

Give Time or Take Action? Clinical Challenges of Prolonged Labour: Perspectives from Tanzania

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Abstract

Background: Globally, some evidence suggests that up to one third of nulliparous women experience delay in the first stage of labour. Diagnosing prolonged labour is complicated by uncertainty related to the definition of both onset of labour and normal labour progression.

Prolonged labour inhabits an increased risk of poor neonatal and maternal outcomes. To our knowledge, few studies have assessed the clinical challenges of prolonged labour from a health care professional perspective. In this study we aim to improve understanding of how clinical challenges related to prolonged labour are perceived by doctors and nurse-midwives in Tanzania.

Methods: A qualitative study with group interviews of either doctors (2 interviews) or nurse-midwives (7 interviews). A qualitative content analysis was performed. The study setting comprised one zonal consultant university hospital and one regional referral hospital in Northern Tanzania.

Results: A total of 37 respondents, among them 32 registered nurse-midwives and 5 doctors, all with experience from labour ward. Five categories emerged. Challenges were expressed in relation to 1) various ways of understanding prolonged labour, 2) assessing progress in labour, 3) monitoring foetal heart rate, 4) appropriate intervention at the appropriate time and 5) working as a team.

Conclusions: The study provides a broader understanding of the clinical challenges encountered by nurse-midwives and doctors when managing prolonged labour. The grounds on which decisions are made, are somewhat inconsistent. The respondents request clear guidelines and frequent training.

Background

Globally, there is no consensus on a definition of prolonged labour (1-4). Diagnosing prolonged labour is complicated by uncertainty related to the definition of both onset of labour and normal labour duration (3, 4). The active first stage of labour was traditionally defined from a cervical dilation of 4 cm, given effacement of the cervix and frequent uterine contractions, until full dilation of the cervix (5). The new World Health Organization (WHO) guidelines (6), define active first stage of labour by a cervical dilation of 5 cm. Expected labour progression has commonly been assessed by cervical dilation in relation to time. The alert line represents an expected progress of 1cm/hour and the WHO partograph contains a 4-hour action line, which indicates prolonged labour (6, 7). WHO (6) no longer recommend the use of the alert line to assess satisfactory labour progress, due to its inaccuracy in identifying those at risk of adverse birth outcomes - "slow, yet normal" has become the new norm.

Kjaergaard et al. (8) suggest that up to one third of nulliparous women experience delay in the first stage of labour. The most common causes of prolonged labour are considered to be either mechanical obstruction or poor or uncoordinated contractions (5). Obstructed labour occurs when the presenting part of the foetus cannot descend further in the birth canal, in spite of good uterine contractions (9). In Tanzania, obstructed labour is reported as one of the leading indications for emergency caesarean

sections (CSs) and a main cause of maternal and perinatal mortality (10-13). Prolonged labour increases the risk of infection, postpartum haemorrhage and emergency CS (14).

To our knowledge, few studies have assessed the clinical challenges of prolonged labour from a health care professional perspective. Several studies address clinical challenges, but mainly those related to management of normal labour and teamwork within the labour ward (13, 15, 16). A survey in Australia found a lack of consensus among obstetricians on what defines normal progress in labour and how to deal with abnormal progress. Unlike clinical challenges, structural challenges in labour wards in Tanzania are documented in several studies (13, 17-19). Lack of staff, resources and equipment and too few facilities lead to difficulties and delays in providing adequate intrapartum care (20-22). In Tanzania 64 % of births are assisted by a skilled birth attendant (22). The overall CS rate is 6 %, below 10-15 % considered the ideal rate by WHO (22, 23).

It is regarded as beneficial to strengthen the contextual knowledge prior to complex intervention studies (24). This is among the objectives of the larger project of which the present study is a part; "Enhancing patient safety in high- and low-resource settings; how to improve the process of decision-making in case of prolonged labour" (EPSHILS). Our objective was to improve the understanding of how clinical challenges related to prolonged labour are perceived by nurse-midwives and doctors in Tanzania.

Methods

Study setting

Tanzania's health care system is decentralised and divided into national, zonal, regional and district levels (25). The context of this study was one zonal consultant university hospital (ZCUH) and one regional referral hospital (RRH) in Northern Tanzania, from now on referred to as the zonal hospital and the regional hospital. Both hospitals receive women who are referred from district hospitals. The zonal hospital is situated just outside a small city centre. Its catchment area represents 15 million people and approximately 4000 births annually. The regional hospital is located near the same city centre. Its catchment area comprises about 1,6 million people and they have approximately 3500-3800 births annually.

