EFFECT OF UPRIGHT ('ALL FOURS') VERSUS LITHOTOMY BIRTH POSITION ON OBSTETRIC OUTCOMES AMONG LOW-RISK PARTURIENTS AT KENYATTA NATIONAL HOSPITAL; A MIXED METHOD STUDY.

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2022

DECLARATION

I certify that this proposal is my original work. It has not been presented for the award of a degree in any other institution.

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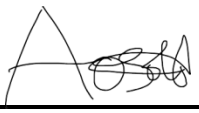
Signature:  **Date: 4/7/2022**

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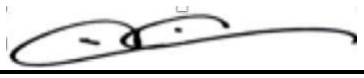
Signature:  **Date: 4. 07.2022**

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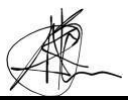
Signature:  **Date:** 5th July2022

CERTIFICATE OF AUTHENTICITY

This is to certify that this dissertation is the original work of Dr. Agunda Sarah Doreen Taaka of registration number, H58/7332/2017 who is a Master of Medicine (MMed) student in the Department of Obstetrics and Gynaecology, School of Medicine, College of Health Sciences, University of Nairobi. The research was carried out in the Department of Obstetrics and Gynaecology, University of Nairobi and Kenyatta National Hospital under the guidance and supervision of Dr Alfred Osoti, Professor Omondi Ogutu, Prof. Eunice Cheserem and Dr. Allan Ikol Adungo

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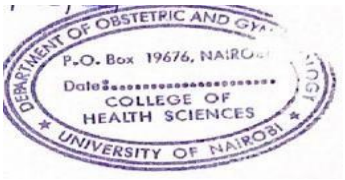

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DEDICATION

I dedicate this work to my parents, John K. Agunda and Anne N. Agunda whose unending sacrificial care was pertinent to its fruition; to my siblings, Brian, Eric and Kevin who crafted my path to this noble profession, I am eternally indebted.

LIST OF ABBREVIATIONS

ACOG -	American College of Obstetricians and Gynaecologists
AP diameter –	Anteroposterior diameter
APGAR score –	Appearance, Pulse, Grimace, Activity, Respiration score
BMI –	Body Mass Index
CBD –	Central Business District
Cm –	Centimetres
CS –	Caesarean Section
CTG –	Cardiotocogram
HDU –	High Dependency Unit
Kms –	Kilometres
ITT –	Intent to Treat approach
KNH –	Kenyatta National Hospital
LMIC –	Low and Middle Income Country
NBU –	New Born Unit
OASI –	Obstetric Anal Sphincter Injury
PI –	Principal Investigator
PMH –	Pumwani Maternity Hospital
RCT –	Randomized Control Trial
RR –	Relative Risk
SS –	Sample Size
UoN –	University of Nairobi
WHO –	World Health Organization

DEFINITION OF TERMS

Birth position: Physical postures assumed by a parturient during the process of labour and child birth.

Obstetric outcome: End result of the labour process that includes both maternal components such as Caesarean section rates, Amount of blood loss, Episiotomy rates, Incidence ofshoulder dystocia, Rate of assisted deliveries and foetal components such as 5 minute APGAR score, Rate of primary resuscitative measures administered, Rate of admission to NBU.

Low risk parturient: Apregnant woman in the process of labour and childbirth with a singleton foetus in cephalic presentation at a gestational age $\geq$ 37 weeks

„All fours‟ birth position: A physical posture where the participant has both her hands and knees on the bed with the trunk off the bed.

Lithotomy birth position: a physical posture where the participant is lying on her back with her hips flexed and abducted while the knees are flexed.

Second stage of labour: The period between full cervical dilation to expulsion of the foetus

Duration of second stage of labour: Time taken from full cervical dilation to expulsion of the foetus

Postpartum Haemorrhage: Blood loss of 500 ml or more within 24 hours after birth. (WHO, 2012).

Caesarean section: Surgical delivery of a foetus after 28 weeks of gestation or after formation of the lower segment

Episiotomy: Surgical widening of the introitus to facilitate delivery of the foetus

Shoulder dystocia: An obstetric emergency where the foetal anterior shoulder is impacted on the maternal pelvis hindering delivery within one minute of delivery of the foetal head.

Foetus: Intrauterine life from ten weeks gestation to birth.

Neonate: A child under 28 days of age. (WHO)

Newborn Unit: A specialised unit in the hospital which provides care for neonates.

APGAR score: An objective measurement of the newborn‘s condition immediately after birth, at five minutes and at 10 minutes. It comprises the Appearance, Pulse rate, Grimace, Activity, Respiratory rate and is scored out of 10.

Hands-off perineal technique: A technique of perineal support during second stage of labour whereby the midwives control the delivery of the foetal head without pushing against the perineum.

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ABSTRACT

Introduction

The World Health Organisation endorsed that parturients, without epidural anaesthesia, should deliver in a position of their preference including upright positions during the deliveryprocess. Studies from high-, middle- and low-income countries found upright positions (foe example the ‗all fours') to be beneficial due to its documented significant benefits such as a reduction in instrumental deliveries, perineal tears and duration of second stage over recumbent positions (lithotomy) position. Parturient's in Kenya are still encouraged to adopt lithotomy birth position during childbirth. The acceptability and effect of upright birth position on labour and delivery outcomes has not been evaluated in Kenya. The findings of this study will provide insight on local and regional policy and guide providers on the health outcomes associated with parturient birthing position, if adopted.

Objective

To compare obstetric outcomes in the ‗all-fours' versus lithotomy birth positions among low risk parturients during second stage of labour at Kenyatta National Hospital (KNH)

Methodology

Study design: Mixed method study with a hospital based, two arm, open label parallel randomised controlled trial and qualitative component In-Depth Interviews (IDI) and Focus Group Discussion (FGD).

Study population: 490 low-risk parturients in whom vaginal delivery is anticipated.

Intervention: ‗all fours' (experimental group) birth position

Control: lithotomy (control group) birth position

Outcomes: Primary – mean duration of second stage, incidence of composite adverse maternal outcomes (perineal tears, postpartum haemorrhage, Caesarean Section (C/S), assisted vaginal deliveries, episiotomies and shoulder dystocia) and composite adverse

neonatal outcomes (5 minute APGAR score <7, resuscitation, and admission to New-Born Unit. Secondary - parturients‘ and midwives‘ perceptions of the birth positions.

Timeline: July to October 2020

Data Collection Tool: Interviewer administered questionnaires used by the Principal Investigator and Research Assistants, FGD and IDI guides

Sample size: 490 low risk parturients with 235 in each arm calculated using the Fleiss formula with continuity correction and an adjustment rate of 10%

Randomization procedure: R programming statistical software was used to generate allocation sequence codes and to assign the random-allocation-sequence codes to two distinct labels namely TRT (—all fours) and CMPRN (lithotomy). An allocation schedule showing group to which random code was assigned was prepared by the statistician which were then concealed using a sealed opaque envelope which were serially issued. Once second stage was diagnosed, the participant was directed to the assigned arm by the RA. For the IDI, every 25th participant was selected, however only six consented for the interview. In the FGD, five midwives were selected at random

Data Analysis

Recorded qualitative data was transcribed directly to English and analysed using ATLAS.ti version 8. Quantitative data was entered into IBM SPSS version 20 database, cleaned and converted into excel comma delimited version (CSV) file. R programming statistical, open source software was used for descriptive and inferential statistical analysis. An intent-to-treat (ITT) approach was applied primarily to ensure internal validity is maintained. Modified ITT and per protocol analysis was also used.

Multivariate analysis was utilized to generate composite variables for maternal and neonatal outcomes in both positions. The analysis was evaluated at 5% level of significance (95% confidence interval). The statistical tests with p values <0.05 was considered significant

Results

Between July and October 2020, 526 parturients were screened, 36 were excluded, 490 were enrolled and randomised using an allocation ratio of 1 that is 245 in the ‒all fours‖ and 245 in lithotomy position. The sociodemographic and clinical characteristics were comparable in both groups. The mean duration of second stage of labour was 6 minutes longer in the ‒all fours‖ (14 SD 6) versus lithotomy group (20 SD 6) minutes, $p<0.001$. Maternal outcomes were comparable between both groups, $p = 0.38$. However, the episiotomy rate was higher in the lithotomy compared to all fours (14.3% vs 8.2%, $p = 0.04$). Neonatal outcomes were comparable between both groups $p = 0.12$. Of the 7 parturients who participated in the IDI, most were not aware of other birth positions and perceived was this after the delivery, some reported all fours to have discomfort warranting them to switch to lithotomy. Midwives opinion and discomfort, personal preference, advice from others, common practice and previous experience were cited as reasons for changing birth positions among those who switched birth positions. Some participants reported that they would assume the all foursbirth position in future. In the FGD, three midwives out of five participated. Most reported that they had limited training or experience in assisting delivery in ‒all fours‖. They perceived all fours to have less perineal tears. They were willing to assist delivery in all fours if trained.

Conclusions

Delivery in ‒all fours‖ had a six-minute longer mean duration of second stage of labour. Maternal and neonatal outcomes were comparable across the groups. However, there were lower episiotomy rate in the ‒all fours‖ position. Although most parturients and midwives were not aware or experienced they were open to delivery in the ‒all fours‖ birth position.

Recommendations

Parturients should be offered information on and be allowed to deliver in ‒all fours‖ birth position should be allowed to do so. Midwives should be trained on effective conduct of deliveries in ―all fours‖ position.

Key words: _all-fours‘ birth position, lithotomy birth position, second stage of labour,obstetric outcome

CHAPTER ONE: INTRODUCTION

The World Health Organisation (WHO) endorsed parturients to deliver in a position of their preference including upright positions [4]. Birth positions refers to the physical postures parturients assume during childbirth. Some upright birth positions include the _all fours‘, kneeling, sitting, squatting, and standing while recumbent birth positions include lithotomy, lateral and semi-recumbent.

A Cochrane Systematic Review in 2016 evaluated 30 RCTs where they compared the effect of the upright birth position over recumbent birth position of 9015 women without epidural anaesthesia. The review found that upright birth positions reduced episiotomies, assisted vaginal deliveries, second stage duration, shoulder dystocia cases and Caesarean Section rates. However, it was associated with an increased blood loss and first- and second-degree tears. The results were of low to moderate quality due to the varied inconsistencies and limitations in some study designs[1]. This Review informed the above WHO recommendation.

Most studies conducted on birth positions and obstetric outcomes were from high and middle income countries. Zhang et al in 2015, for example, conducted a randomised control trial across 11 hospital located in China with a large sample size of 1400 [5]. They found the _all fours position to offer similar benefits over the lithotomy position as the Cochrane SystematicReview (2016) by Gupta et al.

Diorgu et al, in a qualitative study conducted in a level VI Teaching and Referral Hospital in Nigeria, evaluated the views of 110 postnatal mothers and 110 midwives about various birthing positions. The study found that the midwives‘ opinion was the most important factor

influencing a parturients choice of birth position during second stage. The study also found that parturients were more familiar with the supine positions such as lithotomy [8].

Despite having studies on birth positions and the WHO recommendation women in Kenya, a low income country, are still being encouraged to deliver in the lithotomy position. In some areas like in Turkana and Samburu, sitting position during childbirth is a cultural practice, therefore health facilities are now allowing women to deliver using birth stools duringchildbirth which has now been widely accepted by the parturients [33]. However, there are no studies in Kenya comparing the effect of birth positions on obstetric outcomes. There are also no guidelines or recommendations on birth positions.

This study sought to compare the effect of the _all fours‘ versus lithotomy birth positions on obstetric outcomes at Kenya‘s largest Teaching and Referral Hospital, Kenyatta National Hospital. Parturients‘ and healthcare providers‘ perceptions of the _all fours‘ and lithotomy birth positions were also evaluated.

The study findings will provide insight on the development of policy and guidelines regarding birth positions in management of low risk parturients during second stage of labourin Kenya and globally.

CHAPTER TWO: LITERATURE REVIEW

2.1 Background

Gupta et al [1] reviewed 32 RCTs published in the Cochrane Pregnancy and Childbirth's Trials Register. The Review compared the effect of upright versus supine birth positions on obstetric outcomes among 9015 women without epidural anaesthesia. These studies were drawn from countries of different economic status. Two review authors independently assessed the quality and inclusion of the trials while two others extracted data extraction. Data accuracy was assessed, and the GRADE approach employed to assess the quality of evidence. The review found that upright birth positions reduced episiotomies, assisted vaginaldeliveries, second stage duration, shoulder dystocia cases and Caesarean Section rates. However, it was associated with an increased blood loss and first- and second-degree tears.

A large multicentre, RCT in China by Zhang Hong-Yu et al (2015) compared the effect of _all fours‘ versus lithotomy birth position on obstetric outcomes across eleven hospitals. Screened parturients were 5808, where 1021 were excluded thus 4787 were eligible but, only 1400 provided informed consent and were recruited. Of these, 446 were randomised to the _all fours‘ and 440 to lithotomy positions. There were 480 withdrawals from the study. The participants mean age was 23.93 ± 3.78 years with most of them being primiparous (67.5% in the experimental and and 66.1% control groups, respectively). The study found significantly lower episiotomies, shoulder dystocia and higher intact perineum rates with the _all fours‘ position. They concluded that the upright _all fours‘ position had benefits over lithotomy position and should be encouraged in clinical practice.

2.2 Pelvic diameters on birth positions

Pelvic diameters are important in the birthing process. Michael [7] found that the sagittal outlet in the _all fours‘ position was 11.8cm +/- 1.3cm while that in the supine position it wasat 11.5cm +/- 1.3cm, p = 0.002 and 0.01 respectively. The inter-spinous diameter in the upright all fours diameter was 11.6 +/- 1.1cm while that of the supine position was 11.0 +/- 0.7cm, p = <0.0001 in both positions. The was no significant difference in inter-tuberous diameter in the _all fours‘ position which was 12.5 +/- 0.8cm and 12.4 +/- 1.1cm in the supineposition. The transverse diameter was insignificantly lower at 12.9 +/- 0.7cm (supine position) versus 12.8 +/-0.7cm (_all fours‘ position). The obstetric conjugate was 12.4 +/- 0.9cm (supine position) versus 12.4 +/- 0.8cm (all fours position).

The study concluded that upright positions such as the _all fours‘ position significantly augmented the pelvic dimensions.

2.3. Maternal birth position on duration of second stage

Duration of second stage is defined as the time period from full cervical dilation to expulsion of the foetus. Studies have shown that upright positions (e.g. _all fours‘ position) wasassociated with a reduction in the duration of second stage compared to recumbent positions such as lithotomy birth position.

Gizzo et al [17] found a 50 minute reduction in the duration of second stage with the upright birth position at 34.4 ± 32.6 minutes compared to 84.4 ± 57.8 minutes in recumbent birth position. In this study, 69 women delivered in recumbent positions compared to 156 in upright position. 46.1% of those in the upright position completed the protocol with 21.1%

assuming the sitting position, 16.2% the _all fours‘ position and 16.6% the balloon-squatting position.

Gupta et al [1] in 19 trials involving 5811 parturients also reported a statistically significant reduction in the duration of second stage by 6.16 minutes with the upright position. There was extreme variability in the mean duration of second stage, risk difference and standard deviations. Some of the smaller trials contributed to the asymmetry possibly due to publication bias, hence, results were deemed to be of low quality attributable to design limitations and inconsistencies in the results.

Berta et al [32] evaluated the effect of maternal birth positions on duration of second stage of labour, eight countries with varied economic levels and a total sample size of 1985 parturients were included. Randomization saw 933 randomised to a supine position and 938 to an upright position. One study was cross-sectional while the rest were RCTs. The meta- analysis excluded two studies for their incomplete report while the remaining six studies found a pooled weighted mean difference of 23.4 minutes with fixed effect model and 21.118minutes with random effect model. Significant differences between the studies were noted. The sub-total weighted mean difference of duration of second stage of labour in the subgroup analysis was higher in high income (18.87minutes) as opposed to low-middle income regions (22.32minutes).

According to the above studies, the second stage duration was reduced in the upright positions versus recumbent positions. This may be as a result improved contractions, increased pelvic outlet diameters in upright positions, downward direction of force and the synergistic effect of gravity.

2.4 Birth positions on maternal obstetric outcomes

2.4.1 Episiotomy rates

Episiotomies are planned incisions on the posterior or lateral aspect of the perineum to increase the vaginal introitus to facilitate delivery, prevent strain on foetal head and overstretching or tear of perineal muscles.

Zhang et al [5] found the _all fours‘ to be associated fewer episiotomies at 1.8% (8/446) compared to lithotomy birth position at 37.7% (166/440). Logistic regression analysis found the _all fours‘ birth position to be a protective factor for episiotomy. Higher gestation of was associated with increased rate of episiotomies. Gizzo et al [17] found episiotomies were performed at 100% (69/69) in the recumbent positions compared to the 32.7% (51/156) in the upright group. Meyvis Inge et al [10] I his study involving 557 women found the lateral position (7%) was associated with significantly less episiotomies compared to lithotomy position (38%). Gupta et al [1] reviewed 17 trials with a total of 6148 parturients and found that upright positions reduce episiotomies compared to recumbent positions.

The results in these studies could be as a result of difficulty in conducting episiotomies in the upright positions compared to recumbent positions. Upright positions are considered to be a protective factor against episiotomies.

2.4.2 Incidence of perineal tears

Perineal tears are common during delivery. The rates of intact perineum were found to be higher at 33.2% (148/446) parturients in the _all fours‘ compared to 14.8% (65/440) in the lithotomy group with a mean of 41.11% [5].

Conversely, the upright positions (e.g. _all fours‘) position was associated with higher rates of first degree laceration at 56.3% (251/446) andsecond-degree laceration at 8.7% (39/446) compared at 41.8% (184/440) and 5.7% (25/440) in the lithotomy birth position with a mean of 18.53%. The rate of second degree perineal tears between the two groups was clinically but not statistically significant.

Gizzo et al [17] found that first and second degree perineal tears occurred less frequently in recumbent position at 5.9% (4/69) compared to 49% (76/156) in the upright position. The results was statistically and clinically significant. The upright group had several positions which could have contributed to the low episiotomy cases.

Gupta et al [1], evaluated perineal tears in 18 clinical trials involving 6715 women and found an increase in second degree perineal tears in the upright group, partly attributable to reduced episiotomies, although the result touched the line of no effect (RR 1.20, 95% CI). However the evidence was of low-quality. Third and fourth degree tears had no clear difference between both positions in 6 trials involving 1840 women. This evidence was of very low quality.

The above studies [1,5,17] show an increased risk of perineal tears in the upright positions compared to recumbent birth positions. This could be attributed to the difficulty in perineal support and/or episiotomies by the birth attendant in the upright position.

2.4.3 Caesarean Section rates and assisted deliveries

Caesarean delivery is defined as surgical delivery of a neonate after 28 weeks gestation while assisted vaginal delivery refers to instrumental procedures applied during vaginal vertex delivery of the foetus.

The vaginal deliveries in upright positions was higher than in recumbent positions. Gizzo et al [17] found that 87.1% (136/156) women who assumed an upright position during second stage of labour had vaginal deliveries compared to the 47.8% (33/69) who assumed recumbent positions. The Caesarean Sections rate was also lower in upright than recumbent positions. The same study reported that 9 out of 156 (5.8%) parturients who assumed an upright upright position had Caesarean delivery compared to 18 out of 69 (26.1) who assumed a recumbent positions during second stage of labour. However, Gupta et al [1] reviewed 16 trials with a cumulative sample size of 5439 women and found no clear difference in the of caesarean section rates between upright and recumbent positions.

Operative vaginal delivery includes forceps or vacuum delivery. Gizzo et al [17] found 7.1% (11/156) of parturients who delivered in upright positions had operative vaginal delivery compared to 26.1% (18/69) in recumbent position. Gupta et al [1] found upright position may reduce instrumental vaginal delivery when they reviewed 21 trials involving 6481 women.

Caesarean Sections were less with upright birth positions versus recumbent birth positions. This may be due to the reduced observations of abnormal foetal heart rate, reduced duration of second stage and increased contractions due to reduced relief of aorto-caval compressionin the upright positions.

2.4.4 Blood loss in second stage of labour and postpartum haemorrhage

The average blood loss in a spontaneous vaginal delivery averages at 500ml. Upright positions have been found to have increased blood loss compared to recumbent positions.

However, Zhang Hong Yu et al [5] found that postpartum bleeding was not significant in both the _all fours‘ at 189.28 ± 91.38ml and lithotomy positions at 193.17 ± 90.3ml. There was also no incidence of severe postpartum haemorrhage in both groups. Women whoexperienced postpartum bleeding also presented with an increased rate of episiotomy and perineal tears. Gupta et al [1] evaluated 15 trials involving 5615 women and also found an increased estimated blood loss greater than 500 mL in upright versus supine positions. This was related to possible publication bias which was suggested by the funnel plot asymmetry assome of the smaller studies appeared to have larger effect sizes.

The above studies [1,17] show an increased amount of blood loss with upright positions attributed to perineal tears rather than uterine atony.

2.4.5 Incidence of shoulder dystocia

Shoulder dystocia is defined as an obstetric emergency where the foetal anterior shoulder gets impacted on the maternal pelvis hindering delivery within one minute of delivery of the foetal head. The incidence of shoulder dystocia is normally less than 4 percent among vaginal cephalic deliveries. The _all fours‘ position has been used and in the management of shoulder dystocia. The American College of Obstetricians and Gynaecologists (ACOG) recommends the use of the _all fours‘ position that is the Gaskin manoeuver in management of shoulder dystocia for women without anaesthesia.

The incidence of shoulder dystocia is lower in upright versus recumbent positions. In a Dutch study, the all fours position was the second most used manoeuver at 26.6% with a success rate of 29.4%. The exact mechanism of how this position relieves the impacted shoulder is unknown, however postulated theories include increased pelvic diameters and effect of gravity.

Gizzo et al [17] found that upright positions had less cases of shoulder dystocia at 0.7% (1/156) than in recumbent positions at 13.05% (9/69). The maternal characteristics in both groups were homogenous. The results were therefore statistically and clinically significant. Zhang Hong Yu [5] also found the incidence of shoulder dystocia in the lithotomy birth position to be 0.9% (4/440) while there was no case in the ‗all fours' position.

2.4.6 Rate of Abnormal Foetal Heart Rate Patterns

Gizzo et al [17] found recumbent positions to have a higher rate of abnormal foetal heart rate patterns at 13.05% (9/69) compared to 5.1% (8/156) in upright positions. This has been theoretically hypothesised to be as a result of improved utero-placental circulation due to relief of aorto-caval compression in the upright positions. Another theory was poor maternal/foetal monitoring in the upright positions.Gupta et al [1] reviewed 2 trials involving 617 women also showed that upright positions had fewer abnormal foetal heart rate patterns than supine positions.

2.5 Maternal birth positions effect on neonatal outcomes

2.5.1 Neonatal Apgar scores

Neonatal Apgar score is an objective measurement of the newborn's condition immediately after birth, at five minutes and at 10 minutes. It comprises the Appearance, Pulse rate, Grimace, Activity, Respiratory rate and is scored out of 10. The 5 minute score is the most

important and can be used in collaborations with other investigations to diagnose asphyxia. Upright and recumbent positions had no difference in Apgar scores. Gizzo et al [17] found no differences between both groups in terms of neonatal outcomes. In both groups, there was no case of a child scoring less than 7 by the fifth minute of birth. Zhang Hong Yu [1] also found no difference in the average 5 minute APGAR score in both all fours and lithotomy groups.

