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Predictors of duration of second stage of labor among laboring mothers in health facilities of Bahir Dar city, North West Ethiopia: Prospective follow up study

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Abstract

Background: the second stage of labor (time from cervical dilatation of 10 cm to delivery of the fetus) is often the most stressful part of the childbearing process for the woman and fetus, and consequently for the health care provider. duration of the second stage of labor is influenced by many factors. Therefore, this study aimed to determine the duration of the second stage of labor and associated factors among mothers who gave birth in health facilities of Bahir Dar City, Northwest Ethiopia.

Methods: prospective cohort study was conducted among 283 mothers who gave birth in selected health facilities of Bahir Dar city from September to December 2019. Data were collected using face to face interviews, document review and anthropometric measurement techniques. the data were entered into EPI DATA version 3.1 and exported to STATA version 12 for analysis. Both descriptive (frequencies, percentages and median time for second stage labor) and analytic statistics (Cox regression analysis) were performed.

The proportional hazard assumption test was done using the Schonefeld residual.

Result: overall median duration of the second stage of labor was found to be 40.9 minutes (27.7 minutes in multi-parous mothers and 49.5 minutes in nulliparous mothers). proportion of the prolonged second stage of labor was 28.83 % (95%, CI;16-31.) in nulliparous mothers and 15.5 % (95%, CI; 9-19) in multi-parous mothers. Lack of physical activity, inadequacy of uterine contraction, occipito-posterior fetal position, and birth weight of greater than 4000 grams, and Inadequacy of maternal pelvis, were predictors of prolonged second stage of labor.

Conclusion: The proportion of prolonged second stage of labor was higher in nulliparous than multi-parous mothers. Lack of Physical activity, inadequacy of uterine contraction, occipito-posterior fetal position, and birth weight of greater than 4000 grams, and inadequacy of maternal pelvis were predictors of the prolonged second stage of labor.

Keywords: second stage, childbirth, prolonged labor

1. Introduction

Every year, nearly 289,000 maternal deaths occur worldwide as a result of complications from pregnancy and childbirth^[1]. Nowhere are global inequalities more starkly evident than in maternal health^[2, 3]. Becoming pregnant is one of the major health risks for women and their babies in low-income countries, mainly, the poor and women in rural areas^[2, 4]. About 99% of maternal deaths occur in developing countries while more than half of these deaths occur in sub-Saharan Africa^[5]. Four hundred twelve deaths per 100,000 live births, maternal mortality, in Ethiopia is among countries with high maternal deaths^[6].

Most of these deaths occur during childbirth and in the immediate postnatal period^[7]. The most common specific complications that lead to maternal mortality include prolonged labor, hemorrhage, infections, unsafe abortion, and hypertensive disorders^[5]. Prolonged labor and its effects are serious obstetrical complications, which require prompt attention as they may endanger both the women and their babies^[8]. Immediate maternal effects include dehydration, metabolic acidosis, exhaustion, uterine rupture and death secondary to these complications^[9]. Late and remote maternal complications include puerperal sepsis, obstetric fistula. Prolonged labor also contributes to neonatal effects such as asphyxia, intracranial hemorrhage, neonatal infection and death^[10]. Three fourth, of the maternal deaths could be averted even in resource-poor settings^[11, 12]. Skilled attendance at birth and access to emergency obstetric care must be among the evidence-based strategies^[13], because early intervention can make the difference between life and death^[14].

Maternal and fetal monitoring would lead to early detection of conditions that affect, vaginal delivery and timely interventions^[15]. Conversely, unmonitored labor in the second stage of labor is generally considered to be associated with increased maternal and neonatal complications^[16].

In this aspect, continuous monitoring of labor through partograph (a tool that graphically depicts variables), allows health workers to identify possible complications [17].

Prolonged second stage of labor is common in Ethiopia [18]. Though abnormality in the second stage of labor is known to be one of the most common Intrapartum problems encountered in health facilities on a daily basis [15], there is limited published study on duration of second stage of labor and factors that are associated with duration of second stage of labor. Therefore, this study aimed to assess the duration of the second stage of labor and to identify factors that affect the duration of the second stage of labor among mothers who give birth in health facilities of Bahir Dar city, Northwest Ethiopia.