At the zonal hospital the partograph is started at 4 cm cervical dilation. In the regional hospital it is started from a cervical dilation of 3 cm. At both hospitals the partograph is started while the woman is still in antenatal ward. Women are admitted to labour ward when they have reached a cervical dilation of 7 cm. CSs account for 15-20 % of the births in the regional hospital and 35-40% in the zonal hospital. Approximately 5 % of the labouring women in the regional hospital are referred to the zonal hospital. Both hospitals use foetal scopes (steel/plastic), also called Pinard horn, and electronic dopplers for foetal monitoring. There is no access to continuous foetal heart rate monitoring. Oxytocin augmentation is at both facilities administered by infusion, drip rate being manually adjusted due to lack of infusion pumps. The birthing women have no access to adequate pain relief besides opiates. Mostly there are no relatives

accompanying the labouring woman in the labour wards, although presence is permitted at both hospitals.

Study design

The project group of EPSHILS used a qualitative research method employing group interviews. The interviews were semi-structured with the help of an interview guide developed by the EPSHILS project group, including contributors from both Tanzania and Norway. The guide consisted of rather specific questions, like “Do you think pain perception may influence decisions on the management of prolonged labour? How?” All questions were closely related to clinical management of prolonged labour.

Recruitment and collection of data

Nine group interviews were conducted at the two hospitals between August 27th and December 5th, 2018. They were moderated by the local research assistant of the EPSHILS project, DAM, who is a male clinical officer known to the staff members from a previous research project where he also moderated group interviews. Five interviews were conducted at the regional hospital and four at the zonal hospital. The groups met undisturbed in a seminar room, and a tape recorder was used. Each interview lasted between one hour and one hour and forty-five minutes. In one interview at the zonal hospital, a previous respondent (a nurse-midwife) took part as an additional facilitator with a few contributions in the interview. The sections where she contributed were not included in the analysis.

A total of five doctors and thirty-two nurse-midwives were recruited during work hours through purposive sampling, by the head nurse midwives of the obstetric and labour wards at each hospital. The inclusion criteria were 1) being a registered nurse-midwife or doctor with experience from the labour ward, 2) currently working within the department of obstetrics and gynaecology and 3) being willing to participate in the study. In order to facilitate freedom of expression within the group (26), the groups consisted of either doctors (two groups) or nurse-midwives (seven groups). Among the registered nurse-midwives experience ranged from recently educated to thirty years of working experience, and some had additional courses giving them superior titles. The interviews with nurse-midwives were administered in groups of four to five respondents, with the doctors in groups of two to three respondents. The doctors had three to eight years of experience and the group consisted of resident doctors, doctors and obstetricians.

Preparing the material

The material was transcribed and translated from Swahili to English. The transcribed material was made anonymous before it was passed on to the first authors, AIH and JMEH, who kept a dialogue with the moderator of the interviews, clarifying uncertainties in the material.

Data analysis

The procedure described by Graneheim & Lundman (27) was followed by AIH and JMEH when conducting a qualitative content analysis of the manifest content. Initially, AIH and JMEH read through the material several times getting a sense of the whole. Meaning units relevant for our research question were identified; the constellation of words or statements that relate to the same central meaning (28). A software, HyperResearch (version 4.0.3) (29), was used to organise the qualitative data. The meaning units were condensed and coded. An analogue, inductive and iterative process of categorising was performed, resulting in mutually exclusive, exhaustive and saturated categories (26, 30). See Table 1 for an example of one category. All co-authors (SE, DAM, BM and TSE) were given access to the anonymous data material and the analysis in order to ensure a mutual understanding of the content.

Table 1

An excerpt of the coding tree visualising the structure of codes, subcategories and category.