2.5.2 Incidence of neonatal resuscitation and admission rate into the New Born Unit.

Resuscitative measures will refer to administration of oxygen. Gupta et al [1] found no clear difference in the number of babies admitted to neonatal intensive care according to 4 trials with 2565 women. However the evidence was of low quality.

2.6 Maternal satisfaction in various birthing positions

Maternal satisfaction will refer to the parturients opinions on pain perception and comfort in the two birthing positions during second stage of labour.

Gupta et al [1] assessed use of analgesics during second stage in upright versus recumbent birth positions and found that upright positions had less women requiring analgesics. The Review involved 7 trials with a cumulative sample size of 3093 parturient. However, the confidence intervals crossed the line of no effect making the result uncertain. (RR 0.97, 95% CI). Therefore, the effect if present is likely to be very small.

Stremler et al [19] in a large multicentre randomised control trial involving 13 university-affiliated hospitals and 147 parturients at term gestation with foetus in occiput posterior position randomised 70 parturients to the _all fours‘ group and 77 to alternative birth position. They found that the _all fours‘ birth position had significant reductions in persistent back

pain and favoured rotation of OP to OA (16% of 70 parturients in _all fours‘ compared to 7% of 77 parturients in alternative positions with a relative risk 2.4 and 95% CI 0.88-6.62) possibly due to gravity and buoyancy. Other outcomes included operative delivery, perineal trauma, Apgar scores, duration of labour and women's views with respect to positioning. The study did not achieve a desired statistical power due to the sample size.

Diorgu F. C. et al [8] conducted an exploratory study in two tertiary hospitals in Nigeria with a sample of 110 parturients and 110 midwives. The parturients had a low risk term gestation in whom vaginal delivery is anticipated. The 110 midwives selected to participate in the study were registered nurses with full time employment and more than 5 year experience in midwifery. They found that most parturients delivered in lithotomy position which was the midwife‘s preferred position. However, they also found that 63/110 (57%) of parturients found lithotomy position not to be helpful during childbirth while 106/110 (96%) were willing to adopt a different birth position if given a choice. Of the parturients who had an episiotomy, only 40% (30 parturients) were informed and given a reason for the incision.

Ford E et al [10] measured maternal perceptions of support and control in birth (2008) in a qualitative interview conducted 1–7 days after delivery in a hospital in London. The pilot study involved 10 women and was conducted to highlight important factors of controlrelevant to parturients during labour and to guide the structure of the questionnaire. The studyexcluded women with stillbirths and those who had babies were admitted in NBU. Eighteen women were eligible for the study but only 14 were enrolled. Due to technical problems with the recording equipment, four were lost. Eight out of ten mothers had spontaneous vaginal deliveries, one a ventousse delivery, and the tenth, a planned Caesarean Section.

The experience of women‘s control was summarized into: thought and emotions, behaviour, physical functioning and pain. Factors affecting it (external control), were summarized as: information, pain relief (analgesia),decisions/procedures, environment, and birth outcome.

Women felt more in control when pain relief was administered however some analgesics (nitrous oxide gas or opioids) had side effects that could reduce mental control. Women also felt more in control when they received information. Conversely, lack of comprehension reduced perceptions of control. Delivery in a home environment or a birth centre made women feel that they were more in control than at the hospital. Lastly, performing obstetric procedures such as foetal heart monitoring reduced perceptions of control.

Supportive hospital staff increased perceptions of control among the participants. Encouragement and positive staff attitude towards the women increases perceptions of support.

2.7 Effect of midwives‟ opinion on selection of birthing position

Largo-Janssen and Jonge [6] on influences on women‘s use of birthing positions, found that a midwife‘s opinion was the most important factor influencing choice of birth position. Their recommendation was that midwives should encourage women to give birth in positions that they are comfortable in.

Diorgu F. C. et al [8] found that on birth positions, the majority of midwives assisted women in the lithotomy birth position during childbirth. 88% (98/110) of the midwives preferred lithotomy over other birth positions. However, most midwives also reported that they had never assisted childbirth in any other positions such as squatting, standing, and kneeling or

sitting despite being were aware of them. However, 41% (45/110) were willing to use the other birth positions if introduced in the hospital.

On perineal trauma, most midwives reported confidence in the ability to repair perineal tears. However, they reported that perineal repair workshops would be helpful. 80/110 (73%) of parturients received an episiotomy while 30/110 (27%) sustained perineal trauma by spontaneously. 76/110 (69%) were not informed of the episiotomy prior. 59/110 (53%) parturients reported that no local anaesthesia was given prior to the episiotomy incision was performed. However, interestingly, 30/110 (27%) confirmed that they did not give local anaesthesia to mothers before the episiotomy.

Despite the WHO recommendation for women to assume a position of choice during childbirth, women are still being encouraged to assume the supine or lithotomy positions in LMIC. At Kenyatta National Hospital, it is routine practice for midwives to encouragewomen to deliver in lithotomy or supine positions.

2.8 Challenges /Barriers

Berta et al [32] reported some challenges. First, despite the extensive search, the Review was limited to PUBMED & SCOPUS databases. Other databases could not be used due to inaccessibility of their sites. Secondly, the high variation in sample sizes, study settings, and duration between studies affected the quality of the review.

Cochrane systematic review [1] reported similar challenges. The results were of low quality due to the wide variations in the size and direction of effect of several studies. Some studies

had design limitations – inadequate randomisation, allocation concealment with high heterogeneity and wide confidence intervals.

Zhang et al in [5] faced some challenges such as high attrition rate from the experimental group that is the _all fours‘ position mostly due to discomfort which affected the power of thestudy. Restriction of women to deliver on the excessively high and narrow bed as opposed to the floor where they could move freely affected the study outcomes and attrition rate.Attrition in the control group was attributed to the unwillingness of participants to complete the study protocol which included follow up interview questions. The study design an open two arm RCT may also have introduced some bias in some outcomes such as episiotomy and second stage duration. Another challenge suggested by some midwives was the need of additional helpers when adopting the all fours position. Lastly, the study did not explore the perceptions of the participants of the birth positions.

These, however, should not prevent women from using various positions second stage of labour as they are achievable with limited assistance.

2.9 Research Justification

Studies [1,5,17] have found upright positions to have benefits over recumbent positions such as reduced second stage duration, assisted vaginal deliveries, caesarean sections, abnormal foetal heart rate patterns and rate of intact perineum. However, they were associated with increased first and second degree perineal tears and consequently increased blood loss in some studies.

Systematic reviews done on the effect of birth positions on obstetric outcomes were not sufficient to inform if one birth position is superior to the other due to low quality evidence. This prompted the WHO recommendation that should be allowed to select a birth position of choice during delivery including upright positions.

Despite WHO recommendations, parturients in Kenya are still encouraged to deliver in lithotomy birth position. This can be attributed embedded practices as opposed to evidence based practices. The acceptability and effect of upright birth position on labour and delivery outcomes has also not been evaluated in Kenya and as such further limits the use of alternative positions during delivery.

Women in some parts of the country are now using birth stools during delivery. This practice has also been well received by both the parturients and the birth attendants.

These have informed this study which shall compare the effects of the all fours position (an upright position) versus the lithotomy position (a recumbent position) on obstetric outcomes. The parturients‘ and clinicians‘ perceptions on the various birth positions shall also be evaluated.

The study findings will provide insight on local and regional policy and guide providers on the safety and outcome of upright birth positions so as to allow parturient to select their preferred position during childbirth.

2.10 Conceptual Framework

Eligible study participants will be randomised to the _all fours‘ or lithotomy birth positions. There have been several hypotheses on the mechanism by which upright and recumbent birth positions affect obstetric outcomes. These include:

(i) The synergistic gravitational force

(ii) Reduced aortocaval compression which improves cardiac output and uteroplacental circulation resulting in improved uterine and placental circulation hence improved neonatal outcomes [23]

(iii) Improved uterine contractions [24,25].

(iv) Improved foetal alignment in relation to maternal pelvis ('drive angle')

(v) Increased pelvic diameters such as the pelvic outlet diameters both anteroposterior [26] and transverse [27] in the squatting [30] and kneeling/all fours positions [31].

The _all fours‘ birth position has been shown to have a larger inter-spinous diameter compared to lithotomy position [7]. The pelvic outlet AP diameter is increased in thisposition compared to lithotomy [26] thereby reducing the cases of shoulder dystocia. This position has been therefore, been employed in the management of shoulder dystocia. The _allfours‘ position also relieves aorto-caval compression which improves utero-placental circulation hence improved foetal oxygenation [23]. The uterine contractions become stronger and more effective in this position [24, 25]. The foetal alignment and negotiation through the maternal pelvis is also improved in this posture compared to the lithotomy position. The birth position in addition offers the effect of gravity and downward direction of force which aid in delivery of the foetus. This position despite all the hypothesized benefits has some disadvantages such as pelvic instability and has been associated with increased blood loss possibly due to trauma.

The lithotomy birth position unlike the ‗all fours' position offers pelvic stability as the pelvis is placed on stable surface such as a bed. It also offers more working space for the birth attendant such as monitoring contractions, supporting the perineum, conducting assisted vaginal deliveries such as vacuum delivery and episiotomies by the birth attendant [8, 12]. This position also allows the parturients to rest their body weight on a larger surface area making it more comfortable [5] for them. However, it is associated with increased perineal tone, an upward direction of force against the effect of gravity as the pelvis and aorto-caval compression [12].

Since the study participant shall be randomly assigned into a position, it is important to evaluate the participants' satisfaction index. Zhang et al [5], as a result of the high attrition recommended that participants' perceptions be evaluated. In addition, the midwives' opinion on ease of assisting delivery and ease of adoption by the parturient shall also be determined. The midwives shall be present in counselling the patient on the position assigned to them. Largo-Janssen et al [8] found that a midwife's opinion was the most important factor influencing choice of birth position by a parturient.

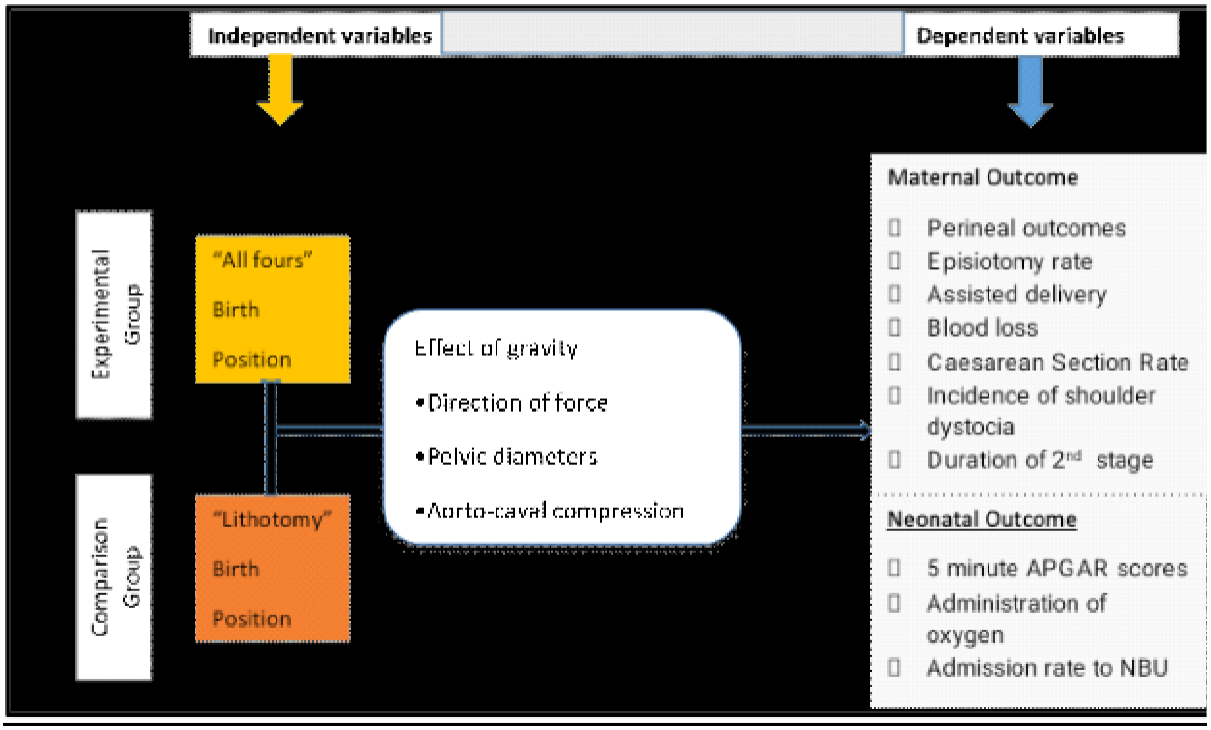
The participants will be randomised into both groups to balance the effects of socio-demographic factors such as age, BMI, gestation and parity and other factors such as augmentation of labour, use of analgesics, position of the foetus, pelvic floor weakness, pelvic types and maternal psyche. Chi Square and Fishers exact test will be used to test for homogeneity to ensure there is matching in both positions.

Narrative

Several Randomized control trials and observational cohort studies have found that parturient birth position have effects on the obstetric maternal and neonatal outcomes. Most of these studies have limitations in terms of sample sizes and other factors as is seen in meta-analysis publications.

This study aims to evaluate the causal effect of the birth positon during delivery in low risk women. The two independent variables are –All fours‖ and –Lithotomy‖ birth position. The dependent variables to be evaluated are mainly classified into maternal and Neonatal outcome variables. Maternal variables include; perineal outcome, Episiotomy rate, assisted delivery, Blood loss level, Caesarean Section rate, Incidence of shoulder dystocia and duration of 2nd stage labour while Neonatal variables include; 5 minutes APGAR scores, Oxygen administration, Admission to NBU.

Figure 1: Conceptual Framework



2.11 Research Question

What is the effect of the ―all fours‖ versus lithotomy birth position on obstetric outcomes among low-risk parturients during second stage of labour at KNH?

2.12 Research Objectives

Broad Objective

To compare the effect of the ―all fours‖ versus lithotomy birth position on obstetric outcomes among low-risk parturients during second stage of labour at KNH.

Specific Objectives

Primary objectives

Among low-risk parturients at KNH randomized to the ―all fours‖ versus lithotomy birth position during second stage of labour,

1. To compare the mean duration of second stage of labour
2. To compare the incidence of immediate adverse maternal outcomes (incidence and severity of perineal tears, episiotomies, amount of blood loss, operative deliveries)
3. To compare the incidence of immediate adverse neonatal outcomes (5-minute APGAR score, incidence of admission to new born unit, incidence of resuscitative measures)

Secondary objectives

Among low-risk parturients at KNH randomized to the ―all fours‖ versus lithotomy birth position during second stage of labour, to determine:

- parturient satisfaction about the birth experience
- To determine health care providers perceptions of the birth process

2.13 Research Hypothesis

Null hypothesis

- There is no association between –all fours‖ versus lithotomy birth position and obstetric outcomes among low risk parturients during second stage of labour at KNH.

CHAPTER THREE: METHODOLOGY

3.1 Study Design

This study utilized a mixed-method approach, combining both quantitative and qualitative research methodologies.

The qualitative research method included in-depth interviews (IDI) involving the postnatal mothers and the focus group discussions involving the healthcare providers. The parturients who participated in the IDI post-delivery were selected from those who gave birth in the assigned birth position and those who switched the birth position. This provided more insight into experimental and lithotomy position.

The RCT design was a hospital-based, two arm, open label, parallel randomised controlled trial with an allocation ratio of 1.

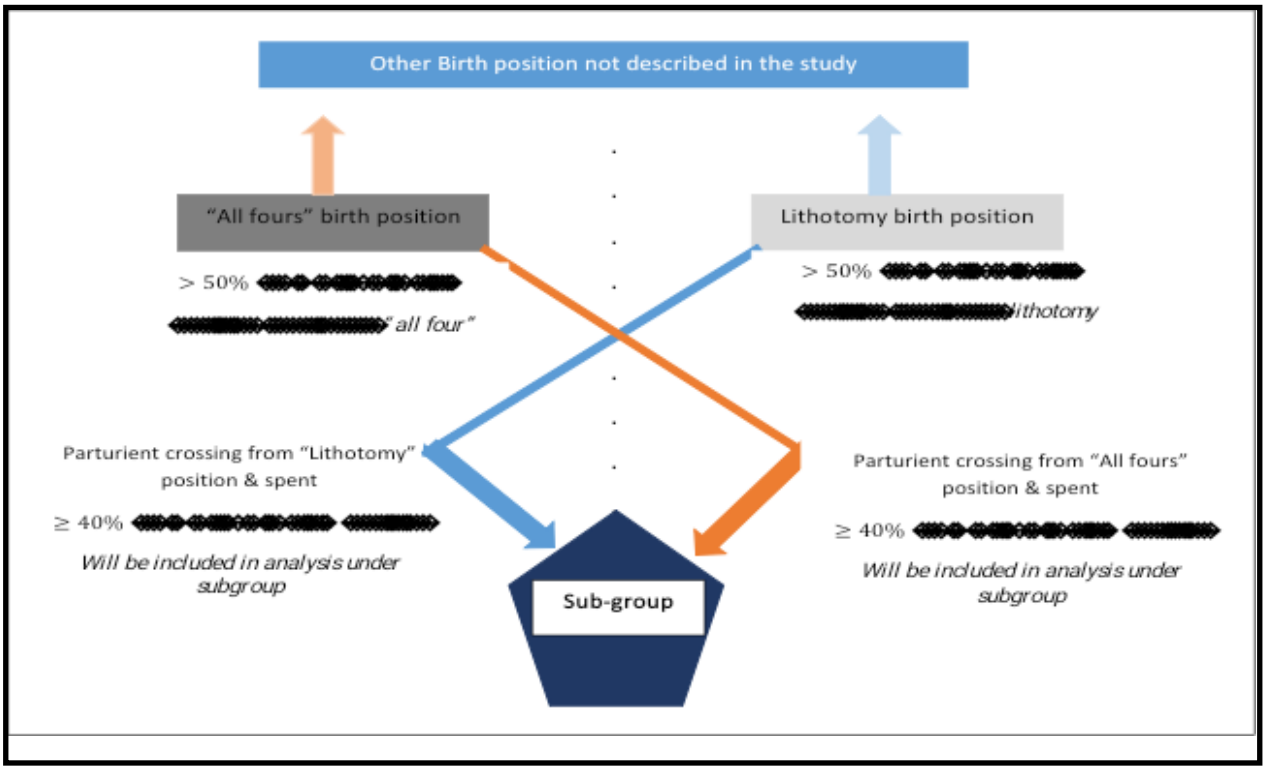
The data was primarily analysed using intent-to-treat approach. A secondary level analysis, per-protocol approach will be applied as a supplementary to ITT approach to provide more information of each birthing position.

In the study by Gizzo et al [17], parturients who maintained a birth position for >50% were incorporated into the analysis there by maintaining the power of the study. In this study, the parturient who spent at least (≥50%) of the time in a study arm was considered to have fully participated in that respective birthing position and will be included in the analysis.

Similarly, those who switched birth position to either arm of study were allowed following informed advice from the assisting nurse/midwife. A parturient who changed from ‒all fours‖

position to lithotomy birth position and vice versa and spent at least ≥40% of the time in that birth position they have chosen to give birth in, were included in the secondary analysis using per-protocol approach to provide more experience of the birthing positions. This yielded a sub-group which provided a plausible tilting angle to look at the effect of birthing positions. This allowed one to derive other variables that were beneficial in explaining observed patterns and outcomes.

Figure 2: Subgroup Analysis Model



3.2 Study Setting

The study was carried out at labour ward in Kenyatta National Hospital, the largest Teaching and Referral Hospital in Kenya, a low and middle income country. KNH serves as a training site for College of Health Sciences, University of Nairobi and Kenya Medical Training

College. The hospital has 50 wards, 22 outpatient clinics, 24 theatres and a total bed capacity of 1,800 beds. On average, KNH serves 80,000 inpatients annually.

Labour ward deliveries average at approximately 1200 per month as per the records on the Delivery Registry at KNH 2020. The population at labour ward includes high risk pregnant women referred from peripheral hospitals, and pregnant women who reside in Nairobi County and its surrounding counties such as Kiambu, Kajiado and Machakos.

The staff in labour ward include professionally trained midwives and residents on the Master of Medicine programme who are all under the supervision of a Consultant Obstetrician and Gynaecologist.

Following the COVID 19 Pandemic, KNH had scaled down its services including changing the admission criteria for patients in Labour Ward. This would have affected the study protocol. As a result, the study setting was to change to Pumwani Maternity Hospital if the pandemic persisted after ethical approval. However, this did not happen due to an industrial action in Nairobi County that saw Pumwani Maternity Hospital close down from September 2020.

PMH, a hospital located in the eastern part Nairobi, approximately 5 kms from the CBD, is the largest maternity hospital in sub-Saharan Africa. The hospital falls under the jurisdiction of the Nairobi City County located. PMH‘s population at labour ward comprises high risk pregnant women referred from peripheral hospitals and pregnant women who reside inNairobi County and its surrounding counties such as Kiambu, Kajiado and Machakos. The hospitals has 354 obstetric beds, 44 baby cots, 2 functional theatres, 6 postnatal wards and a HDU. The hospital conducts 50-100 vaginal deliveries with up to 20 C/Ss in 24 hours.

The hospital has recently opened a College of Nursing and Midwifery through multi-sector collaborations. The staff in L/W comprises a Head of Department who reports to the Medical Superintendent (The Hospital In-Charge). The other staff in the department include Medical Officers, Nurses, students and support staff.

3.3 Study Population

The study population WAS composed of low risk parturients at term gestation 37 weeks to 41 + 6 days with spontaneous onset of labour or on induction of labour in whom vaginal delivery was anticipated. They were recruited during their admission to labour ward and randomised just before second stage. The In-Depth Interviews in the immediate postnatal period.

3.3.1 Inclusion Criteria

Women with term (37 to 41+10 days), low risk pregnancy qualified to participate in this study. The parturient was also to meet the following criteria:

- Those with spontaneous onset of labour or on induction or on augmentation of labour
- Foetus in cephalic presentation
- A reassuring heart rate
- Adequate pelvis on clinical pelvimetry

3.3.2 Exclusion Criteria

- Medical conditions such as cardiac disease, hypertension, thyroid disease, diabetes
- Previous pelvic, knee or spinal injuries
- Parturients COVID 19 positive tests

- Parturients with severe infections
- Precipitate labour
- Patients with CPD
- Multiple gestation
- Non reassuring foetal status
- Epidural analgesia
- Mentally ill parturients
- Previous uterine surgeries or trauma such as myomectomies, uterine rupture, uterine inversion
- Parturients with fistula, old perineal tears

3.4 Study Period

The study was conducted at Kenyatta National hospital from July 2020 to October 2020.