Methods and materials

A prospective cohort study was conducted from September to December 2019 in selected health facilities of Bahir Dar city. Bahir Dar is the capital city of Amhara National Region State and it is situated Southern shore of Lake Tana, the source of Blue Nile. The city is located approximately 565 km northwest of Addis Ababa (*the capital city of Ethiopia*). The city hosts total population of 345,084 of which more than half (175,993) of them are females. Number of women in reproductive age ≥ 15 years is 81365 and a total of it has an elevation of 1840m above sea level. The city has 7 hospitals (public=2, private=4), 10 health center and 11 health post. Administratively the City is structured into 6 sub-cities, five satellite towns and 40 kebeles. The major economic sectors of the city are horticulture, agro industrial processing, urban agriculture, manufacturing and diverse service industries. Bahir Dar is also one of the leading tourist destinations in Ethiopia; attractions include the nearby Lake Tana and Blue Nile River. The city is known for its wide avenues lined with palm trees and a variety of colorful flowers. Bahir Dar has a remarkable mix of cultures (43).

All Mothers who gave birth in the selected health institutions during the study period were the study populations. Laboring mothers with a singleton, live fetus, and vaginal delivery were considered as inclusion criteria and Cesarean section in the first stage of labor, multiple gestations, and stillbirth were the exclusion criteria.

A total of 283 samples has been determined using Epi Info Version 7 by considering 95% CI, 80% Power, 5% margin of error, 21.3% of prolonged second stage of labor from a study conducted in Hawassa, South Ethiopia (21), and adding 15% non-response rate. Four health care facilities were selected randomly among the public health institutions found in Bahir Dar city. Mothers who came for delivery services to the selected health institutions and those who met the inclusion criteria were included in the study using consecutive cohort sampling until the required sample size was reached.

Time to delivery of fetuses from cervical dilatation of 10 cm was the outcome variable whereas socio-demographic,

obstetric and gynecological, behavioral and nutritional factors of the women were the independent variables for this study.

An interviewer-administered questionnaire was used to collect the data. The questionnaire was first designed in English and then translated into Amharic (local language). Systematic observation was made for some of the maternal variables. Anthropometric measurements were also taken to estimate the mid-upper arm circumference of the women and fetal birth weight. The client's chart was also reviewed to retrieve medical information and mother's test result that could not be captured by an interview. To maintain high quality of data, it was collected by midwives who had experience in delivery care; the questionnaire was pre-tested on mothers who came for delivery in health institutions not included in this study, training and close supervision of the data collector on daily basis were conducted. Moreover in the analysis part multivariable cox regression was used to handle confounding variables.

Data were checked, cleaned, and entered into EPI-DATA version 3.1 software, and exported to STATA version 12 statistical software for analysis. Descriptive statistics like frequencies, percentages, median length of second stage and proportion of prolonged the second stage of labor were used. Cox-regression analysis was used to identify factors associated with the duration of the second stage of labor. The Hazard ratio at 95% CI for HR was used to show the associations between independent variables and the duration of second stage labor. Kaplan Meier survival curves and the log-rank tests were used to compare the difference in duration of the second stage of labor among different groups. Those variables with a p-value of less than 0.2 in the bivariate Cox regression analysis were entered for multivariable Cox regression analysis and independent variables with a p-value of less than or equals to 0.05 were considered as having significant associations with the duration of the second stage of labor. The proportional hazard assumption was tested using the Schonefeld residual.

Ethical clearance was obtained from the school of public health, college of medicine and health sciences, Bahir Dar University ethical review board. Permission letter was also secured from Amhara national regional state health bureau and respected health institutions in the city. All the study participants were informed about the objective of the study and their verbal consent was obtained.

