

Knowledge, attitude, practice and determinant factors of birth preparedness among pregnant women attending antenatal care in Saint Paul's Hospital Millennium Medical College: Cross-sectional study.

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Abstract

Background: Birth-preparedness is a comprehensive strategy aimed at promoting the timely utilization of skilled health care services to prevent maternal/neonatal morbidity and mortality. This study aimed to assess knowledge, attitude, practices and determinant factors of birth preparedness among pregnant women attending antenatal care in Saint Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia.

Methods: Institutional based cross-sectional study was conducted on sampled pregnant women from February 1 up to April 30, 2020. Data was collected using structured questionnaire and analyzed using SPSS version 25. Results of categorical variables were shown as frequency and percentage. Bivariate and multivariate logistic regressions were carried out to see the presence of significant association between variables at p -value < 0.05 , adjusted odds ratio and 95% confidence interval.

Result: A total of 305 women with mean age 27.68 years were included in the study. This study found 71.5% of women were knowledgeable for birth preparedness, 90.5% had favorable attitude and 60.5% of women were well prepared for birth and its complication. The variables significantly associated with level of birth preparedness were cash income, AOR 17.8 95% CI (8.6, 37.3), knowledge, AOR 10.3, 95% CI (5.415, 19.4), place of residence those out of Addis Ababa, AOR 0.33 95% CI (0.12, 0.86) and planned pregnancy, AOR 2.8, 95% CI (1.2, 6.5).

Conclusion: Women's level of birth preparedness practices was similar with the national reports and different studies. Multiple factors influence their birth preparedness practices. To prevent or survive unpredictable pregnancy complications every woman is expected to get prepare for birth. Health professionals, policy makers and health administrators should give emphasis to factors that contribute to low level of birth preparedness and complication readiness practices.

Keywords: Birth preparedness, complication readiness, determinant factors

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Introduction

Birth Preparedness and Complication Readiness (BPACR)) is one of the strategies that can help pregnant women in the process of planning for child birth and being prepared what action to take in case of complications that can happen anytime during pregnancy, child birth and after birth.. It promotes organized birth preparedness activities to be made at the level of the woman herself, her partner or family, the community, health facilities, health care providers and policymakers.[1, 2]

Most of pregnancy complications which can suddenly endanger women's life are unpredictable therefore every pregnant woman and her partner or family members can be prepared by learning to recognize danger signs of pregnancy that may indicate life-threatening complications for the mother and baby, book for antenatal care follow ups, identify skilled provider, plan birth place, save money to use it in case of emergency, identify blood donor or know from where she can get blood if she needs it due to excessive blood loss during child birth and by arranging transportation to health facility to get necessary care timely during emergency[3].

Despite many efforts made by different international organizations and national stakeholders, studies indicate that the level of birth preparedness in most of developing countries is less than 50%. For instance, in a study conducted in Rwanda, 22.3% of pregnant women were prepared for birth and its complications[4]. Similarly, in government health care facility based cross-sectional studies conducted in Nigeria, Legos and Calabar were 33.4%, 31.3% of the mothers were prepared for birth and its complications respectively[5, 6]. In one of teaching Hospital in Birgunj, Parsa, Nepal in 2018 only 16.67% of pregnant women on antenatal follow up was reported as being well prepared. [7]

In Ethiopia, nationally overall pooled results of studies showed 32% with 95% (25.6, 38.5) of the pregnant women were prepared for birth and its complications. Specifically, 51.35% of women save money for birth and emergency case, 38.74% women identified skilled birth attendant, and only 26.33% of pregnant women were aware of danger signs during pregnancy. One fifth (20.59%) of women arranged transportation and 54.85% of women identified the place of birth [8].

The purpose of assessing level of birth preparedness is to understand pregnant women's experience, exposure for health information about normal pregnancy sign/symptoms and what to do during unpredictable pregnancy complications. The lack of birth preparedness was considered as one of the critical factors which contribute to maternal/neonatal morbidity/mortality and behind failure to achieve millennium development goals (MDGs)[9]. There are limited numbers of studies on birth preparedness nationally and there is no similar study in the study area. Therefore, the objective of this study was to assess level of knowledge, attitude, practices of birth preparedness and its determinant factors among pregnant women in St. Paul's Hospitals Millennium Medical College, Addis Ababa, Ethiopia.