3.5 Sample Size Determination

The sample size for this clinical trial is carefully planned and computed to achieve the balance between both clinical and statistical considerations. A large enough sample with hobability (power) of detecting a statistically significant and clinically important birth position effect difference of a given size, the following factors were considered in thecomputation.

This study will consider use of $\alpha = 5\%$ level of significance (type 1 error rate of 5%) and 80% (1-β) power of detecting intergroup clinical difference. The effect size difference will be evaluated at a $p = 0.05$.

The values from these studies on the maternal and neonatal outcome are averaged to obtain the requisite estimates of event rates in two maternal birthing position. The effect size of the birth positions in the trial is expressed as $\delta = (p_c - p_t) = 0.0886$.

Therefore the number of the required participant in each group of the trial is given in the equation below.

$$n = \frac{p_t q_t + p_c q_c}{\delta} * f(\alpha, \beta) \text{ .....(a)}$$

Where: $f(\alpha, \beta) = (z_{\alpha/2} + z_\beta)^2$

$\alpha =$ Type 1 error associated critical value of 1.96, (95% confidence level (1-α)

$\beta =$ Type 2 error (gives power of $(1 - \beta)$ with associated critical value of 0.84

p_t = Expected event rate of proportion in the treatment birth position = 0.0704

$p_c =$ Expected event rate of proportion in the standard of care birthing (control arm) position = 0.159

$\delta = (p_c - p_t)$ = 0.0886 (Birthing position effect size)

$q_t = (1 - p_t)$ = 0.9296

$q_c = (1 - p_c)$ = 0.841

Hence:

$$n = \frac{ptqt + pc\ qc}{\delta} * f(\alpha, \beta) = \frac{p_t q_t + p_c q_c}{\delta} * (z_{\alpha/2} + z_\beta)^2)$$

$$n = \frac{(0.0704 * 0.9296) + (0.159 * 0.841)}{0.0886^2} * (1.96 + 0.84)^2$$

$$n = \frac{0.06544 + 0.13372}{0.0886^2} * (2.8)^2$$

$$n = \frac{0.1992}{0.0886^2} * 7.84$$

$$n = \frac{0.1992}{0.0886^2} * 7.84$$

$$n = 198.9473$$

Taking the Fleiss continuity correction to obtain a sample for each group is computed in the equation bellow.

$$n' = \frac{n}{4}\left[\left[1 + \sqrt{1 + \frac{4}{n|p_t - p_c|}}\right]\right]^2 \quad \text{..... (b)}$$

From the equation (b), the resulting sample size with continuity correction is give as for each group of study.

$$n' = 220.9441$$

To account for the attrition or deviation of choices of birthing position outside the study that may lead to a decision to exclude some participants in the analysis, adjustment at the rate of 10% (r = 0.1) is computed. The adjusted sample size is given as

$$n'' = \frac{n'}{1 - r} = \frac{220.9441}{1 - 0.1} = 245.493$$

$$n'' = 245$$

$$\underline{n'' + n'' = 490}$$

The sample size for each group, n treatment birthing position = **245** and standard of birth position (control) = **245**. Hence the total sample size is **490** parturient.

3.6 Randomization Procedure

The statistician used a user-defined-function designed in R programming statistical software to generate random numbers, which acted as allocation sequence codes. The same R function was used to assign the random-allocation-sequence codes to two distinct labels namely TRT and CMPRN.

The TRT label represented the experimental group (—all fours) while CMPRN represented a comparison group (lithotomy). A schedule showing group to which random code is assigned was prepared and concealed using a sealed opaque envelope. The random allocation codes

and envelope were kept in a sealed box.

The nurse in admission screened the participants using the selection criteria at the point of admission. The RAs then randomly picked the sealed envelope containing a random code and issued to eligible participants just before full cervical dilation. The recruited participants were then directed to the allocated arm of the study, using the randomization schedule, by the PI. The assignment schedule was kept away in a safety deposit box at the Department ofObstetrics and Gynaecology, University of Nairobi.

The sampled groups, experimental (_all fours‘) and comparison (lithotomy) group were assessed for homogeneity based on the demographic and obstetric clinical variables using Chi-square test, Fisher‘s exact test and t-test for continuous measurements. This study aimed at creating two similar groups so as to minimize selection bias and/or any form of biases.

3.7 Screening, Recruitment, Enrolment and Consent

The potential participants who are low risk parturients were screened using the selection criteria on admission at Labour Ward by the nurses, PI or research assistants. Participants were informed of all other available birth positions available including those outside the study. Those who fulfilled the eligibility criteria, were recruited into the research.

Recruited participants who opted to participate in the study first had to offer informed verbal consent followed by written consent involving two copies of the predesigned consent forms containing the purpose of the study, the study protocol, and the potential benefits and risks of participating in the study. The consent forms in either English or Kiswahili were provided for perusal. Queries regarding the study were addressed. The PI or research assistants

countersigned the consent forms after the participants signed them. One copy was included in the research documents while the second copy remained with the participant.

After consenting to the study, the participants were enrolled into the study by the RAs. Eligible participants who opted not to participate in the study, were allowed to voluntarily exit and their reasons for non-participation recorded for documentation purposes. The consentprocess will be voluntary and free from coercion.

3.8 Study Procedure

The PI held onsite training sessions for healthcare providers to ensure their comfort and competence in delivering participants in the ‗all fours' position. The research team was also trained on the research protocol by the Principal Investigator.

Prior to onset of the study, we had planned to have two delivery rooms set for the trial in Labour Ward. One used to deliver women in ―all four‖ birth position (experimental arm) while the other would be used to deliver women in lithotomy birth position (comparisonarm). However due to the large influx of parturients during the data collection period, thiswas not possible. The questionnaire was pre tested before the actual study which aided in study planning.

During the study, participants' initial clinical evaluation and sociodemographic data (age, parity, gestation, BMI, residence, occupation and whether labour was spontaneous or induced) were captured in the questionnaire. The research assistants and healthcare provider trained the study participants on how to assume and take breaks from both birth positions prior to randomization. Interventions such as CTG monitoring, oxytocin and analgesia were

also documented. Participants were allowed to take a position of choice during first stage of labour.

Once the study participant was diagnosed with second stage of labour, the RAs drew an envelope randomly and allocated the participant to either the experimental or comparison birth position. The participant was directed by the attending midwife and RA to assume the assigned position. Participans‘ were willingly allowed to change birth position other than the assigned one and the reason was documented. The _hands – off‘ perineal technique where controlled delivery of the foetal head without pushing against the perineum and delayed cord clumping unless contraindicated were employed for both birth positions.

The research assistants collected the data real time or from the files of the study participants where their data was captured.

In the immediate postnatal, an in depth analysis of the parturients‘ birth experience was explored by the PI. After the data collection, a focus group analysis was held to determine the healthcare providers‘ perceptions of birth positions hosted by the PI.

This study involved face-to-face interviews with the paturient‘s, questionnaires, observation, focus group discussion and extraction of other relevant data from patient‘s medical records (ANC booklet and file).

3.9 Data Management and Statistical Analysis

After ethical approval, recruitment of research assistants to assist in data collection was done. They were trained on confidentiality, interviewing techniques, information retrieval andfilling of the questionnaire to ensure high level of data protection and quality.

All questionnaires had pre-assigned serial numbers which were contained in the sealed envelopes. These acted as identifying features instead of names of the participants. This ensured participant confidentiality was maintained.

The filled questionnaires were checked for completeness prior to storing them in a secure location only accessible to the PI and the research assistants.

The collected data was entered into IBM SPSS version 20, cleaned and prepared for both descriptive and inferential statistical analysis. The cleaned data will then be converted into excel comma delimited version (CSV) file.

The data was analysed in two levels, descriptive and inferential.

Descriptive analysis

Categorical data was summarized and presented as frequencies and proportions while continuous data was summarized and presented as means and standard deviations and where applicable median and inter-quartile range was reported. The data was presented as tables.

Inferential analysis

Chi-Square or Fishers exact test was used for comparing categorical data while t-test was used for comparing continuous data. P-values and Relative Risk at 95% confidence intervals (CIs) were calculated and reported. A p-value <0.05 was considered statistically significant. The participants' and midwives perceptions were recorded, transcribed and translated into English and analysed using ATLAS.ti version 8.

Cox PH hazard regression model

The Cox PH model was used to assess the association between birth position, D_i and duration of second stage of labour, controlling for the demographic X_{dmi} and clinical factors X_{cli}

The duration of second stage of labour, defined as time taken from full dilation (of 10cm) to birth. The duration was modelled by survival analysis technique through the cox hazard regression model. The data on duration taken to birth during the second stage was collected and subjected to this model.

Hazard ratios were calculated and interpreted. The results were presented in the Cox PH model table (annexed).

$$h(t) = h_0(t)exp(\beta_1 D_i + \beta_2 X_{dmi} + \beta_3 X_{cli}) \quad \text{.....(4)}$$

Where:

$h(t)$= Expected hazard at time t

$h_0(t)$ = Baseline hazard (hazard when all predictors equal zero)

$\beta_1 D_i, \beta_2 X_{dmi}, \beta_3 X_{cli}$ = as explained/defined in the equation 1

3.10 Ethical Consideration

The trial will be registered in the Pan African Clinical Trial Registry after ethical approval.

The protocol and the template informed consent are attached in the appendices below. This protocol, the informed consent form, any other documents, and subsequent modifications, were reviewed and approved by theKenyatta National Hospital/University of Nairobi Ethics Research Committee (KNH-UoN ERC), Approval number: KNH-ERC/A/210.

Safety and progress reports were submitted to the KNH-UoN ERC after study completion. These included the total participants enrolled in the study, the number of participants that completed the study, all changes in the research activity, and all other problems that were not anticipated that involves risks to human subjects or others. All open DSMB reports were provided to the KNH-UoN ERC.

Ethical approval: This was obtained from the Kenyatta National Hospital and University of Nairobi Ethical Review Committee prior to commencement of the study. Institutional approval was then obtained from the KNH Scientific and Research department and theDepartment of Obstetrics and Gynaecology

Informed consent

Participants were educated on other available birth positions. Once the eligible participant agreed to participate in the trial, a written informed consent was provided to all study participants during recruitment. The informed consent form was administered by the PI and RAs.

Underage participants had a parent or guardian who consented on their behalf. Non-literate participants had a trained midwife or relative of their choosing read the information on consent forms to them in English or Kiswahili. Before signing consent form, a question and answer session was held by the parturient and RA or PI. During this session:

- Benefits and risk of this study were enumerated
- All questions and concerns by the participants were addressed
- Voluntary participation of parturient was discussed
- Freedom of parturient to withdraw at any time was discussed
- Confidentiality of parturient and their data was discussed

Study participants who withdrew from the study were allowed to do so freely and the reason for non-participation documented.

Eligible participants who agreed to participate in this study signed two consent forms – one for study records and one for their records. Signatures and thumbprints (illiterate) were alsobe accepted.

Confidentiality

The confidentiality of the study participants was respected during and after the study. During data collection, participants‘ names were not recorded on the data collection tools. Serial numbers were instead used as identifiers. Signed consent forms and data collection tools will be filed and stored in a locked cabinet for future reference. Only the principal investigator, statistician, and collaborators in this study have access to data. Databases were password protected to deter unauthorized access.

DSMB

TheDSMB created for this trial comprised an Obstetrician, Epidemiologist and a statistician. They periodically evaluated study data for participant safety, study conduct and efficacy at 10%, 20% and 50% and made recommendations to KNH-UoN ERC concerning continuation, modification or termination of the trial.

Data Quality Assurance

Participants were issued with unique system generated identification numbers to prevent data mix up during data entry and analysis. To ensure accuracy, all data collection tools were pre-tested to ensure their validity and reliability. The face validity and test-retest technique was used to check if the tools captured the correct data. Only trained personnel on data collection participated. Collected data was checked for completeness before entry and analysis.

Benefits and Risks to the Participants

The ―all fours‖ position is commonly used as a maneuover during management of shoulder dystocia. The potential risks to the parturients were no different from the usual risks of delivery such as perineal trauma, assisted deliver and neonatal resuscitation. Invasive procedures were performed on parturients by qualified midwives who are professionally trained in midwifery. The qualified healthcare providers were present throughout the delivery process.Where indicated, prompt interventions and treatments were ensured.There was no extra cost or direct monetary benefits for participating in the study.

Study discontinuation

The study aimed to achieve ≥ 95% participant retention. Reasonable effort was employed in a bid to retain any enrolled participants until completion of the study. However, participants

were allowed to withdraw from the study at will. The reasons for withdrawal were evaluated and documented.

Training

After study completion, the study was registered with the Pan African clinical trial registry. Consolidated standards of reporting trials (CONSORT) was used to facilitate complete and transparent reporting of the trial.

Training of research assistants on the study protocol took place over two weeks. The midwives and clinicians were trained on assisting delivery in the _all fours' birth position andthe _hands-off' perineal technique by the PI. Thereafter, they worked under supervision until the PI was satisfied. The principal investigator constantly reviewed the questionnaires for completion. RAs and the healthcare providers underwent sensitization and training prior to commencement of the study via video tutorials and clinical teachings.

3.11 Study Strengths and Limitations

Study Strengths

A similar study conducted in China by Zhang Hong-Yu et al (2015) reported study strengths as the study design which was a multicentre RCT design and employed a large sample size. Multiple outcome variables were also adopted to measure maternal and foetal outcomes. This work is also relevant to obstetric practices in mainland China because the hands-and-knees position is not commonly applied in delivery settings.

In this study, the strengths included the prospective RCT study design. A large sample size of 490 was incorporated. The study also had a qualitative component which provided more data

on the acceptability of both positions. The study will contribute to local and regional data which is currently limited. The study findings can be used to inform policy such as development of Standard Operating Procedures.

Study Limitations

Zhang Hong-Yu et al (2015) presented one of its limitations as the high attrition rate from the ‗all-fours' birth position which affected the power of the study. The main reason was due to discomfort. The study also reported that participants experienced discomfort as they were only allowed to assume either position on the delivery bed.

The second limitation was that midwives' required additional personnel and this was attributed to participants being forced to deliver on the bed. In the lithotomy group, the main reason for withdrawal was unwillingness to answer follow up questions.

During the trial, it was potentially possible for the parturient to deliver in an alternative birth position or delivery method changed to a C/S prior to second stage of labour. Therefore, randomization was done just before second stage of labour to limit attrition. Several, other reasons such as convenience drove this change as well. It was postulated that those in the ‗all fours' birth position were likely to change the position.

In this study, the limitations included change of birth position by randomised parturients during second stage of labour, midwives' limited skill and experience in assisting delivery in the ‗all fours' position, performance bias as a result of the open study design and COVID 19 restrictions that limited the sample size in the IDI and FGD

Minimization of Limitations

To limit attrition rate, participants were randomised prior to second stage of labour. The sample size was adjusted by 10% using Fleiss continuity correction method to cover for any participants. Past studies that the sample size is a challenge that may have serious limitations on the results and potentially leads inconclusive results. Hence the rational for a considerable adjustment for the sample size. The late randomization technique was also employed to limit attrition from other factors unrelated to the study during first stage of labour. The participants were allowed to pick a surface they found more comfortable, either the bed or on a mattress on the floor.

The prospective design ensured that missing data was captured. The research assistants were trained on how to fill the questionnaires and informed consents prior to onset of the study. The questionnaire were tested prior to the onset of the study. The questionnaires were then checked for completeness prior to data analysis. This minimised the problem of incomplete data.

The study participants were trained on how to assume the assigned position by the healthcare provider, research assistants or Principal Investigator during latent phase or first stage of labour below 6cm. They were also trained on when to take breaks from the same position.The participants were allowed to select their preferred surface that is either the bed of the floor. Their perceptions on both birth positions were investigated. The study participants were allowed to freely exit from the study if they were tired or no longer wished to participate in the study and their reasons documented.

The participants with precipitate labour were excluded from the analysis. Healthcare providers evaluated participants every four hours once a cervical dilation of 6 cm or above was made to reduce on inconsistencies duration of second stage.

Measures taken to reduce performance bias included training midwives and parturients on the experimental birth position (all fours), utilizing RAs who are not midwives participating in the study and having the RAs present to observe the deliveries in both positions.

3.12 Dissemination of Research Findings

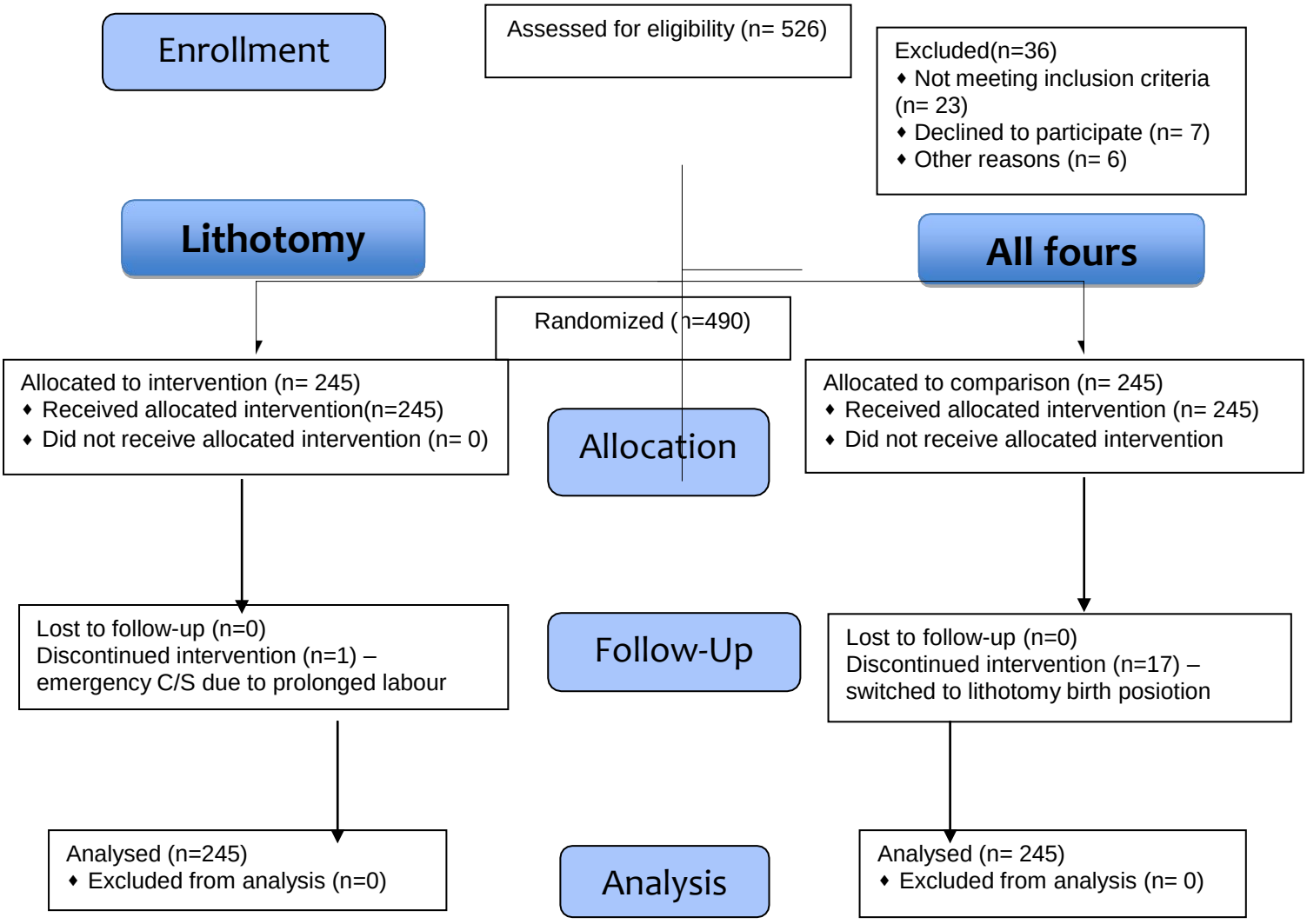
Dissemination of the results will take place by three methods:

- Production of a report that will be sent to the department of obstetrics and gynaecology at Kenyatta National Hospital
- Publishing papers in specialist and general, national and international journals.
- Presentation of papers at both national and international conferences.

CHAPTER 4: RESULTS

CONSORT
TRANSPARENT REPORTING of TRIALS

CONSORT 2010 Flow Diagram



Consort flow diagram narrative

A total of 526 participants were recruited for the study between the July to October 2020. 36 parturients did not meet the eligibility criteria. 23 did not meet the inclusion criteria, 7 declined to participate and 6 had other reasons such as obstetric complications and had

Caesarean delivery prior to second stage of labour. The total eligible participants were 490 of all who offered informed consent to participate in the study. They were then randomized with an allocation ratio of 1, 245 were assigned to the all fours birth position while 245 were randomized to lithotomy birth position. Among the 245 participants randomised to the all fours position, 17 did not complete the intervention as they changed birth position while in the lithotomy group, one participant did not complete the protocol as they had a Caesarean delivery due to delayed second stage. Intent to treat analysis was used to generate data.

Socio-demographic Characteristics

Table one shows sociodemographic characteristics for the all fours and lithotomy groups. The mean age for both groups was 26 with a standard deviation of 5 years. Majority of the women were in the age group between 20-35 years in both groups. In both groups, majority of the women were self-employed with 63.7% in the all fours group and 66.5% in lithotomy group. Majority of the parturients were married in both groups with 78.2% in the all fours group versus 80% in lithotomy group. Most parturients had attained secondary level education with 60% in all fours compared to 64.5% in lithotomy group.in both groups, most parturients were protestants at 58.7% in all fours compared to 68.2% in lithotomy group. All sociodemographic factors were not statistically different therefore were comparable in both groups.

TABLE 1: Sociodemographic characteristics of low risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at knh labour ward

CHARACTERISTICS	LITHOTOMY POSITION Mean (SD) or n (%) N= 245	"ALL-FOURS" POSITION Mean (SD) or n (%) N=245	RR[95%CI]	P value
Age: mean	26 + 5	26 + 5	-	1.00
● <20	23 (9.4)	16 (6.5)	Ref	
● 21-35	186 (71.4)	189 (70.6)	1.2[0.9,1.5]	0.23
● 36-40	13 (5.3)	16 (7)	1.3[0.8,2.1]	0.26
● >40			-	n/a
Employment				
● Employed	23 (9.4)	22 (9.0)	Ref	
● Unemployed	59 (24.1)	67 (27.3)	1.09[0.8,1.5]	0.62
● Self-Employed	163 (66.5)	156 (63.7)	1.0[0.7,1.3]	0.99
Marital history				
● Married	196 (80)	194 (78.2)	1.0[0.9,1.1]	0.82
● Single	49 (20)	51 (21.8)	Ref	
Education level				
● None	2 (0.8)	1 (0.4)	Ref	
● Primary	28 (11.4)	44 (18)	1.7[0.7,4.0]	0.214
● Secondary	158 (64.5)	147 (60)	1.3[0.5,2.9]	0.540
● Tertiary	57 (23.3)	53 (21.6)	1.3[0.6,2.9]	0.547
Religion				
● Catholic	70 (28.6)	71 (29)	1.2[0.6,2.5]	0.613
● Muslim	5 (2)	5 (2)	1.2[0.6,2.5]	0.613
● Protestant	167 (68.2)	168 (58.7)	1.2[0.6,2.5]	
● Others	3 (1.2)	2 (0.8)	Ref	0.616

*Table 1: SD - Standard Deviation. *All sociodemographic characteristics were comparable across the groups*

Baseline Obstetric Characteristics

Table 2 shows obstetric characteristics of both groups. The mean and median gestation in both groups was 39 weeks with a standard deviation of 2 weeks. The majority of theparturients in both groups were multiparous with 56.7% in all fours group compared to 51.8%in lithotomy group. The gravidity mean was 2 with a standard deviation of 1 and median of 2 with a standard deviation of 2 in both groups.

