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Knowledge, Attitude and Practice on Identification of Newborn Danger Signs and Associated Factors Among Mothers attending Postnatal Clinics at Dessie Referral Hospital, North East Ethiopia, 2019

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ABSTRACT

Background: Globally every year, 2.7million neonates die during the neonatal period. In Ethiopia Neonatal, mortality is higher among many African region and other undeveloped countries. Recognition and early sought of medical care towards neonatal danger sign has many implications for decreasing neonatal morbidity and mortality. Despite the importance of, early sought of medical care towards neonatal danger sign the practice is low in Ethiopia.
Objective: To assess knowledge, attitude and practice on neonatal danger sign and associated factors among PNC attendant mothers in Dessie referral Hospital, North East Ethiopia.
Method: A Facility-based cross-sectional study employed. The data collected from 340 mothers from March to April 2018 by consecutive sampling technique. The data collection tool was adapted from WHO, Neonatal Health and it was collected by using Interview based structured questionnaire. Descriptive statistics, binary and multivariable logistic regression analysis employed to identify the factors associated with Newborn danger sign practices. Variables with a p-value < 0.05 identified as statistically significant factors.
Result: The proportion of good newborn danger sign practice was 220 (92.8%) in Dessie Referral Hospital. 58(17.1%) of respondents were knowledgeable and 146(42.9%) of mothers had favorable/positive attitude towards newborn danger sign. Mother's income between >1500 Birr/month 8.194(AOR: 95% CI: 2.583, 25.995), Mothers who live in rural side4.210 (AOR: 95% CI: 1.41, 12.576), Mothers who has instrumental delivery 9.843 (AOR: 95% CI: 5.148, 30. 31) were positive predictors for newborn danger sign practice.
Conclusion and Recommendation: The magnitude of newborn danger sign practice in these specific setting found to be good but the mothers knowledge and attitude towards newborn danger sign is poor. Promotion of intensive education program on at all level, integrating it with post-natal and child health service and focusing on urban and low socioeconomic status mothers is recommended.

Key Words: *Newborn, Danger Signs, PNC Attendant Mothers.*

INTRODUCTION

"Newborn" and "neonatal" are terms that refer to the first 28 days of life. Mortality risk during the neonatal period is highest at the time of birth and decreases over the subsequent days and weeks. Up to 36% of neonatal deaths occur within the first 24 hours of birth and nearly 73% in the first week of life. [1] Some of repeatedly reported neonatal danger signs include not able to feed, movement only when stimulated, low or high temperature, respiratory rate over 60 breaths per minute, severe chest in drawing and history of convulsion. Recognizing the occurrence of these signs will results in high overall sensitivity and specificity to predict the need for seeking treatment of the new born. [2,3]

Globally, the three main causes of newborn deaths are direct preterm complications (36% of neonatal deaths worldwide), severe infection (23%), and

intra-partum-related complications (23%). globally, approximately 630,000 newborns die each year because of severe infections. Over 1800 newborns die every day due to complications of childbirth, plus many more stillbirths. [4] Over 80% of premature babies are born as moderate to late preterm births and most of these do not need intensive care in order to survive. Up to 58% of premature babies can be saved globally through the provision of cost-effective care that can feasibly delivered in low-resource settings. [5]

Previous studies have shown that neonatal death affected by various factors. Maternal factors associated with neonatal death include young maternal age, primi-or grand-multi parity, short birth intervals, maternal health complications, and not breastfeeding.[6–12] Neonatal factors associated with their death were preterm birth, low birth weight, multiple births, and male gender.[6–10,13–14] The lack of appropriate care during pregnancy, delivery, and the postpartum period respectively, [9–11] and residence in rural or poor socio-economic community were also associated with neonatal death. [2-6] While many studies have examined factors contributing to neonatal mortality in resource-limited settings; few studies have focused on neonatal danger signs and complications. These abnormal health conditions could eventually lead to life-threatening complications or death. [3] The health of mothers and their babies closely linked that the delivery of effective interventions has a triple return on investment with the potential to avert 71% of newborn deaths, 33% of stillbirths, and 54% of maternal deaths at full coverage. It is estimated that, improving MNH services could prevent up to three out of four newborn deaths, specifically through the increased coverage and quality of preconception, antenatal, intra-partum, and postnatal interventions. [5] Increasing access to maternal and newborn health (MNH) services and to lifesaving medical commodities may be the single most important way to improve these statistics. About one third (32%) of all mothers and newborns globally do not receive skilled care at birth [15] and evidence has shown that about three quarters of all babies born outside a health facility do not receive an early postnatal care visit following delivery. [16]

OBJECTIVE

To assess knowledge, attitude and practice on neonatal danger sign and associated factors among PNC attendant mothers in Dessie referral Hospital, North East Ethiopia from March to April 2018.