<i>Category</i>	Appropriate intervention at the appropriate time				
<i>Subcategories</i>	<i>Mothers want interventions</i>	<i>Use of caesarean section</i>	<i>Risks associated with artificial rupture of membranes and oxytocin</i>	<i>When to administer oxytocin</i>	<i>Take action</i>
<i>Codes</i>	Woman wants oxytocin to shorten labour	If PL we consider CS 2 hours after starting oxytocin	ARM and oxytocin at 2-3cm will give delay	Timing oxytocin	When mother tell us about a problem, we need proper examination and immediate action
	Sometimes decision is affected by mothers demands - we have humanity	If they stay long they should get CS	Alert when silence after oxytocin	Oxytocin at 3cm will fail	We take action after checking partograph.
	Many ask for operation	CS depends on cause of PL	ARM can not be done with head high	Before oxytocin until 6pm, now one nurse is alone in monitoring oxytocin	No development in 3 PVs [vaginal examinations] need fast action
	If no danger, we don't give CS on request	If no descent on 10cm you might have to do CS	Oxytocin can cause overstressed uterus	Oxytocin if foetal heart rate is ok	Action must be taken when head is not descending despite enough contractions
	Little knowledge of labour pain may lead to women demanding c-section	If PL I think we might need CS, I call doctor	improper administration of oxytocin can give PL	On oxytocin you need to hear foetal heart rate most of the time	Partograph leads to action and if baby is big you must take early action

Results

As the material was analysed, five categories emerged. Clinical challenges were expressed in relation to 1) *various ways of understanding prolonged labour*, 2) *assessing progress in labour*, 3) *monitoring foetal heart rate*, 4) *appropriate intervention at the appropriate time* and 5) *working as a team*. Structural challenges of staff shortage, lack of equipment and available operation theatres, were obvious in our material, but excluded from our study because it was not within our scope of analysis.

Various ways of understanding prolonged labour

The respondents expressed some variations in expected duration of a labour. Respondents at both hospitals understood prolonged labour as going beyond “expected hours”. Respondents described the partograph as essential in diagnosing prolonged labour. In the regional hospital, many respondents operated with a timeframe of twelve hours. As one doctor put it;

It is labour that goes beyond its usual time which is maximum allowed without having delivered. Let us say twelve hours, beyond that then it is prolonged labour. (Doctor, RRH)

At the zonal hospital, the expected duration of the active phase for nulliparas ranged from eight to twenty-four hours. Respondents in both hospitals differentiated between primiparous and multiparous women for both first and second stage of labour. Concerning the second phase of labour, nurse-midwives expected it to last no more than twenty minutes to one hour.

Identifying the cause of prolonged labour was expressed as essential by the respondents. They related the cause to four P’s, as described by a nurse-midwife in the regional hospital:

The first I will check for is power, then passage, then passenger and finally psychology. (...) If it is passenger and passage, it means the baby cannot come out; I will then decide, maybe I will call the doctor to do a CS. (Nurse-midwife, RRH)

Malposition, poor contractions, lack of energy, intact membranes and cervical dystocia were mentioned as causes of prolonged labour, and cephalopelvic disproportion (CPD) was referred to as the most central cause among the respondents. This leads to three terms described explicitly and implicitly throughout the material; *prolonged labour*, *poor progress* in labour and *obstructed labour*. Poor progress was described as an early stage of prolonged labour, but also as an indication for emergency CS, as expressed by this nurse-midwife:

According to my opinion the management of poor progress and prolonged labour are similar, for example in case of prolonged labour I have to establish the causative factor and the management will go from there. But in poor progress, in my management I will directly prepare her for CS, although I will check for causes, but we should go for CS. (Nurse-midwife, ZCUH)

Several nurse-midwives associated prolonged labour with severe findings of dry vaginas and restless, febrile mothers. One doctor described a spontaneous vaginal birth as a reason to abandon the diagnose of prolonged labour;

[...] I will give her more time, but sometimes we succeed and after some time the mother delivers, you can see it is not prolonged labour. (Doctor, RRH)

Descriptions of poor progress, prolonged labour and obstructed labour, varied greatly among the respondents. The usage of the three terms was often overlapping and at other times, contradictory.

Absence of progress was labelled poor progress by some, and prolonged labour by others. A respondent from the zonal hospital said that they often encounter poor progress, but stated that prolonged labour usually was referred from other hospitals involving poor outcomes for mother and child. Prolonged labour is also said to cause obstructed labour. Some respondents explicitly addressed confusion among the terms poor progress and prolonged labour. The term “early prolonged labour” (in the latent phase) was also used.

