18,27years,1st time father).

On the other hand, health workers pointed out that fact that married couples are seen to be more involved in the care of their preterm babies as opposed to those who aren't legally married.

"Those who are legally married of course they have a higher chance of getting involved in the care of preterm babies but also those who are not legally married I would say their chances are lower than those who are legally married" (KII-7,30years, SHO).

Organizational/health facility level factors

Fathers reported about motivation factors at the health facility that influenced their involvement in the care of their preterm babies. These factors included the good quality services offered and the motivation from the health workers.

Good quality services

Fathers acknowledged that the good quality of services delivered by the health facility is a motivation factor for them to get involved in the care of their preterm babies. Fathers further explained that good quality of services in terms of the availability of equipments, hygienic environment and the good attitude of health workers gives them hope that their babies will get well soon.

"Since the day I came with this daughter of mine, I have seen they are giving better services to the patients and the environment is clean and that means they clean everything they use and they are organized so I feel my baby is in safe hands" (IDI-4,38 years, father of 3.)

"…but when I saw the machines I got inspired because the baby was born underweight but because I saw the machines that work, I said am at the good place. The instruments motivated me and I said my baby will be fine." (IDI-16,27years, father of 2).

Health workers added their voices to the fact that NU is located at a National referral hospital, most of these fathers will be motivated to know the quality care that happens at such hospitals.

"If the father heard that his baby has been taken to a National referral, most of them would want to come and see the care which is in a National referral and how they look after babies there in the special care unit… If they come in and they see everything is moving on smoothly, they will come back again." (KII-3,31years, E/MW).

Motivation from health workers

In this study, some fathers reported that their involvement in the care of preterm babies was as a result of the motivation they received from the health workers. Fathers reported that the motivation taught them the importance of father's involvement and the continuous advice to continue with the care promoted their involvement.

"I have friends who are health workers that briefed me about the importance of going with my wife to antenatal clinic to take the medication. so, [for]me it's the reason I go with my wife in hospital and take care of her and the baby…" (IDI-15,25years, father of 1).

The health workers too believed that their encouragement influenced fathers' involvement positively as they kept on being encouraged to move with their partners so that they learn how to care for the baby upon discharge.

"We have also encouraged them to come along with their wives as they take care of their babies so that they can learn what they can do to the baby in case we discharge them. So, the information we give involves both of them to participate in the care. That alone has improved on their involvement." (KII-5,32years, R/N).

Society/community level factors

Fathers reported that some community related factors including the positive cultural and religious beliefs, and the counselling/support got from the community members motivated them to get involved in the care of their preterm babies.

Table 4 Thematic presentation of the barriers to fathers' involvement in the care of preterm babies admitted in the NU at KNRH

SEM level	Themes	Subthemes
Individual	Baby related factors	• Fear of preterm babies by fathers
	Father related factors	• Financial constraints • Busy work schedules of fathers • Lack of responsibility • Uncertainty of paternity • Fear to be tested for HIV
Interpersonal	Friends and family related factors	• Discouragement by peers • Poor relationship between couples
Organizational /health facility level	Health facility factors	• Poor attitude of hospital staff • Fear of high hospital bills and expenditure. • Visiting restrictions • Long hospital stays and long waiting hours
Community/societal level	Cultural beliefs and practices	• Inhibiting interaction between father and mother in law. • Unfulfilled cultural expectations

Positive cultural and religious beliefs

The fathers acknowledged that positive cultural and religious beliefs were among the facilitators that motivated their involvement in the care of preterm babies. Culturally, they were encouraged to take care of babies and follow the vows they made during religious meetings.

> *"Yeah, culture wise and the fact am a born-again Christian, we look at supporting our spouses. We have the vows that we make in good and worse, so now we look at this as the worse moment or situation whereby we need to move together with her since am the husband… I have to accompany her as she has been accompanying me in good and bad times…" (IDI-5,38 years,1st time father).*
>
> *"The religious leaders emphasize on the issue of men getting involved in taking care of the babies, not to throw them or leaving them to only mothers…" (IDI-10,35years, father of 4).*

They believed in getting blessings whenever they take care of babies since the babies are angles who don't know anything, as one of the fathers mentioned.

> *"The culture encourages everyone to take care of the family, even the religion I believe in, am a Muslim, it tells us that these babies are angels, they don't know anything so take care of them and even when your wife is happy you all get blessings and whatever you do moves on very well." (IDI-12, 25years, father of 2,)*

counseling and support from community members.

A few fathers interviewed at KNRH reported that the counselling and support they received from fellow community members was a very big factor that facilitated their involvement in the care of preterm babies.