Results

Socio-demographic characteristics

Two hundred eighty-three mothers were included in this study. The mean age of the mothers was 27 years (± 2.9) years. Nearly three-fourths (74%) of the participants were urban dwellers. The majority, 269 (95%), were married, and more than half, 163 (58%) of them had either no formal education or attended only primary education (**Table 1**).

Table 1: Socio-demographic characteristics of mothers who gave birth in selected health facilities of Bahir Dar city, North West Ethiopia, 2019.

Variables		Frequency	Percent
Place of residence	Rural	73	25.8
	Urban	210	74.2
Age in years	18 to 24	66	29.6
	25 up to 31	129	58.8
	≥ 32 years	28	12.5
Marital status	Married	254	89.8

	Unmarried	20	7.1
	Others	9	3.2
Religion	Orthodox	202	71.4
	Muslim	40	14.1
	Catholic	15	5.3
	Protestant	26	9.2
Occupation of the mother	Housewife	198	70.0
	Employee	41	14.5
	Merchant	25	8.8
	Others	19	6.7
Educational status of mothers	Illiterate	35	12.4
	Primary Education	128	45.2
	secondary and above	120	42.4
Educational status of husbands	illiterate	32	11.3
	primary	89	31.4
	secondary and above	148	52.3

Obstetric and gynecological characteristics of the study participants

Near to four in ten, (37.1%) of mothers did not use contraceptives before the current pregnancy. Only less than half (48.8%) of the participants had birth intervals of 34-58 months. Near to three- fourth (74.2%) had a history of circumcision. Forty-eight (17%) had diabetes mellitus. About the history of adverse birth outcomes, 21(12.5%) had an abortion history while 24(14.3%) had a history of stillbirth before the current pregnancy.

The study also revealed that the majority of 228(80.5%) of the mother had occipito-anterior fetal position. More than half 152(53.7%) of the mothers had lithotomy positions during labor, and 17(6%) of the mothers had induction during the first stage of labor. The mean mid-upper arm circumference of the mother was 22.6cm and the mean birth weight of the newborns was 3188 grams.

As can be seen in life time table, the overall median length of the second stage of labor was 40.9 minutes (27.72 minutes for multi-parous and 49.5 minutes for nulliparous mothers). majority of multi-parous mothers gave birth within the time interval of 30-40 minutes, whereas many nulliparous mothers delivered within a time interval of 40-50 minutes (Table 2).

The overall proportion of mothers with the prolonged second stage of labor was 21.2%(95%CI; 16-25). The proportion was relatively higher among nulliparous mothers 28.83 %(95%CI; 16-31) than multi-parous mothers 15.7 %(95%CI; 9-19).

As shown in, the survival curves, the median duration of the second stage of labor was longer in nulliparous mothers than multi-parous mothers. Mothers who had no physical activity during pregnancy had a longer median duration of second stage of labor than mothers who had physical activity during pregnancy. Those who had inadequate uterine contraction had a longer median duration of second stage of labor than those who had an adequate uterine contraction. The median duration of second stage of labor was longer in those mothers with a birth weight of more than 4000 grams than mothers with a birth weight of 2500-4000 grams. Mothers with occipito-posterior fetal position had a longer median duration of second stage of labor than mothers with occipito-anterior fetal position. Median Duration of the second stage of labor was longer in those mothers with inadequate maternal pelvis than mothers with adequate maternal pelvis (figure 1, 2, 3, 4, 5&6).

Table 2: Life time table for the duration of second stage of labor among mothers who gave birth in selected health facilities of BahirDar city, North West Ethiopia, 2019.