Methods

Study setting and period: The study was conducted at St. Paul's Hospitals Millennium Medical College, department of Obstetrics and gynecology in Addis Ababa, Ethiopia. SPHMMC is one of the largest public hospitals in the country and provides academic, research and medical services. The hospital provides for more than 200,000 people annually who are referred from all corners of the country[10]. There are 7 actively serving ANC clinics. Monthly on average 600 new pregnant women are getting antenatal care services. The hospital's report showed in three months prior to the study period, totally more than 3000 pregnant mothers were having antenatal care[11]. The study was conducted from February 1st to April 30, 2020.

Study design: A hospital based cross sectional study was conducted to assess level of knowledge, attitude, practices and determinant factors associated with women's birth preparedness/complication readiness.

Study population: All pregnant women on antenatal care follow ups at the study area clinics from February 1st to April 30, 2020 were study population. Pregnant women who were unable to respond to the interview to because of mental illness, hearing or speech problem and those who were critically ill were excluded from the study.

Sample size and sampling method: Sample size was determined by using Open-Epi software version 3.01 considering proportion of women prepared for birth and its complication, 32% ($p=0.32$), [12] margin of error to be 5% ($d=0.05$) at 95% level of confidence and non-response rate of 5%. After finite population correction final sample size was 316. Simple random sampling using lottery method was used to select women for exit interview.

Study variables: Dependent variable or primary outcome in this study was level of birth preparedness with as well-prepared and not-well prepared. Predictor variables were social-economic/demographic characteristics and previous or current obstetrics profiles of study participants.

Data collection and quality control: Data was collected by two trained female nurses using pre-tested interviewer administered structured questionnaire which were adopted from JHPIEGO and different studies [2] with some modifications. It was first translated from English to Amharic and then retranslated back to English by a linguistic graduate to assure its consistency. The collected data were checked for its accuracy and completeness on a daily basis. The inter-item consistency of the indicators to measure the composite score of birth preparedness knowledge, attitude and practice was checked.

Data analysis: The collected data were coded and entered into Epi data version 3.1 to minimize logical errors and design skipping patterns. Then, it was exported to SPSS version 25 for cleaning; recoding and analysis. Frequencies were done to describe the different participants' characteristics. Simple binary logistic regression was fitted for each of the independent variables to select potential factors for the multiple binary logistic regressions. Then, multiple binary logistic regression was fitted by incorporating all variables with p -value less than or equal to 0.20 in the simple binary logistic regression, as recommended by Hosmer & Lemshow [10]. Considering the assumptions for logistic regression, variables with small a number of cells value (< 5) in each category were not included in the model. To identify determinant factors of women's birth preparedness level, binary logistic regression model was used, as the outcome variable of birth preparedness (well prepared or not well prepared) which is a dichotomous variable. An Adjusted Odds Ratio (AOR) was reported as a measure of association and all variables with a p -value < 0.05 were considered as statistically significant factors associated with level of birth preparedness.

Operational definitions

Women's cash income refers to any kind of business activities be it government or private in which the woman is involved to make cash money to spend it for her needs.

Knowledge on BPCR refers to pregnant women who knew or mentioned elements of birth preparedness such knowing danger signs of pregnancy, saving money to spend in case of emergencies or during labor/child birth, Identifying her birth companion, Planning her place of giving birth or place she want to give birth, options of transport, Prepare essential items for child birth (food items, baby dress and others and arrange blood donor or asked her family member to donate or know from where she gets blood in case needed. The women who mentioned at least three above activities of birth preparations spontaneously were labeled as knowledgeable and those who didn't mention the activities were labeled as not knowledgeable.

Practice of birth preparedness refers to undertaking the following 6 elements of birth preparedness: Identified birth companion, Identified or planned place of giving birth, prepared essential items for child birth, saved money, arranged transport, arranged blood donor or asked her family member to donate or know from where she gets blood in case needed during delivery were coded and those who undertook four or more steps of the six parameters were labeled as well prepared while those below four steps as not well-prepared.

Attitude towards birth preparedness refers to women's positive or negative thought on birth preparedness and readiness for pregnancy complication. Seven questions were asked on the attitude in a Likert-scale and composite score was produced. Mothers who scored above or equal to the mean score were labeled as "favorable attitude" and otherwise "unfavorable attitude".

Ethical approval and consent to participate

Ethical approval and clearance was obtained from St. Paul's Hospital Millennium Medical College Institutional Review Board. There were no potential risks that may cause any harm in any form on the study subjects. After obtaining permission from the Review Board, participants were provided with information about the objectives and importance of the study. Since there is no intervention, no measurement and no sample were taken; informed verbal consent was obtained in advance from the study subjects. All information which was communicated with individual subjects was kept private and confidential. Coding was used to eliminate respondents' identification and ensure anonymity.