> *"The community members supported it and they encouraged me to come as they told me that, that's how children are! the baby will grow." (IDI-3, 40 years, father of 2).*
>
> *"Other community members come to check on me and they appreciate me. That makes me feel motivated because you know when you do something and someone appreciates you feel like you should do more." (IDI-4,38years father of 3).*

Barriers to fathers' involvement in the care of the preterm babies admitted in the NU at KNRH

Five themes emerged from the interviews held with the fathers of preterm babies admitted at the NU at KNRH and these are summarized in the Table 4.

Individual level factors in the care of preterm babies

Fathers perceived that several personal factors negatively influenced their involvement in the care. These factors included baby related and father related factors such as; the fear of preterm babies, financial constraints, busy work schedules of fathers and other responsibilities, their lack of responsibility, uncertainty of paternity and fear to be tested for HIV (Human Immunodeficiency Virus).

Fear of preterm babies

The majority of fathers acknowledged that fear of preterm babies is one of the barriers to fathers' involvement in the care. Fathers reported that they feared that they may harm the preterm babies since they look very fragile and delicate. The small size of these preterm babies scares them and hence discouraging them from being involved in the care of preterm babies.

> *"Some fathers are cowards; they fear touching premature babies because they think the baby may die or being very tender like you would see a balloon." (IDI-3, 40years, father of 2).*
>
> *"The truth is size of the preterm baby scares a lot compared to the term baby but because it is your*

baby you have nothing to do…" (IDI-18,27years,1st time father).

Furthermore, most healthcare providers affirmed that the fear of these preterm babies because of their small size by some fathers was a big hindrance to their involvement in the care. They also believed that they never deliver such preterm babies.

"Some of them have fear for the babies, they fear, they say the babies are too small, they cannot look at the baby and they are too scared for the baby, that they have never had such a baby, some say for us we don't deliver such babies" (KII-4, 63years, N/O).

Financial constraints

Most of the fathers that were interviewed pointed out financial challenges as a major factor that prevented them from being involved in the provision of care to their preterm babies. This prevented many from staying at the hospital for days without working because they will not have money to provide for other essential needs to both the mother and the preterm baby.

"Financial difficulties where one isn't able to cater for the necessities can fail him because at times, they have left children at home or even he is just renting at home." (IDI-2, 50 years, 1st time father).
"The second one is poverty, some of our friends are poor to an extent that he cannot spend three days here taking care of the baby and the mother minus going to work. there will not be food so you find someone wants to come but the situation does not allow him to come" (IDI-4,38years, father of 3).

Furthermore, some of the fathers felt they could not have money to put in transport to move them to the facility on a daily basis to take care of their admitted babies.

"The finances one may not even be able to move to and from on a daily basis, may be able to come once in a week or twice in a week" (IDI-5,38 years,1st time father).

This was also supported by the health workers in the NU, that some fathers shy away from the care of their admitted babies because they think they might ask them money at the hospital, which they didn't have while others will not appear because they have to look for money to meet the needs at hospital.

"Some think they are going to ask money from them which is not true because we don't ask for any kind of cash here because most of the things we have them and if it is not around we shall write for them a note to go and buy…" (KII-2,24years, E/MW).
"Some of them, it's financial issues, some of them will tell you the father is there looking for money so he cannot come to be here when he has to look for money to look after us" (KII-3,31years, E/MW).

Busy work schedules of fathers and other responsibilities

The study further established that fathers are usually engrossed in busy work schedules and they are left with very little time to get involved in the care of preterm babies. Fathers reported that one biggest challenge they faced was working in a private sector whereby it becomes so hard for the bosses to give them time off to take care of their admitted babies and therefore some of them end up delegating their relatives.

"It can be the work schedule, one may be working, maybe the time may not allow that person, it may not be intentional… it's a bit challenging and being in a private setting it becomes a bit very hectic and tasking because there is no way you can tell your boss today, tomorrow, and the other day to go and check on your people in the hospital" (IDI-5,38years, father of 2).
"Because most of us men, we look more on how to make money and make the family stand and we forget that this is also important to take care of the family in hospital. So, we end up delegating our relatives to come and take care of them yet they may not do it to the point you can do it." (IDI-15, 25years, father of 1).

Others reported having other responsibilities such as taking care of home activities and children left at home.

"Who do you think takes care of the children that have remained home? It's the man so it becomes hard sometimes to come and be around with the wife." (IDI-14,26years, father of 3 with twins).

Health workers also confirmed that the tight work schedules of these fathers and as well the other responsibilities such as taking care of other children at home as there would be no other person to take care of them since their mother is in hospital. This hinders their active their involvement as some noted here from the health workers.

"The fact that you find that these couples have other children at home so the father will tell you that I am not able to be there because they have to take care of other children." (KII-7,30years, SHO).

Lack of responsibility

Some of the fathers reported the lack of responsibility by their colleagues to intentionally fear taking on the caring role, as a major factor that prevented them from getting involved in the care of their preterm babies.

