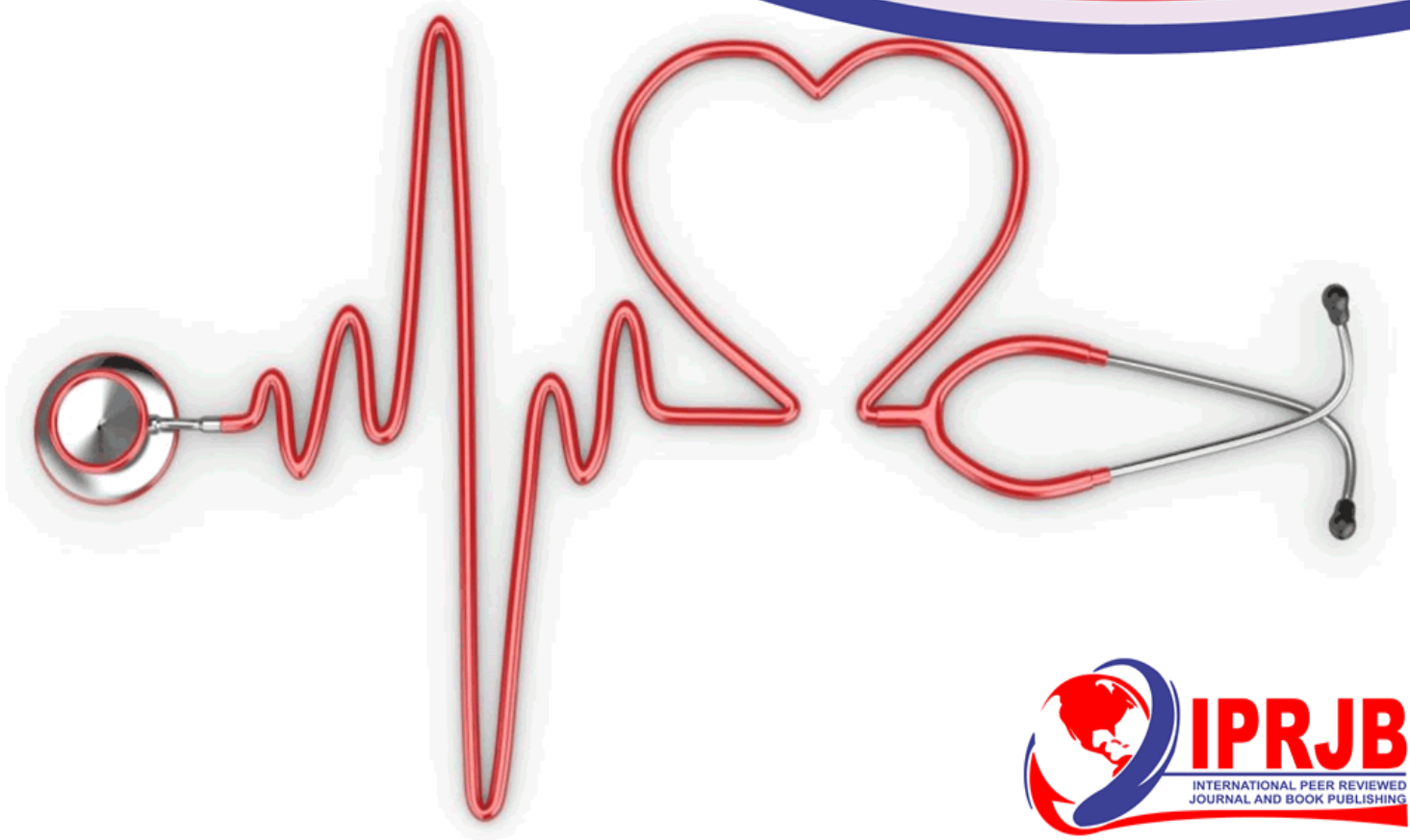


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**FACTOR CONTRIBUTING TO MOTHERS PRESENTING IN THE FIRST STAGE
COMPARED TO THE SECOND STAGE OF LABOUR AT KAKAMEGA COUNTY
GENERAL HOSPITAL**

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FACTOR CONTRIBUTING TO MOTHERS PRESENTING IN THE FIRST STAGE COMPARED TO THE SECOND STAGE OF LABOUR AT KAKAMEGA COUNTY GENERAL HOSPITAL

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Abstract

Purpose: Globally, many women and newborn die or develop long-term disabilities due to the complication of labour and delivery. This study aimed to compare factors contributing to mother presenting in the first stage of labour and those that present in the second stage of labour at Kakamega county Referral hospital.