Results

1. Socio-Demographic Characteristics of Respondents

Out of the total sample size (n = 316), 305 women completely answered the questionnaires. Eleven questionnaires were excluded for incompleteness, giving a response rate of 96%. The study participants have a mean age of 27.68 years with a standard deviation of ± 4.72 years, minimum age was 19 years and maximum was 42 years. Most of the study participants' (84%) age was between 20 and 34 years. More than half (64%) of them were from capital city Addis Ababa. Majority (95%) were in a marital union. Fifty five percent of them attended secondary school and above. Majority (77%) of them can easily read and understand letters or information written on posters/leaflets [Table 1].

2. Current and past obstetric profiles of study participants

Twenty six percent of the respondents were primigravida (experiencing their first pregnancy) and 74% of them had previous history of pregnancy. Most of them (65%) had previous history of child birth. They were four up to ten months of pregnant and most of them 147(48.2%) were 8 up to 9 months pregnant [Table 2].

Table 1: Socio-economic and demographic characteristics of study participants, in St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia, February to April, 2020 (n= 305)

Variables	Group	N	(%)
Age groups	<20	15	5
	20 – 34	256	84
	35 – 49	34	11
	Total	305	100
Place of residence	Addis Ababa	195	64
	Outside of Addis Ababa ^Δ	110	36
	Total	305	100
Religion	Orthodox	166	54
	Muslim	95	31
	Protestant	39	13
	Catholic	5	2
	Total	305	100
Marital status	Married/ In marital union	291	95
	Single	10	3
	Widowed	4	1
	Total	305	100
Education level of women	No formal education	10	3
	Primary(Grade1-8)	127	42
	Secondary(Grade 9 - 12)	86	28
	College and above	82	27
	Total	305	100
Can you read letters/Posters/News papers	Easily	235	77
	With difficulty	54	18
	Not at all	16	5
	Total	305	100.
What is your language/ Letter of choice to read and understand	Amharic	222	77
	Afaan- Oromo	67	23
	Total	286	100
Occupation of the woman	Housewife	162	53
	Farmer	8	3
	Private/non-government/ employee	46	15
	Government employee	41	13
	Merchant	48	16
	Total	305	100
Occupation of Partners'	Farmer	5	1
	Private employee	145	50
	Government employee	52	19
	Merchant	73	25
	Daily laborer	16	5
Women with cash Income		169	55
^Δ - Outside of Addis Ababa refer to places outside Addis Ababa mostly from Oromia Regional states around Addis Ababa: Burayu, Holeta, Sebeta			

Table 2: Obstetric profiles of study participants in St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia from February to April, 2020 (n= 305)

Characteristics	groups	N	%
Gravidity	Prim gravid	80	26
	Multigravida	225	73.8
	Total	305	100
Parity	Nuli-parous	107	35
	Prim-parous	122	40
	Multi-parous	76	24.9
	Total	305	100
Abortion	No	224	73.4
	1	56	18.4
	2	18	5.9
	≥ 3	7	2.3
	Total	305	100
Number of months of pregnancy (as women tells)	4 - 7 months	148	48.5
	8 - 9 months	130	42.5
	9 above months	6	2
	Don't know	21	7
	Total	305	100
Number of alive children	0 (No child)	117	38.4
	1 child	126	41.3
	2 or 3 children	62	20.3
	Total	305	100
Did your prior pregnancy result in loss of a baby?	Yes	33	10.8
	No	272	89.2
	Total	305	100
Mode of delivery of pregnancy just prior to this one	SVD	106	53.5
	CS	91	46
	Instrumental assisted	1	0.5
	Total	198	100
Place of delivery of pregnancy just prior to this one	SPHMMC	59	29.8
	Other government hospital	51	25.8
	Private Health Institution	32	16.2
	Health center	48	24.2
	Health post	1	0.5
	Home	7	3.5
	Total	198	100
Pregnancy planned	Yes	221	72
	No	84	28
	Total	305	100

3. Knowledge, attitude and practices of study participant on birth preparedness and complication readiness

Majority (71.5%) of the study participants were knowledgeable for BPCR. Great majority (90.5%) of participants had favorable attitude. Among the six elements of BPCR practice, (89.2%) Identified birth companion, (83%) Identified or planned place of giving birth and (59.3%) prepared essential items for child birth were the activities practiced by most of the study participants. Considering four or more steps of the six steps of activities, (60.5%) were found to be well prepared [Table 3], [Figure 1].