> *"So, the issue of the fathers not coming here, that is one of the reasons that they intentionally fear responsibilities. Even some send the wife to her mother may be two months to delivery and the guy switches off the phone intentionally just to drop his role…" (IDI-11,39years, father of 3).*
> *"They keep telling us for me once I give birth and my wife calls me that the child is sick, it is none of my business, am not the doctor to administer drugs…" (IDI-22: 39years, father of 6, with triplets).*

Other fathers think that it's a woman's responsibility to take care of the baby in the NU and it's a waste of time for men to get involved in the care.

> *"…but others don't have responsibility they think those are matters of the mothers." (IDI-16,27years, father of 2).*
> *"The problem is that we as men see most of these things as a waste of time… (IDI 15, 25years, father of 1).*

Health workers added to the voice of the fathers that the fear of responsibility makes some fathers to run away from the care while others think they are still young to take up the responsibility of caring for their babies.

> *"Others just run away, that is the responsibility we are talking about like they don't care, others don't want the babies, others think they are too young to have children yeah, among others." (KII-2,24years, E/MW).*

Uncertainty of paternity

A few fathers reported that being doubtful of true paternity of the preterm babies is one of the barriers to their being involved in their care. One of the fathers asserted that he had refused to get involved in the provision of care for the preterm baby because of being doubtful of paternity.

> *"I had refused to come because I was doubtful of being the true father of the preterm baby… but the main issue is, ladies cheat! that is why most men or people don't want to come here to take care of the kids" (IDI-7, 30 years, father of 3).*

Fear to be tested for HIV

A few fathers reported fear of being tested for HIV as a major barrier for their involvement in the care of the preterm babies. One of the fathers was quoted saying that a friend told him that the doctors will force you to do an HIV test and he realized this being a hindrance to care of their babies.

> *"He told me, do you know doctors are going to force you to take HIV tests when you accompany your wife to the hospital! then I was like what is wrong with it if my wife has done it why not me? I felt like this guy if it was his wife, he could not come because he is fearing to take an HIV test." (IDI, 4,38years, father of 3).*

Interpersonal factors

Fathers perceived some interpersonal factors such as discouragements from peers and poor relationships between couples as barriers to their involvement in the care of their preterm babies.

Discouragement by peers

Negative words from peers and relatives prevented fathers from providing care to the preterm babies. Fathers received discouragement stories from friends about the preterm babies' survival, the bad attitude of health workers at Kawempe and others were being told to leave their wives in hospital because of delivering preterm babies.

> *"These friends, there are those who will give you a story that discourages you to go to hospital, he will tell you, you see that Kawempe is a hard place, health workers are hard to deal with" (IDI-17,26years,1st time father).*
> *"Sometimes being scared by the people we live with, discouraging us like now that baby who was delivered as a preterm, how will you handle till the end? It's just for trying and see, it can scare you because of the other people's suggestions" (IDI-24,32years, father of 6).*

Some fathers reported getting discouragements from family relatives and insults from gender related roles as they believed that some roles are not meant for men.

> *"Also another issue is, when someone is there like me, my relative gave birth to the baby when is too small and my dad told her to throw away the baby that he doesn't want that baby here, now there are such people when they see that the baby has been produced preterm they don't want to come and look at the baby and abandons the wife in the hospital but*

when there is no reason that has stopped him but just they don't want to look at such preterm baby." (IDI 15,25years, father of 1).

"They say when they find out that you are doing a role that is supposed to be played by a woman, they get ashamed in front of their fellow men, and that's what I told you that, if they find you helping your wife with fetching water and they will insult you, "your wife bewitched you, she will even make you wash her under garments", those are the things that have prevented many men from taking care of their babies." (IDI-22: 39years, father of 6 with triplets).

Poor relationship between couples

Most fathers pointed out that the poor relationship between the couples in their marriage was a major barrier to their involvement in the care of the admitted babies. Poor relationship can result from misunderstandings between the couples and misconduct of one of the partners and this was identified as a reason as to why some fathers don't come to the hospital.

"Another thing might be the misunderstanding at home that have been happening in the family before getting the baby, that can be an excuse for the father not to come and see his baby." (IDI-12,25years, father of 2).

Now things to do with coming to the hospital depends on the strength of the love you have at home in a marriage as a couple, for example… if there is no love at home, he will not come (IDI-23,35years, father of 3),

Health workers also revealed that fathers who abandoned their pregnant partners were less likely to be involved in the care of preterm babies.

"Some of them are family issues you cannot tell because when you ask the mother they will tell you the father abandoned me when I told him I was pregnant, just know such a father will not come to the hospital" (KII-3,31years, E/MW).