TABLE 2: Obstetric characteristics of low risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH L/W

CHARACTERISTICS	LITHOTOMY N(%), Mean(SD) N=245	ALL FOURS N(%), Mean(SD) N=245	RR(95%CI)	P VALUE
Gestation (weeks)	39 ± 2	39 ± 2	-	0.37
Parity ● Nulliparous ● Multiparous ● Grand multiparous	 116 (47.4) 127 (51.8) 2 (0.8)	 103 (42) 139 (56.7) 3 (1.2)	 Reference 1.1[0.9,1.3] 1.3[0.4,3.9]	 0.25 0.61
Gravidity	2 ± 1	2 ± 1		0.10
Participants delivery plan ● Yes ● No	 198 (80.9) 47 (19.1)	 202 (82.6) 42 (17.2)	 Ref O.97[0.9,1.1]	 0.57
Previous vaginal deliveries ● None ● 1-4 ● >5	 118 (48.2) 125 (51) 2 (0.8)	 105 (42.9) 137 (55.9) 3 (1.2)	 Reference 1.1[0.9,1.3] 1.3[0.4,3.4]	 0.25 0.61
Membrane status ● Intact ● Clear liquor ● MSL I ● MSL II	 82 (33.5) 140 (57.1) 19 (7.8) 4 (1.6)	 104 (42.5) 116 (47.4) 25 (8.2) 0 (0)	 Reference 0.8[0.7,0.98] 1.0[0.7,1.4] -	 0.03* 0.91
CTG: ● Not done ● Category I	 233 (95.1) 12 (4.9)	 240 (98) 5 (2)	 Reference 0.7[0.5,0.9]	 0.02*
Baseline FHR	138± 6	138 ± 7	-	1.00
Augmentation of labour (1st stage) ● Yes ● No (2nd stage) ● Yes ● No	 54 (22) 191(79) 57 (23.3) 188(76.7)	 59 (24.1) 186(75.9) 72 (29.4) 173(70.6)	 0.9[0.8,1.2] Ref 0.8[0.7,1.1] Ref	 0.53 0.14
Use of analgesics ● Yes ● No	 2 (0.8) 243(99.2)	 2 (0.8) 243(99.2)	 1.0[0.3,2.7] Ref	 1.00
Birth weight (grams) Mean ±SD median±IQR	 3125 ± 470 3100±500	 3246 ± 470 3200±500	 - -	 0.01 0.04

The majority of the participants had a delivery plan in both groups with 82.6% in the all fours group and 80.9% in lithotomy groups. Majority of participants had previous vaginal deliveries between 1 and 4 in both groups with 55.9% in the all fours group compared to 51%in lithotomy group. The participants with clear liquor were significantly higher in the lithotomy group at 51.7% compared to all fours group at 47.4% (RR 95% CI 0.7[0.8,0.98]) with a p = 0.03. Participants with Category I CTG lithotomy group were significantly higher 4.9% compared to 2% in all fours group (RR 95% CI 0.7[0.5,0.9]) with a p = 0.02. The mean baseline FHR in both groups 138bpm. Majority of the patients were not augmented during first and second stage of labour (75.9% vs 79% and 70.6% vs 76.7% in the all fours vs lithotomy groups respectively. More participants in the all fours group compared to lithotomygroup were augmented during first stage at 24.1 vs 22% respectively however this was not statistically significant. Similarly, a higher percentage of women in the all fours group compared to lithotomy group were augmented during second stage of labour at 29.4%compared to 23.3% respectively. The mean and median birth weight was significantly higher in the all fours compared to lithotomy group at 3246g (SD 470g); 3200g (SD 500g) compared to 3125g (SD 470g); 3100 (SD 500g) respectively with a p = 0.01; 0.04. All baseline obstetriccharacteristics were comparable across the groups.

Duration of Second Stage

Primary Specific objective 1: Among low risk parturients at KNH randomized to the ‑all fours‖ versus lithotomy birth position during second stage of labour, to compare the mean duration of second stage of labour

TABLE 3: Comparison of duration of second stage among low risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward – ITT analysis, Modified ITT and Per protocol analysis.

OUTCOME	**LITHOTOMY POSISTION Mean, (SD)** N=245	**ALL FOURS POSITION Mean, (SD)** N=245	**p-value**
Duration of second stage (minutes) Mean Median	 15 ± 6 14 ± 6	 21 ± 6 20 ± 6	 <0.001 0.02*
OUTCOME	**LITHOTOMY POSISTION Mean, (SD)** N=244	**ALL FOURS POSITION Mean, (SD)** N=228	**p-value**
Duration of second stage (minutes) Mean Median	 14.5 ± 5 14 ± 6	 20 ± 5 20 ± 6	 <0.001 0.02*
OUTCOME	**LITHOTOMY POSISTION Mean, (SD) N = 247**	**ALL FOURS POSITION Mean, (SD) N = 243**	**p-value**
Duration of second stage (minutes) Mean Median	 15 ± 6 14 ±7	 19 ± 7 20 ±6	 <0.001 <0.001

Using intent to treat analysis, the mean duration of second stage of labour was 6 minutes shorter in the lithotomy position 15 minutes (SD 6) versus 21 minutes (SD 6) in the ‒all fours‖ position, p value = 0.01. The median duration of second stage was 6 minutes shorter in the lithotomy group 14 minutes (SD 6) versus 20 minutes (SD 6) in the ‒all fours‖ position, p value = 0.02.

Using the modified ITT analysis, the mean duration of second stage was 5.5 minutes shorter in the lithotomy position 14.5 minutes (SD 5) versus the ‒all fours‖ position 20 minutes (SD 5), p value = <0.001. The median duration of second stage was also 6 minutes shorter in the lithotomy position 14 minutes (SD 6) versus ‒all fours‖ position 20 (SD 6) minutes, p value = 0.02.

Using per protocol analysis, the mean duration of second stage was 4 minutes shorter in the lithotomy position 15 minutes (SD 6) versus the ―all fours‖ position 19 minutes (SD 7), p value = <0.001. The median duration of second stage was also 6 minutes shorter in the lithotomy position 14 minutes (SD 7) versus ―all fours‖ position 20 minutes (SD 6), p value = 0.02.

Adverse Maternal Outcomes

Primary specific objective 2: To compare the incidence of immediate adverse maternal outcomes (incidence and severity of perineal tears, episiotomies, amount of blood loss, operative

TABLE 4: Comparison of adverse maternal outcomes among low risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward – ITT analysis no composite outcome reports here

OUTCOME	**LITHOTOMY POSISTION N = 245** Proportions N (%)	**"ALL-FOURS" POSITION N = 245** Proportions N (%)	**RR[95%CI]**	**P-value**
Perineal outcomes ● Intact ● First degree ● Second degree ● Third degree	 115 (46.9) 126 (51.4) 4 (1.6) 0(0.0)	 111(45.3) 129(52.7) 3(1.2) 1 (0.41)	 Reference 1.0[0.8,1.2] 0.8[0.4,1.7] -	 0.74 0.72
Mode of delivery ● Vaginal ● Caesarean section	 244 (99.6) 1 (0.4)	 245 (100) 0 (0)	 0.9[0.9,1.0] Ref	 0.32
Incidence of PPH ● >500mls) ● <500mls	 9 (3.8) 236(96.3)	 11 (4.5) 234(95.5)	 1.1[0.6,1.8] Ref	 0.66
Episiotomy rate ● Yes ● No	 35 (14.3) 210(85.7)	 20 (8.2) 225(91.8)	 0.8[0.6,0.9] Ref	 0.01
Incidence of shoulder dystocia ● Yes ● No	 1 (0.4) 244(99.6)	 0 (0) 245(100)	 0.9[0.9,1.0] Ref	 0.31
Composite variable ● Yes ● No	 154(62.9) 91(37.1)	 142(58) 103(42)	 1.1[0.9,1.3] Ref	 0.27

Using the ITT analysis, the maternal outcomes were comparable across both groups, p = 0.27. However, the episiotomy rate was significantly higher in the lithotomy position 14.3% versus the _all fours‘ position 8.2 % (RR 95% CI 0.8[0.6,0.9]), p = 0.01.

Comparison of adverse maternal outcomes among low-risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward - Modified ITT

OUTCOME	**LITHOTOMY N = 244** Proportions N (%)	**ALL-FOURS N = 228** Proportions N (%)	**RR[95%[CI]**	**P-value**
Perineal outcomes ● Intact ● First degree ● Second degree ● Third degree	 114 (46.7) 126 (51.6) 4 (1.6) 0 (0)	 104 (45.6) 119 (52.2) 3 (1.3) 1(0.43)	 Ref 1.0[0.8,1.2] 0.9[0.4,1.7] -	 0.85 0.79
Mode of delivery ● Vaginal ● Caesarean section	 243(99.6) 1 (0.4)	 228 (100) 0 (0)	 1.0[0.9,01.0] Ref	 0.32
Incidence of PPH: ● >500mls ● <500mls	 9 (3.7) 235(96.3)	 13 (5.3) 215(93.3)	 1.3[0.7,2.1] Ref	 0.32
Episiotomy rate ● Yes ● No	 35 (14.3) 209(85.7)	 20 (8.2) 208(91.2)	 **0.7[0.6,0.9]** **Ref**	 **0.03***
Incidence of shoulder dystocia: ● Yes ● No	 1 (0.4) 243(99.6)	 0 (0) 228(100)	 0.3[0.01,8.7] Ref	 0.53
Composite variable ● Yes ● No	 134 (54.9) 110 (45.1)	 125 (54.8) 103 (45.2)	 1.0 [0.9,1.2] Ref	 0.98

Using the modified ITT analysis, the maternal outcomes were comparable across both positions, p = 0.98. The episiotomy rate was significantly higher in the lithotomy position 14.3% versus _all fours‘ position 8.2% (RR 95% CI 0.7[0.6,0.9]), p = 0.03.

Comparison of adverse maternal outcomes among low-risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward – per protocol analysis

OUTCOME	LITHOTOMY POSISTION N = 247 Proportions N (%)	ALL-FOURS POSITION N = 243 Proportions N (%)	RR 99% CI	P-value
Perineal outcomes ● Intact ● First degree ● Second degree ● Third degree	 117 (47.4) 126 (51.4) 4 (1.6) 0 (0)	 109 (45) 129 (53.3) 3 (1.2) 1 (0.4)	 Ref 0.9[0.8,1.2] 1.0[0.9,1.1]	 0.61 0.77
Mode of delivery ● Vaginal ● Caesarean section	 246(99.6) 1(0.4)	 243(100) 0(0)	 1.0[0.9,1.0] Ref	 0.32
Incidence of PPH (blood loss) >500mls) <500mls	 9(3.8) 238(96.4)	 11(4.5) 232(95.5)	 1.2[0.5,2.9] Ref	 0.62
Episiotomy rate Yes No	 35(14.2) 212(85.8)	 20(8.2) 223(97.8)	 0.6[0.3,1.0] Ref	 0.04
Incidence of shoulder dystocia ● Yes ● No	 1(0.4) 246(99.6)	 0(0) 243(100)	 0.3[0.01,8.3] Ref	 0.51
Composite variable ● Yes ● No	 154(61.9) 93(37.7)	 142(58.4) 101(41.6)	 1.1[0.9,1.2] Ref	 0.38

Using the per protocol analysis, the maternal outcomes were comparable across both positions, p = 0.38. The episiotomy rate was significantly higher in the lithotomy position 14.2% versus _all fours‘ position at 8.2% (RR 95% CI 0.6[0.3,1.0]), p = 0.04.

Adverse Neonatal Outcomes

Primary specific objective 3: To compare the incidence of immediate adverse neonatal outcomes (5-minute APGAR score, incidence of admission to new born unit, incidence of resuscitative measures)

TABLE 5: Comparison of adverse neonatal outcomes among low-risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward – ITT analysis

OUTCOME	**LITHOTOMY POSISTION N (%), Mean (SD) N = 244**	**ALL FOURS POSITION N (%), Mean (SD) N = 245**	**RR 95% CI**	**P - value**
5 minute APGAR Score <7 >7	 2 (0.8) 242(99.2)	 0 (0) 245(100)	 Ref 1.0[0.9,1.0]	 0.16
Mean APGAR score ± SD	9 + 1	9 + 1		0.66
Administration of oxygen Yes No	 23 (9.4) 221(90.6)	 11 (4.8) 217(95.2)	 1.1[0.9,1.1] Ref	 0.05
Admission to new born unit Yes No	 16 (6.6) 229(93.5)	 11 (4.5) 234(95.6)	 0.8[0.6,1.1] Ref	 0.28
Indication for admission ● Neonatal sepsis ● Respiratory-Distress Syndrome ● Low birth weight ● Meconium Aspiration Syndrome	N= 16 2 (12.5) 9 (56.3) 4 (25) 3 (18.7)	N= 11 0 (0) 7 (63.6) 0(0) 3 (27.3)	 - 0.8[0.3,2.2] 0.5[0.2,1.1] Ref	 0.79 0.08
Composite variable ● Yes ● No	 26(10.6) 219(89.4)	 16(6.5) 229(93.5)	 0.6[0.3,1.1] Ref	 0.11

Using the ITT analysis, the mean APGAR score in the two groups was 9 (SD 1), p = 0.66. Lithotomy birth position was associated with a higher admission rate into NBU 6.6% versus

_all fours‘ position 4.5% (RR 95% CI 0.8[0.6,1.1]) p = 0.28. The most common indication for NBU admission was Respiratory Distress Syndrome with 56.3% in the lithotomy group and 63.6% in the all fours group. The neonatal outcomes were comparable between both groups, p = 0.11.

Comparison of adverse neonatal outcomes among low risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward – modified ITT analysis

OUTCOME	**LITHOTOMY POSISTION N (%), Mean (SD) N = 244**	**ALL FOURS POSITION N (%), Mean (SD) N = 228**	**RR 95% CI**	**P - value**
5 minute APGAR Score <7 >7	 2 (0.81) 242(99.2)	 0 (0) 228(100)	 10[0.9,1.0] Ref	 0.16
Administration of oxygen Yes No	 23 (9.4) 221(90.6)	 11 (4.8) 217(95.2)	 1.1[0.9,1.1] Ref	 0.05
Admission to new born unit Yes No	 16 (6.6) 228(93.4)	 7(3.1) 221(96.9)	 1.0[0.9,1.1] Ref	 0.08
Indication for admission ● Neonatal sepsis ● Respiratory-Distress Syndrome ● Low birth weight ● Meconium Aspiration Syndrome	N=16 2 (12.5) 7 (43.8) 4 (25) 3 (18.7)	N= 7 0 (0) 4 (57.1) 1 (14.3) 2 (28.6)	 - 0.9[0.4,2.1] 0.7[0.3,1.7] Ref	 0.89 0.51
Composite variable ● Yes ● No	 26(10.7) 218(89.3)	 12(5.3) 216(94.7)	 2.0[1.0,3.9] Ref	 0.4

Using the modified ITT analysis, the mean APGAR score in the two groups was 9 (SD 1), p = 0.66. Lithotomy birth position was associated with a higher admission rate into NBU 6.6% versus the _all fours‘ position 4.5% (RR 95% CI 0.8[0.6,1.1]) p = 0.28. The most common indication for NBU admission was Respiratory Distress Syndrome in the lithotomy position

43.8% and in the ‗all fours' position 57.1%. The neonatal outcomes were comparable across the groups, RR 95% CI 2.0[1.0,3.9], p = 0.4.

Comparison of adverse neonatal outcomes among low risk parturients randomised to lithotomy versus all fours birth position during second stage of labour at KNH labour ward – per protocol analysis

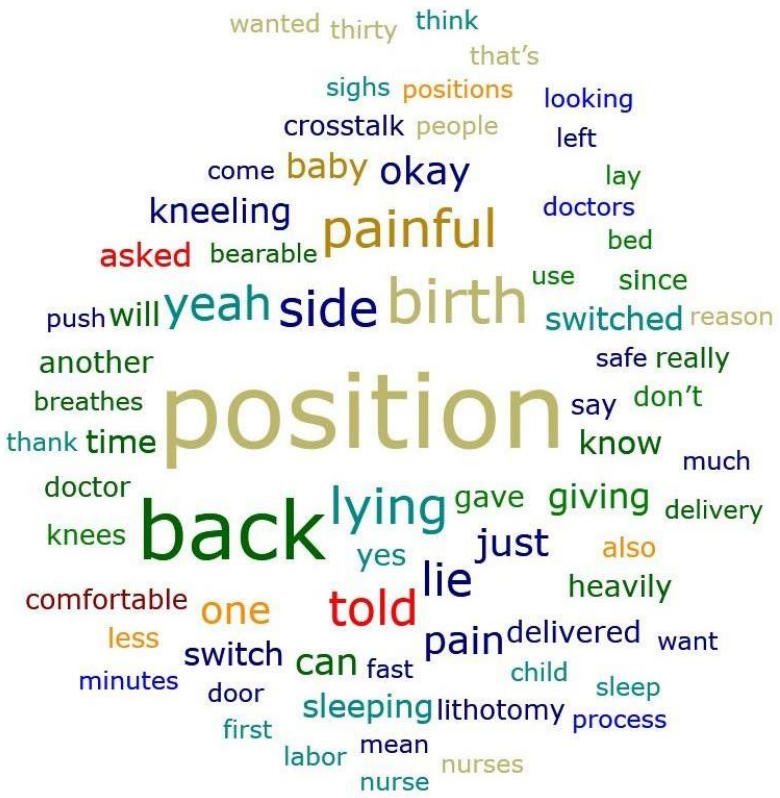
OUTCOME	**LITHOTOMY POSISTION N (%), Mean (SD) N = 247**	**ALL FOURS POSITION N (%), Mean (SD) N = 243**	**RR 95% CI**	**P - value**
5 minute APGAR Score <7 >7	 2(0.8) 245(99.2)	 0 (0) 243(100)	 Ref 0.2[0.0,4.2]	 0.3
Mean APGAR score	9 ± 1	9 ± 1	-	1.0
Administration of oxygen Yes No	 23(9.3) 224(90.7)	 14(5.8) 229(94.2)	 1.0[0.9,1.2] Ref	 0.14
Admission to new born unit Yes No	 16(6.5) 231(93.5)	 11(4.5) 232(95.5)	 1.0[0.9,1.1] Ref	 0.35
Indication for admission ● Neonatal sepsis ● Respiratory-Distress Syndrome ● Low birth weight ● Meconium Aspiration Syndrome	N=16 2(12.5) 9(56.3) 4(25) 3(18.7)	N=10 0(0) 7(66.7) 0(0) 3(33.3)	 - 0.8[0.3,2.2] 0.2[0.2,1.1] Ref	 0.79 0.08
Composite variable ● Yes ● No	 26(10.5) 221(89.5)	 16(6.6) 227(93.4)	 1.6[0.9,2.9] Ref	 0.12

Using per protocol analysis, the mean APGAR score is 9 (SD 1). The neonatal outcomes were comparable between both positions, p = 0.12. Incidence of administration of oxygenwas administration of oxygen as a resuscitative measure was higher in the lithotomy position9.3% versus 5.8% in ‗all fours' position (RR 95% CI 1.0[0.9,1.2]), p = 0.14. The admission rate into the NBU was higher in lithotomy position 6.5% versus 4.5% in lithotomy position

(RR 95% CI 1.0[0.9,1.1]), p = 1. The most common indication for admission to NBU was Respiratory Distress Syndrome.

4.7 Indepth Interview Results

The participants in the IDI conveniently chosen. Of the ten study participants were randomly selected to participate, four declined to participate. Six study participants consented to participate in the In-depth interviews. The interview site was a quiet room within Kenyatta National Hospital where the interview was done with recorder by the PI and an assistant. The IDI lasted approximately ten minutes. The recordings were transcribed, translated into English, then coded into short phrases representing themes. The IDI was analysed using wordcloud function in the ATLAS.ti9 Patient confidentiality was maintained.

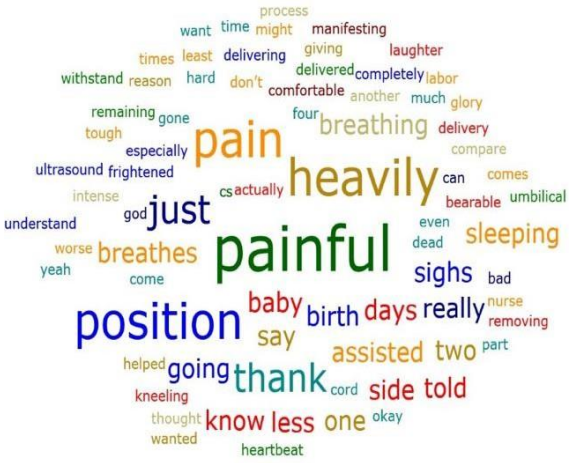


The word cloud shows that lithotomy birth position was mentioned more frequently during the in-depth interview. Parturients allocated to the all fours could have easily switched to lithotomy birth position, what they referred to as lying on the back during the interview.

Time spent in assigned birth position: most parturients in lithotomy position maintained the position. However in the all fours a significant number switched mainly due to discomfort and midwife's opinion.

–I was in lithotomy most of the time‖

–R: I laid on my back I: did you switch again? R: no I: you remained on your back? R: (inaudible segment) yes until I gave birth.‖



Pain perception: The participants were able to distinguish which positions they perceived were more unbearable in terms of pain than the other.