Table 3: Birth preparedness and complication readiness of study participants, in St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia from February to April, 2020 (n= 305)

Birth Preparation Activities		N	%
Saved money to spend in case of emergencies or during labor/child birth		142	46.6
Identified her birth companion or someone to support her on the way to health facility in case of emergency		272	89.2
Planned her place of giving birth or place she want to give birth		253	83
Identified options of transport to health facility during labor or other emergency conditions		139	45.6
Prepared essential items for child birth (food items, baby dress and others)		181	59.3
Arranged blood donor or asked her family member to donate or know from where she gets blood in case needed		52	17
Know/mentioned of danger signs of pregnancy		195	63.9
Number of above activities steps taken	No step	4	1.3
	1 step	15	4.9
	2 steps	44	14.3
	3 steps	58	19
	=>4 steps	184	60.5
	Total	305	100

Table 4: Attitude of women towards birth preparedness and complication in St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia from February to April, 2020 (n= 305)

Attitude statements		N	%
A woman should plan ahead of time where she will give birth to her baby.	Strongly agree	222	72.8
	Agree	72	23.6
	Undecided	4	1.3
	Disagree	-	-
	Strongly disagree	7	2.3
It is not necessary for a husband/partner to accompany his wife when she is giving birth.	Strongly agree	23	7.5
	Agree	67	22.
	Undecided	21	6.9
	Disagree	135	44.3
	Strongly disagree	59	19.3
A woman should discuss with her partner or family members what to do in case of emergency health problem happened to her	Strongly agree	180	59
	Agree	96	31.5
	Undecided	16	5.2
	Disagree	7	2.3
	Strongly disagree	6	2
When women do not go to a health facility for ANC follow up, it is mainly because she thinks she will not face serious health problems	Strongly agree	10	3.3
	Agree	47	15.4
	Undecided	22	7.2
	Disagree	147	48.2
	Strongly disagree	79	25.9
Most health care workers here do not know what kind of care a woman needs during pregnancy, childbirth, and immediately after childbirth?	Strongly agree	-	-
	Agree	34	11.1
	Undecided	27	8.9
	Disagree	119	39
	Strongly disagree	125	41
Most health care workers here do not give time and listen to us, they are not good	Strongly agree	3	1
	Agree	24	7.9
	Undecided	37	12.1
	Disagree	124	40.7
	Strongly disagree	117	38.4
I do not advice others to have ANC follow up here	Strongly agree	2	0.7
	Agree	34	11.1
	Undecided	21	6.9
	Disagree	126	41.3
	Strongly disagree	122	40.0