"On the other hand, I have seen that most mothers who do not have the fathers come to hospital, many of them report that they separated or were abandoned" (KII-8,31years, SHO).

Organizational/health facility level factors

At this level, fathers highlighted the poor attitude of hospital staff, fear of high hospital bills/expenditures, visiting restrictions and long waiting hours and hospital stay on admission as barriers to their involvement in the care of preterm babies.

Poor attitude of hospital staff

Some of the fathers described the poor attitude from some hospital staff that prevented them from being involved in the care of preterm babies. It was reported by fathers that some health workers and security guards give a negative response to the fathers whenever they are approached which discourages them from getting involved in the care of the babies.

"Sometimes your baby is not in good condition, not breathing well and you call the doctor and the doctor barks at you. So, in this, you also lose hope" (IDI-3,40years, father of 2).

"There is a health worker who has made life a bit hard for us, she cannot respond on time when we give her our concern…" (IDI 17-26years, 1st time father).

The security guards give them a hard time; they don't listen to the concerns of the fathers as long as the mother of the baby is available.

"… the security guards also some of them give us hard time." (IDI-17,26years, 1st time father).

"We first of all get issues with the security guard that, he doesn't allow us to go and see the baby when the mother to the baby is around. That is how you start having arguments and telling him that am the father of the baby and that's the mother of the baby, why don't we go together to check on our baby… he can refuse you and allows only one person, in that way my role to go and see the child is stopped. and you remain in dilemma asking yourself why am I stopped from going to see my baby, until you wait for the mother to tell you how the baby is doing." (IDI-15,25years, father of 1).

The health workers also acknowledged that their poor attitude towards the fathers of these preterm babies at times prevents fathers' active involvement. One of the health workers was quoted saying….

"We the nurses, if the father comes in and you are very rude, I don't think they come next time" (KII-3, 31years, E/MW).

"As I have told you attitude, if they come and you give bad attitude of course they will not bother coming back in special care unit." (KII-3, 31years, E/MW).

Fear of high hospital bills and expenditures

The fear of paying hospital bills was reported to prevent most fathers from being involved in the care of the babies. Fathers reported that the constant need to spend

on the hospital bills and other needs with in the facility scares them away.

> *"Some fathers think this hospital is expensive and they don't have money that brings them here" (IDI-3, 40 years, father of 2).*

While others fear to spend on a baby admitted in a hospital where they are uncertain of their survival.

> *"In the government hospitals they also ask you for some money so the fathers are like but now this child at these months will it really mature so some people fear to spend." (IDI-3,40years, father of 2).*

Health workers also confirmed that the fear to pay bills scares the fathers away although they reported that they don't ask any form of cash from the fathers but rather ask them to buy missing drugs for their babies.

> *"Some think they are going to ask money from them which is not true because we don't ask for any kind of cash here because most of the things we have them and if it is not around we shall write for them a note to go and buy but most of the time we have the medication we need so some may think it's all about finances they are going to pay" (KII-2,24years, E/MW).*

Visiting restrictions

The majority of fathers interviewed unanimously acknowledged that they are usually denied easy access to the preterm babies by the hospital staff when they come to the hospital. They reported about various visiting restrictions including the cards they give them, strictness on the visitation time and the tough security guards. This prevented fathers from being involved in the care of preterm babies.

> *"The other challenge is that when am coming to see my child, I have to come with a card and they issue only one card. At times it is the wife who has first gone there then the guard will stop you from entering there so you stop there and go back. "(IDI-3,40years, father of 2).*

Other fathers reported the fact that there are restricted visitation hours, time catches up with them and they fail to appear.

> *"You find time has caught you up and you cannot go see the babies because the visiting time is done" (IDI-14,26years, father of 3 with twins).*

This was further confirmed by the key informant study participants who reported that this is done to prevent neonatal sepsis.

> *"We are fighting sepsis if there many caretakers, everyone comes and touches the baby and we don't know where they have passed and some of them, yes we put water for them there to wash but some of them don't do it, so you see that you are doing this for nothing you preventing sepsis from them but they are just bringing it in. So sometimes we do restrict." (KII-3,31years, E/MW).*

Long waiting time and long stay on admission

It was reported by some of the study participants that some fathers are prevented from getting involved due to long stay of admission of preterm babies. It was further reported that the long waiting time for accessing the preterm babies also prevents them from getting involved.

> *"The problem we have got is one, we were told to come in at 2pm and we have put that in mind but again when you reach, they are telling you at 3pm and now you find many see the time they are going to wait, so it ends up stopping many fathers to come." (IDI 17-26years, 1st time father).*
>
> *"The long stay at the hospital, since these babies are neonates and are preterm babies, I expect everything to move in a process…it's difficult to convince someone to stay and actively take part in the care of their babies" (IDI-11,39years, father of 2).*

In this regard fathers reported lack of patience to wait for too long as some have to go for work and thus preventing them from getting involved in the care of babies at NU.