Materials and Methods: This was cross-sectional study using quantitative and qualitative. Systematic sampling technique was used to recruit 640 mothers in labour. Data was collected using a pre-tested structured questionnaire administered to, half of the participants in the first stage and another half in the second stage of labour. Two focus group discussions were conducted each had eight mothers. Data were coded and analysed using Statistical Package for Social Sciences (SPSS) version 20. Chi-square test and multiple logistic regressions was employed in the analysis.

Results: Mothers presenting in the first stage of labour had higher chances of normal labour compared to those presenting in the second stage of labour ($df=1$, $\chi^2 =46$, $p<0.0001$). Mothers who presented in the first stage (47.8%) had severe abdominal pain, (25.1%) fear of labour not progressing well at home and complication of per vaginal bleeding was 19.4%. Mothers who reported in the second stage (28.1%) had delayed at home because labour progress was too fast, 26.3% was because the husband was not at home. In conclusion, the study found out that severe abdominal pain, fear of labour not progressing well at home and complication of per vaginal bleeding was the reason why mothers in the first group reported early. Delaying at home because labour progressed too fast and absence of husband at home were the main reasons why mothers in the second stage presented to the hospital for delivery late.

Unique Contribution to Theory, Practice and Policy: Therefore, mothers should be sensitized during an antenatal visit on birth preparedness and importance of presenting to hospital in the first stage of labour for delivery.

Keywords: *First Stage of labour, second stage, and factors for presentation in the first and second stage.*

1.0 INTRODUCTION

The intent of maternal care is to ensure the delivery of a healthy baby to a healthy mother (Say *et al.*, 2014). The burden of maternal health is one maternal death per minute, with developing countries accounts for 99% of maternal deaths (WHO, 2014, Story, 2012). Contributing factor to these mortalities is delay or failure of this mothers to access health facility for delivery in early labour. The hospital environment is considered to be an ideal place for labour and delivery due to the presence of midwives, other qualified health workers and equipment or machines that can be used to monitor labour (Eryilmaz *et al.*, 2013, Pacagnella *et al.*, 2014). This could allow early identification of maternal and fetal complications and actions can be taken. However, these can only be achieved if the labouring mother presents to the labour ward in the first stage and submits to care of a midwife and other healthcare workers (Bako *et al.*, 2013, Chuma *et al.*, 2013).

Also, maternal and fetal monitoring with partograph would lead to early detection of conditions that militate against normal vaginal delivery and thereby offer early and useful interventions. It is important that mothers should avail themselves to receive proper intrapartum care for all the three stages of labour (Maanongun *et al.*, 2016; Hart *et al.*, 2013). Several factors influence the decision of the mother on the place of delivery. Feeling of being safe in a familiar environment, comfortable home environment and assistance of the relatives may provide some women with more physiological support in the home than hospital birth. Also, the distance of the hospital from their homes, lack of finances, delay in referral, absence of the husband at home, and lack of knowledge on signs of labour are also factors involved in delaying getting to the hospital. Complications are usually associated with late presentation to the labour ward and lack of foetal monitoring in the first stage of labour (Bako *et al.*, 2013, Pacagnella *et al.*, 2014).

A mother presenting in the second stage of labour does not gain much from intrapartum care, because they do not receive any expert monitoring during the first stage of labour. It has been observed that antenatal care has led to a remarkable reduction in maternal and perinatal complications; however, these benefits may not be maximal if women do not receive proper intrapartum care (Maanongun *et al.*, 2016; Bako *et al.*, 2013). There has been no similar evaluation of these groups of mothers in Kakamega County General Hospital, yet daily midwives and other medical staffs encounter difficulties of providing urgent services to mothers presenting in the second stage of labour. This study was designed to examine factors contributing to mothers that present in the second Stage compared to mothers that present in the first stage of labour.