METHODOLOGY

Study area: This study conducted in Dessie Town, south Wollo Zone, one of the 11Th Zones in the Amhara regional state, Ethiopia

Study Period: The study conducted from March to April 2019.

Study Design: Institution-based cross-sectional study design employed.

Source of population: Post-natal Mothers of newborn (alive) who were attending in Dessie referral Hospital, 2019.

Study population: Randomly selected Post-natal Mothers of newborn (alive) who were attending in Dessie referral Hospital during data collection period considered as a study population.

Eligibility criteria

Inclusion criteria: Randomly selected Post-natal Mothers of newborn (alive) who are attending in Dessie referral Hospital and willing to participate in the study were included in the study.

Exclusion criteria: Mothers of newborn who are seriously ill, mental problem or unable to communicate were excluded.

Sampling Technique& Sample size: Consecutive sampling technique used to select 340 samples.

Variables

Dependent Variable

- Mothers practice on newborn danger sign
- Mothers knowledge on newborn danger sign

- Mothers perception/attitude towards newborn danger sign

Independent Variables

- Maternal and husbands demographic variable(maternal age, educational status ,occupation, religion, marital status)
- House hold character(income, family size)
- Health care service utilization(ANC utilization, place of delivery and PNC)
- Health service accessibility(distance from home)

Data collection instrument and method

The data collection tool was adapted from WHO, Neonatal Health. The adapted questionnaire was modified and contextualized to fit the local situation and the research objective. The questionnaire was prepared first in English, translated into Amharic, and then back into English by fluent speakers of both languages to check its consistency. The data collected through face-to-face interview using semi structured questionnaires. After review of the instruments all suggested a revision made before administer in the actual study. Three data collectors and two supervisors recruited to participate in the study. The selection criteria for data collectors were those individual who had Diploma in nursing. The supervisors should have BSc degree in nursing.

Data quality assurance

Deep orientation given for data collectors for one day to ensure the completeness and consistency of information during data collection. The investigators made a thorough check before receiving the filled questionnaire from each data collector and in the meantime; they are randomly select the questionnaire to crosscheck its completeness and errors on spot and there was meeting at the end of data collecting time for discussion. Data analysis started by sorting and performing quality control checkup on field. Pretest (5%) done at Dessie Health center in order to check the consistency and reliability of the questionnaire.

Data processing and analysis

Data cleaning performed to check for accuracy, consistencies, and values. The data undergo rigorous daily checking to identify and correct errors. The investigators were enter the data using Epi Data version 3.02 and exported to SPSS 20 statistical package for analysis. Descriptive statistics was used to describe socio-demographic and economic characteristics of the study population and KAP on newborn danger sign. Then bivariate logistic regression techniques was done to see the crude association between the independent variables and the dependent variable and the strength of association will be expressed in odds ratio (OR). Eventually, result from bivariate analysis of $p<0.2$ will be moved to multivariate analysis and done through step wise multivariate logistic regression technique to control the effects of confounding and to identify predictors of appropriate practice on newborn danger sign. A P value of < 0.05 was e used as the criterion for statistical significance.

Ethical Consideration

Ethical clearance secured from Wollo University College of medicine and health science department of pediatrics and child health nursing research and ethical review committee to Dessie referral Hospital. Permission letters obtained from Dessie referral Hospital. After giving clear and deep understanding about the aim of the study, written consent obtained from each respondent before the interview conducted.

RESULTS

A total 340 mothers were interviewed which made the response rate of 100%.