Assessing progress in labour

The respondents expressed great confidence in the partograph – as a guide, indicating time for intervention, avoiding prolonged labour and helping to prevent poor outcomes. A nurse-midwife in the zonal hospital said:

Partograph is the first, this is the important tool which I use to know prolonged labour, because it shows from when the mother enters active phase, it shows how contraction goes, it shows foetal heart rate, it shows everything. So, the partograph is a tool we depend on very much and have confidence in. (Nurse-midwife, ZCUH)

All groups emphasized the importance of filling the partograph properly. Some nurse-midwives expressed a wish for training on the use of the partograph. A nurse-midwife in the regional hospital said that even though they know how to fill out the partograph, often it is not done properly. Some doctors implied that nurse-midwives sometimes filled the partograph in a way that it did not indicate prolonged labour. Both doctors and nurse-midwives reflected on how an erroneous first plot in the partograph may wrongly indicate prolonged labour. Nurse-midwives expressed uncertainty in establishing the start of active labour. Referral cases provided additional challenges due to undocumented anamnesis. Despite their confidence in the partograph, doctors at the zonal hospital reported that the partograph occasionally forced them to intervene. According to their experience, they sometimes avoided CS by not following the indications of the partograph. Nurse-midwives also experienced the partograph as having a narrow normal range, not fitting to all.

In assessing prolonged labour, nurse-midwives described vaginal examination and abdominal palpation as a challenge and advocated for training. Especially concerning the measurement and documentation of descent, there was a mixture of terms. The respondents used the terms *level*, *descent* and *station* and were explicit about the lack of common understanding of their differences and similarities; as this nurse-midwife in the regional hospital said:

In measuring spine level, it is a problem [...] even in interpreting, when you mix interpreting engagement and then comes station, you mix it with level. You have to think twice, which one do you write down? It is zero in spine level but where is it? In plus one, plus two or more? Where is plus two? Where is minus two? It is a problem altogether. (Nurse-midwife, RRH)

Nurse-midwives also explained how different finger sizes would lead to considerable differences in cervical dilation measurements. In the zonal hospital nurse-midwives found it challenging that inexperienced doctors sometimes lacked skills in cervical dilation measurement.

Acknowledging malposition as a cause of prolonged labour, nurse-midwives in both hospitals regarded it as important, however challenging, to determine the child's position and presentation during birth. In detecting malposition, respondents also described pain as an indicator. Furthermore, severe pain, lack of pain and unexpected pain made the respondents alert to complications like uterine rupture. Detecting the cause of pain was found to be challenging but essential, as expressed by a doctor in the regional hospital:

"Why so much pain? [...] I will go and find out why, why, why" (Doctor, RRH)

The respondents described how different expressions of pain influenced how they intervened, sometimes resulting in unnecessary interventions.

Appropriate intervention at the appropriate time

"We must take action" was a frequently used phrase among the nurse-midwives, often synonymous with CS. Respondents said that *action must be taken* when vaginal birth was not regarded as possible, there was a lack of progress for some time, the child was too big or if the "partograph said so". A nurse-midwife in the regional hospital described it this way:

If you use the partograph well, you can know if the things are going well or not, so you can take action. If it is a big baby that definitely cannot come out in a normal way, you must take action as early as possible. (Nurse-midwife, RRH)

Furthermore, nurse-midwives described how women asked for CS after being in labour for a long period. Allegedly, some women were told that if they cried and made a lot of noise, the doctor would take them for operation. However, doctors in both hospitals said that without danger signs, they would not perform a CS solely on request from labouring women. Some doctors said that the fear of performing vacuum extraction was prominent among doctors, leading to an underuse of the procedure.

The respondents mentioned some referral cases where there was said to be prolonged labour and the partograph indicated CS, and still the membranes were not ruptured. When artificial rupture of the membranes (ARM) was performed, the women gave birth. One doctor expressed frustration with guidelines that may indicate early interventions and CS when unnecessary:

[...] we discuss the difficulty at hand but at the end of the day if I follow my decisions, I find I have helped the mother to have her baby normally; I have not followed guideline. (Doctor, ZCUH)

However, for referral cases presenting with dry vagina of high temperature and with the child's head high – the respondents found that vaginal birth was unlikely to take place.