Problem Statement

Globally, many women and newborn die or develop long-term disabilities due to the complication of labour and delivery (WHO, 2014). Second stage admission is more often associated with poor maternal and fetal outcomes. A study done in Nigeria showed that 54% sited transportation problems and 14% reported that labour progressed too fast. It was also found out that 7.1% of women who presented in the Second Stage of labour had postpartum haemorrhage compared to 2.1% of those who presented in the First Stage of labour (Maanongun *et al.*, 2016). In another study by Bako *et al.* showed that 31.9% wanted labour to advance while 25.9% gave no reasons for delaying to present to labour ward (Bako *et al.*, 2013).

Despite free maternity services in Kenyan government hospitals and birth preparedness packages rendered to mothers during the antenatal clinic, mothers still present to hospital for delivery in the second stage of labour. The maternal mortality ratio and the neonatal mortality rate in Kenya have been found to be 362/100,000 live births and 22/1000 live births. Maternal-fetal morbidity and mortality is still a serious problem, and the leading cause is postpartum haemorrhage (Murima, 2016, Muchemi and Githongo, 2013, Gitobu *et al.*, 2018, KDHS, 2014)

In Kakamega County General Hospital, reports of the stage of presentation of mothers in labour showed that 80% of those presenting in the second stage of labour had both maternal and fetal complication during labour. Factors that could be associated with late presentation have not been studied hence there is a need for an investigation. Second Stage of labour has been reported to have poor maternal and fetal outcome (HMIS, 2016). This study, therefore, was designed to critically examine factors contributing to this mother presenting in the first Stage of labour compared to mothers that present in the second stage of labour.

2.0 METHODOLOGY

Study Design

The study was a cross-sectional Hospital based survey among a representative sample of mothers in labours both presenting in the first and second stage of labour. The study incorporated both qualitative and quantitative approaches of data collection.

Study Area

The study was conducted in the Kakamega County Hospital, maternity unit. It is the largest and Referral Hospital in the County and it serves twelve sub-County Hospitals with the highest admission of mothers in labour. It's located on Kisumu Kakamega highway. It has a bed capacity of 640 with 89 cots and serves approximately 16,000 inpatients annually. Maternity unit has six (6) departments; antenatal ward, nursery, maternity theatre, labour ward, postnatal ward and gynaecology ward. Labour ward attends to approximately 600 deliveries in a month. The unit has around 62 qualified midwives.

Study Population

The study population comprised all mothers who delivered in Kakamega county general hospital during the study period, and that met the criteria for selection.

Inclusion Criteria

The study population included all consenting mothers in the first and second stage of labour with singleton term pregnancies with a cephalic presentation delivered in the hospital 1st February to 30th April 2017.

Exclusion Criteria

Mothers who had previous caesarian delivery, abnormal placentation recorded during ANC care, Antepartum haemorrhage observed during antenatal were excluded.

Sampling Procedure

Systematic sampling was used to select the mothers presenting in First and Second Stage of labour. The first mother was selected randomly. If a mother declined, the immediate next mother

was selected, as long as they meet criteria. This was done until the desired sample size of 640 (320 for the first stage and 320 for the second stage) were achieved.

Data Collection

Interviewer-administered structured questionnaires were used to collect quantitative data. Two groups of FGD with eight members each was used to collect qualitative data for both mothers in first and second.

3.0 RESULTS

3.1 Socio-demographic factors

A total of 640 respondents consented and participated in the study, 50% of which are mothers who were admitted in the first stage and another 50% in the second stage of labour. As presented in Table 1, most of the mothers admitted in Stage 1 (58.4%), and Stage 2 (67.0%) were aged 30 – 39 years. There was no association between stage of labour and age groups ($p = 0.14$). The mean age for mothers reporting in Stage 1 (33.2 ± 5.8) was comparable with those who reported in Stage 2 (33.2 ± 5.2). There was no significant difference between the two mean ages ($t = -0.09$; $df = 638$; $p = 0.9$).