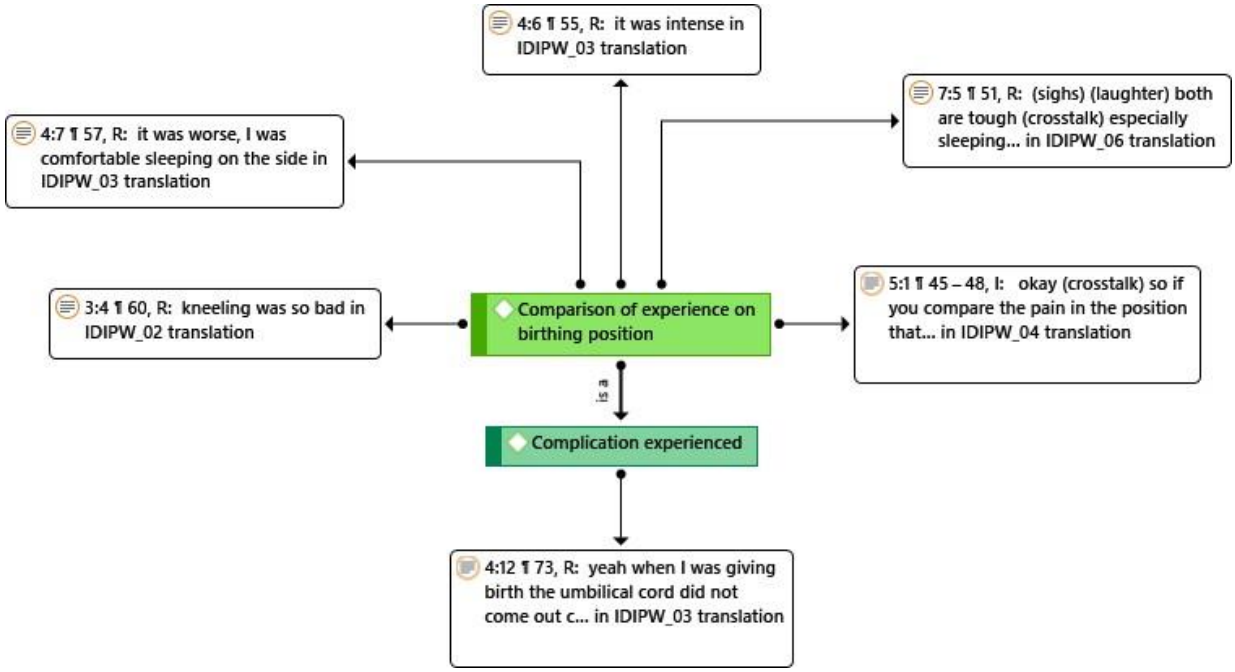
–It was worse, I was comfortable sleeping on the side‖

–Kneeling was so bad‖

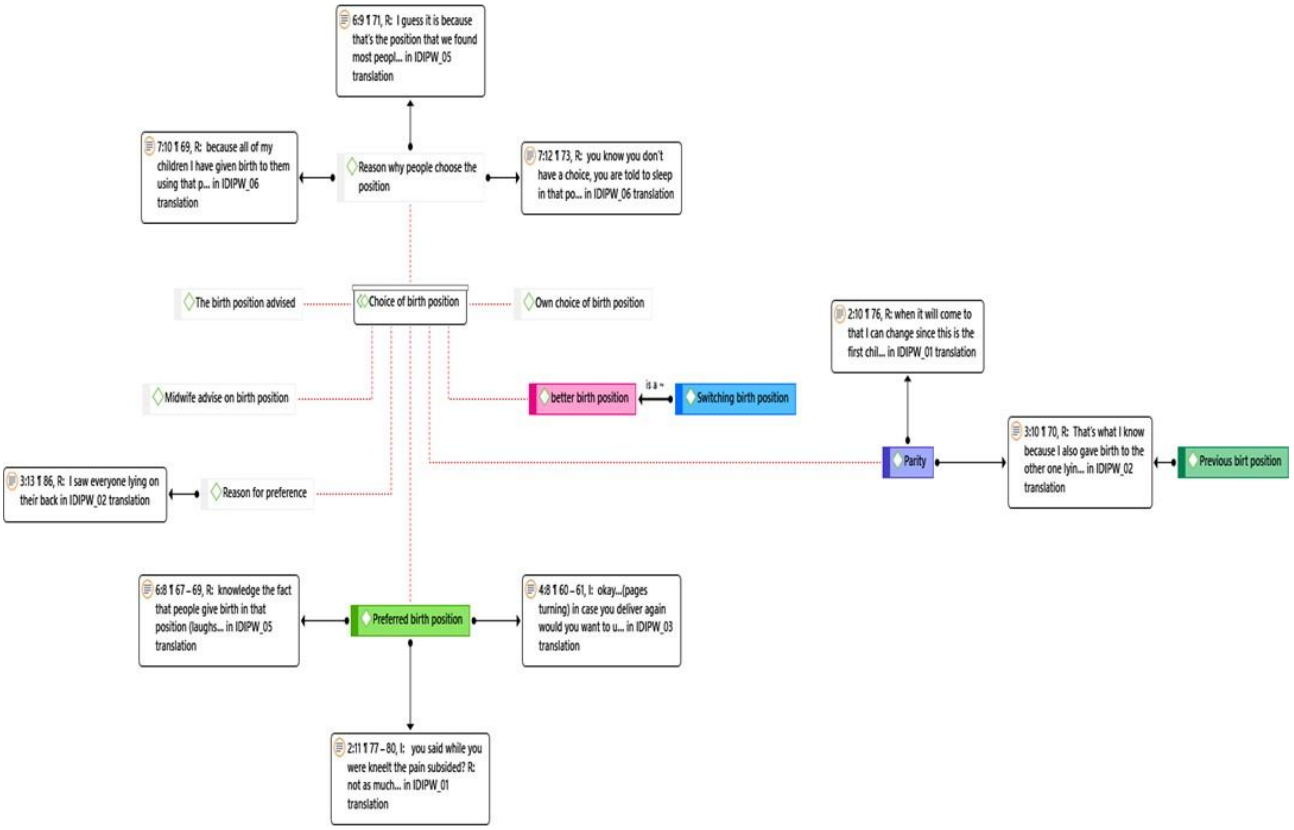
–I was crying on my knees then I lay on my back and I would switch to the side from time to time then back to laying on my back (inaudible segment) they would tell me to stop switching‖

–When I was on my knees the pain was bearable‖

The network diagram shows some of the participants would describe experiencing more pain in the all fours position while some could point out that it was better in all fours.



Factors influencing choice of birth position



Factors influencing choice of birth positions: midwife‘s opinion, personal preference, advice from others, common practice and previous experience were the main factors influencing parturients‘ choice of birth position.

–That‘s what I know because I also gave birth to the other one lying on my back‖

–That is what I was told by the nurse to lie in that position and it was kind of safe for the baby……‖

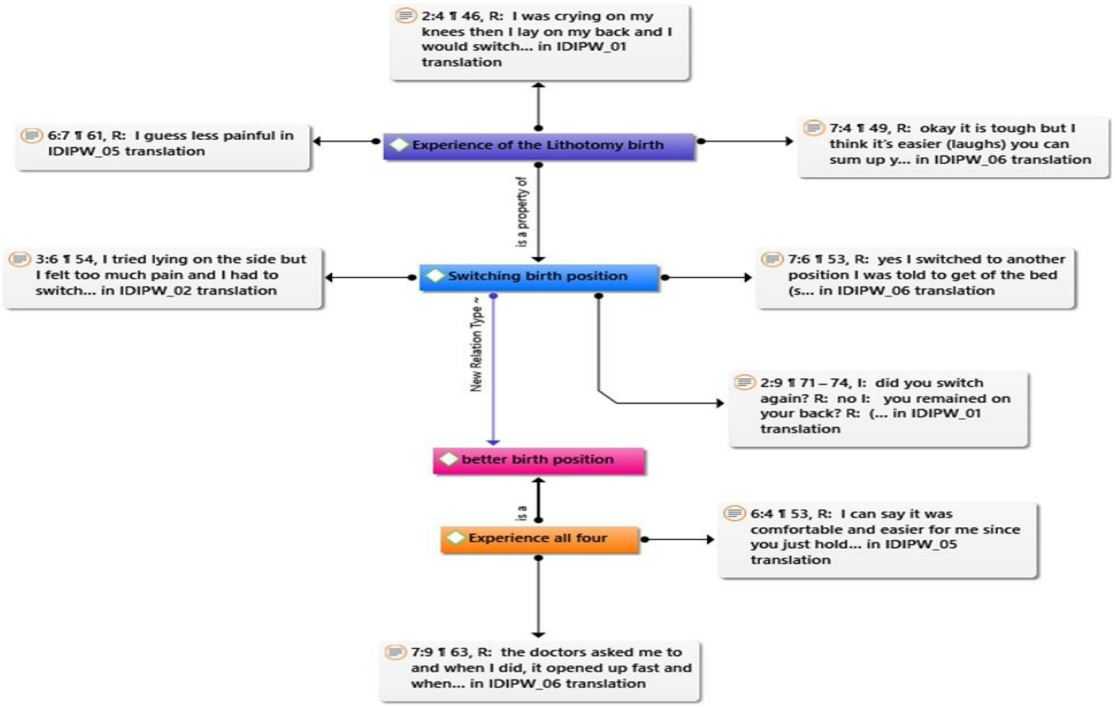
–The nurses and the doctors told me to‖

–I was the one who chose that position since no position was comfortable‖

–From parents who gave birth to us and it‘s normal to see women lying in that position giving birth‖

–I saw everyone lying on their back‖

–My friend taught me‖



Network diagram showing experience in both lithotomy and all fours birth position

Knowledge of birth positions: most of the participants were only aware of the lithotomy birth position.

> –I guess it is because that‘s the position that we found most people delivering in and the fact that we are not enlightened about other positions because all of my children I have given birth to them using that position and the doctors have never switched me to another position.‖
>
> –Lithotomy position‖
>
> –Not really but I just the normal one the one you sleep on your back‖

Future consideration: some of the participants mentioned that they would consider delivering in the all fours but others said they would deliver in lithotomy

> –When it will come to that I can change since this is the first child‖
>
> –I: okay (pages turning) in case you deliver again would you want to use the lithotomy position again? R: I will use that because …okay generally it is safe for the baby according to me the nurses will be able to see the head of the baby and measure dilation directly yeah‖

4.8 Focus Group Results

There were 14 midwives who participated in the study. Following Covid-19 restrictions, we were not able to interview al the midwives who participated in the study. Four midwives were randomly picked using systematic random sampling. One of the four midwives declined to participate on the interview day. Three midwives offered consent and were interviewed in the focus group script on their experience. All the midwives in the FGD had less than two years of midwifery experience two of the three midwives assisted deliveries in both positions.

Birth positions known to the midwives: All three midwives were only aware of the lithotomy birth position and all of them learnt of the ‗all fours' birth position during the study.

-The traditional one the lithotomy‖

-Usual one we use lithotomy position

-I think the same I can't say any other.‖

-You know we are used to lithotomy position most of the time‖

-Okay I didn't know other positions from which we knew I never knew this one existed‖

-The all fours which I learnt through this study‖

-And this one that I came to learn during this study, all fours (long pause)‖

Experience in deliveries in all fours and lithotomy birth positions: some of the midwives preferred the all fours birth position because they felt it had less cases of perineal tears compared to lithotomy.

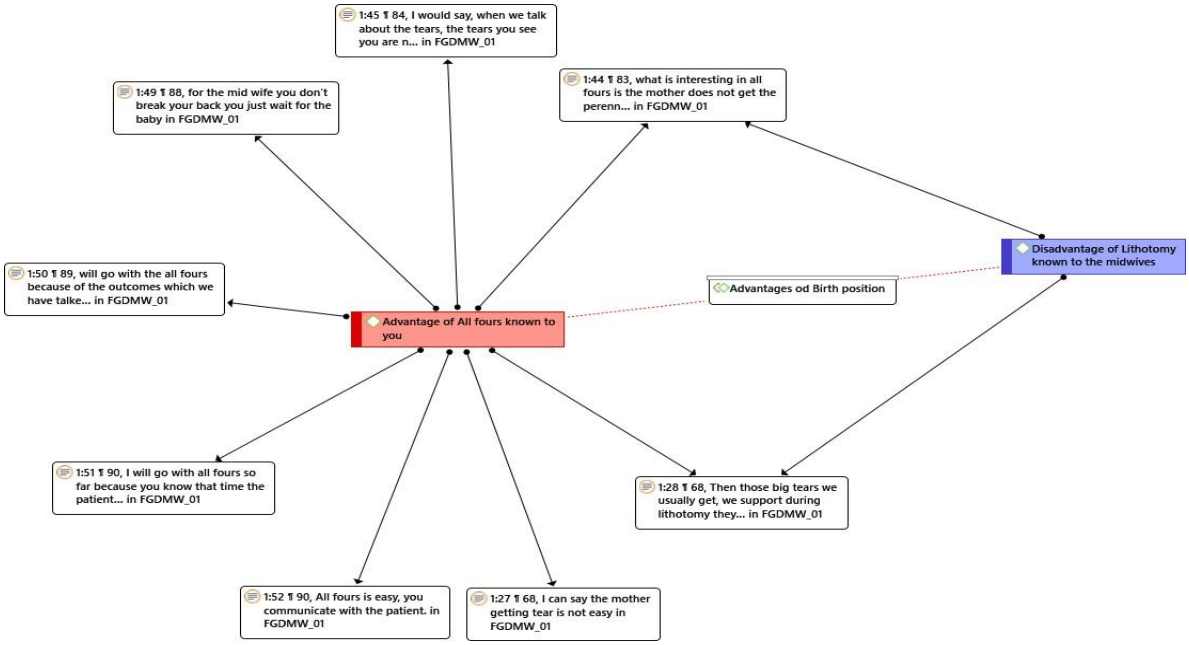
-When the patient is explained well how the all four works and she cooperates I will be there passively, as a midwife I will be observing passively‖

-I can say all fours because, all fours I think the mother (chairs creaking) (inaudible segment) during that stage because you don't support, the mother stays in all fours and you just go for the baby‖

-It is really simple it is easier to use all fours if the mothers and the society come to learn of it and perceive it‖

Perceived successes of the all fours and lithotomy birth position: most of the midwives stated they had higher rates of intact perineum with the all fours position. Some of the midwives preferred the all fours position as they did not have to support the perineum.

–Then those big tears we usually get, we support during lithotomy they don‘t happen in all fours.‖



–I would say, when we talk about the tears, the tears you see you are not actively supporting in all fours the incidences that you get a tear maybe first degree which very rare‖

–I can say the mother getting tear is not easy‖

–Lithotomy is easier when the mother is aware, you have explained to her what will happen, what she needs to do and she cooperates, it can be very easy to deliver that way.‖

–For me advantage to the mother I think the…those maneuvers the baby comes out with ease, if the contractions come the baby comes out easy unlike lithotomy,

Perceived challenges of birth positions: most midwives reported that lack of cooperation from the participants made assisting delivery in both positions more difficult. Some midwives also stated that lithotomy position was associated with more tears.

–Lithotomy is easier when the mother is aware, you have explained to her what will happen, what she needs to do and she cooperates, it can be very easy to deliver that way.‖

–First when you prepare the patient in the lithotomy position and she is comfortable you are comfortable, the delivery is so easy‖

–Then those big tears we usually get, we support during lithotomy they don‘t happen in all fours.‖

Recommendations on birth positions in future deliveries: some midwives said they would allow participants to deliver in either position. They also suggested the need to train midwives to assist in all fours delivery

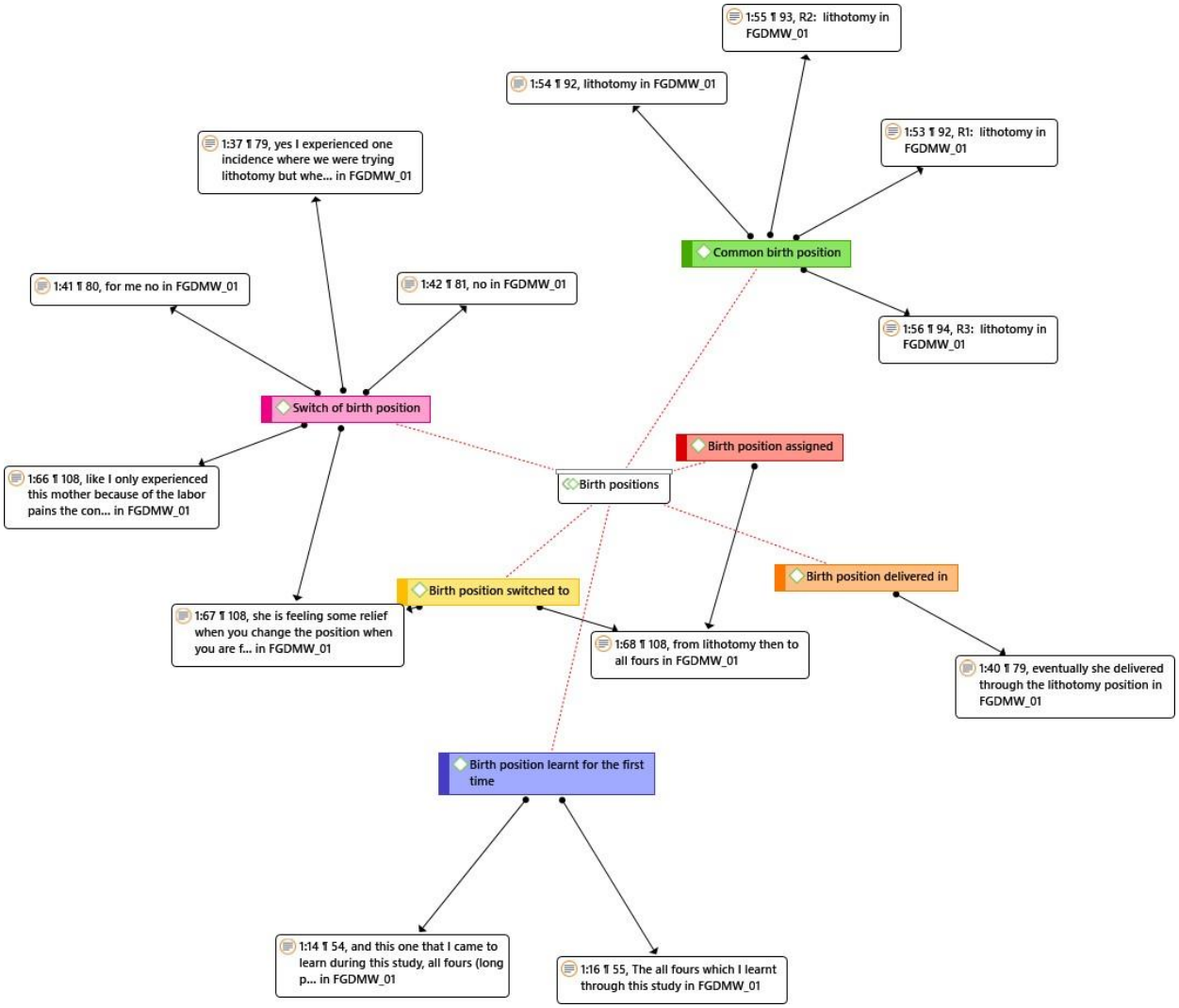
–I think that first we start with the midwives‖

–I think all fours I will encourage all fours‖

–I will go with all fours so far because you know that time the patient is putting effort on herself and you are doing a lot of encouragement but in let‘s say in lithotomy you are there supporting the tears, you are even tired, the patient is not listening to you sometimes‖

–All fours is easy, you communicate with the patient.**”**

–Make some recommendations that will help the mid wives and the society. (inaudible segment) she comes prepared she coming to do the all fours‖

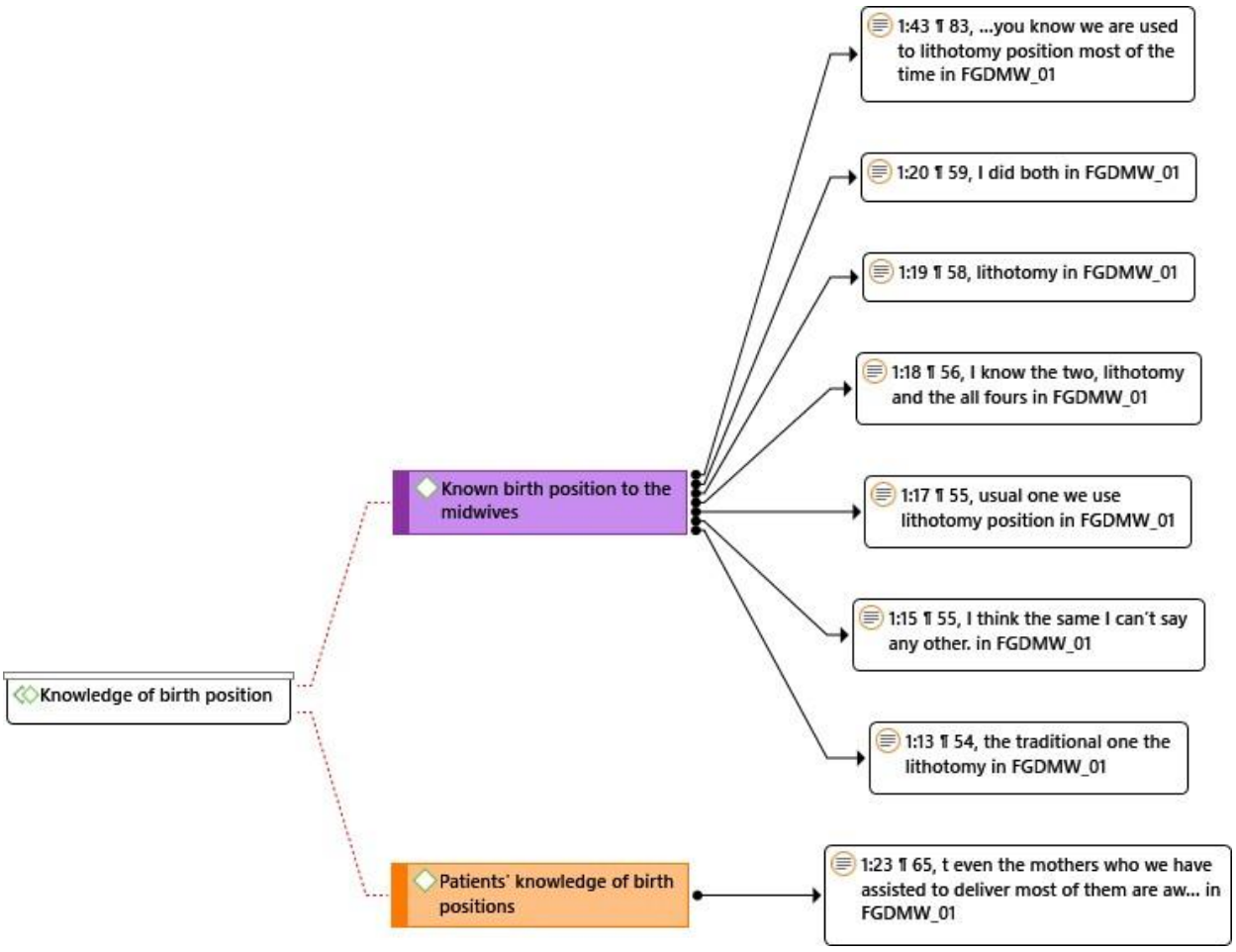


Network diagram showing midwives observations on birth positions

Midwives observations on parturients switching birth positions: some midwives reported that parturients would change from lithotomy to all fours during labour when the pain worsened.

> –When the pain was so extreme she could change to all fours‖
>
> –She is feeling some relief when you change the position when you are from lithotomy then to all fours‖

Chart on knowledge of birth positions



CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 DISCUSSION

The main objective of the study was to compare the effect of all fours versus lithotomy birth position on obstetric outcomes among low-risk parturients at KNH labour ward.