> *"…he cannot spend three days here taking care of the baby and the mother minus going to work. there will not be food so you find someone wants to come but the situation does not allow him to come (IDI-4,38years, father of 3).*

Health workers affirmed to long hospital stay as the biggest barrier to fathers' involvement in the care of their admitted preterm babies.

> *"The biggest barrier here is the long stay in hospital because some can even stay here up to two months "(KII-8,31years, SHO).*

Community/societal factors

Fathers highlighted that community associated factors negatively influenced their involvement in the care of their preterm babies. These included the inhibiting

interactions between father and mother in-law and the unfulfilled cultural expectations.

Inhibiting interactions between the father and the mother-in-law

The presence of mothers-in-laws prevented some fathers from being involved in the care of preterm babies. Fathers acknowledged that it's against their socio- cultural background for them to come near their mother-in-law and hence their presence in the hospital was reported as a barrier in their involvement in the care of preterm babies.

> *"I have been confused, the mother of my wife could not come near me…I was scared of those cultural things and I even told them next time I will not come back if things are like this…! everyone has their own ideas but some, if the mother of the woman will be there, then fathers will not come" (IDI-7,30 years, father of 3).*
>
> *"Sometime the mother- in-law, their presence all affects men's involvement in the management of their babies, just like me I used to come here freely before but ever since she came to take care of her daughter, my coming was restricted as a father because of our culture you cannot be close your mother-in-law." (IDI-12,25years, father of 2).*

Health workers also affirmed to the fact that some tribes in Uganda inhibit interactions between the mother in-law and the father of the baby thus her presence in the NU keeps the father away.

> *"Yeah, our culture in Uganda for some tribes, you have to keep away from your mother-in-law… and usually it is the mothers-in-law who comes to keep their daughter and then as a man to this woman you have to keep a distance, that's how it is." (KII-6,38years, pediatrician).*

Unfulfilled cultural expectations

This was also reported as barrier to fathers' involvement in the care of their preterm babies by a few fathers, due to the fact that some cultures require the father to have fulfilled the cultural expectations such as paying dowry before having a baby with their daughters, however, this doesn't regularly happen and thus those fathers who fail to fulfill the expectations tend not to appear in hospitals especially when the parents of the mother of the preterm baby are present.

> *"In some cultures, if you don't pay dowry to the parents of your wife, you may even fear to look at them and if such an incident happens like what happened to my wife after giving birth to a premature baby, the wife was operated on and it was obvious that her parents had to come here. So, if I had not gone to pay her dowry by now, I would be hiding, so those are some of the factors." (IDI-4, 38 years, father of 3).*

Discussion

This study aimed to explore the factors affecting fathers' involvement in the care of preterm babies admitted to the NU at KNRH. This current study showed that most perceived roles are actually played by fathers whose preterm babies are admitted in the NU and various facilitators encourage them to get involved in the care. However, fathers faced barriers in their involvement in the care as guided by the SEM [27]. The study findings showed that fathers played the role of providing financial support during the care of preterm babies. Most fathers acknowledged that it is important to provide financial support to meet the basic needs of the mother and the admitted baby. The provision of food, pampers, drugs and other things that are not readily available in the hospital was one of their key roles that they perceived and played in the care of preterm babies. The health workers also acknowledged that these fathers were expected to provide financial support to the mother and baby which they actually did. Similar to our findings, a study done in Italy on the role of fathers and psychologists in the neonatal intensive care unit by Franco Baldoni et al. described how fathers dealt with practical problems in terms of ensuring a comfortable and safe home, provision of financial support to cater for food and other necessary goods relating to extra familial environment [11]. This is because both the society and the health care system (especially during antenatal) encourage fathers to take on the role of financial support to their families.

Fathers were expected to provide emotional support to mothers. Fathers affirmed that their physical presence and words of encouragement through counselling soothed the minds of mothers and brought a feeling of solidarity in the care of preterm babies. Similar findings were reported by a study done by Bry et al. at a university hospital in Sweden on psycho social support of parents of preterm babies which showed that parents of extremely premature infants needed various forms of emotional support at the NICU, including support from staff, professional psychological help and/or companionship with other patients' parents [28]. This is because most mothers are stressed by the mere fact that their babies never reached term, so this support is really needed to cope with the situation.