Table 1: Socio-demographic characteristics

Variable	Category	Stage 1		Stage 2		p value
		N	%	n	%	
Age group in years	20 – 24	16	5.1	11	3.5	0.14
	25 – 29	67	21.1	59	18.6	
	30 – 34	94	29.6	120	37.7	
	35 – 39	91	28.7	93	29.3	
	≥ 40	49	15.5	35	11.0	
	Total		317	100.0	318	
Mean \pm SD (Range)		33.2 \pm 5.8 (17.0 – 46.0)		33.2 \pm 5.2 (18.0 – 45.0)		t = -0.09; df = 638 p = 0.9
Marital status	Single	36	11.3	42	13.1	0.8
	Married	234	73.1	225	70.3	
	Separated	26	8.1	24	7.5	
	Widow	15	4.7	16	5.0	
	Divorced	9	2.8	13	4.1	
	Total		320	100.0	320	
Level of education	None	0	6.3	19	5.9	<0.0001
	Primary	13	4.1	291	90.9	
	Secondary	195	60.9	7	2.2	
	Tertiary	112	35.0	3	0.9	
	Total		320	100.0	320	
Religion	Catholic	21	6.6	24	7.5	0.5
	Protestant	285	89.1	288	90.0	
	Muslim	7	2.2	3	0.9	
	Atheist	7	2.2	5	1.6	
	Total		320	100.0	320	
Occupation	Housewife	122	38.1	315	98.4	<0.0001
	Farmer	56	17.5	1	0.3	
	Employed	57	17.8	1	0.3	
	Business	85	26.6	3	0.9	
	Total		320	320	320	

3.2 Factors influencing mothers presenting in the first and second stage of labour

3.2.1 Factors influencing mothers presenting in the first stage of labour

Figures 1, display the leading reasons why mothers reported in the first stage were a severe abdominal pain (47.8%), fear of labour not progressing well at home (25.1%) and complication of per vaginal bleeding (19.4%).