The duration of second stage was shorter in the _all fours‘ position (21 minutes) than in the lithotomy position (14 minutes), p = <0.001 (table 3). The finding was statistically significant but not clinically significant. This was different from the findings by Gizzo et al [17] who found the upright positions to have a lower duration of second stage that the recumbent positions. This could be attributed to the birth weight which was significantly higher in the allfours group. The birth weight significantly increased the duration of the second stage with a hazard ratio of 0.785, p = 0.02. Gupta et al [1] also found upright positions to have a lower duration of second over recumbent positions with a mean difference of 6.16 minutes (92% CI9.74, 2.59; p value = <0.01). However, on sensitivity analysis after excluding trials with high risk of bias, there was no clear difference in the duration of second stage. This finding could also have been affected by the different pelvic types, compliance to the assigned birth position by the participants, quality of intrapartum care, observer bias and performance bias.

The episiotomy rates were found to be higher in the lithotomy group at 14.3% compared to 8.2% in the all fours group (RR 95% CI 0.8[0.6,0.9], p = 0.01 9 (table 4). This finding was similar to Zhang et al [5] wherelithotomy birth position was associated with higher episiotomy rates at 37.7% (166/440) than the all fours group at 1.8% (8/446). Gupta et al [1], also found a reduction in the episiotomy rates with upright over recumbent positions during second stage of labour with an RR of 0.75 (95% CI 0.61, 0.92). _All fours‘ position has been

shown to be a protective factor for episiotomies [5]. Another reason for the above result could be performance bias, level of skill and intrapartum care.

The rate of intact perineum in the all fours birth position was lower at 45.4% compared to lithotomy birth position 46.7% , p = 0.74 (table 4). Conversely, in the RCT by Zhang et al [5] _all fours‘ birth position was associated with higher rates of intact perineum at 33.2% (148/446) compared to 14.8% (65/440) in the lithotomy position, p = <0.001. This could be attributed to the quality of intrapartum care, performance bias, midwifery experience and observer bias.

First degree perineal tears were higher in the all fours group at 52.7% compared to lithotomy group 51.4% (RR 95% CI 1.0[0.8,1.2]), p = 0.74 (table 4). Second degree perineal tears were lower in the all fours position at 1.2% compared to lithotomy position 1.6% (RR 95% CI 0.8[0.4,1.7], p = 0.72. Similarly, in Zhang‘s study, the _all fours‘ position was associated with higher rates of first degree laceration at 56.3% (251/446) compared to lithotomy birth position at 41.8% (184/440), p = <0.001. Conversely, second-degree laceration were higherin the all fours arm at 8.7% (39/446) compared to lithotomy birth position at 5.7% (25/440) respectively, p = 0.08. The rate of second degree perineal tears between the two groups was clinically but not statistically significant. This may be as a result of sample size and quality ofintrapartum care.

The incidence of PPH was higher in the all fours at 4.5% compares to 3.8% in the lithotomy group (RR 95% CI 1.1[0.6,1.8]), p = 0.32 (table 4) which is not statistically significant. This finding was similar to the RCT by Zhang et al who found a no statistical difference in the incidence of PPH (p value 0.32). Gupta et al also found an increased incidence of blood loss >500ml with upright positions with an RR of 1.20 at 95% CI (1.00-1.44). This may be as a result of observer bias, quality of intrapartum care.There were no cases of shoulder dystocia in the all fours birth position (table 4). However, one case was reported in the lithotomy

group.This was similar to a study by Zhang et al [1] who reported 4 cases of shoulder dystocia with lithotomy position with none in the all fours group.

In the results of primary objective 3 on neonatal outcomes such as 5 minute APGAR <7, administration of oxygen and admission rate to NBU were not significantly different in the 2 groups (table 5). This was similar to a study by Zhang et al who found no clear difference in neonatal outcomes. Gupta et al [1] found no clear difference in the admission rate to NBU with an RR of 0.79, 95% CI 1.10-1.98. This could be attributed to observer bias in APGAR scoring, quality of intrapartum care and setting.

During the in-depth interviews, most parturients were only aware of the lithotomy birth position. Some of the factors influencing their choice of birth position included midwife‘s opinion, personal preference, advice from others, common practice and previous experience. Some participants also reported discomfort with the all fours position. However, some reported that they would consider delivering in the all fours position in future pregnancies. This was similar to the findings by Diorgu et al [6] where parturients reported that they were more familiar with lithotomy birth position and that they would consider a different birth position in future pregnancies. The most common factor influencing their choice of birth position was the midwives‘ opinion.

In the focus group discussion, midwives reported that they were only aware of the lithotomy birth position. They first learnt of the all fours position through this study. Their level of experience in midwifery was less than two years. Most assisted delivery in both the all fours and lithotomy birth position. They perceived all fours birth position to be associated with better perineal outcomes and reduced need for perineal support. They also reported that they would assist deliveries in the all fours position in future especially if they are trained. These findings were similar to an exploratory study in Nigeria by Diorgu et al [6] where they found

that midwives were mostly aware of the lithotomy birth position. They also had minimal experience with other birth positions. However, they were willing to assist deliveries in alternative positions if introduced.

5.2 CONCLUSION

Overall, this study shows clinical evidence of significantly lower rates episiotomy, better 5 minute APGAR scores but a slightly longer duration of second stage of labour (4 minutes) in the parturient‘s who delivered in the _all fours‘ birth position. This study also found that both midwives and parturients were only aware of lithotomy birth position but would consider _all fours‘ birth position in the future. This data can help the midwives promote the use of the _all fours‘ position in clinical practice.

5.3 RECOMMENDATIONS

- Parturients should be offered information on and be allowed to deliver in the _all fours‘ birth position.
- Midwives should be trained on assisting delivery in _all fours‘ position to increase competence. Further studies on the midwives‘ and parturients‘ experiences should involve a larger sample size to get more information on the challenges and success of the _all fours‘ and lithotomy position

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ANNEX 1: STUDY MATERIALS

QUESTIONNAIRE (STUDY PROTOCOL)

TO BE FILLED BY THE RESEARCH ASSISTANTS AND/OR THE PRINCIPAL INVESTIGATOR AS REQUIRED

DATE: SERIAL NO.

SECTION A: SOCIODEMOGRAPHIC DATA

1. Age (Years): _____

2. Education background:

a) Primary

b) Secondary

c) Tertiary

d) None

3. Religion:

a) Catholic

b) Muslim

c) Protestant

d) Others: _____

4. Employment history:

a) Employed

b) Self-employed

c) Unemployed

5. Marital status:

a) Married (monogamous)

b) Married (polygamous)

c) Widowed

d) Separated

e) Divorced

f) Single

SECTION B: PAST OBSTETRIC HISTORY

1. Outcome of the last pregnancy:

a) Birth weight (kg): _____

b) Live or Still birth: _____

e) Gestation at delivery: _____

f) Episiotomy: _____

g) Birth position: _____

2. Last delivery: Indicate month and year: _____

3. Complications at last delivery:

a) Tears: _____

b) Bleeding: _____

c) Shoulder dystocia: _____

4. Assisted delivery:

a) Vacuum (yes or no): _____

b) Forceps delivery (yes or no): _____

c) Oxytocin (yes or no): _____

5. Resuscitation measures for the baby:

a) Oxygen administration

b) Admission to NBU

c) None

6. Onset of labour:

a) Spontaneous

b) Induction:

SECTION C: ANTENATAL HISTORY

1. LNMP (1st day of the last normal period): _____

2. Antenatal clinic attendance (yes or no): _____

3. If the answer to question 2 section 3 is yes, specify where:

a) Dispensary

b) District hospital

c) Provincial hospital

d) National hospital

4. Number of antenatal visits done: _____

5. How many weeks were you on your 1st visit? _____

6. Antenatal profile (indicate date each test was done):

a) HIV test

b) HepBSAg Result

c) VDRL

d) Haemoglobin level:

e) Blood group:

f) Blood sugar

7. Ultrasound scans:

a) First trimester

b) Second trimester

c) Third trimester

d) None

8. Delivery plan during ANC visits (yes or no): _____

SECTION D – INTRAPARTUM CARE

INITIAL ASSESMENT

1. Gestation:_____ Parity:_____

2. Onset of labour:

a) Spontaneous

b) Induced

3. FHR: _____

4. CTG:

a) Done (category): _____

b) Not done:

5. Pelvic assessment:

a) Adequate

b) Inadequate

c) Not done

6. Vaginal Examination:

a) Bishop Score: _____

b) Dilation: _____

7. Membranes

a) Intact

b) Ruptured

   i) Clear

   ii) Meconium Stained Liquor (Grade): _____

8. Contractions

a) Absent

b) Present

i) Duration: _____

ii) Number in 10 minutes: _____

9. Augmentation of labour (yes or no): _____

SECTION E - NEONATAL OUTCOMES

1. Apgar score (1^{st} and 5^{th} minute): _____

2. Birth weight (grams): _____

3. Administration of oxygen (yes or no): _____

4. Neonatal admission to new born unit (yes or no): _____

5. Indication for admission: (Tick any box the applies)

a) Birth Asphyxia

b) Neonatal Sepsis

c) Respiratory Distress Syndrome

e) Low birth weight

f) Other: _____

SECTION F: MATERNAL OUTCOMES

1. Mode of Delivery:

a) Vaginal

b) Caesarean Section:

Indication for C/S -

i) NRFS

ii) Prolonged second stage

iii) Arrested descent

iv) Malposition of the foetus

v) Poor maternal effort

vi) Others

c) Assisted vaginal delivery:

i) Vacuum Delivery (yes or no): _____

ii) Forceps Delivery (yes or no): _____

2. Perineal Outcomes:

a) Intact

b) 1st degree

c) 2nd degree

d) 3rd degree

e) 4th degree

3. Episiotomy (Yes or no): _____

4. Amount of blood loss:

a) <500ml

b) >501ml

5. Augmentation of labour during second stage (yes or no): _____

6. Use of opioid analgesics (yes or no):_____

7. Duration of second stage of labour (minutes): _____

8. Incidence of Shoulder Dystocia:

a) Present

b) Absent

STUDY PROTOCOL (KISWAHILI VERSION)

MASWALI YA KUJIBU

TAREHE: NAMBARI HALISI:

YA KUJAZWA NA WASAIDIZI WA UTAFITI HUU AU MPELELEZI MKUU VILE YATAKIKANA

SEHEMU YA A: MANENO YA MTAFITI

1. Umri (Miaka): _____

2. Asili ya elimu:

a) Msingi

b) Sekondari

c) Elimu ya juu

d) Hakuna

3. Dini:

a) Katoliki

b) Mwislamu

c) Mprotestanti

d) Wengine: _____

4. Historia ya ajira:

a) Kuajiriwa

b) Kujiajiri

c) Kutokuwa na kazi

5. Hali ya ndoa:

a) Kuolewa (monogamous)

b) Kuolewa (mitala)

c) Mjane

d) Kinachotengwa

e) Talaka

f) Kutoolewa

SEHEMU YA B: HISTORIA YA KUJIFUNGUA

1. Matokeo ya ujauzito wa mwisho:

a) Uzito wa kazaliwa (kg): _____

b) Kuzaliwa na uhai au bila uhai: _____

c) Wiki za mimba wakati wa kujifungua: _____

d) Kupasuliwa kwa njia ya uke: _____

e) Nafasi ya kuzaliwa: _____

2. Mwisho Kujifungua: Andika mwezi na mwaka: _____

3. Shida wakati wa kujifungua mimba ya mwisho:

a) Kupasuka kwenye njia ya uke: _____

b) Kutokwa na damu zaidi ya kawaida: _____

c) Mabega ya mtoto kukwama kwa njia ya uzazi: _____

4. Usaidizi wakati wa kujifungua:

a) Kutumia utupu (ndio au hapana): _____

b) Kutumia milango (ndio au hapana): _____

c) Kutumia dawa ya kuongeza uchungu (ndio au hapana): _____

5. Hatua za uokoaji kwa mtoto:

a) Kumpa mtoto oksijeni

b) Kulazwa kwa kitengo cha watoto waliozaliwa

c) Hakuna

6. Mwanzo wa uchungu wa kujifungua:

a) Uchungu ulianza yenyewe bila usaidizi

b) Uchungu ulianzishwa na madawa

SEHEMU YA C: HISTORIA YA UJAUZITO

1. LNMP (siku ya kwanza ya damu ya mwezi kuonekana): _____

2. Mahudhurio ya kliniki ya wajawazito (ndio au hapana): _____

3. Ikiwa jibu la swali 2 ni ndio, taja wapi:

a) Zahanati

b) Hospitali ya wilaya

c) Hospitali ya mkoa

d) Hospitali ya kitaifa

4. Idadi ya ziara za wajawazito zilizofanywa: _____

5. Ulikuwa wiki ngapi kwenye ziara yako ya 1? _____

6. Vipimo vya ujauzito (zinaonyesha tarehe kila kipimo kilichofanywa):

a) Kipimo cha ukimwi

b) HepBSAg

c) VDRL

d) Kiwango cha damu:

e) Kikundi cha damu:

f) Kipimo cha sukari kwenye damu

7. Upimaji wa Ultrasound:

a) Kipindi cha kwanza

b) Kipindi cha pili

c) Kipindi cha tatu

d) Kutofanya

8. Mpango wa kujifungua wakati wa matembezi ya ANC (ndio au hapana): _____

SEHEMU D – WAKATI WA KUJIFUNGUA

UTAFITI WA KWANZA

1. Wiki za ujauzito: _____

2. Mwanzo wa uchungu ya kujifungua:

a) Kuanza yenyewe

b) Kuanza baada ya kuwekewa dawa

3. Kipimo cha moyo ya mtoto: _____

4. CTG:

a) Imefanywa (jamii): _____

b) Haijafanywa:

5. Kipimo cha njia ya kujifungua:

a) Kutosha

b) Kutotosha

c) Kutofanywa

6. Uchunguzi wa njia ya uke:

a) Biahop score: _____

b) kiwango cha kufunguka kwa njia ya uke: _____

7. Hali ya maji ya ujauzito:

a) Haijapasuka/kutomwagika

b) Imepasuka/imemwagika

i) Ni safi

ii) Kipimo cha rangi ikiwa mtoto ameenda choo: _____

8. Uchungu wa kujifungua:

a) Kutokuwepo

b) Zipo

i) Muda: _____

ii) Nambari katika dakika kumi: _____

9. Kuongezwa kwa uchungu wa kujifungua (ndio au hapana): _____

SEHEMU YA E – MATOKEO YA MTOTO

1. Kipimo cha APGAR (dakika ya 1 na ya 5): _____

2. Uzito wa kuzaliwa (gramu): _____

3. Kutibiwa na oksijeni (ndio au hapana): _____

4. Kulazwa katika chumba cha kutibu watoto waliozaliwa (ndio au hapana): _____

5. Sababu ya kulazwa: (Bonyeza kisanduku chochote kinachotumika)

a) Kushindwa kupumua baada ya kuzaliwa

b) Ufafu wa kuzaliwa

c) Kutokuwa na APGAR Zaidi ya saba katika dakika ya 5 baada ya kuzaliwa

e) Uzito wa chini

f) Nyingine: _____

SEHEMU YA F: MATOKEO YA MAMA

1. Njia ya kujifungua:

a) Njia ya uke

b) Upasuaji:

Sababu ya upasuaji -

i) Hali ya mtoto isiyo ya kuwahakikishia wakunga

ii) Kutojifungua kwa muda mrefu

iii) Mtoto kutoteremka

iv) Mtoto kulala vibaya wakati wa kuzaa

v) Jaribio duni la mama

vi) Sababu nyingine:

c) Usaidizi wa kuzalishwa:

i) Uwasilishaji wa Vuta (ndio au hapana): _____

ii) Uwasilishaji wa kutumia forceps (ndio au hapana): _____

2. Matokeo ya Njia ya uke:

a) Kutopasuka kwa njia ya uke

b) Digrii ya kwanza

c) Digrii ya pili

d) Digrii ya tatu

e) Digrii ya nne

3. Kupasuliwa kwenye njia ya uke (Ndio au hapana): _____

4. Kiasi cha upotezaji wa damu:

a) <500ml

b)> 501ml

5. Kuongeza uchungu katika hatua ya pili (ndio au hapana): _____

6. Matumizi ya dawa ya kutoa uchungu (ndio au hapana): _____

7. Muda wa kujifungua katika kipindi cha pili cha kuzaa (dakika): _____

8. Tukio la mabega kukwama katika njia ya uzazi:

a) Ndio

b) La

IN DEPTH INTERVIEW COVER SHEET

This form is to be completed by the note-taker. No identifying information (e.g. names) is to be recorded.

ID code:	
Date:	
Location:	
Moderator:	
Note-taker:	
Time interview began:	
Time interview ended:	
Total duration:	
Audio-recorded (yes/no):	

Demographic details:

Participant	Age (years)	Gender of the baby (M/F)	Residential area	Birth position Assigned	Switched Birth position (Y/N)	Birth position (switched to)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Notes/comments:

IN DEPTH INDIVIDUAL INTERVIEW (IDI) GUIDE FOR OBSTETRIC OUTCOMES RELATING TO UPRIGHT ("ALL FOURS) AND LITHOTOMY BIRTH POSITION

(Over 18 years)

Instructions for conducting the individual interview

1. **Introduction of the study to the interviewee:** Introduce yourself and the study, and thank the participant for agreeing to be part of this interview.
2. **Consent:** Go through and explain the informed consent form in Kiswahili slowly, and obtain consent. One copy of the informed consent form should be given to the participant and a second copy shall be kept by the facilitator. Consent must also be sought from the participant to audio-tape the interview. The voluntary nature of the study should be emphasized. Participants must also be informed of their right to withdraw from the interview at any point in the discussion.
3. **Demographic questionnaire:** Administer the brief demographic information questionnaire. If the participant is unable to read and write, you shall assist her in filling in the form.
4. **Rules:** Explain that there are no right or wrong answers, and that the participant should feel free to ask clarifying questions if they do not understand

Materials needed:

- Digital recorder
- Notebook and pen
- Interview cover sheets and note-taking guides
- Consent forms

Throughout the interview:

- Keep an open mind, and not pass judgment by reacting positively or negatively. Try to avoid showing extreme facial, verbal and body language reactions to what participants say, even if you feel surprised or embarrassed over statements.
- If the participants ask your opinion or request information during the interview, tell them that it is their opinion that is important. If they insist, let them know that you can talk further at the end of the interview.
- Include frequent reminders that the interview is voluntary, private and confidential: –No one will know what you say to me, not your family, no one in this institution, or your friends‖. –You can stop or take a break at any time‖.
- Build trust with the participant, for instance by listening actively and responding carefully to their concerns and questions.

INTERVIEW SCRIPT

Hello. Thank you for being here, my name is_____and I will be interviewing you today.

The purpose of today is to talk about the effects of upright (all four) and lithotomy birth position on the obstetric outcome among parturient whom you assisted. You were chosen to be interviewed because you participated in assisting the women admitted in the study during childbirth. We would like to hear more about your experiences with the birthing positions, if and how it had effect on obstetric outcome, and how and why you think it works to bring about better obstetric outcomes.

(Confirm that they filled out the consent form).

I might interrupt at points during the interview to assure that we have enough time for all observations. If you don‘t understand a question, please let me know.

I will be recording today‘s discussion and ask that you speak up so that your voice is captured. I will not use the recordings for anything else than this study, and will not share your name or identity with anyone else. Some things you say may be shared as go over what everyone has said, but no one will know who you are.

Warm up

1. Ok, great - let‘s get started. Tell me a little bit about your experiences during **first stage** of labour. Tell me about the position in which you were encourage to adopt during birth? Were you assigned to this position?

Part 1: Participants birth experience

2. A moment ago, we talked about your experiences of the child birth delivery during first stage. Can you tell me about the position you were assigned to during the second stage of labour *(Probe, e.g.: What happened exactly? How did it make you feel?]*

3. We also talked about experience during first stage of labour – can you tell me about the pain experience related to the child delivery in the assigned position compared to the pain during the first stage of child delivery? *(Probe, e.g. do you think the pain intensity is reduced or increase by a birth position one assumed?*
4. Let‘s talk about the assigned birth position during second stage. Did you maintain the assigned birth position during the entire second stage?

    - If not, did you at least maintain this position half the time during the second stage? Or you abandon the assigned position?
    - If you abandon this position, what were your reasons? (*Probe further, e.g. discomfort, midwife's advice, cultural practice, previous experience, obstetric reasons etc.*)

Part 2: Participants views and opinions about birth positions.

5. Take a moment and think about the birth position (s) you were assigned to,
    a. Would you consider delivering in the assigned position if you are given a choice?
        - If yes, can you tell me why? If not, could you tell me why?

Let‘s shift our focus to our experience in the past

    b. If you don‘t mind me asking, have you delivered child before? If yes, which birth position did you deliver in? (e.g. Lithotomy, Lateral, Semi recumbent, Standing, Squatting, Sitting, _All fours‘/Kneeling)

c. Could you tell me what influenced your choice? (*e.g. Birth attendant, Previous experience, Advice from peers, Advice from family members, Culture*)

d. Do you know of any reason why individual would choose to give birth in some position? If yes, give me example of some of these reasons

Part 3. To get other views of the participants regarding the birth positions

6. We are almost done with the interview, and you are doing really great so far. For this last part, I would like to know if any comment or any addition point you would like to share with me.

Conclusion

Thank you for participating today. This has been a very successful discussion, we really value your opinions and believe that they will help to achieve better obstetric outcomes. Before we end, I want to remind you that I will not share what have told me today with anyone else, and no one will know who you are when we share the stories as part of this study.

I hope you have found the discussion interesting. If there is anything you are unhappy with or wish to complain about, please speak to me later/separately.

FOCUS GROUP DISCUSSION GUIDE (FGD) FOR OBSTETRIC OUTCOMES RELATING TO UPRIGHT ("ALL FOURS) AND LITHOTOMY BIRTH POSITION (Ages 18 years (+))

Instructions for conducting the FGD

1. **Decide on interviewer roles:** who will moderate, take notes, and handle logistics
2. **Introduce the study to participants**: The facilitator(s) should introduce themselves and thank the participants for agreeing to participate in this research.
3. **Consent**: Go through and explain the informed consent form in Swahili and obtain consent from all participants. One copy of the informed consent form should be given to participants and a second copy shall be kept by the facilitator. Consent must also be sought from participants to audio-tape the FGD. The voluntary nature of the study should be emphasized. Participants must also be informed of their right to withdraw from the FGD at any point in the discussion.
5. **Fill out the cover sheet:** Complete the demographic information in the cover sheet
6. **Establish ground rules** for the FGD
7. **Set up**: sit in a circle to bring about uniformity
8. **Give everyone a number (1-10)** and explain that before a person speaks they must say their number eg.‖ 1- I think that ….. I agree with number 4 about the example he gave…‖

Checklist/materials needed:

- Digital recorder
- Notebook and pens
- Interview cover sheets and note-taking forms

- Consent forms
- Yellow card/piece of paper: Give each participant a yellow card or a piece of paper; explain that raising the card indicates that they would like to stop their participation.

Throughout the interview:

- Keep an open mind, and not pass judgment by reacting positively or negatively. Try to avoid showing extreme facial, verbal and body language reactions to what participants say, even if you feel surprised or embarrassed over statements.
- If the participants ask about you or request information during the interview, tell them that it is their opinion that matters. If they insist, let them know that you can talk after the interview
- When asking about sensitive topics, remind participants that the interview is voluntary, private and confidential, and that they can stop or take a break at any time.
- Build trust with the group by listening actively and responding carefully to their concerns.
- Use non- verbal communication (e.g. by nodding) to show that you are listening
- Be patient and remember silence is not a bad thing (it‘s the participant thinking about their response)

FOCUS GROUP SCRIPT

Hello. Welcome to this focus group. My name is_____and I will be moderating today's session. Joining me today are_____and_____, who will be taking notes and here to assist me.