Fathers were also involved in direct baby care activities. In this study, most fathers acknowledged that providing direct care to the preterm babies was one of the key roles they perceived and actually played. The fathers reported that they were directly involved in feeding

babies, changing diapers, providing warmth in form of kangaroo care and ensuring that doctors administer the drugs on time by giving reminders at the right time. Previous studies have also reported fathers' involvement is mostly related to the provision of shelter, food and other needs of the family [29]. Other studies regarded activities such as feeding, bathing, grooming and nappy changing as a woman's domain and if done by a man is regarded as a favor or an "extra job" [20]. Another study done by Baldoni F et [11]. from Italy on being a father of preterm baby, revealed how both fathers and mothers performed daily child care activities such as tube feeding, mouth care, unrestricted nappy change and un restricted skin-skin contact with their babies during the COVID-19 pandemic lockdown.

Providing physical support to the mother was another role for fathers as revealed by this study. This study found that the physical support provided involved carrying the preterm baby, carrying of luggage and carrying food for mothers of preterm babies. Similar to our findings, a study in USA by Burke [30] revealed that the fathers would engage in supporting their partners. It was important to make sure that the mother was both physically and emotionally well. Some mothers needed physical support after they had given birth, especially if they had a caesarean section, had lost a lot of blood, or had other complications, hence were unable to carry out roles such as feeding the baby and this was added onto the fathers' roles.

Provision of spiritual support to both the mother and the preterm baby was among the roles that fathers perceived and actually played during the hospitalization of their babies. This spiritual support was in terms of prayers and trusting God for the life of the baby and her mother, so that they are discharged alive. Similar to our findings, a study done in USA on brief reflections from mothers and fathers in the neonatal intensive care unit showed that parents who presented to the NICU with a religious or spiritual background indicated their faith grew as a result of their experience in the NICU [31].

The facilitators of father's involvement in the care of preterm babies were grouped into individual, interpersonal, organizational/health facility and societal/community factors as guided by the socio-ecological model [27].

At individual level, the facilitators identified by this study included, improvement in the health condition of the preterm baby, fulfilling responsibility as a father, desire to know progress of baby's health, desire to support the wife, love for the baby and mother, the joy of giving birth to a firstborn, desire to learn how to take care of preterm babies, critical illness or death of the spouse and desire to have more babies in future. In line with our findings, a study done in Canada by Feeley N et al.… [20] showed that fathers' involvement could be reinforced by positive feedback from the child. Fathers looked for and often enjoyed the response of their infants to their involvement. Fathers considered fulfilling their responsibility as fathers in the care of the preterm babies as a facilitator to their involvement and this was similar to a study done in north Ethiopia which reported that fathers considered child care provision as responsibility for both the father and the mother [32]. In another study done in Kenya about parents' perception of the quality of pediatric oncology in-patients care revealed that the desire to know the progress of the baby's health was a reported facilitator of fathers involvement [33],and was in line with another study from Canada [20]. The love for the baby and mother which creates a bond between the father and the baby and promotes cognitive development of the baby was one of the main facilitators. Similarly, a study conducted in New York found that fathers' involvement enhances bonding between the father and the baby [34]. This suggests that more involvement in caregiving would be a motivating factor for fathers to frequently visit the baby at the hospital and create more chances for them to get involved in care as it would help them feel more responsible for their newborns. Therefore, a sense of responsibility has been strengthened in them and they applied all of their power to support their family and meet their needs. Fathers took care of their wives and other children and did the household chores in the absence of their wives or during their illness [35].

The interpersonal factors reported by this study included family and friends support in terms of financial, physical and emotional support and good relationship between couples. In line with these findings, a similar study reported that family and friends helped in addressing difficulties and in coping with ongoing medical needs, feeding and parenting post-discharge [36]. Our findings support the notion that the social context influences involvement and the different sources of support that impact on involvement, including encouragement from the spouse and instrumental or emotional support from extended family [20]. In our study, most participants were married and emphasized that a good relationship between married couples was a major motivator for fathers to get involved in the care of their preterm babies admitted in the NU. This was further expressed by the fact that the two individuals have a good understanding of the current problem and are ready to face the challenges together. Most health care providers also affirmed to the fact that most fathers who are married and are in a good relationship with their wives get involved actively in the care of their admitted babies as opposed to the cohabiting or un married couples. This finding is consistent with a study done among Jewish fathers by Kaitz M et al. on temporal changes in fathers' affective experience during the first year of parenthood which indicated that a

satisfying marital relationship is expected to provide new parents with a secure base from which they can meet the challenges of parenthood with confidence and feelings of self-efficacy, knowing that they are not alone in their endeavors [19].

At the organizational/health facility level, the current study revealed that the quality of the services played a big role in facilitating fathers to care for their preterm babies. Fathers acknowledged that the good quality of services delivered by the health facility is a motivation factor for them to get involved in the care of their preterm babies due to the good quality of services in terms of the availability of instruments, good hygiene and the good attitude of health workers gives them hope that their babies will get well soon. In this study, some fathers reported that their involvement in the care of preterm babies was as a result of the motivation they received from the health workers. The health workers too believed that their encouragement influenced fathers' involvement positively. Previous studies have reported the physical environment and the quality of services offered at the hospitals where the babies were admitted as another factor that influences fathers in being involved in care activities. A research conducted by Feeley et al. in Canada reported that open-spaced beds allowed the fathers an opportunity to see their colleagues hold the babies and get involved in care activities which helped them realize that it was possible to get involved in care. It was reported that having health care workers who cared much about their babies also encouraged them to be with their babies [20].