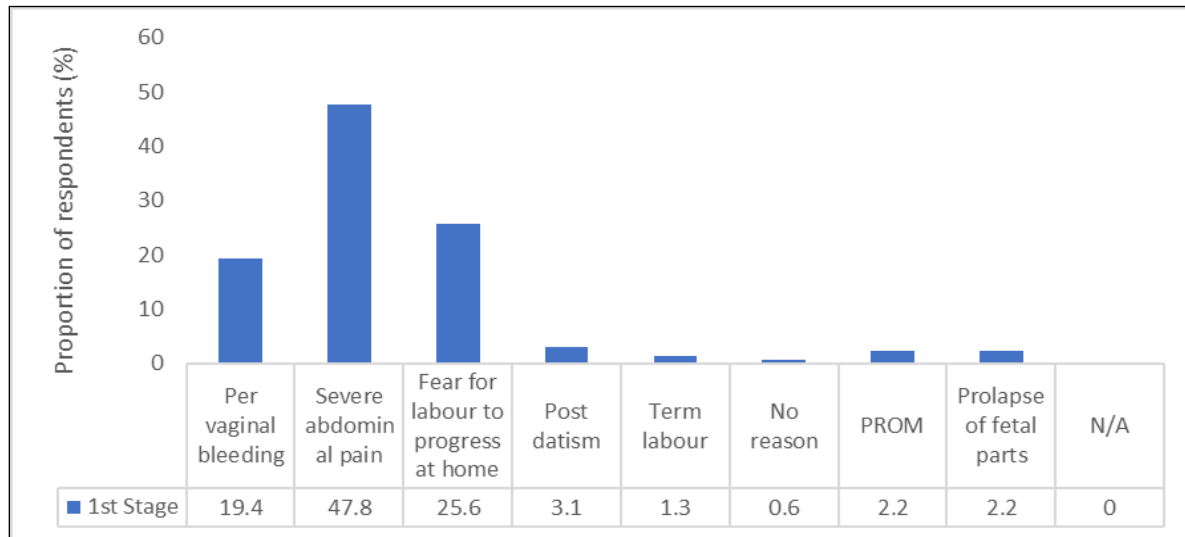


Figure 1: factors influencing mothers presenting in the first stage of labour

3.2.2 Factors Influencing Mothers Presenting in the Second Stage of Labor.

Majority of mothers who reported in stage 2 (28.1%) had delayed reporting because labour progress was too fast while 26.3% did so because the husband was not at home.

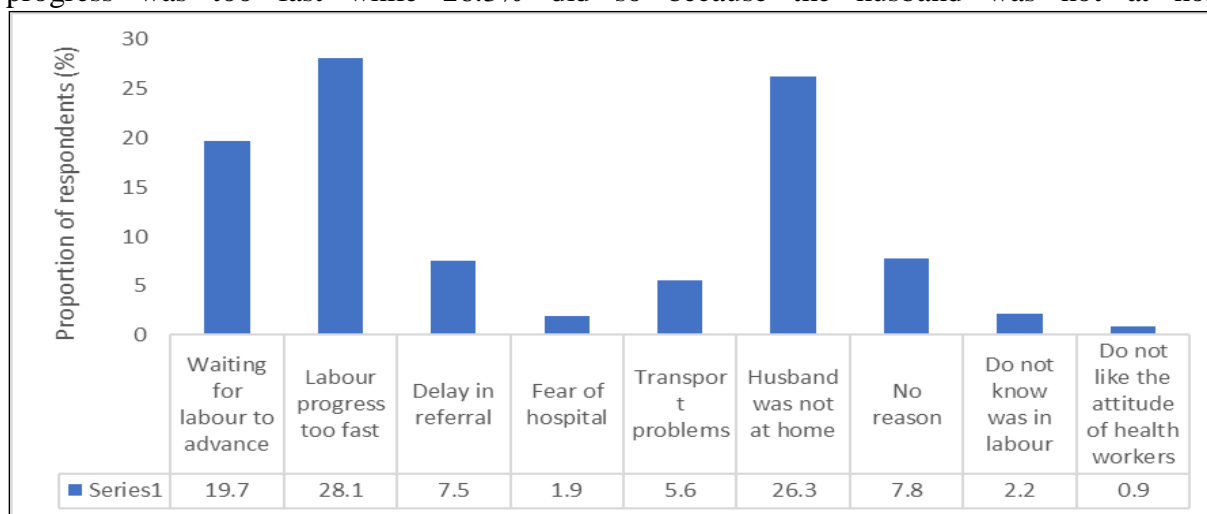


Figure 2: Factors influencing mothers presenting the second Stage of labour

3.2.3 Socio-demographic factors influencing mothers presenting in the Second Stage of labour compared to the first stages

Table 2 shows socio-demographic factors that are associated with the stage of presentation in the labour ward. Mothers who were housewives were 103 times more likely to report in stage 1 compared with mothers in the other occupations (OR: 103.5; 95% CI: 41.5 – 258.1; $p < 0.0001$). The difference between the two categories was highly significant. Other variables such as age group ($p=0.88$), marital status (0.42) and religion (0.53) were not associated with mothers presenting in stage 2.

Table 2: Logistic regression model of association between socio-demographic factors and presentation in 2nd and 1st Stage

Variables	Categories	OR	95% CI	p Value
Age group	< 30 vs \geq 30 years	1.0	0.6 – 1.6	0.88
Marital status	Married vs others	0.8	0.5 – 1.3	0.42
Religion	Protestant vs others	0.8	0.4 – 1.6	0.53
Occupation	Housewife vs others	103.5	41.5 – 258.1	<.0001