Socio-demographic characteristics of study population

The mean age of respondents were 25.15 (± 4.33 SD). About sixty-Eight percent of respondents were urban and106 (31.2%) were rural residents. A majority, 162(47.6%) of the women were in age group of 18-24, 340 (100%) were married, 206 (60.6%) were Muslim by religion, 322 (94.7%) were Amhara by Ethnicity and 209 (61.5%) were Housewife by occupation.

About 109 (32.1%) of the women and 133 (39.1%) of their partner did attended secondary education and Higher education respectively. A majority of husband were self-employed by occupation (Table 1)

Table 1: Socio-demographic variable

Socio-demographic variable	Frequency (N=340)	Percentage
Age of Mother		
18-24 year	162	47.6
25-29 year	120	35.3
30-34 year	46	13.5
35-39 year	10	2.9
40-45 year	2	.6
Family Size		
<=3	211	62.1
>=4	129	37.9
Mothers Marital status		
Married	340	100
Mothers Educational Status		
Unable to read & write	49	14.4
Informal education	31	9.1
Primary education	86	25.3
Secondary education	109	32.1
Higher education	65	19.1
Mothers Religious status		
Orthodox	132	38.8
Protestant	2	.6
Muslim	206	60.6
Mothers Ethnicity		
Tigre	1	.3
Amhara	322	94.7
Oromo	17	5
Mothers occupation		
House wife	209	61.5
Gov't work	77	22.6
private work	26	7.6
Farmer	28	8.2
Mothers Monthly income		
<500 Birr	229	67.4
500-1000 Birr	8	2.4
1001-1500 Birr	8	2.4
>1500 Birr	95	27.9
NO_ of children		
<=3	308	90.6
>=4	32	9.4
Husband Educational Status		
Unable to read & write	46	13.5
Informal education	34	10
Primary education	52	15.3
Secondary education	75	22.1
Higher education	133	39.1
Husband occupation		
private work	118	34.7
Gov't work	117	34.4
Farmer	72	21.2
Other	33	9.7
Residence		
Urban	234	68.8
Rural	106	31.2
Neonate Sex		
Male	215	63.2
Female	125	36.8

Maternal health service utilization characteristics

Regarding maternal health service utilization; of the total respondents 338(99.4%) mothers were attending ANC; 211(62.1 %) utilized ANC four and more times, 116(34.1%) had gotten Newborn danger sign Counseling at ANC

Clinic, 329(96.8%) delivered their child at Government health facility and their delivery was assisted by health professional and 188(55.3%) delivered through normal spontaneous. 195(57.4%) mothers were don't attending PNC (Table 2).

Table 2: Maternal Health service utilization characteristics of mothers of Newborn in Dessie Referral Hospital, North East Ethiopia, 2018 (N=340)

Variable	Frequency (N=340)	Percent (%)
Health Extension package graduate		
Yes	35	10.3
No	305	89.7
Ever gone for medical purpose		
Yes	316	92.9
No	24	7.1
ANC follow up		
Yes	338	99.4
No	2	.6
Attending ANC service(N=338)		
<=3 times	127	37.4
>= 4 times	211	62.1
Newborn danger sign counseling during ANC visit(N=338)		
Yes	116	34.1
No	222	65.5
Place of delivery		
Health facility	329	96.8
Home	11	3.2
Delivery attendant		
Health professional	329	96.8
TBA	11	3.2
Mode of delivery		
CS	96	28.2
Spontaneous vaginal delivery	188	55.3
Instrumental delivery	56	16.5
PNC follow up		
Yes	145	42.6
No	195	57.4

Knowledge of mother on Newborn danger sign

Only 58(17.1%) of respondents were knowledgeable about Newborn danger sign. More than 155(45.6%) of the mothers mentioned none of key danger sign. The most common danger sign recognized by mothers were; one hundred forty seven (43.2%) Poor sucking/Unable to feed, 55(16.2) fever, 54(15.9%) Frequent Vomiting and 53(15.6) fast breathing. Only, 104(30.6%) of mothers had heard the term

Newborn danger sign and the most common source of information was health professionals (19.4%).