At the community/ society level, culture and religion were paramount facilitators that influenced father's care to preterm babies. In this study, the fathers acknowledged that religion is among the facilitators that motivate their involvement in the care of preterm babies as they are continuously reminded to be responsible parents who should always provide for their children. Fathers also acknowledged that counselling and support they received from fellow community members was a very big factor that facilitated their involvement in the care of preterm babies.

The major barriers to fathers' involvement in the care of preterm babies were categorized into individual, interpersonal, organizational/health facility and societal/community factors in line with the SEM [27].

At individual level, fathers acknowledged that fear of preterm babies is one of the barriers of fathers to get involved in the care of preterm babies. Fathers reported that they feared to harm the preterm babies since they looked very small and fragile. This scares them and thus discouraging them from being involved in the care of preterm babies. Previous studies have also reported that fathers' involvement was hindered by baby-related factors like their small size, for example a study conducted in Malawi reported that caregivers, including fathers, were afraid of holding the preterm newborns because they looked small and fragile, and the caregivers feared harming them [32, 37, 38]. Financial constraints were also reported to hinder fathers' involvement in the care of the preterm babies. In this study, most of the fathers were employed and still acknowledged that financial challenges prevent them from being involved in the provision of care to their preterm babies since they may not afford to move to the facility on daily basis as well as providing other essential needs to both the mother and the preterm baby. Similar to our findings, other studies in different counties [34, 35, 39] found the same concern on fathers. The financial role has been perceived by fathers as their sole responsibility but most fathers in our study were young and with low earning jobs hence they were prone to financial constraints. This study further established that fathers are usually engrossed in busy work schedules and other responsibilities thus, left with very little time to get involved in the care of preterm babies. Fathers reported that one biggest challenge they faced was working in informal employment sectors where it becomes so hard for the bosses to give them time off to take care of their admitted babies and therefore some of them end up delegating their relatives. Others reported having other responsibilities such as taking care of home activities and children left at home. This is consistent with findings of another study done in Malawi where work and other responsibilities have been reported to impend fathers' involvement in the care of hospitalized preterm newborns [39].

At interpersonal level, discouragements from relatives and peers was cited as one of the barriers to fathers' involvement in the care of preterm babies. Fathers received discouraging stories from friends about the preterm babies' survival and the bad attitude of health workers at Kawempe while others were being told to leave their wives in hospital because of delivering preterm babies. Some fathers reported getting discouragements from relatives and insults from gender related roles as they believed that some roles such as taking care of babies in hospital are not meant to be done by men. This was in agreement with a study done in Iran where their culture promotes family involvement but family members make negative and offensive remarks regarding preterm infants because Iranians do not perceive preterm infants as normal human beings because the Iranian socio-cultural structure is based on glorifying the perfect form and finding a reason to discard anything less than perfect, and another in Malawi on fathers of preterm babies [39] whereby the fathers considered some roles as belonging to women and they could only do them when the mother is sick or busy with other tasks. This is based

on the belief that infant care was traditionally a female role while the fathers have to provide for the family's needs. The poor relationship of couples in marriage was a barrier to fathers' involvement. The misunderstandings between couples or misconduct resulted into fathers abandoning their wives. On the contrary, a study done by Stefana in Italy on fathers of hospitalized preterm babies in NU revealed that concerning the couple relationship, the degree of collaboration between partners in the division of infant-care tasks was regarded as good, regardless of the quality of the couple bond suggests that both parents put the baby's well-being first [23].