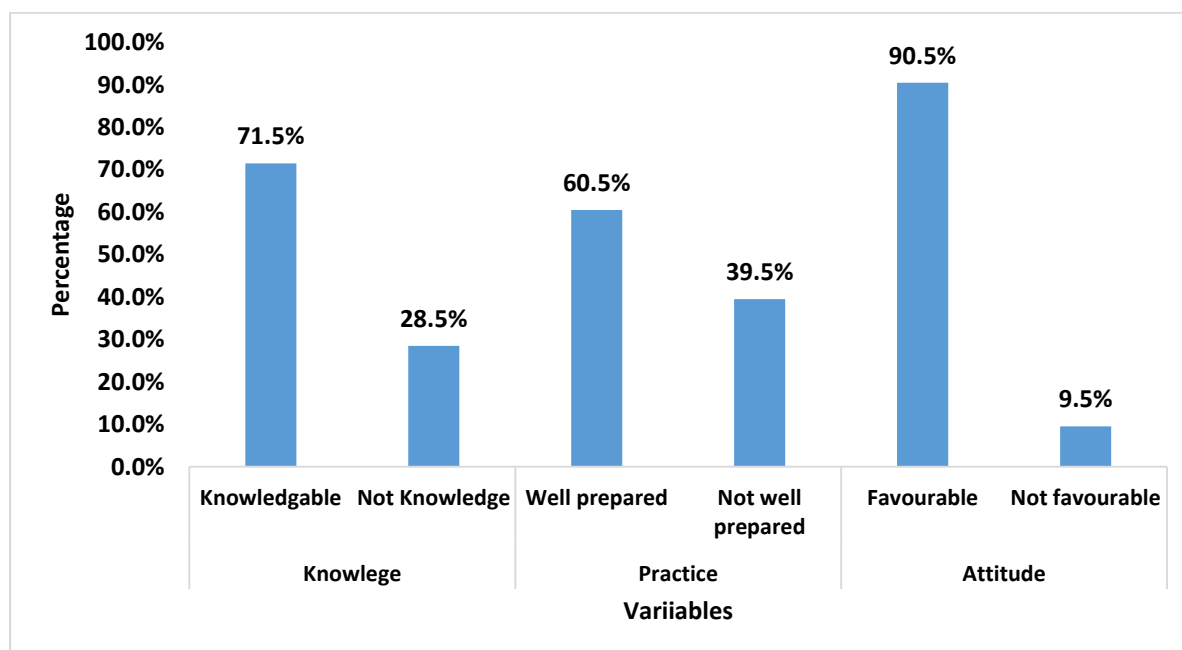


Figure 1: Knowledge, Attitude and practice of pregnant women on out-patient antenatal care in St Paul’s Hospital Millennium Medical College, Addis Ababa, Ethiopia from February to April, 2020 (n= 305).

4. Determinant factors of birth preparedness and complication readiness.

Based on the results of simple binary logistic regression the variables such as age group, place of residence, and education level of the women, reading skill, cash Income, gravidity, parity, planned pregnancy and knowledge were incorporated to multiple binary logistic regression analysis. The results revealed that the variables, place of residence, cash Income, planned pregnancy and knowledge were significantly associated with women’s birth preparedness at 5% level of significance. Specifically, women who have cash income, 17.8 times and women with planned pregnancy 2.8 times more likely odds/chance of getting prepared for birth and its complication. Those who are knowledgeable are 10 times more likely to be prepared for birth when compared to the group of not knowledgeable AOR 10.3, 95 CI (5.415, 19.4) [Table 5].

Table 5: Simple and multiple binary logistic regression selected variables with level of birth preparedness of study participants in St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia from February to April, 2020.

Variables	p-value	COR(95%CI)	p-value	AOR 95%CI
Age groups(yrs.)				
<20	0.435	1		1
20 - 34	0.198	1.98(0.698,5.66)	0.89	0.9(0.196, 4.15)
35 – 49	0.328	1.85(0.54, 6.3)	0.19	3.5(0.52, 24.2)
Place of residence				
In Addis Ababa		1		1
Out of Addis Ababa	0.001	0.27(0.15,0.46)	0.024	0.33(0.12, 0.86)
Level of education				
No formal education		1		1
Primary(Gr 1-8)	0.792	0.8(0.232, 3.05)	0.853	1.17(0.22, 6.1)
Secondary(Gr 9 - 12)	0.556	1.485(0.4, 5.54)	0.996	0.9(0.16, 6.1)
College and above	0.001	12.7(2.85, 56.3)	0.066	6.2(0.9, 43.2)
Women can read posters Or news papers				
Easily		1		1
With difficulty	0.001	0.2(0.12, 0.43)	0.123	0.2(0.12, 0.43)
Not at all	0.038	0.34(0.12, 0.9)	0.134	0.34(0.12, 0.94)
Women who has cash Income				
Yes		1		1
No	0.001	22.4 (12.13,41.2)	0.001	17.8 (8.6, 37.3)
Gravidity				
Primigravid	0.01	1		1
Multigravid		2.0 (1.18, 3.39)	0.094	2.23(0.87,5.71)
Parity				
Nuliparous		1		1
Primiparous	0.13	2.0 (1.16, 3.5)	0.86	0.91(0.31, 2.64)
Multiparous	0.19	1.5(0.82, 2.74)	0.69	0.8(0.25, 2.49)
Number of months of pregnancy				
4 – 6 months	0.955	1		
7 – 10 months		0.974(0.39,2.41)		-
Do you have loss of baby during pregnancy/birth?				
Yes		1		
No	0.5	1.25(0.6, 2.62)		-
Mode of birth of pregnancy just prior to this				
SVD	0.75	1		
Cesarean		1.1 (0.6, 2.0)		-
ANC contacts				
1 - 3 contacts		1		
4 - 7 contacts	0.59	0.85(0.47, 1.53)		
8 and above contacts	0.55	1.2(0.64, 2.27)		-
Pregnancy				
Not planned		1		1
Planned	0.001	3.18 (1.8, 5.61)	0.017	2.8 (1.2, 6.5)
Level of BPCR knowledge				
Not knowledgeable		1		1
Knowledgeable	0.001	7.4(4.23, 12.97)	0.001	10.3 (5.42, 19.4)
Attitude for BPCR				
Favorable		1		
Not favorable	0.56	0.79(0.35,1.757)		-

Discussion

This study assessed the level of knowledge, attitude, practice of birth preparedness/complication readiness and its' determinant factors in St Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia from February to April, 2020. The level of birth preparedness practices were found to be 60.5%, those who were knowledgeable 71.5% and 90.5% had favorable attitude. Variables such as place of residence, women's cash Income and planned pregnancy were found significantly associated with birth preparedness practices.