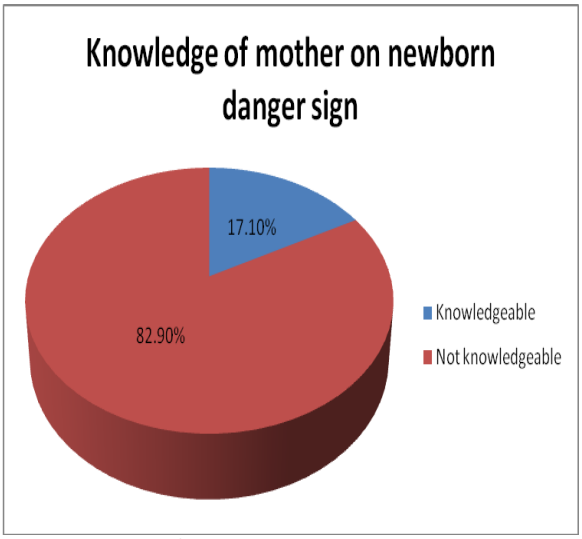

Fig2: Knowledge of mother on Newborn danger sign in Dessie Referral Hospital, North East Ethiopia, 2019 (N=340)

Table: 3 Knowledge of mothers on components of Newborn danger sign in Dessie Referral Hospital, North East Ethiopia, 2019 (N=340)

Variable	Frequency(n=340)	Percentage
Poor sucking/Unable to feed		
Yes	147	43.2
No	193	56.8
Convulsion		
Yes	23	6.8
No	317	93.2
Fast Breathing		
Yes	53	15.6
No	287	84.4
Chest in drawing		
Yes	23	6.8
No	317	93.2
Fever		
Yes	55	16.2
No	285	83.8
Hypothermia		
Yes	12	3.5
No	328	96.5
Unconsciousness		
Yes	9	2.6
No	331	97.4
Jaundice		
Yes	6	1.8
No	334	98.2
Frequent Vomiting		
Yes	54	15.9
No	286	84.1

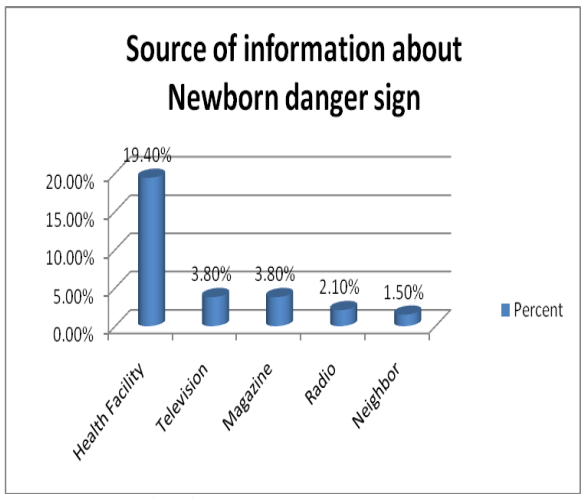

Fig3: Source of information about newborn danger sign among mothers of newborn in Dessie Referral Hospital in 2019(N=340)

Attitude of Mothers towards Newborn danger sign

Only 146(42.9%) of mothers had favorable/positive attitude towards newborn danger sign.

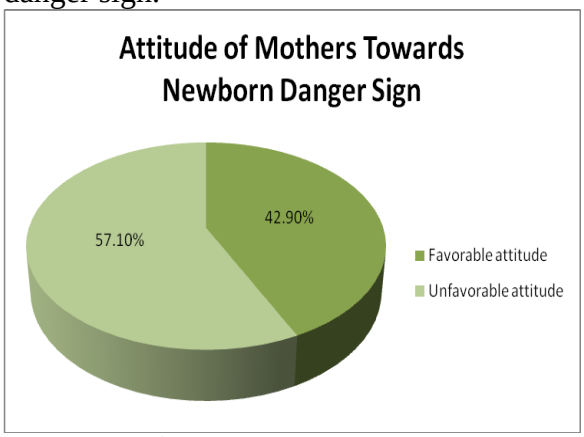

Fig4: Attitude of mothers towards newborn danger signs at Dessie Referral Hospital, North East Ethiopia, 2019 (N=340)