3.2.4 Previous pregnancy history factors influencing mother presenting in the first and second Stage of labour

Table 3 displays previous history factors are influencing mother presenting in 2nd stage and 1st stage of labour. Results show that the likelihood of mothers with less than three previous pregnancies reporting in stage 2 was twice that of mothers with three or more previous pregnancies. The strength of association was however marginal (OR: 1.9; 95% CI: 1.0 – 3.9; $p=0.06$). There is a strong association between history of livebirth and presenting in stage 2. Mothers with past history of live birth were six-fold more likely to report in stage 2 compared with those who came in stage 1 (OR: 6.2; 95% CI: 2.7 – 14.3; $p < 0.0001$). The previous mode of delivery was also independently related to reporting in stage 2. Those who had had SVD in the past were three times more likely report in stage 2 (OR: 2.8; 95% CI: 1.3 – 5.9; $p=0.006$). Conversely, mothers who had previous hospital delivery had less tendency of reporting in stage 2 compared with mothers who had delivered outside the health facilities (OR: 0.02; 95% CI: 0.01 – 0.04; $p < 0.0001$). There was no evidence of the previous history of miscarriage influencing Stage of presentation in labour ward ($p=0.93$).

Table 3: Logistic regression model of association between previous pregnancy factors and presentation in 2nd and 1st Stage

Variables	Effect	OR	95% CI	p value*
Number of previous pregnancies	Less than 3 vs three and more	1.9	1.0 – 3.9	0.06
Previous history of miscarriage	No miscarriage vs history of miscarriage	1.0	0.3 – 3.2	0.93
History of previous births	Past history of livebirth vs Past history of stillbirth	6.2	2.7 – 14.3	<0.0001
Where past delivery took place	Hospital vs other places	0.02	0.01 – 0.04	<0.0001
Previous mode of delivery	SVD vs other modes	2.8	1.3 – 5.9	0.006

*Significant if p value < 0.05

3.2.5 Antenatal factors influencing mother presenting in 2nd and 1st Stage

The study also examined the relationship between antenatal factors and stage of presentation in labour ward by mothers (Table 4). Evidence shows that mothers whose spouses decided that they attend ANC were 40% less likely to report in Stage 2 compared to those whose other significant ones or self-made the decision (OR: 0.6; 95% CI: 0.42 – 0.96; p=0.03). The number of focused ANC visits was also equally imported as an independent factor influencing stage of reporting in the labour ward. Results indicate a higher tendency for mothers with less than four visits reporting in Stage 2 in contrast to those who had met the recommended minimum number of ANC visits which is 4 or more (OR: 26.7; 95% CI: 18.1 – 45.6; p <0.0001). There is no significant relationship between ANC attendance when ANC visit was started and stage of presentation in the labour ward.

Table 4: Logistic regression model of association between antenatal factors and presentation in 2nd and 1st Stage

Variables	Categories	OR	95% CI	p value*
ANC attendance	Attended vs did not attend	5.1	0.7 – 37.1	0.11
Who decided that respondent attends ANC	Spouse vs others	0.6	0.42 – 0.96	0.03
When started ANC visits	1 st Trimester vs 2 nd and above	0.8	0.3 – 2.3	0.68
Number of focused ANC visits	Less than 4 visits vs 4 and more visits	26.7	18.1 – 45.6	<0.0001

*Significant if p value < 0.05

3.2.6 Predictors of mother presenting in 2nd Stage of labour

Results from the pooled multivariable analyses for each of the variables that were significantly associated with mothers presenting in the second stage are presented in Table 5. Independent predictors of stage 2 reporting included occupation, place of past delivery, previous mode of delivery and number of ANC visits. All other potential predictors such as the number of previous pregnancies, history of previous births and who decides that mother visits ANC were not significant. The odd of reporting in Stage 2 in housewives was 83.9 times higher than mothers in other occupations. Also, women with a previous history of SVD had four times the odds of reporting in stage 2 compared with those with other previous modes of delivery.

Similarly, the odds of reporting in stage 2 in mothers who had less than 4 ANC visits was 13 times higher than those who met the minimum recommended FANC visits. Past place of delivery was also a strong independent predictor of mothers presenting in stage 2. Mothers with previous hospital delivery history were less likely to report in Stage 2.