Regarding oxytocin, respondents agreed that it should not be administered too early, and that there should be normal foetal heart rate (FHR) in advance. A nurse-midwife at the zonal hospital said that the FHR should be monitored “most of the time” when a labouring woman is augmented with oxytocin. The nurse-midwives reported that labouring women themselves requested oxytocin to shorten labour. Unnecessary induction and inaccurate administration of oxytocin were reported as causes of prolonged labour among the respondents at both hospitals. They expressed a challenge related to the practical administration of oxytocin – whether or not the valve was sufficiently opened. A doctor in the zonal hospital explained it as follows:

‘(...) you will find oxytocin dripping but there is no change in the situation of the mother. It is you who have made the decision of applying oxytocin while she had mild contractions and you have not opened the valve for oxytocin enough for the mother to have strong contractions. (Doctor, ZCUH)

The nurse-midwives expressed a need for guidelines regarding the use of oxytocin augmentation as well as when ARM should be performed. Some said that experience had taught them that performing ARM too early would result in prolonged labour, whereas delayed ARM may prevent it. When discussing ARM, nurse-midwives expressed fear of endangering the child by cord prolapse or increased risk of infection, especially transmission of human immunodeficiency virus (HIV).

Discussing the timing for interventions, nurse-midwives addressed the right time for admission to the labour ward. They said that too early admittance may result in misdiagnosed prolonged labour and lead to the mother feeling poorly treated. Too late admittance, as for many referral cases due to repeated delays, made them anxious for both mother and child. A nurse-midwife in the zonal hospital said:

If prolonged labour happens far away in the rural areas, it takes time to diagnose and to organise. To transport the patient takes time as well. By the time she reaches here, she is tired and also the baby is tired. (Nurse-midwife, ZCUH)

Monitoring foetal heart rate

Respondents from both hospitals conveyed challenges related to finding and interpreting foetal heart rate (FHR). Differentiating foetal heart rate from the maternal was found to be difficult, as explained by a nurse-midwife in the regional hospital:

It is possible you have listened, but you listened to the maternal heartbeat. You can say there is foetal heartbeat, but if you have not incorporated your colleague or you have not asked the mother if the baby is kicking inside and confirmed it with ultrasound - at the end of the day you come up with such results [stillborn/macerated]. (Nurse-midwife, RRH)

Several nurse-midwives mentioned incidences where there was said to be FHR, but the child was stillborn. They understood FHR as of either low, normal or high frequency, and with strong or weak sound. A nurse-midwife described continuous monitoring as listening to the FHR every half hour. Obese or non-cooperative mothers and cases of malpositioned children, represented additional challenges in finding FHR. Some respondents described that they faced no challenges related to the interpretation of FHR, only difficulties in monitoring. Difficulties were closely related to distrust in all available foetal monitoring equipment, as explained by a nurse-midwife in the zonal hospital:

[...] there is no answer which I can precisely give if I can rely on either pinard, foetal scope, doppler or even ultrasound - all has its challenges. We have an experience of being told there is foetal heartbeat but on delivery you get a fresh stillbirth. (Nurse-midwife, ZCUH)

Nurse-midwives described how dopplers might give faulty readings and mislead them in their work, resulting in children with surprisingly low score at birth. Nurse-midwives also reported that poor knowledge on the utilisation of the equipment was a problem.

Working as a team

Within the team of respondents, the perception of urgency varied. Teamwork was perceived as challenging when the doctor gave the labouring women time but forgot to follow up or “gave time” repeatedly. Nurse-midwives in the regional hospital described how doctors gave the labour more time although they were informed that FHR was negatively affected, as this nurse-midwife explained:

I am the one who knows the patient, I stay with the patient, maybe I have already taken one or two actions. Maybe FHR is 100 or 90 and I can see it is in distress and contractions has slowed down and child cannot come out. I have called the doctor who says we should give her another one hour. Personally, I will tell the doctor [...] it is not possible to give mother another one hour. (Nurse-midwife, RRH)

The doctors said that they only gave time if no danger signs were present for mother or child. They described being available after allowing additional time as a necessity.

Teamwork seemed to be challenged by a mutual distrust between experienced nurse-midwives and inexperienced doctors. In decision-making, doctors were sometimes bypassed if the nurse-midwife did not agree with the decisions made. Nurse-midwives described this bypassing as a way of advocating for the women and children when they felt their conditions were not taken seriously. They argued that increased independence for nurse-midwives, especially when managing uncomplicated labours, would benefit the childbearing women. At the same time, they described fear of being accused of wrongdoing. When fearful of a poor outcome, they put effort into documenting the dialogue with the doctor to minimize the risk of blame.