Mothers practice on Newborn danger sign at Dessie Referral Hospital

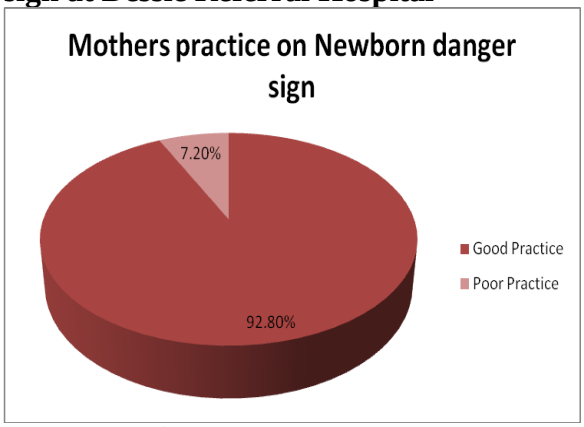

Fig 5: Practice of mothers on newborn danger signs at Dessie Referral Hospital, North East Ethiopia, 2019 (N=237)

Among 237 mothers who got sick their newborns the general proportion of appropriate practice for newborns danger sign was 92.8% and 17(7.2%) of them sought non-medical care for neonatal danger signs. Among 17 mothers who sought non-medical care, 10(4.2%)was taken no action and 4(1.7%) of mothers sought spiritual care and 3(1.3%).Among 237 newborns who got sickness/illness, majority of 78(32.9%) newborns was experienced poor sucking/unable to feed followed by 48(20.25%) fast breathing and 31(13.1%) Hypothermia. Among 237 mothers who got sick their newborns 221(93.2%) were taken action within 24 hours and 16(6.8%) were taken action lately (>24 hr).

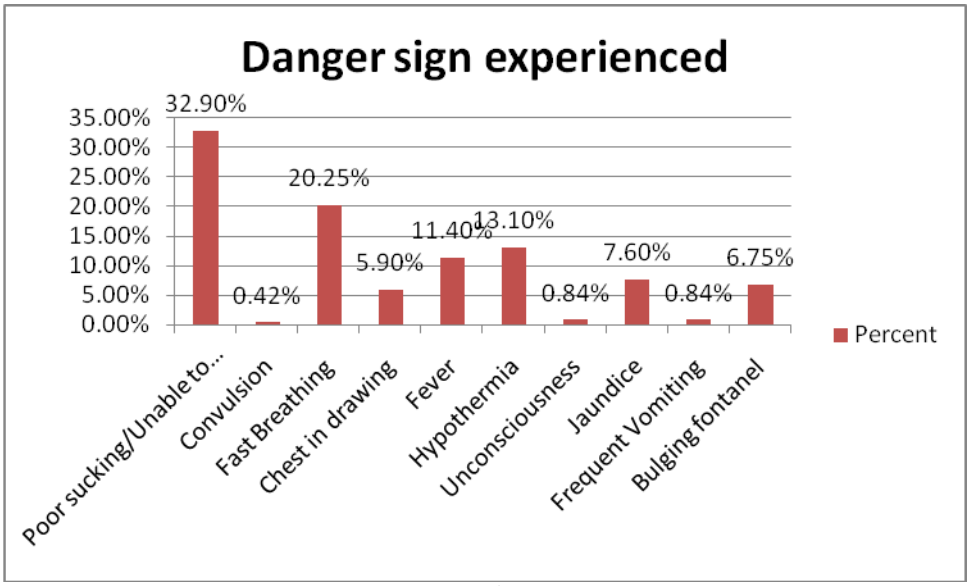

Fig6: Newborn danger sign experienced in Dessie Referral Hospital, North East Ethiopia, 2019 (N=237)