Parity	Time interval in minutes	Numbers at risk	No of delivery	Cumulative survival	Cumulative delivery	95% CI
Nulliparous	[20 30]	118	2	0.9831	0.0169	0.9339 0.9957
	(30 40]	116	10	0.8983	0.1017	0.8279 0.9409
	(40 50]	106	31	0.6356	0.3644	0.5419 0.7152
	(50 60]	75	22	0.4492	0.5508	0.3580 0.5360
	(60 70]	53	8	0.3814	0.6186	0.2942 0.4679
	(70 80]	45	3	0.3559	0.6441	0.2707 0.4419
	(80 90]	42	3	0.3305	0.6695	0.2475 0.4156
	(90 100]	39	2	0.3136	0.6864	0.2322 0.3980
	(100 110]	37	1	0.3051	0.6949	0.2246 0.3891
	(110 120]	36	2	0.2881	0.7119	0.2095 0.3713

Multi- parous	[10 20]	165	23	0.8606	0.1394	0.7977 0.9051
	(20 30]	142	61	0.4909	0.5091	0.4127 0.5644
	(30 40]	81	41	0.2424	0.7576	0.1801 0.3099
	(40 50]	40	8	0.1939	0.8061	0.1377 0.2575
	(50 60]	32	6	0.1576	0.8424	0.1068 0.2173

Key: Cumulative survival; not having delivered at the end of the given time interval.

Table 3: Bivariate and multivariate Cox-regression analysis of gynecological and obstetrical characteristics (n=283 mothers) in health facilities of Bahir Dar city, North West Ethiopia, 2019.

Variables	Delivery status		CHR(95%CI)	AHR(95%CI)	P-value
	No prolonged 2 nd stage	Prolonged 2 nd stage			
chat/Khat use					
Never	190	22	1	1	
Daily	3	5	0.2 (0.06-0.6)	0.4 (0.3-3.9)	0.8
Weekly	7	10	0.22 (0.1-0.4)	0.98 (0.4-2.3)	0.9
Occasionally	23	23	0.3 (0.19-0.4)	0.9 (0.5-1.5)	0.7
Alcohol use					
Never	77	20	1	1	
Daily	25	15	0.54 (0.3-0.8)	0.9 (0.5-1.4)	0.8
Weekly	33	20	0.55 (0.4-0.6)	0.8 (0.5-1.3)	0.4
Occasionally	88	5	1.6 (1.2-2.2)	1.2 (0.8-1.6)	0.2
Coffee use					
Never	30	25	1	1	
Daily	118	19	2.3 (1.5-3.4)	1.0 (0.6-1.6)	0.89
Weekly	40	3	2.7 (1.7-4.4)	1.2 (0.7-2.0)	0.38
Occasionally	35	13	1.7 (1.1-2.8)	1.5 (1.0-2.6)	0.1
physical activity during pregnancy					
Yes	203	6	1	1	
No	20	54	0.1 (0.06-0.2)	0.4 (0.2-0.7)	0.003
Diabetes mellitus					
Yes	29	19	1	1	
No	194	40	1.9 (1.3-2.9)	1.4 (0.9-2.1)	0.1
HIV status					
Reactive	3	23	1	1	
non-reactive	220	37	7.2(5.5-16.82)	1.95 (0.5-7.0)	0.3
prior Contraceptive use					
Yes	137	41	1	1	
No	86	19	1.2(0.9-1.6)	1.3(0.98-1.7)	0.65
food intake prior to onset of labor					
Yes	147	18	1	1	
No	76	42	0.57 (0.4-0.7)	1.1 (0.8-1.5)	0.44
oral fluid intake during labor					
Yes	154	17	1	1	
No	69	43	0.58 (0.3-0.6)	0.8 (0.6-1.1)	0.24
Induction in the first stage of labor					
Yes	9	8	1	1	
No	214	52	2.0 (1.0-4.0)	0.5 (0.2-1.0)	0.08
Mid upper arm circumference in centimeter					
< 21 centimeter	15	42	1	1	
≥21 centimeter	208	18	7.2 (4.5-13-2)	1.4 (0.8-2.6)	0.27
uterine contraction					
Inadequate	16	53	1	1	
Adequate	207	7	9.1 (6.9-13.05)	2.9 (1.4-6.1)	0.006
sexual intercourse within weeks prior to onset of labor					
Yes	137	7	1	1	
No	86	53	0.4 (0.3-0.54)	0.6 (0.5-1.8)	0.057
Adequacy of maternal pelvic					
Adequate	218	31	1	1	
Inadequate	5	29	0.06 (0.02-0.2)	0.3 (0.1-0.7)	0.02
Circumcision					