At health facility level, poor attitude of some hospital staff was reported as a barrier to father's involvement in the care of preterm babies. It was reported by fathers that some health workers and security guards gave a negative response to the fathers whenever they were approached which discouraged fathers from getting involved in the care of the babies. In line with our findings, a study by Mhango et al.… [39] in Malawi reported that the behavior of other providers prevented the fathers from being involved whereby some health providers were rude in communicating with them while other providers preferred communicating with the mothers than the fathers which impeded fathers' involvement in care. Other researchers have also speculated about possible barriers to involvement, and these include nurses' beliefs about fathers' role [24] whereby nurses believe that social interaction and handling of the baby by fathers is stressful for the immature baby, so they will limit parent's involvement [40] and fathers' own belief that nurses and mothers provide the best care [41]. Finally, on another level, mothers, more so than fathers, tend to perceive good treatment by the staff as a facilitator and poor treatment as a barrier for parental presence. In other words, mothers are more sensitive towards treatment by NU staff, while fathers place less emphasis on treatment by staff in their decisions to be present or otherwise [14]. This result clearly corresponds to prior reports from a study from Australia [42], where the fathers were often the ones to initiate a complaint when the parents deemed that the staff behaved inappropriately or inadequately. The fear of high hospital bills and expenditures were also barriers to father's involvement in caring for preterm babies. This study revealed that the fear of paying hospital bills prevented some fathers from being involved in the care of the babies despite the fact that the hospital is a government facility where services are expected to be free. Fathers reported that the constant need to spend on the personal needs and the things that are not readily available at the hospital scares them away. Fathers acknowledged that their inability to raise enough funds for the provision of care affects their involvement in the care as reported from other studies [20, 43]. These findings are similar in these studies and were conducted in referral hospitals of the respective countries.

At the community level, inhibiting interactions between the father of the baby and the mother in-law and unfulfilled cultural expectations were reported as barriers of fathers' involvement in care of preterm babies. The presence of mothers-in-law prevented some fathers from being involved in the care of preterm babies. Fathers acknowledged that it's against their social cultural practice to come near their mothers-in-law and hence their presence was reported as a barrier in their involvement in the care of preterm babies. This was a peculiar finding to this study and a renown cultural belief among the Bantu ethnic group in Uganda [44]. This is based on the belief that infant care was traditionally a female role while the fathers have to provide for the family's needs [45]. Various studies reported that childcare was culturally considered a feminine role and this necessitated a shift of mentality to help fathers realize that they could also take part in caregiving activities [37, 43, 45].

Strengths of the study

This study involved fathers and health workers which provided opportunity for triangulation.

Use of male research assistants not affiliated to the NU at KNRH allowed more open and honest responses by the fathers.

Limitations of the study

The study was conducted on fathers whose babies were still under care in the NU thus some participants may have been biased in their responses (courtesy bias). However, this was minimized by use of research assistants who were not involved in the care of preterm babies at the hospital.

The study was a hospital-based research thus prone to selection bias of participants. Therefore, the results of the study may not be generalizable to the general population of fathers.

Conclusion

Most of the perceived roles were actually played by fathers in NU, and they included provision of financial support, provision of emotional support, participating in direct childcare activities and physical support to the mother. These were confirmed by the healthcare providers working in the NU.

The facilitators and barriers of the fathers' involvement in the care of their preterm babies ranged from those considered personal, interpersonal, to those related to health facility and community/culture. The main facilitators of fathers' involvement in the care of the admitted preterm babies need to be strengthened while major barriers should be addressed to promote fathers'

involvement in the care of the preterm babies admitted in the NU at KNRH.

The findings of this study provide a basis for awareness raising among country and global actors involved in preterm care to promote fathers' roles, facilitate their involvement in the care for preterm babies and come up with solutions to mitigate barriers affecting their participation in the care of preterm babies and as a strategy to strengthen a holistic preterm care to improve good neonatal health and long-term outcomes even after discharge from NU.

Recommendations

Heath workers in KNRH should sensitize fathers on their roles and need for their involvement in the care of preterm babies in the NU.

Health workers should continue counselling and encouraging fathers to participate in maternal and child care.

Hospital management should train hospital staff to ensure positive attitude as they interact with fathers and provide the drugs and other necessary supplies to reduce the economic burden on fathers.

Further research is needed to evaluate strategies that can improve fathers' involvement in preterm care in Uganda and other low-income settings.

Abbreviations

ANC	Antenatal care
E/MW;	Enrolled midwife
HDU	High dependency unit
HIV	Human immunodeficiency virus
ICU	Intensive care unit
IDI;	In-depth interview
KII;	Key informants' interview
KNRH	Kawempe national referral hospital
MOs;	Medical officers
N/O;	Nursing officer
NU	Neonatal unit
R/N;	Registered nurse
SHOs	Senior house officers

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Author contributions

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Data availability

The corresponding author can provide the de-identified data analyzed during the current study upon reasonable request.

Declarations

Ethics approval and consent to participate

Permission to conduct the study was obtained from the Department of Obstetrics and Gynecology, Department of Pediatrics, Kawempe National Referral Hospital management and Ethical approval was obtained from the School of Medicine Research and Ethics Committee (SOMREC-2023-550). The conduct of the study adhered to the Declaration of Helsinki. Written informed consent was obtained from all study participants. The study carried minimal risk to the participants and did not influence health care given to their babies. Participation was voluntary with participants free to withdraw from the study at any point. Interview guides were coded and they did not bear participant's names. All the data was kept under lock and key. All the information was treated with utmost confidentiality. Access to data entered on the computer was through a password known to the researcher.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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