Table 5: Multivariable model of association with mothers' presentation instage 2

Variables	Categories	OR	95% CI	p value*
Occupation	Housewife vs others	83.9	28.0 – 251.7	<0.0001
Number of previous pregnancies	Less than 3 vs three and more	0.5	0.2	0.32
History of previous births	Past history of livebirth vs Past history of stillbirth	1.7	0.5 – 5.6	0.36
Where past delivery took place	Hospital vs other places	0.03	0.01 – 0.1	<0.0001
Previous mode of delivery	SVD vs other modes	4.0	1.4 – 11.3	0.01
Who decided that respondent attends ANC	Spouse vs others	0.8	0.5 – 1.5	0.60
Number of focused ANC visits	Less than 4 visits vs 4 and more visits	13.0	6.8 – 24.9	<0.0001

4.0 DISCUSSION

Majority of mothers who reported in the second stage (28.1%) had delayed at home because labour progress was too fast. This might be due to limited knowledge on symptoms of labour. 26.3% presented in the second stage because the husband was not at home. This agrees with other similar studies (Maanongun *et al.* 2016 and Bako *et al.*,2013) other factors influencing mothers to present in the second stage was that waiting for labour to progress, delay in referral and transportation problems.

Factors influencing mothers to present in the first stage of labour were a severe abdominal pain (47.8%), fear for labour not to progress well at home (25.1%) and complications of per vaginal bleeding (19.4%). This result agrees with other studies (Maanongun *et al.*, 2016, Bako *et al.*, 2013). The study also demonstrates that most of the mothers who were housewives were 103 times more likely to report in the second Stage compared with mothers in the other occupations (OR: 103.5, $p < 0.0001$). This might be due to lack of power in decision making to present early to the labour ward since they depend on other members of the family in decision making and financial support. There was no difference in age, marital and religion. The findings differ with others studies which found no difference in occupation (Maanongun *et al.*, 2016, Bako *et al.*, 2013).

Results also showed that mothers with past history of live birth ($p < 0.0001$), who had had SVD as mode of delivery and grand multiparity presented in second stage of labour because they tend to compare the outcome of labour with previous deliveries, since the previous deliveries had no complications they thought that the present one had no complications. A similar study by Maanongun *et al.* agrees with these findings (Maanongun *et al.*, 2016).

Those who deliver in the hospital previously presented in the first stage of labour ($p < 0.0001$). This might be attributed to health education given to mothers at the hospital during pregnancy, labour and delivery.

Findings further showed that mothers whose spouses decided that they attend ANC were 40% less likely to report in the second stage ($p=0.03$). Spouse is a key person in pregnancy and labour because in Africa culture it is considered as key decision makers. This agrees with a study done in Kinshasha Zaire (Wassie *et al.*, 2012, Kakaire *et al.*, 2011,) on male involvement on antenatal care found that spouses are considered providers and custodian of money.

Results also indicate a higher tendency for mothers with less than 4 visits reporting the second stage in contrast to those who had met the recommended minimum number of ANC visits which is 4 or more ($p<0.0001$). Those completed ANC might have benefitted from health talks from healthcare providers, hence prompted them to present early in labour.

There was no significant relationship between ANC attendance when ANC visit was started and stage of presentation in the labour ward. This agrees with the study done by Tanwira on mothers presenting to hospital for delivery and those delivering before arriving at the facility, found out that mothers who completed ANC clinic presented to the hospital for delivery (Tanwira, 2011)

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

Labour progressing fast and husband not at home were the main reasons why these mothers presented in the second stage of labour. Severe abdominal pains, fear of labour not progressing well at home and complication of per vaginal bleeding was the reason why mothers in the first group reported early. Spouse involvement in maternal care is also needed. Knowledge of signs of labour also needs to be reinforced during the antenatal clinic.

Recommendations

The study recommends that birth preparedness and maternal knowledge on symptoms of labour should be enhanced in antenatal health talks to reduce the late presentation during labour. The spouse and the key family members should be involved and educated on the advantages of presenting early to the hospital for delivery.

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