Yes	28	45	1	1	
No	195	15	5.5 (3.6-8.4)	1.5(0.9-2.4)	0.06
Fetal Position					
Occipito- anterior	215	16	1	1	
Occipito- posterior	5	34	0.6 (0.02-0.14)	0.2 (0.07-0.5)	0.001
Occipito- transverse	3	10	0.1 (0.03-0.3)	0.22 (0.06-0.8)	0.02
Fetal Membrane status					
premature rupture of membrane	18	43	1	1	
artificially ruptured	39	6	5.5(3.1-9.6)	1.4 (0.7-2.7)	0.3
ruptured during labor	166	11	6.5 (4.0-11.0)	1.3 (0.7-2.4)	0.4
Parity					
Nulliparous	84	34	1	1	
Multi-parous	139	26	3.1 (2.3-4.2)	5.5 (3.8-8.0)	<0.001
Sex of the Newborn					
Male	50	55	1	1	
Female	173	5	4.1 (2.9-5.7)	0.67 (0.5-0.9)	0.052
Gestational age in weeks					
<37 weeks	65	13	1	1	
37 - 40 weeks	133	30	1.1 (0.7-1.3)	0.8(0.4-1.4)	0.4
≥41 weeks	23	14	0.7(0.4-1.4)	0.85(0.4-1.6)	0.7
Birth weight in gram					
<2500 gram	31	2	1	1	
2500 up to 3900 gram	191	33	0.8 (0.57-1.2)	0.7 (0.4-1.1)	0.16
≥4100 gram	1	25	0.1 (0.02-0.1)	0.07 (0.09-0.6)	0.016

Khat/chat. a green leafy plant containing cathinone (a stimulant which is said to cause excitement, loss of appetite and euphoria).commonly cultivated and abused substance in the study area.

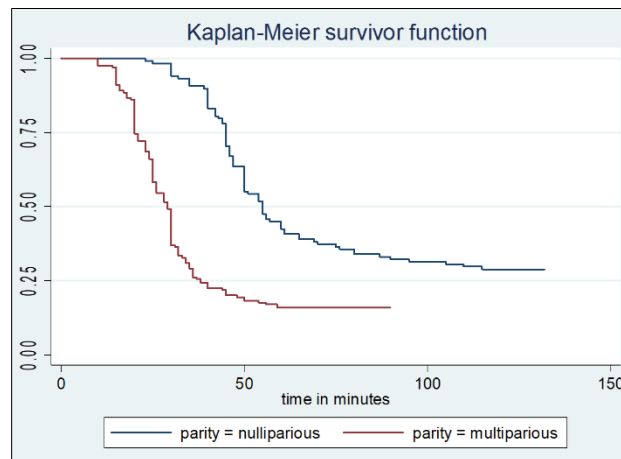


Fig 1: Kaplan Meier estimate of duration of second stage of labor by parity.

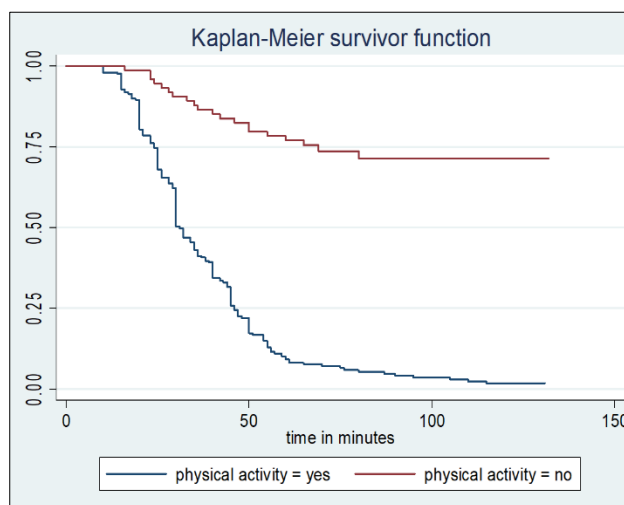


Fig 2: Kaplan Meier estimate of duration of second stage of labor by physical activity