The purpose of today is to talk about the effects and experience of birth position on obstetric outcomes. You were chosen to be part of today's discussion because you are the best people who may have encounter, witness or even dealt with deliveries done on different birth position. We would like to hear your thoughts about how and why different birth position result in different obstetric outcomes.

Everyone should have had a chance to express their consent to participate today (fill out the consent form). Please let me know if you did not get a chance to do so.

I will be guiding today's discussion by asking questions, listening, and making sure everyone has a chance to share. We would like everyone to participate and for the discussion to be informal, so there is no need for you to raise your hand before speaking.

I might interrupt at points during the discussion to assure that we have enough time for all topics. If you don't understand a question, please let us know.

We will be recording today's discussion and ask that you speak up so that your voice is captured. We will not use the recordings for anything else than program development and we will not share your identity with anyone when we look through what you tell us. Some things you say may be shared, but no one will know who you are.

Here are a few recommended ground rules before we start (ask the group to contribute):

- There are no right or wrong answers, we all have different point of views.
- Try to speak one person at a time and use your number when you speak (e.g. ‒1 – think that…‖). We encourage you to respond to each other's comments - we just ask that everyone speak one at a time and be respectful of the other participants.

- Everything said in the room stays in the room. We ask that you respect each other by not sharing who was at this meeting and what certain people said.
- If you feel uncomfortable at any point you are free to stop your participation

Preparation (10 min)

Follow with a round of introductions. Explain that the participants can use their own name, or make up a "nick-name" that they want to use during the discussion.

Part 1: Experiences (memorable as well as negative) related to the birth positions and obstetric outcome

7. Ok, great - let's get started. Tell me a little bit about your experiences and roles in assisting women during deliveries. (*Share a little about yourself to build trust*). How many years of experience have you practiced birth deliveries?
8. A moment ago, we talked about your most memorable experiences of the child birth delivery you assisted. Can you tell me about your best or most positive memory of the birth deliveries you handled (obstetric outcomes that were not good? etc)? *(Probe, e.g.: What happened exactly? How did it make you feel? What did it mean to you? Why?]*
9. We also talked about negative experiences – can you tell me about your worst or most uncomfortable/negative memory or experience related to the child delivery (if any)? *(Probe, e.g. What about it was difficult? What were you thinking when that happened? How did it make you feel? What do you think about it now after getting a chance to have women delivering in two different birth positions?)*

Part 2: To understand which birth position is preferred by the obstetric nurses/midwives during birth.

10. Take a moment and think about the birth position (s) you assisted someone to deliver,

    e. Which surface did you assist the deliveries in? , do you have any preference of these?

If yes, can you tell me which one and why? How do you compare this and other positions you do not prefer?

    f. What position (s) did you assist deliveries in? And how many participants did you deliver in each of the birth position(s)? (*Probe more on positions mentioned by the participant*). How easy or difficult was it to assist deliveries in these (this) position(s)?

2. *Probe to find out if there were participants who switched positions and why?*

3. *Probe for any other observations made*

(Probe, e.g. Can you give me an example…? What happened? How did you feel?)

    a. Which birth position would you encourage a parturient to deliver in? Tell me more about it and why you would prefer to recommend that position.
    b. Can you tell me the most common position(s) you have conducted deliveries in previously? Which is your birthing position preference?
    c. Can you think of any other delivery position(s) (other than the ones that we have already talked about) where you had difficult/easy time assisting deliveries? Please describe.

4. Before we wind up these discussions, let‘s talk about the pain associated with any of the birth position.

    a. Which birth position would you say the participant experience more or less pain?

b. Do you think the difference in pain experience by participants significantly differed?

c. Could you talk a little example of instances why you think are the reasons participants switched birth position?

Part 3. To get other views of the participants regarding the birth positions

11. We are almost done with the interview, and you are doing really great so far. For this last part, I would like to know if there is something that you found to be especially useful from this two birth position(s). In helping you to assist deliveries).
12. What, in your view do you think can be done/adjusted (*e.g. having a combination of birth position etc.*) to help parturient deliver with less pain and achieve best obstetric outcomes?

End of interview/conclusion

Conclusion

Thank you for participating today. This has been a very successful discussion, we really value your opinions and believe that they will help to achieve better obstetric outcomes. Before we end, I want to remind you that I will not share what have told me today with anyone else, and no one will know who you are when we share the stories as part of this study.

I hope you have found the discussion interesting. If there is anything you are unhappy with or wish to complain about, please speak to me later/separately.

Part I: Note-Taking Form: Focus Group Interviews (to be filled during the interview)

Describe interview set up	Example: A delivery room at Pumwani hospital block D. Room is equipped with neonatal incubators, delivery bed etc.
Describe the participants (physical, in delivery uniform etc.)	
Describe the overall demeanour of the participant(s) during the interview/discussion (anxious, calm, unsettled, eager to leave)	

Question (# or key word)	Key Responses	Observation

Part II: Debriefing form (To be filled after the interview)

Fill this out as soon as possible. Note anything that can help the analysis team better understand the information in the audio recording.

Describe any questions that were difficult for the participant(s) to understand and suggested modifications that are not already well explained or explored from the interview discussion.	Not questions per say, but understanding and knowledge of some words, eg. Participant did not know what consent meant or receptive etc. so the wording.
What were the major themes that came up?	
Did any information contradict what you have learned in other interviews?	
What would you follow up on more in another interview?	
Describe any cultural factors that would be important for othersoutside the local context to understand.	
Note anything else that you observed that would be useful to know while transcribing interviews, and for future data collection.	

ANNEX 2: CONSENT FORM – ENGLISH VERSION

STUDY TITLE: A COMPARISON OF OBSTETRIC OUTCOMES BETWEEN THE „ALL FOURS‟ BIRTH POSITION VERSUS THE LITHOTOMY BIRTH POSITION DURING SECOND STAGE OF LABOUR AMONG LOW RISK PARTURIENTS AT KENYATTA NATIONAL HOSPITAL.

Principal Investigator

I, Dr Sarah Doreen Taaka Agunda, am a postgraduate student at the University of Nairobi Obstetrics and Gynaecology department. I am conducting the above study as part fulfilment for the award of the degree of Master of Medicine in Obstetrics and Gynaecology by the University of Nairobi.

Contacts:

Phone Number: 0720751163

Email: agundasarah@gmail.com, sarahagunda@gmail.com

Postal address P.O.Box 28493 - 00200, Nairobi.

Lead Supervisor,

Dr. Alfred Osoti,

Senior Lecturer of the department of Obstetrics and Gynaecology, University of Nairobi

Phone number: 0733886664.

Email: alfosoti@gmail.com.

Postal address: Department of Obstetrics and Gynaecology, College of health sciences, University of Nairobi.

PURPOSE OF THE STUDY

To compare the outcomes for both the mother and baby among women with uncomplicated pregnancies who are delivering in either the _all fours‘ position where you lie on your back

with your legs supported on leg rests or in lithotomy position where you support your body in the air with your hands and knees during delivery at Kenyatta National Hospital.

lithotomy positions

'all fours' positions

STUDY PROCEDURE

You will first be provided with a leaflet showing the various birth positions. If you choose to participate in the study, you will then be recruited once you fulfil the selection criteria. After an informed consent is obtained, you will be trained on how to assume and take breaks from both birth positions being studied that is the hands and knees or lying on your back. Prior to second stage of labour, you will be randomly assigned to either the _all fours' or lithotomy birth position. Your sociodemographic data will then be captured at this point.

The qualified midwives will assist you during your delivery. You can deliver on a mattress on the floor or on the delivery bed. The research assistants or the Principal Investigator will ask you about your antenatal care and delivery through a face-to-face interview, questionnaires, observation and extraction of other relevant data from your medical records (ANC booklet and file). The research assistants or midwives will also ask you about your opinion on the assigned position after you have completed the delivery process.

BENEFITS OF THE STUDY

This study will not directly benefit you but the findings will inform on the guidelines on birth positions that will benefit women in the future.

RECRUITMENT AND CONSENT

Study personnel will explain the research procedures to you in either Kiswahili or English language, provide written information when appropriate and obtain written informed consent, prior to initiation of any study procedures.

POTENTIAL BENEFITS AND RISKS TO THE PARTURIENT

The potential risks to the patients during the course of the study are no different from the usual risks of delivery such as vaginal trauma, assisted deliver and resuscitation of thenewborn. These invasive procedures will be performed on them by professionally trained health providers. The midwives will be present throughout your delivery process. If needed, prompt interventions and treatments will be done as appropriate. There will be no extra costto you for participating in the study. There will be no direct monetary benefits. You will learnof other available birth position options and even experience one of them.

CONFIDENTALITY

During data collection, your name will not be recorded on our data collection tools. Serial numbers will be used as identifiers instead. The information you give us will not be used for any other purpose apart from the study

MINORS

All pregnant women 14 years and above will be allowed to participate in the study. In Kenya, pregnant women between 14 – 18 years are not legally allowed to give consent. Informed consent shall be obtained from their parents or guardian. Assent of the participant shall also be considered.

VOLUNTARY PARTICIPATION AND WITHRDAWAL FROM THE STUDY

Participation is voluntary and you are free to decline the study or to withdraw from the study at any time. Declining to give consent or withdraw from participation will not influence your management in any way.

FOLLOW UP

No follow up is required after participation in the study. However routine check-ups at the postnatal clinics will be advised.

ETHICAL APPROVAL

This study has been reviewed and approved by the KNH/UON Ethics and Research Committee.

If you need any further clarification regarding this study please feel free to contact the principal researcher:

Dr. Sarah Doreen Taaka Agunda on 0720751163, a resident in Obstetrics and Gynaecology at the University of Nairobi, email: agundasarah@gmail.com, postal address: P.O.Box 28493 - 00200, Nairobi.

Or the lead supervisor of the study:

Dr. Alfred Osoti, Senior Lecturer at the University of Nairobi, department of Obstetrics and Gynaecology, on 0733886664. Email: alfosoti@gmail.com. Postal address, University of Nairobi College of health sciences P.O.BOX 19676 code 00202.

Or

The Secretary, KNH-ERC

Tel, 020-2726300 ext. 44102. Email: uonknh_erc@uonbi.ac.ke

I confirm that I have exhaustively explained the study to the participant and sought voluntary informed consent from her.

Signature research assistant/principal investigator……..

Initials……Date…….

I have been explained to about the study and I accept to participate. I have not been coerced or enticed in any way.

Initials of participant……..

Participant‘s signature/Thumb print……..….Date…….

Witness initials…….Date…….....

CONSENT FORM – FOCUS GROUP DISCUSSION

STUDY TITLE: A COMPARISON OF OBSTETRIC OUTCOMES BETWEEN THE „ALL FOURS‟ BIRTH POSITION VERSUS THE LITHOTOMY BIRTH POSITION DURING SECOND STAGE OF LABOUR AMONG LOW RISK PARTURIENTS AT KENYATTA NATIONAL HOSPITAL.

Principal Investigator: Dr Sarah Doreen Taaka Agunda, am a postgraduate student at the University of Nairobi Obstetrics and Gynaecology department.

Lead Supervisor: Senior Lecturer of the department of Obstetrics and Gynaecology, University of Nairobi.

Hello, my name is Dr. Sarah Doreen Taaka Agunda, am a postgraduate student at the University of Nairobi Obstetrics and Gynaecology department. I am conducting the above study as part fulfilment for the award of the degree of Master of Medicine in Obstetrics and Gynaecology by the University of Nairobi.

We ask you to join our study because you are a midwife at KNH, and you have participated in the study. The information we get will help us understand your experiences of women giving birth in the2 different birth positions, how these experiences impact maternal and fetal health outcomes. You do not have to participate, it is your choice. Your decision will not affect any of your future dealings with anyone.

If you say yes, we will ask you to participate in a focus group discussion with up to three other midwives who have also participated in the study. If you do not feel comfortable with a focus group discussion, you can choose to have an individual interview instead. We want to get a better understanding of the experience women have in lithotomy and all four birth positions. We also wantto learn why women choose a birth position. We would also like your input on what birthing position would be most appropriate for women who are giving birth and their postpartum conditions and factors that should be considered when advising women on the birth position.

The discussion and survey process will take about 45 minutes. The discussion will be conducted by a trained member of the research team. Because we want to hear everything you have to say, we will digitally record your interview. Only statistician who work on this project will hear the recording and

you will not be identified by name, only by a participant ID. At the end of the study, all recordings will be destroyed. Only people who work on this project will be able to see the transcript of your interview, and your name will not be used in anything we write. If you prefer not to be recorded, we can take detailed notes instead, either for an individual interview or for the entire focus group if you prefer the group setting—it is your choice.

You may be uncomfortable answering some of the questions. Keep in mind that you do not have to answer all the questions and you may stop at any time. If you do not feel comfortable with the group discussion, you can always choose an individual interview. We will also emphasize confidentiality within the group setting. We will ask all participants to not share information with others outside of the group. There is a risk that someone outside the study will see your information. We will do our best to keep your information safe. If we share your information with other researchers, they will use the same protections.

There are no direct personal benefits to being involved in the study. We will use the findings to better understand the experiences of women involved, and how to improve their health and wellbeing. We will be happy to share the results of the study with you

ETHICAL APPROVAL

This study has been reviewed and approved by the KNH/UON Ethics and Research Committee.

If you need any further clarification regarding this study please feel free to contact the principal researcher:

Dr. Sarah Doreen Taaka Agunda on 0720751163, a resident in Obstetrics and Gynaecology at the University of Nairobi, email: agundasarah@gmail.com, postal address: P.O.Box 28493 - 00200, Nairobi.

Or the lead supervisor of the study:

Dr. Alfred Osoti, Senior Lecturer at the University of Nairobi, department of Obstetrics and Gynaecology, on 0733886664. Email: alfosoti@gmail.com. Postal address, University of Nairobi College of health sciences P.O.BOX 19676 code 00202.

Or

The Secretary, KNH-ERC

Tel, 020-2726300 ext. 44102. Email: uonknh_erc@uonbi.ac.ke

I confirm that I have exhaustively explained the study to the participant and sought voluntary informed consent from her.

Signature research assistant/principle investigator……..

Initials……Date…….

I have been explained to about the study and I accept to participate. I have not been coerced or enticed in any way.

Initials of participant……..

Participant‘s signature/Thumb print……..…….Date…….

Witness initials…….Date……..

CONSENT FORM – KISWAHILI VERSION

TAFITI YA KUFUNDA: KIASI CHA MFIDUO WA MFIDUO WA MFIDUO WA BARAZA LA 'ZOTE ZA VIWANDA' VINAKUA KIWANGO CHA LITHOTOMY BIRTH KUTOKA SEHEMU YA PILI YA SEHEMU NYINGI ZA KIWANGO CHA KENYATTA.

Mpelelezi

Dk. Sarah Doreen Taaka Agunda, ni mwanafunzi wa kuhitimu katika Chuo Kikuu cha Nairobi katika Idara ya Obstetrics and Gynaecology. Ninafanya utafiti huu uliyotajwa hapo juu kama sehemu ya kutimiza tuzo ya digrii ya Masters in Medicine, Obstetrics and Gynaecology katika Chuo Kikuu cha Nairobi.

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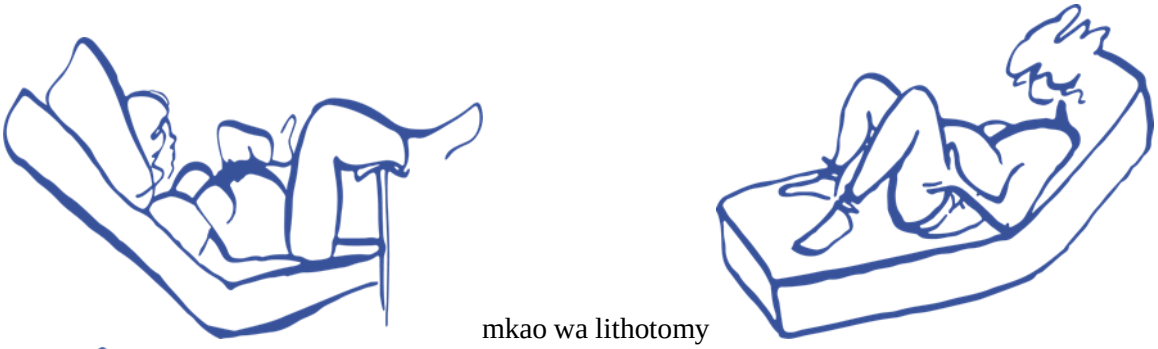
LENGO LA UPELELEZI

Kulinganisha matokeo ya kujifungua kati ya wahusika wanaotumia mkao wa _all fours‘ ampapo unapiga magoti na kujishikilia kwenye kitanda na mikono dhidi ya mkao wa lithotomy unalala kwa mgongo miguu ikiwa imewekelewa kwenye vitu vya kuwekelea miguu wakati wa kujigungua katika Hospitali ya Kitaifa ya Kenyatta

UTARATIBU WA UPELELEZI

Utaandikishwa kwenye upelelezi mara tu utakapotimiza vigezo vya ustahiki. Baada ya kutupa idhini, utasambazwa katika _all fours‘ ama lithotomy. Takwimu zako za kijamii zitajazwa wakati huu.

Mpelelezi mkuu au wasaidizi wake watakufunza juu kuhusu kile unachohitaji wakati wa kujifungua. Wasaidizi wa utafiti ambao ni wakunga waliosomea hii kazi, watakusaidia wakati wa kujifungua. Watachukua habari kuhusu utunzaji wako wa ujauzito na uwasilishaji kupitia mahojiano, uchunguzi na kuchunguza maandishi muhimu katika rekodi zako za matibabu (kijitabu cha ANC na faili). Watakuuliza kuhusu maoni yako katika njia uliotumia kujifungua.



mkao wa lithotomy

mkao wa _all fours‘

FAIDA YA UPELELEZI

Utafiti huu hautakufaidi kifedha lakini matokeo yatatoa taarifa ambayo itatumika kutoa mwongozo juu ya njia za kujifungua kwa wajawazito katika siku zijazo.

UCHAGUZI NA DHIBITISHO

Wafanyikazi wa upelelezi, watakuelezea taratibu za utafiti kwa lugha ya Kiswahili au Kiingereza, watatoa habari iliyoandikwa wakati unaofaa na kuomba udhibitishe kwa njia ya uandishi kabla ya kuanza utafiti.

ATHARI KUTOKANA NA UPELELEZI

Hatari zinazoweza kutokea katika upelelezi huu ni kama yale ya kawaida katika hali ya kujifungua. Uzalishaji utafanyw na wasaidizi wa hii upelelezi ambao ni wakunga walioisomea hii kazi. Wakunga watakuwepo wakati wote wa mchakato wako wa kujifungua. Hakutakuwa na gharama ya ziada kwako kwa kushiriki katika utafiti. Hakutakuwa na faida za moja kwa moja za fedha kwa mhusika yeyote kwenye utafiti huu hata hivyo ikiwa inahitajika uingiliaji wa haraka na matibabu yatafanywa kama inafaa.

SIRI

Wakati wa ukusanyaji wa habari zako, jina lako halitarekodiwa kwenye zana zetu za ukusanyaji wa data. Nambari za siri zitatumika kama kitambulisho. Habari unayotupatia haitatumika kwa madhumuni mengine yoyote mbali na utafiti huu.

WALIO CHINI YA UMRI

Wajawazito waliyo na miaka 14 kurudi nyuma hawataruhusiwa kushiriki kwenye utafiti. Huku Kenya, wajawazito kati ya miaka 14 hadi 18 hawanaruhusiwi kisheria kutoa idhini. Hawa watapewa idhini aidha na wazazi au walezi wake baada ya kuwaeleza kuhusu utafiti. Wajawazito hawa pia wanafaa kukubali kuwa katika upelelezi.

USHIRIKIANO WA KUJITOLEA NA KUTOKA KWA UPELELEZI

Ushirikiano ni kwa hiari na uko na huru ya kujiondoa kutoka kwa upelelezi wakati wowote. Kukataa kutoa idhini au kujiondoa kwenye upelelezi hautakuzuia kupata matibabu unayohitaji.

UFUATILIAJI

Hakuna ufuatiliaji unaohitajika baada ya kushiriki katika utafiti. Walakini uchunguzi wa kawaida kwenye kliniki baada ya kuzaa utashauriwa.

ETHICAL APPROVAL

Utafiti huu umepitiwa na kupitishwa na Kamati ya Maadili na Utafiti ya KNH / UON.

Ikiwa unahitaji ufafanuzi zaidi kuhusu utafiti huu tafadhali jisikie huru kuwasiliana na mtafiti mkuu:

Dk Sarah Doreen Taaka Agunda mnamo 0720751163, mkazi katika Obstetrics na Gynecology katika Chuo Kikuu cha Nairobi, barua pepe: agundasarah@gmail.com, anuani ya posta: P.O.Box 28493 - 00200, Nairobi.

Au msimamizi anayeongoza wa utafiti:

Dk. Alfred Osoti, Mhadhiri Mwandamizi wa Chuo Kikuu cha Nairobi, idara ya Obstetrics na Gynecology, kwa 0733886664. Barua pepe: alfosoti@gmail.com. Anwani ya barua pepe, Chuo Kikuu cha Nairobi Chuo cha sayansi ya afya P.O.BOX 19676 code 00202.

Au

Katibu, KNH-ERC

Simu, 020-2726300 ext. 44102. Barua pepe: uonknh_erc@uonbi.ac.ke

Ninathibitisha kwamba nimeeleza kikamilifu utafiti huu na kuchukua idhini ya kushiriki katika upelelezi huu kutoka kwa mshirika.

Msaidizi wa utafiti wa saini / mpelelezi …… ……...

Waanzilishi …… Tarehe …….

Nimeelezewa juu ya utafiti na ninakubali chemchem. Sijalazimishwa au kuvutiwa kwa njia yoyote.

Awali ya mshirika……

Sahihi au kidole cha mshirika……..Tarehe……

Awali ya shahidi…….Tarehe…….

ANNEX 3: IN-DEPTH INTERVIEWS AND FOCUS GROUP DISCUSSION REPORT IDI – CODE REPORT

Previous knowledge on birth position

2:15 ¶ 94 in IDIPW_01 translation

they told me the signs that I should look out for when the child is about to come

2:18 ¶ 92 in IDIPW_01 translation

R: my friend taught me.

6:5 fj 56 – 57 in IDIPW_05 translation

I: and were you told about other birth positions? R: yeah

3:10 ¶ 70 in IDIPW_02 translation

R: That‘s what I know because I also gave birth to the other one lying on my back.