Discussion

The purpose of this study was to explore how nurse-midwives and doctors in Tanzania described clinical challenges related to prolonged labour. Our findings indicate a mixture of different terms for the phenomenon of prolonged labour. The conception of urgency differed among the professions. Doubts regarding the accuracy of foetal heart rate findings were evident. The dialogue between doctors and nurse-midwives was challenged by distrust. All of the above complicate the ground on which decisions were made.

We found that the terms poor progress, prolonged labour and obstructed labour were discussed as three separate diagnoses, even though the usage was often overlapping and at other times, contradictory. An overview of indications for emergency CS in a hospital in Tanzania listed poor progress of labour, big baby, cervical dystocia, prolonged labour and CPD as different indications - poor progress being by far the leading cause for CS (31). This may indicate that poor progress is used as a broader, less strict diagnosis, encompassing more than what obstructed or prolonged labour does. Poor progress remains an unclear diagnosis. According to our study, prolonged labour and obstructed labour tend to be used as equivalent terms. If a labouring woman gives birth vaginally, said one informant, the case would not be labelled prolonged labour. This might indicate an understanding of prolonged labour closely related to mechanical disproportion. The respondents associated prolonged labour with severe findings of dry vaginas and restless, shouting and febrile mothers, implicating obstructed labour.

The respondents viewed the duration of normal labour differently. Arriving at a definition of prolonged labour, presupposes an agreement about what constitutes normal labour onset and progress. However, there is no global consensus about the onset and duration of the different stages of "normal" labour - the concept of "normality" in labour is neither universal nor standardized (4). Furthermore, there is no global consensus on a definition of prolonged labour (1). According to the respondents, the diagnosis of prolonged labour was given when the "expected" or "prescribed" hours were passed, or the action line of the partograph was crossed.

Our study found that the respondents had great confidence in the partograph, but at the same time regarded it as presenting a narrow normal. The routine use of the partograph has been widely promoted by the WHO (6). However, the validity of the most important components, the alert and action lines, has been called into question during the last decade (32). The new guidelines aim to facilitate "slow, yet normal" progression in labour (6). The respondents' thoughts were in line with the current waves of research. They often experienced disagreement with the partograph, and interventions were perceived as forced because "the partograph said so". Doctors stated that if they follow the guidelines many unnecessary CSs would be carried out, while disregarding the guidelines would sometimes lead to vaginal birth. Miltenburg et al. (33) found that nurse-midwives were hesitant to start the partograph at early first stage of labour, concerned that too many would cross the action line. We found that nurse-midwives allegedly chose to chart findings on the partograph in a way that it did not indicate prolonged labour, thus giving the labouring women more time to progress.

Crossing of the action line in the partograph prompted the respondents to “take action”. The meaning of “taking action” was ambiguous. At times, the action line alone seemed to be interpreted as an indicator for CS. High incidences of unnecessary CSs have been reported in Tanzania; one study found that 26% of prolonged labour cases that lead to CSs, were not actually prolonged (10). There seemed to be uncertainty around the appropriate time for oxytocin augmentation. Respondents described practical challenges related to adjusting the oxytocin infusion rate by hand – regulating the speed by opening and closing the valve. Maaløe et al. (34) implemented locally tailored guidelines in Zanzibar, which recommended reserving intrapartum oxytocin augmentation until crossing of the action line. They found significant positive effects on neonatal outcomes. Our findings identified a request among nurse-midwives regarding guidelines on when to utilise oxytocin augmentation and ARM.

Evaluation of urgency seemed related to different danger signs; crossing of the action line, exceeding the “prescribed hours”, foetal distress or maternal distress. The assessment of maternal wellbeing seemed to be focusing on pain that might imply urgency due to uterine rupture or difficulties like malpositioned child. Our study also found a distrust in foetal monitoring equipment, similar to the findings of Mdoe et al. (35). One may assume that our respondents’ recurrent experiences of being surprised by poor neonatal outcomes, affected their confidence in the foetal monitoring equipment. Several of the nurse-midwives explained that interpretation of the FHR was not at all difficult, which may suggest a simplified understanding of a complex field. The nurse-midwives advocated for more education and training on the usage of the FHR equipment. Lack of trust in FHR monitoring coexists with what we recognised as a questionable administration of oxytocin. Oxytocin augmentation can induce foetal distress (36); however, our respondents mainly focused on the risk of uterine rupture. We question if this might imply an underestimation of the risks associated with oxytocin augmentation, challenged by labouring women themselves requesting oxytocin augmentation to shorten labour.