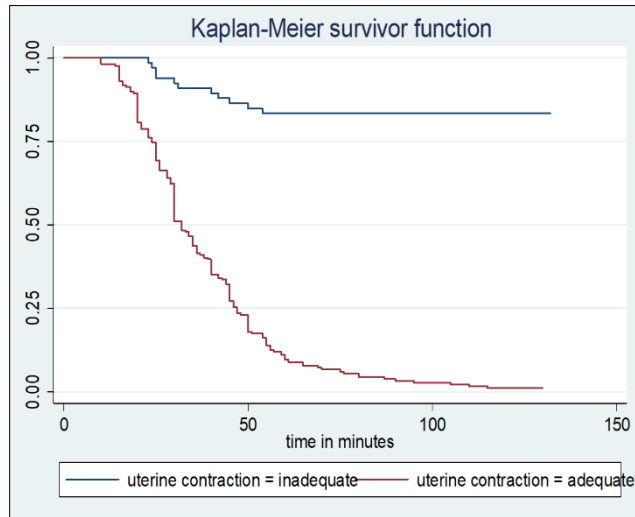


Fig 3: Kaplan Meier estimate of duration of second stage of labor by uterine contraction

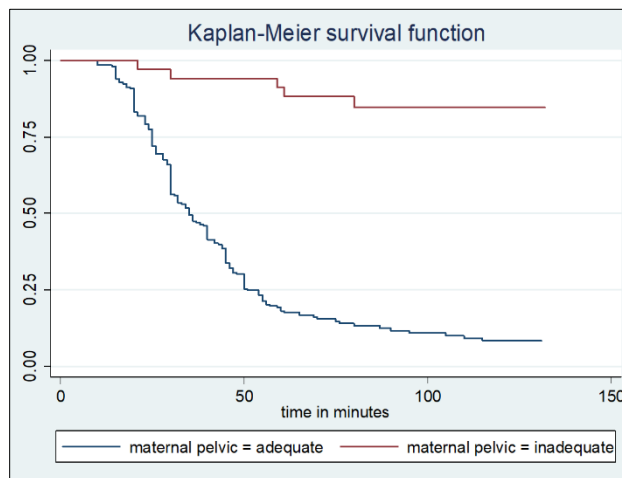


Fig 4: Kaplan Meier estimate of duration of second stage of labor by adequacy of maternal pelvis.

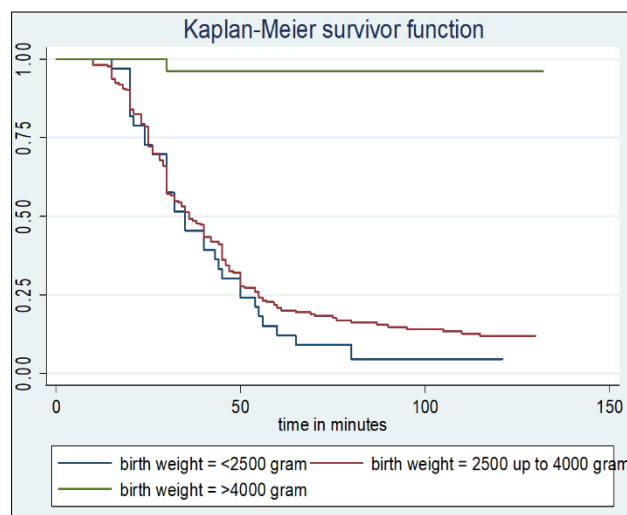


Fig 5: Kaplan Meier estimate of duration of second stage of labor by birth weight.