Every pregnant women are expected to get prepared for birth and its' complications to survive and enjoy motherhood. The finding from this study indicated that the level of birth preparedness is similar to study done at Ethiopian federal Police hospital in Addis Ababa which was 56.3%. Similarly studies conducted in the other parts of Ethiopia, birth preparedness levels are close to the finding from this study, 54.7% at Dilchora Referral Hospital in Dire Dawa City, 53.9% at public health facilities in Debrebirhan. The similarity of these findings may be due to the same status or level of maternal health service. The finding is also comparable to the Ethiopia Demographic and Health Survey (2016 EDHS) in Addis Ababa which was, (62.9%)[2, 3, 13-15].

In contrast, it is found higher than study conducted in Goba woreda Ethiopia (29.9%)[16], Jimma (23.3%)[17], Adigrat (22%)[18] and Arsi Robe (16.5%)[19]. This might be because of different setting and study population background as our study was done in Addis Ababa, the capital city of Ethiopia. It is also found to be higher when compared to studies done in to some developing countries, in the same level hospital like in Kenya, Tharaka (20.3%), South West, Nigeria (40.3%), Legos (33.4%), Rwanda (22.3%), Ghana (16.15%)[20] and India, Karnataka (35.85%)[21].

Elements of birth preparedness and its complication mentioned by more than half of the study participants were identify birth companion, planned place of birth and Prepared essential items for child birth which is similar to study done at Dilchora Referral Hospital, Dire Dawa City and in public health facilities of Debrebirhan town[14, 15].

In this study the most important predictors of birth preparedness and complication readiness that were cash income, level of knowledge, planned pregnancy and place of residence which are consistent with the studies in Dire Dawa City, Debrebirhan town, Nigeria and Tanzania[5, 14, 15, 22].

Antenatal care is window of opportunities for information, education and communication by skilled health care providers to pregnant women; so they can be adequately and appropriately empowered with reliable and verifiable information to make informed choices about their health and significant others under any situation they find themselves especially during life threatening emergencies[23, 24].

This study might have its own limitation because of its cross-sectional nature to ascertain temporal relationship. In addition, some variables like cash income, monthly income, and gestational age can have recall biases and indicators of attitude were subjective. Dichotomizing composite variable such as knowledge, attitude or practices may have its own limitations in identifying cut-off points. Since the data collectors were health professionals there may be some social desirable responses for some of the variables. Both data collectors and respondents may be in stressful situation due to covid-19 pandemic disease transmission rate which may affect the quality of the information. Despite this possible efforts were made to use standards and as many variables as possible to make them objective.

Conclusion and Recommendation

Based on the findings of the research the magnitude of BPCR practice in the study area is similar to studies done in most referral hospitals in Ethiopia. As the study area is in the center of capital city where better access of health care and information expected, the level of birth preparedness did not show significant difference. The determinant factors affecting women's BPCR practice were cash income, knowledge about birth preparedness, planned pregnancy and place of residence. Since knowledge of birth preparedness was found one of the principal factor determining level of birth preparedness practice therefore improving awareness of women both at community and institutional level during ANC is recommended to increase level of birth preparedness and complication readiness. In order to overcome pregnancy complications every woman is expected to get prepare for birth. Health professionals, policy makers and health administrators should give emphasis to factors that contribute to low level of birth preparedness and complication readiness practices.

Abbreviations

ANC- Antenatal care, AOR-Adjusted odds ratio, BPCR-Birth preparedness and complication readiness, CI-Confidence interval, COR-Crudes odds Ratio, CS-Caesarean section, EDHS-Ethiopian Demographic and Health Survey, GA- Gestational Age, IRB- Institutional Review Board, JHPIEGO-Johns Hopkins Program for International Education in Gynecology and Obstetrics, MNH-Maternal and Neonatal Health, MDGs-Millennium development goal, Obs/Gyn-Obstetrics and Gynecology, SPSS-Statistical Package for Social Sciences, SVD-Spontaneous Vaginal Delivery, SDGs- Sustainable Development Goals, SPHMMC-Saint Paul's Hospital Millennium Medical College, WHO-World Health Organization

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