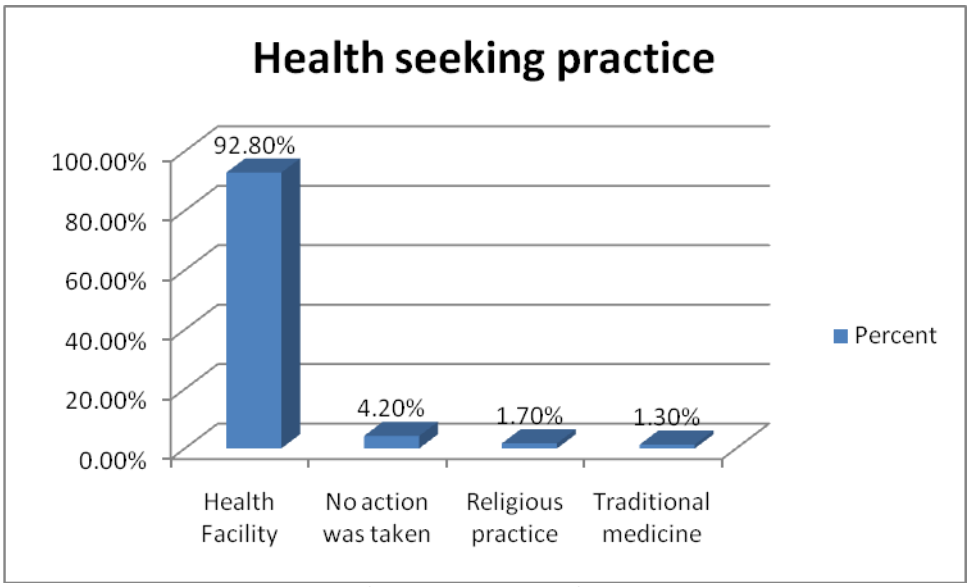

Fig7: Health seeking practice among mothers of newborn in Dessie Referral Hospital, North East Ethiopia, 2019 (N=237)

Bivariate analysis and multivariate analysis

Factors associated with Newborn danger sign practice

The binary logistic regression analysis showed that mothers who live in rural side, mother's income >1500 Birr/month, both mothers and their husband civil servant by occupation and Newborn

started immunization were significantly associated with Newborn danger sign practice ($p < 0.05$).

Mothers who live in rural side were 3.061 (95%CI: 1.119, 8.377) times more likely to have good practice on newborn danger sign as compared to those mother who lives in urban. Mother's income >1500 Birr/month were 7.128 (95%CI: 2.364, 21.492) times more likely to have good practice on newborn danger sign as compared to those mothers whose income were <500 birr/month. Civil servant mothers were 3.109(95% CI: 1.036, 9.33) times more likely to have good practice on newborn danger sign as compared to Housewife once. Civil servant Husbands were 4.778(95% CI: 1.281 – 17.819) times more likely to have good practice on newborn danger sign as compared to those Husbands self employed by occupation.

In multiple logistic regression analysis; Mother's income between >1500 Birr/month, mothers who live in rural side, mothers who has neonatal death history and mothers who has instrumental delivery were important predictors of newborn danger sign practice.

Mother's income between >1500 Birr/month were 8.194(AOR: 95% CI: 2.583, 25.995) times more likely to have good practice on newborn danger sign. Mothers who live in rural side were4.210 (AOR: 95% CI: 1.41, 12.576) times more likely to have good practice on newborn danger sign. Mothers who has instrumental delivery were 9.843 (AOR: 95% CI: 5.148, 30.31) times more likely to have good practice on newborn danger sign.

Table4: Factors associated with newborn danger sign practice among mothers of newborn attend in Dessie referral Hospital, northeast Ethiopia, 2019

Variable	Danger sign Practice		Crude OR (CI; 95%)	Adjusted OR (CI: 95%)
	Good (%)	Poor (%)		
Residence				
Urban	150(68.2)	7(41.2)	1	1
Rural	70(31.8)	10(58.8)	3.061(1.119,8.377)*	4.210(1.410,12.576)*
Mothers occupation				
House wife	143(65)	7(41.2)	1	1
Gov't work	46(20.9)	7(41.2)	3.109(1.036, 9.33)*	.326(.068,1.561)
Private work	21(9.5)	1(5.9)	.973(.114,8.308)	.270(.023,3.133)
Farmer	10(4.5)	2(11.8)	4.086(.748,22.303)	2.373(.306,18.435)
Mothers Monthly income				
<500 Birr	162(73.6)	5(29.4)	1	1
1001-1500 Birr	5(2.3)	1(5.9)	6.48(.634,66.214)	5.746(.538,61.419)
>1500 Birr	50(22.7)	11(64.7)	7.128(2.36,21.49) *	8.194(2.583,25.995) *
Husband occupation				
Private work	86(39.1)	3(17.6)	1	1
Gov't work	66(30)	11(64.7)	4.778(1.28,17.82) *	3.016(.671,13.552)
Farmer	43(19.5)	2(11.8)	1.33(.215,8.281)	.399(.030,5.336)
Others	25(11.4)	1(5.9)	1.147(.114,11.512)	.710(.056,8.942)
Immunization status				
Started immunization	21(9.5)	6(35.3)	5.169(1.735,15.399) *	2.783(.796,9.726)
Not started	199(90.5)	11(64.7)	1	1
Newborn death history				
Yes	56(25.5)	16(94.1)	46.857(6.075,61.418)	9.843(5.148,30.33) *
No	164(74.5)	1(5.9)	1	1
Mode of delivery				
Cs	43(19.5)	16(94.1)	1	1
SVD	134(60.9)	0(0)	0.000(.000,0.00001)	0.000(.000,0.00001)
Instrumental delivery	43(19.5)	1(5.9)	.063(.008,.492)*	0.062(.008,.492) *