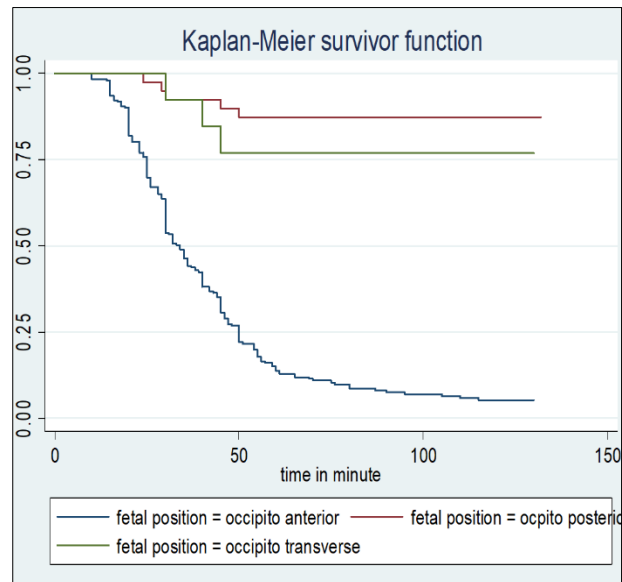


Fig 6: Kaplan Meier estimate of duration of second stage of labor by fetal position.

Bivariate and multivariate Cox regression analysis of variables

Variables which were theoretically irrelevant and with a p-value of less than 0.2 in the bivariate analysis were included in the multivariate Cox regression analysis and variables with a p-value of less than 0.05 were considered as having statistically significant associations with duration of the second stage of labor. In the multivariate Cox regression analysis, Schoenfeld residual was used to test the proportional hazard assumptions. The p-value for the residual was 0.41 which was greater than 0.05 indicating that the proportional hazard assumption was fulfilled.

As illustrated in Table 3, among included variables in the multivariate Cox regression analysis adequacy of uterine contraction, fetal position, parity, fetal birth weight, adequacy of maternal pelvis and physical activity during pregnancy showed statistically significant association with duration of second stage of labor. In the adjusted Cox regression analysis, it was found that those with adequate uterine contraction were 2.9 times more likely to give birth with no prolonged second stage of labor (AHR 2.9, 95% CI: 1.4-6.1) compared to mothers with inadequate uterine contraction. Cox adjusted analysis also showed that mothers with birth weight of 4000 grams or more were 93% less likely, to give birth with no prolonged second stage of labor compared to those with birth weight of less than 2500 grams (AHR:0.07 95% CI: 0.07-0.6). Mothers with occipito-posterior fetal position were 80% less likely to give birth with no prolonged second stage of labor compared to mothers with the occipito-anterior fetal position (AHR, 0.2, 95% CI: 0.07-0.5). Mothers who were physically active during pregnancy were 2.5 times more likely to give birth with no prolongation of second stage of labor compared to mothers who were not physically active during pregnancy (AHR:2.5 95% CI: 1.4-5.2). The Cox regression analysis demonstrated that mothers with inadequate pelvis were 70% less likely to give birth with no prolonged second stage of labor compared to mothers with adequate pelvis (AHR: 0.3, 95% CI: 0.1-0.7). Multi-parous mothers were 5.5 times more likely to give birth with no prolonged second stage of labor compared to nulliparous mothers (AHR, 5.5, 95% CI: 3.8-8.0). Seventeen (32.6%) of the mothers with prolonged second stage of labor had

developed fetal complications, of which birth Asphyxia was the major problem encountered, 14 (27.5%). Perineal tear and postpartum hemorrhage were maternal complications developed following prolonged labor.

Discussion

The purpose of this study was to measure the median duration of the second stage of labor and to identify factors that are associated with duration of second stage of labor among Mothers Who give birth in Health facilities of Bahir Dar city, North West Ethiopia. The overall median duration of second stage of labor was 40.9 minutes (27.7 minutes in multi-parous mothers and 49.5 minutes in nulliparous mothers) which is consistent with findings from a study conducted in California (19). The median duration of second stage of labor was longer than findings from a study conducted in Taiwanese women, Akershus Central Hospital and Gjøvik Hospital, Norway (20). This could be due to a wider difference in genetic variations and racial differences. The proportion of mothers with prolonged second stage of labor was 21.1%. This finding shows an agreement with findings from a study conducted in Hawassa university hospital, Ethiopia which was 20.3% (19).