Our study found that the respondents often had different perceptions of urgency. According to the nurse-midwives, the doctors would give the labouring women “more time” despite the nurse-midwives’ evaluation of urgency to the situation. The doctors explained that they always evaluated the larger picture before allowing more time for progress of labour. According to the nurse-midwives, however, they occasionally had to wait a long time for the doctor to arrive, although they had informed about a poor FHR. Situations where foetal distress was not recognised by nurse-midwives or acknowledged by doctors, may be seen as examples of what Miller et al. (20) described as “too little too late” in obstetric care. If the time interval from decision of emergency CS to childbirth is too long, this may have tragic consequences. Hirani et al. (31) and Maaløe et al. (10) found the decision-to-delivery interval to be close to one hour in Tanzania. The interviewed nurse-midwives were afraid of being blamed in cases of poor outcomes, in accordance with the findings by Miltenburg et al. (33) and Bremnes et al. (17). Both our study and Bremnes et al. (17) found that nurse-midwives felt that their competence was underestimated. Bremnes et al. (17) found that this led to further delay in the diagnosing and treatment because the doctors did not trust the observations of the nurse-midwives. We question if signs of distrust within the team and different perceptions of urgency, as found in our study, might negatively influence the quality of the obstetric care provided by the team as a whole.

Strengths and limitations

The main strength of this study is that it conveys both nurse-midwives' and doctors' own perspectives on their management of prolonged labour and what they find clinically challenging. Cross cultural research carries a risk of missing or distorting information. Attempts were made to limit misinterpretations through recurrent dialogue and close cooperation with the project group of EPSHILS in Tanzania.

Conclusions

The results of this study provide a broader understanding of what clinical challenges nurse-midwives and doctors at two hospitals in Tanzania face when managing prolonged labour. Our key findings suggest that the grounds on which decisions are made, are somewhat inconsistent. Different perceptions of urgency and signs of distrust among doctors and nurse-midwives complicates the teamwork. The clinical challenges presented in this study are in all probability aggravated by the evident structural challenges of staff shortage and lack of equipment and available operation theatres. The respondents request guidelines that clarify the appropriate time to perform oxytocin augmentation, caesarean section and artificial rupture of membranes. Frequent training on vaginal examination, use of partograph and foetal monitoring is requested.

List Of Abbreviations

ARM = Artificial Rupture of the Membranes

CPD = Cephalopelvic Disproportion

CS = Caesarean Section

EPSHILS = Enhancing Patient Safety in High- and Low-Resource Settings; how to improve the process of decision-making in case of prolonged labour

FHR = Foetal Heart Rate

WHO = World Health Organization

HIV = Human Immunodeficiency Virus

Declarations

. Ethics approval and consent to participate

The research has been performed in accordance with the Declaration of Helsinki. Local approval to conduct the group interviews was given by the management of both hospitals. Norwegian Centre for Research Data (NSD) and Regional Committees for Medical and Health Research Ethics (REC) were

informed about the study, both considering a full assessment to be unnecessary. All the participants signed a consent form which guaranteed anonymity and freedom to withdraw from the study at any time.

• ***Consent for publication***

We have attached the consent form signed by the participants. As the consent form does not specify consent for direct quotes from the interviews, quote sources are removed from the article manuscript.

• ***Availability of data and materials***

The data that support the findings of this study are available on request from the corresponding author [TSE]. The data are not publicly available due to them containing information that could compromise research participant privacy.

• ***Competing interests***

All six authors have declared that there are no conflicts of interests associated with the publication of this study.

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• ***Authors' contributions***

SE & BM planned the study and developed the study design. SE acquired funding. DM conducted the interviews and organised and supervised the transcription and translation of the interviews. AIH & JMEH conceptualised and conducted the analysis of the interviews and wrote and edited the first draft. SE, DM, BM & TSE reviewed and revised the draft. TSE supervised AIH & JMEH on the methodology and academic writing. All six authors have read and approved the submitted manuscript and have agreed both to be personally accountable for the author's own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

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