Foot note:* means has statistical significance in binary and ** means has statistical significance in multivariate logistic regression

DISCUSSION

The Facility based study has attempted to identify the extent and factors associated with newborn danger sign practice in Dessie Referral Hospital. The study revealed that practice of newborn danger sign found to be 92.8%, which indicated that appropriate newborn danger sign practice was good in the study setting. This figure is consistent with (90.56%), in India. [20] While the proportion of appropriate newborn danger sign practice in

Dessie Referral Hospital to be higher than the study done in Esera District, South West Ethiopia(58.4.5%), Tenta District, North Eastern Ethiopia (41.3%), Jeldu District, South West Ethiopia(74.6%) and in Nigeria. [17,21-23] The difference might be because this study conducted in facility setting with populations who has better health seeking behavior. But the above study were conducted in community based setting.

The study revealed that knowledge of mothers on newborn danger sign found to be 17.1%, which indicated that mother's newborn danger sign knowledge, was very poor in the study setting. This figure is consistent with in Gondar Town (18.2%), [19] while the proportion of mother's knowledge on newborn danger sign in Dessie Referral Hospital to be lower than the study done in India (95.2%) and in Ghana (77.2%). [17,18] The difference might be because this study was included both rural and urban residence. The population character affects the health service and information access. This in turns leads to negative effect on knowledge of newborn danger sign.

The study revealed that attitude of mothers towards newborn danger sign found to be 42.9%, which indicated that attitude of mothers towards newborn danger sign, was poor in the study setting. This figure is consistent with in India (39%), Tenta District, North Eastern Ethiopia (42.6%) and in Esera District, South West Ethiopia (50.6%). [20,21,23]

Mother's income >1500 Birr/month, Mothers who live in rural side, Mothers who has instrumental delivery were positive predictors for newborn danger sign practice. Mother's income between >1500 Birr/month were 8.194(AOR: 95% CI: 2.583, 25.995) times more likely to have good practice on newborn danger sign. This figure is consistent with in Esera District, South West Ethiopia those mother monthly income above 1,170 birr were 6 times more likely to seek healthcare as compared to those who earn less than 54 USD (AOR = 5.6, 95% CI: 2.04, 15.4). [23] The similarity could be due to that those mothers being poor economic status might perceive that sought medical care is costly and ineffective.

CONCLUSION

The magnitude of newborn danger sign practice in these specific setting found to be good but the mothers knowledge and attitude towards newborn danger sign is poor. Mother's income >1500 Birr/month, Mothers who live in rural side, Mothers who has instrumental delivery were positive predictors for newborn danger sign practice.

Recommendations

The findings from this study are intended to inform policy makers, planners, other health professionals, mothers and community leader about newborn danger sign knowledge, attitude and practices. They can initiate policies and programs that respond to the community needs, which will in turn improve coverage of skilled newborn care and reducing neonatal morbidity and mortality. Therefore, any interested researcher shall conduct further study on quality of ANC and PNC in focus of newborn danger sign to assess whether health professionals appropriately advise and provide health information concerning newborn danger sign and shall consider further follow up study in community based inappropriate newborn danger sign practice.

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Conflict of interest: Nil

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