Findings from this study revealed that mothers who had no physical activities were more likely to have a prolonged second stage of labor compared to less active women which is consistent with previous studies (21, 22) (29, 30). This may be due to physical activities will strengthen the muscle tone of pelvic floor and perineal muscle which in turn is helpful in rotating the fetal head their by shorting the second stage of labor, an active women have a lower body mass index (BMI) and gain less weight during pregnancy than inactive women. Previous studies have associated increased BMI with dystocia resulting in prolonged second stage of labor (29). On the other way, regular exercise increases the baseline beta-endorphin level (opioid agonists released to reduce pain during exercise, but also acts as a relaxing agent for muscles) along with other stress hormones thus facilitating labor and potentially leading to a shorter second stage of labor (30). Mothers were considered as having physical activities if they involved in household/caregiving activities, active living, involved in their occupation, and perform sports activities.

Nulliparous mothers were more likely to have a prolonged

second stage of labor than multi-parous mothers, this may be due to a difference in rigidity of perineal muscle and uterine muscle tone. Nulliparous mothers tend to have more rigid perineal muscle and less uterine muscle tone than multi-parous mothers tending to have a longer duration of second stage labor. Similarly, findings from the previous study showed that nulliparity is associated with a prolonged second stage of labor(30). mothers with inadequate pelvis were found to have a longer duration of second stage of labor than mothers with adequate pelvis. mothers with prominent ischial spines, a sub-pub angle less than 90 degrees, and True conjugate less than 8 CM were considered as having inadequate pelvis. Mothers with inadequate uterine contraction were more likely to have a longer duration of second stage of labor than mothers with adequate uterine contraction which, is similar with previous findings from Hawassa university hospital, Ethiopia(19). Mothers with occipito-posterior fetal positions were associated with a longer duration of second stage of labor which is consistent with previous findings (21). Mothers with a Birth weight of more than 4000grams were more likely to have a longer duration of second stage of labor compared to mothers with a birth weight of less than 2500gram. Consistently findings from the previous study revealed birth weight as one of the risk factors for a longer duration of second stage of labor (30, 21).

Sexual intercourse during pregnancy is associated with good prognosis of labor. The possible evidence behind is that the male seminal fluid contains prostaglandins which in turn can initiate and result in sustained uterine contraction thereby facilitating and shortening labor. Evidence in the previous studies from Cameroon revealed that sexually active women had a significantly shorter duration of active first stage of labor and second stage of labor, normal pattern of labor and a higher rate of spontaneous delivery (37). however, in this study sexual intercourse during pregnancy showed marginally nonsignificant association with duration of second stage of labor. this may be due to under-reporting of sex by the study participants because of sensitivity of the issue and cultural problems in the study area. Hence large scale study should be done to determine the association of sexual intercourse and duration of second stage of labor. evidence from the previous study revealed that a woman with a male fetus had a longer duration of labor compared to mothers with a female fetus. this could be due to differences in size and shape between male and female fetuses, from 20 weeks of gestation onward males had significantly larger head size than females (34). In this study sex of the newborn showed marginal nonsignificant association with duration of second stage of labor indicating the need to further investigations with large scale studies. Generally the median duration of second stage of labor was relatively longer in the study area. The proportion of prolonged second stage of labor was higher in nulliparous mothers than multi-parous mothers. Lack of Physical activity, inadequacy of uterine contraction, occipito-posterior fetal position, and birth weight of greater than 4000 grams and inadequacy of maternal pelvis were predictors of prolonged second stage of labor.

Abbreviations and Acronyms	
ACOG	American College of Obstetricians and Gynecologists
AMTSL	Active Management of Third Stage of Labor
ANC	Ante-Natal Care
CSA	Central Statistical Agency
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
NICU	Neonatal Intensive Care Unit
SDG	Sustainable Development Goal
UNFPA	United Nation Fund For Population Activity
UNICEF	United Nations International Children's Emergency Fund
VBAC	Vaginal Birth After Cesarean Section
WHO	World Health Organization

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