3:12 fj 81 – 82 in IDIPW_02 translation

I: it was painful? Which birth position did you use when you gave birth to your first child? R: I was lying on my back

7:11 fj 70 – 71 in IDIPW_06 translation

I: okay you also gave birth to the others using the back position? R: yeah

Birth position assumed and switching during second stage

2:2 fj 68 – 71 in IDIPW_01 translation

R: there was a time I switched to another position and the doctor quarreled, it was really painful I had to switch back and that‘s when I delivered the baby. I: when you switched which position did you switch to? R: I laid on my back I: did you switch again?

3:2 ¶ 54 in IDIPW_02 translation

R: while giving birth? I was (clears throat) first I was kneeling…(door shuts) almost thirty or forty minutes. The doctor asked me to get up but I did not I only

did when I went to the bathroom. I tried lying on the side but I felt too much pain and I had to switch to lying on the back.

3:8 ¶ 54 in IDIPW_02 translation

R: while giving birth? I was (clears throat) first I was kneeling…(door shuts) almost thirty or forty minutes

4:1 ¶ 41 in IDIPW_03 translation

R: okay mostly I was bending because my stomach hurt a lot then my back started aching and I couldn‘t sleep throughout the night

4:2 ¶ 42 – 43 in IDIPW_03 translation

R: yeah I was kneeling on one pillow and the other one (demonstrating how she did it

7:7 ¶ 57 in IDIPW_06 translation

R: yes standing so that you can deliver, I felt more pain yeah

2:4 ¶ 46 in IDIPW_01 translation

R: I was crying on my knees then I lay on my back and I would switch to the side from time to time then back to laying on my back (inaudible segment) they would tell me to stop switching

2:9 fj 71 – 74 in IDIPW_01 translation

I: did you switch again? R: no I: you remained on your back? R: (inaudible segment) yes until I gave birth.

7:1 ¶ 41 in IDIPW_06 translation

I was lying on my side

7:8 ¶ 59 in IDIPW_06 translation

R: I was in lithotomy most of the time

3:5 ¶ 45 in IDIPW_02 translation

I: how on your back? Were you kneeling?

4:5 ¶ 53 in IDIPW_03 translation

R: it was painful sleeping on my right side was also a problem so mostly I was sleeping on my left side until I delivered

6:1 ¶ 43 in IDIPW_05 translation

R: I was lying on my left side

6:6 ¶ 59 in IDIPW_05 translation

lying on my left side

2:3 fj 70 – 74 in IDIPW_01 translation

R: I laid on my back I: did you switch again? R: no I: you remained on your back? R: (inaudible segment) yes until I gave birth.

2:9 fj 71 – 74 in IDIPW_01 translation

I: did you switch again? R: no I: you remained on your back? R: (inaudible segment) yes until I gave birth.

2:10 ¶ 76 in IDIPW_01 translation

R: when it will come to that I can change since this is the first child (crosstalk)

2:13 fj 87 – 88 in IDIPW_01 translation

I: what made you remain on that position? did someone told you to lie on that position? Or you wanted to lie on that position since most people are used to that? R: both are correct, I was listening to what the doctor was saying and I also wanted to lie on my back

2:14 ¶ 90 in IDIPW_01 translation

R: if it is about giving birth lying on the back is better but when you are in labor it is not good

4:4 ¶ 51 in IDIPW_03 translation

R: lithotomy position

6:2 ¶ 47 in IDIPW_05 translation

R: not really but I just the normal one the one you sleep on your back

6:3 ¶ 49 in IDIPW_05 translation

R: yeah on the back

7:8 ¶ 59 in IDIPW_06 translation

R: I was in lithotomy most of the time

Factors affecting choice of birth position:

2:5 fj 47 – 50 in IDIPW_01 translation

I: what was the position they asked you to take? R: they asked me to lie on the side and not on the back I: don‘t lie on your back? You mean you lie on the side or how did they mean? R: on the side

2:17 ¶ 48 in IDIPW_01 translation

R: they asked me to lie on the side and not on the back

4:9 ¶ 65 in IDIPW_03 translation

R: I tried sleeping on my side but it was not comfortable, the nurse said that I will hurt the baby yeah

4:10 fj 68 – 69 in IDIPW_03 translation

I: why did you choose the lithotomy position? R: that is what I was told by the nurse to lie in that position and it was kind of safe for the baby still and they were able to measure dilation

7:2 ¶ 43 in IDIPW_06 translation

the nurses and the doctors told me to

4:3 ¶ 45 in IDIPW_03 translation

R: I was the one who chose that position since no position was comfortable.

2:10 ¶ 76 in IDIPW_01 translation

R: when it will come to that I can change since this is the first child (crosstalk)

3:10 ¶ 70 in IDIPW_02 translation

R: That‘s what I know because I also gave birth to the other one lying on my back.

2:11 fj 77 – 80 in IDIPW_01 translation

I: you said while you were kneelt the pain subsided? R: not as much a little bit I: a little bit? Between the kneeling and lying on your back which do you prefer while giving birth? R: I think lying on your back is at least

4:8 fj 60 – 61 in IDIPW_03 translation

I: okay…(pages turning) in case you deliver again would you want to use the lithotomy position again? R: I will use that because …okay generally it is safe for the baby according to me the nurses will be able to see the head of the baby and measure dilation directly yeah

6:8 fj 67 – 69 in IDIPW_05 translation

R: knowledge the fact that people give birth in that position (laughs) I don‘t know I: where did you learn that from? R: from parents who gave birth to us and it‘s normal to see women lying in that position giving birth

2:12 fj 77 – 82 in IDIPW_01 translation

I: you said while you were kneelt the pain subsided? R: not as much a little bit I: a little bit? Between the kneeling and lying on your back which do you prefer while giving birth? R: I think lying on your back is at least I: why? R: because I have never seen anyone giving birth in that position

3:13 ¶ 86 in IDIPW_02 translation

R: I saw everyone lying on their back

4:11 fj 70 – 71 in IDIPW_03 translation

I: okay… apart from the reason you have just given would you know any other reason why a person would want to give birth in that position? R: those three, okay it is safe but it is not one hundred percent because you can push with the assistance of the nurses yeah they will encourage you to continue pushing and guide you through the process

2:6 fj 53 – 56 in IDIPW_01 translation

I: you were not told? Hmmh interesting… the position that you were in, were you told to lie on your back or on your knees? R: when I delivered I was lying on my back I: you were told to lie on your back? R: yes…and I open my legs

6:9 ¶ 71 in IDIPW_05 translation

R: I guess it is because that‘s the position that we found most people delivering in and the fact that we are not enlightened about other positions

7:10 ¶ 69 in IDIPW_06 translation

R: because all of my children I have given birth to them using that position and the doctors have never switched me to another position. It is just here I have learnt about the standing position which I think is fast

7:12 ¶ 73 in IDIPW_06 translation

R: you know you don‘t have a choice, you are told to sleep in that position. In other hospitals they tell you if it gets more painful sleeping on the side you can lie on you. (Breathes heavily).

3:10 ¶ 70 in IDIPW_02 translation

R: That‘s what I know because I also gave birth to the other one lying on my back.

7:10 ¶ 69 in IDIPW_06 translation

R: because all of my children I have given birth to them using that position and the doctors have never switched me to another position. It is just here I have learnt about the standing position which I think is fast

<u>Challenges experienced in both positions:</u> 2 Quotations

4:12 ¶ 73 in IDIPW_03 translation

R: yeah when I was giving birth the placenta did not come out completely for a reason I don‘t understand but I was assisted with the nurse. During the process of removing the remaining part it was actually very painful so I just had to withstand the pain so that I can be assisted

7:13 ¶ 75 in IDIPW_06 translation

R: I was just wanted to say thank you, you have really helped me. I was going through a hard time for two days, I even thought I was going for CS (breathing heavily) I have gone for ultrasound four times and all of them told me that the baby has no heartbeat, another one told me the baby might be dead so I was (breathing heavily) frightened, so I want to say thank and God for manifesting his glory through you. I thank you so much

Experience „all four" position: 2 Quotations:

4:5 ¶ 53 in IDIPW_03 translation

R: it was painful sleeping on my right side was also a problem so mostly I was sleeping on my left side until I delivered

7:9 ¶ 63 in IDIPW_06 translation

R: the doctors asked me to and when I did, it opened up fast and when I got back to the bed the delivery was fast

3:3 fj 55 – 56 in IDIPW_02 translation

R: the birth position was better the kneeling position was bad

3:4 ¶ 60 in IDIPW_02 translation

R: kneeling was so bad

3:11 ¶ 80 in IDIPW_02 translation

R: it was painful! yeah

7:5 ¶ 51 in IDIPW_06 translation

R: (sighs) (laughter) both are tough (crosstalk) especially sleeping on the side you know the birth position is at least because the pain just comes once but this other one(sighs) is really painful (breathes heavily) all of them are painful. You know I was in labor for two days (breathes heavily)

Experience of the Lithotomy birth: 7 Quotations:

4:6 ¶ 55 in IDIPW_03 translation

R: it was intense

4:7 ¶ 57 in IDIPW_03 translation

R: it was worse, I was comfortable sleeping on the side

5:1 fj 45 – 48 in IDIPW_04 translation

I: okay (crosstalk) so if you compare the pain in the position that were you in before delivering and the pain in the position that you delivered in which was less painful? R: during the delivery position I: that was less painful? R: it was bearable

2:4 ¶ 46 in IDIPW_01 translation

R: I was crying on my knees then I lay on my back and I would switch to the side from time to time then back to laying on my back (inaudible segment) they would tell me to stop switching

2:7 fj 59 – 62 in IDIPW_01 translation

I: when the doctor asked you to lie on the back how did you feel? R: it was painful I: did you switch position or when you thought it will be more painful if you did? R: I did but it was more painful. (background noise) (door slams)

2:8 fj 63 – 66 in IDIPW_01 translation

I: so before (crosstalk) when you were in labor and when you were giving birth you switched positions how can you compare the pain in the position that you werein during labour and the position you delivered in? Which position was lesspainful? R: when I was on my knees the pain was bearable (someone walks in). I: when you were in your knees it was bearable? R: yes (door slams)

3:2 ¶ 54 in IDIPW_02 translation

R: while giving birth? I was (clears throat) first I was kneeling…(door shuts) almost thirty or forty minutes. The doctor asked me to get up but I did not I only

did when I went to the bathroom. I tried lying on the side but I felt too much pain and I had to switch to lying on the back.

6:4 ¶ 53 in IDIPW_05 translation

R: I can say it was comfortable and easier for me since you just hold your legs and push

6:7 ¶ 61 in IDIPW_05 translation

R: I guess less painful

7:4 ¶ 49 in IDIPW_06 translation

R: okay it is tough but I think it‘s easier (laughs) you can sum up your energy and just push once

<u>Did you switch from the assigned birth position?</u> 6 Quotations:

2:1 fj 67 – 68 in IDIPW_01 translation

I: okay…now when you were told to lie on your back, did you lay on your back throughout the delivery process or I their a time you switched to another position? R: there was a time I switched to another position and the doctor quarreled, it was really painful I had to switch back and that‘s when I delivered the baby.

2:5 fj 47 – 50 in IDIPW_01 translation

I: what was the position they asked you to take? R: they asked me to lie on the side and not on the back I: don‘t lie on your back? You mean you lie on the side or how did they mean? R: on the side

2:7 fj 59 – 62 in IDIPW_01 translation

I: when the doctor asked you to lie on the back how did you feel? R: it was painful I: did you switch position or when you thought it will be more painful if you did? R: I did but it was more painful. (background noise) (door slams)

2:9 fj 71 – 74 in IDIPW_01 translation

I: did you switch again? R: no I: you remained on your back? R: (inaudible segment) yes until I gave birth.

3:6 ¶ 54 in IDIPW_02 translation

I tried lying on the side but I felt too much pain and I had to switch to lying on the back.

7:6 ¶ 53 in IDIPW_06 translation

R: yes I switched to another position I was told to get of the bed (sighs) but that position is hard for me

FOCUS GROUP DISCUSSION – CODE REPORT

Perceived advantages of All fours known to you: 8 Quotations:

1:106 ¶ 68 in FGDMW_01

I can say the mother getting tear is not easy

1:107 ¶ 68 in FGDMW_01

Then those big tears we usually get, we support during lithotomy they don‘t happen in all fours.

1:123 ¶ 83 in FGDMW_01

what is interesting in all fours is the mother does not get the perineal tears as like she can get in lithotomy

1:124 ¶ 84 in FGDMW_01

I would say, when we talk about the tears, the tears you see you are not actively supporting in all fours the incidences that you get a tear maybe first degree which very rare

1:128 ¶ 88 in FGDMW_01

for the midwife you don‘t break your back you just wait for the baby

1:129 ¶ 89 in FGDMW_01

will go with the all fours because of the outcomes which we have talked about (inaudible segment).

1:130 ¶ 90 in FGDMW_01

I will go with all fours so far because you know that time the patient is putting effort on herself and you are doing a lot of encouragement but in let‘s say in lithotomy you are there supporting the tears, you are even tired, the patient is not listening to you sometimes

1:131 ¶ 90 in FGDMW_01

All fours is easy, you communicate with the patient.

Previous knowledge of all fours birth position: 2 Quotations:

1:92 ¶ 54 in FGDMW_01

and this one that I came to learn during this study, all fours (long pause

1:94 ¶ 55 in FGDMW_01

The all fours which I learnt through this study

Observations of women changing birth positions: 4 Quotations:

1:118 ¶ 79 in FGDMW_01

when the pain was so extreme she could change to all fours

1:119 ¶ 79 in FGDMW_01

lithotomy

1:146 ¶ 108 in FGDMW_01

she is feeling some relief when you change the position when you are from lithotomy then to all fours

1:147 ¶ 108 in FGDMW_01

from lithotomy then to all fours

Common birth position midwives assist delivery in: 5 Quotations

1:99 ¶ 60 in FGDMW_01

I did both

1:132 ¶ 92 in FGDMW_01

lithotomy

1:133 ¶ 93 in FGDMW_01

R2: lithotomy

1:134 ¶ 94 in FGDMW_01

R3: lithotomy

1:135 ¶ 92 in FGDMW_01

R1: lithotomy

Challenges of Lithotomy position known to the midwives: 3 Quotations:

1:107 ¶ 68 in FGDMW_01

Then those big tears we usually get, we support during lithotomy they don‘t happen in all fours.

1:123 ¶ 83 in FGDMW_01

what is interesting in all fours is the mother does not get the perineal tears as like she can get in lithotomy

1:125 ¶ 84 in FGDMW_01

unlike the lithotomy position you have to really support the baby to make sure the tears are not happening but they still (inaudible segment) something they do happen they occur.

Experience of deliveries in Lithotomy birth position: 3 Quotations:

1:100 ¶ 64 in FGDMW_01

first when you prepare the patient in the lithotomy position and she is comfortable you are comfortable, the delivery is so easy.

1:103 ¶ 65 in FGDMW_01

So that when you tell a mother and come to the latent phase you have time (background noise) and explain this other position, it might be easy and she cooperates.

1:104 ¶ 66 in FGDMW_01

lithotomy is easier when the mother is aware, you have explained to her what will happen, what she needs to do and she cooperates, it can be very easy to deliver that way.

Experience of delivery in All fours: 4 Quotations:

1:105 ¶ 68 in FGDMW_01

I can say all fours because, all fours I think the mother (chairs creaking) (inaudible segment) during that stage because you don‘t support, the mother stays in all fours and you just go for the baby

1:106 ¶ 68 in FGDMW_01

I can say the mother getting tear is not easy

1:108 ¶ 69 in FGDMW_01

when the patient is explained well how the all four works and she cooperates I will be there passively, as a midwife I will be observing passively

1:109 ¶ 69 in FGDMW_01

it is really simple it is easier to use all fours if the mothers and the society come to learn of it and perceive it,

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Common birth position known to the midwives: 7 Quotations

1:91 ¶ 54 in FGDMW_01

the traditional one the lithotomy

1:93 ¶ 55 in FGDMW_01

I think the same I can‘t say any other.

1:95 ¶ 55 in FGDMW_01

usual one we use lithotomy position

1:96 ¶ 56 in FGDMW_01

I know the two, lithotomy and the all fours

1:97 ¶ 58 in FGDMW_01

lithotomy

1:122 ¶ 83 in FGDMW_01

…you know we are used to lithotomy position most of the time

Knowledge of birth position: 4 Quotations:

1:136 ¶ 98 in FGDMW_01

okay I didn‘t know other positions from which we knew I never knew this one existed

1:137 ¶ 98 in FGDMW_01

make some recommendations that will help the midwives and the society. (inaudible segment) she comes prepared she coming to do the all fours

1:138 ¶ 101 in FGDMW_01

I think the for all fours what I learnt new is it is less risky for the mother to get tears

1:139 ¶ 101 in FGDMW_01

I was not aware, because for me at first I thought a mother will go through second stage in such a position all fours maybe will get a lot perineal tears because we don‘t support perineums so I think but the experience was different it was good so for that I think it‘s about the perineal tear.

Midwives memorable experiences: 5 Quotations:

1:5 ¶ 46 in FGDMW_01

there was this one incidence and it was my first delivery to conduct here in KNH. I delivered a mother, a lady about twenty five years (inaudible segment) gestation of twenty five weeks, we were not expecting any (inaudible segment) the fetus heartbeat (inaudible segment) so we were not in a hurry. Everyone thought (inaudible segment) but now after the delivery, the baby cried, kind of cried, the cord was pulsating I cut the cord put the baby into intensive care then to MDU. I did a follow up and that lady stayed for two and a half, the baby weighed eight hundred grams so we took the baby to the MDU, after two and half months she was discharged she is now happy. So when I remember such (inaudible segment)

1:1 ¶ 41 in FGDMW_01

for me while working here (clears throat) in KNH labour ward for the first time I delivered a mother with three kids.

1:2 ¶ 43 in FGDMW_01

triplets, actually she was awaiting theater and then second stage came so we had to conduct it. So I managed it well, all the babies scored well. There was no complication on the mother it was well it was good

1:3 ¶ 45 in FGDMW_01

at least I feel good because I have something and I can remember I can tell someone, sometime back I did this

1:4 ¶ 46 in FGDMW_01

for me I think every other experience is interesting especially when you conduct a delivery and the mother goes home happy without any complication but there was this one incidence and it was my first delivery to conduct here in KNH. I delivered a mother, a lady about twenty five years (inaudible segment) gestation of twenty five weeks, we were not expecting any (inaudible segment) the fetus heartbeat (inaudible segment) so we were not in a hurry. Everyone thought (inaudible segment) but now after the delivery, the baby cried, kind of cried, the cord was pulsating I cut the cord put the baby into intensive care then to MDU. I did a follow up and that lady stayed for two and a half, the baby weighed eight hundred grams so we took the baby to the MDU, after two and half months she was discharged she is now happy. So when I remember such (inaudible segment)

Patients' knowledge of birth positions: 1 Quotations:

1:101 ¶ 65 in FGDMW_01

t even the mothers who we have assisted to deliver most of them are aware of that lithotomy position

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Preference of surface where deliveries takes place: 4 Quotations:

1:112 ¶ 75 in FGDMW_01

the bed is more comfortable because the mother is cooperating. On the floor it is because there was no otherwise so we had to deliver on the floo

1:113 ¶ 76 in FGDMW_01

I will go for the bed, the bed you are not bending your back (backgoround noise) and the mother is also comfortable

1:114 ¶ 76 in FGDMW_01

: I will go for the bed, the bed you are not bending your back (backgoround noise) and the mother is also comfortable. Especially those ideal delivery cases which you can manipulate change position of the head

1:115 ¶ 77 in FGDMW_01

I think on the bed, on the bed is more comfortable you don‘t bend your back you stay comfortable and for the mother and for the baby

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Surfaces where delivery took place: 2 Quotations:

1:110 ¶ 72 in FGDMW_01

last time we were overwhelmed by the patients so some other patients could come fully dilated and the beds are full (phone ringing on the background) we could some other delivery but mostly when we have time it is good for the mother to prepare for the birth couch and that‘s where we were doing the deliveries.

1:111 ¶ 73 in FGDMW_01

for me it‘s on the bed.

Switch of birth position: 5 Quotations:

1:116 ¶ 79 in FGDMW_01

yes I experienced one incidence where we were trying lithotomy but when the pain was so extreme she could change to all fours to lithotomy but eventually she delivered through the lithotomy position.

1:120 ¶ 80 in FGDMW_01

for me no

1:121 ¶ 81 in FGDMW_01

no

1:145 ¶ 108 in FGDMW_01

like I only experienced this mother because of the labor pains the contractions it just comes naturally its not in her mind that I want to change into this position or this other one to relieve the pain

1:146 ¶ 108 in FGDMW_01

she is feeling some relief when you change the position when you are from lithotomy then to all fours

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Future consideration on when to recruit and inform patients of the birth position: 5 Quotations:

1:140 ¶ 104 in FGDMW_01

i think we should inform the patients during admission and at the time of delivery they should be explained to about the birth positions

1:141 ¶ 105 in FGDMW_01

I think that first we start with the mid wives

1:142 ¶ 105 in FGDMW_01

when our mothers come for antenatal clinic and train them they will communicate the message

1:143 ¶ 105 in FGDMW_01

y. Then when our mothers come for antenatal clinic and train them they will communicate the message more than even us (inaudible segment) so if one mother is informed about the positions she will just spread the message and they would also be having some options.

1:144 ¶ 106 in FGDMW_01

I think it is good to teach them antenatal especially for the first mothers to be aware there are two methods.

Which birth position would you recommend? 5 Quotations:

1:126 ¶ 86 in FGDMW_01

I think all fours I will encourage all fours

1:127 ¶ 88 in FGDMW_01

for me advantage to the mother I think the…those maneuvers the baby comes out with ease, if the contractions come the baby comes out easy unlike lithotomy,

1:129 ¶ 89 in FGDMW_01

will go with the all fours because of the outcomes which we have talked about (inaudible segment).

1:130 ¶ 90 in FGDMW_01

I will go with all fours so far because you know that time the patient is putting effort on herself and you are doing a lot of encouragement but in let‘s say in lithotomy you are there supporting the tears, you are even tired, the patient is not listening to you sometimes

1:131 ¶ 90 in FGDMW_01

All fours is easy, you communicate with the patient.

Previous worst experience: 5 Quotations:

1:6 ¶ 50 in FGDMW_01

my worst experience so far is a patient I received who was twenty eight weeks gestation then we transferred her to ward because she had not been labor. Then later the patient came back again to the labour ward, bleeding and dilation of tear muscles (inaudible segment) at twenty weeks the baby cried also we took time but it was hectic.

1:85 ¶ 51 in FGDMW_01

okay my worse experience would be every time a mother loses a child.(inaudible segment) either way the baby

1:86 ¶ 51 in FGDMW_01

there was this one day I received a lady(background noise) she was prepared to go for emergency CS (inaudible segment) (background noise) the lady was thirty nine years and it was her first attempt and losing a child was really bad.

1:87 ¶ 52 in FGDMW_01

I was attending a patient, I was in the post natal ward then there was this one patient, I think I don‘t know what was happening. She was good antenatal, she went in for theatre then when she came back she just (door shutting) she just changed condition she was like vomiting blood like a quarter basin

1:88 ¶ 52 in FGDMW_01

So in the end we took her to HDU, we transferred her to HDU I think level eight or level nine. Later on we were told that she succumbed and I think it was not a good experience for me