

Addis Ababa University
College of Health Sciences
School of Medicine
Department of Pediatrics and Child Health



Knowledge, Attitude and Practice on neonatal seizure management among pediatric residents in teaching hospitals in Addis Ababa, Ethiopia: - a cross-sectional study

Investigator: -Hanna Bayu (MD, Final year resident of pediatrics and child health)

Advisor: - Dr. Ayalew Moges (MD, Associate professor of pediatrics and child health, consultant pediatrician & Pediatric Neurologist)

Dr. Simenew Ambachew (MD, Assistant professor of pediatrics and child health)

A Thesis to be submitted to the department of pediatrics and child health, School of Medicine, College of Health Sciences, Addis Ababa University as partial fulfillment of the degree of specialty certificate in pediatrics and child health.

November, 2021

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Declaration

I, the undersigned, Pediatrics and Child Health final year resident declare that this thesis done is my original work in partial fulfillment for the certificate of Pediatrics and Child Health.

Title: - Knowledge, Attitude and Practice on neonatal seizure management among pediatric residents in teaching hospitals in Addis Ababa, Ethiopia: - a cross-sectional study

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SUMMERY

Background: - Neonatal seizures are a neurological emergency that are difficult to diagnose and treat. The clinical presentation of neonatal seizures is variable and clinical features of a seizure are often absent or non-specific. This has led to under-diagnosis and occasional over-diagnosis of neonatal seizures.

Objective: - To assess the knowledge, attitude and practice of pediatric resident on neonatal management who are learning in SPMMC and AAU, Ethiopia, 2021.

Method: - Facility based Cross-sectional study design was employed with facility based self-administer question among pediatrics resident with sample size of 134. Data were checked, cleaned and entered in to SPSS version 25.0 software for analysis. The magnitude of the association between the different independent variables in relation to dependent was measured and 95% confidence interval (CI) and P values below 0.05 were considered statistically significant.

Result: - The study finding of this research showed that, the overall knowledge, attitude and practice of study participants on neonatal seizure management was 55%, 41% and 41% respectively. The determinant of participant's knowledge was female sex, year of residency, having experience on pediatric unit during General practitioner and attitude on neonatal seizure management were statistically significant variable and the determinant of attitude was sex of the participant and the determinate of practice on neonatal seizure management were sex and year of residency.

Conclusion and recommendation: - As seen in the above finding the KAP of study participants on neonatal seizure management was significantly low. Therefore, the researcher recommends for the study participates: - update by reviewing the national and international neonatal seizure management protocol and made activity strictly by following the protocol or guideline. For the institution: - prepare training, work shop, seminar on neonatal seizure management. For the researcher: - this research made as clue for further studying.

Key word: -neonatal seizure, pediatric resident, Ethiopia

1. Introduction

1.1 Background

A seizure is a transient disturbance of the cerebral function secondary to abnormal paroxysms in the brain, which results in a sudden excessive disorderly discharge of the cerebral neurons. The discharge results in an almost instantaneous disturbance of sensation, loss of consciousness or psychic function, convulsive movements, or combinations of these (1, 2). Seizures in the neonatal period are often the first sign of neurologic dysfunction and can be a powerful predictor of outcome. Neonates have the greatest predisposition to seizures of any age group, with the seizure incidence ranging from 1 to 5 per 1000 live (3).

Neonatal seizures are a neurological emergency, that are difficult to diagnose and treat. The clinical presentation of neonatal seizures is variable and clinical features of a seizure are often absent or non-specific. This has led to under-diagnosis and occasional over-diagnosis of neonatal seizures. Newborn babies can have movements that can be mistaken for seizures, where the electroencephalogram (EEG) is normal (4, 5)

compared to other age groups. They reflect different pre-, peri-, or postnatal disorders of the central nervous system (CNS). The reasons are multifactorial and include the relative excitability of the developing neonatal brain as well as the high risk for brain injury due to hypoxia, ischemia, stroke, intracranial hemorrhage and metabolic disturbance. Seizures can be associated with greater risk of long-term neurodevelopmental disabilities. Both clinical and electrographic seizures are associated with neurological sequelae including motor and cognitive deficits, an increased risk of epilepsy in later life and hypoxic induced brain injury as seen in hypoxic-ischemic encephalopathy (6-8).

Neonatal seizures (NS) are the most frequent and distinctive clinical manifestation of neurological dysfunction in the newborn infant. The incidence of NS is 2.8 per 1000 in infants with birth weights of more than 2500 g; it is higher in preterm low birth weight neonates as high as 57.5 per 1000 in very low birth weight infants (9). Infants with NS are at high risk of neonatal death or neurological impairment and epilepsy disorders in later life. Though, mortality due to NS has decreased over the years from 40% to about 20%, the prevalence of long-term neurodevelopment sequelae has largely remained unchanged at around 30% (10)

1.2 Statement of the problem

Treatment may be guided by knowledge of gene mutations affecting specific ion channels, enzymatic reactions, co-factors or neurotransmitters, the treatment of acute symptomatic seizures is guided by limited data from small trials and observational studies, and an incomplete understanding of the pathophysiology of acute seizures, the treatment of symptomatic seizures is directed not only at resolving the acute seizures, but potentially reducing the severity of acute brain injury and ideally decreasing the incidence/severity of later epilepsy and/or neurologic disability(11-13).

There is no definitive evidence that minimizing seizure burden improves childhood neurodevelopment, many experts are moving toward early and aggressive seizure therapy. However, some clinicians maintain concern that the potential neurotoxic risks of commonly used seizure medications may outweigh any benefit of treating seizures. Despite the recognition that timely diagnosis and management of neonatal seizures is critical, little evidence guides investigation and treatment. As such, management practices vary widely (14, 15).

Although there have been many proposals to use drugs other than phenobarbital as a first-line therapy, there is limited pharmacokinetic data to support the use of other drugs such as levetiracetam and topiramate. This gap in knowledge persists despite concerns about phenobarbital's limited effectiveness, given the biology of the newborn brain, and even the tendency to cause neuro apoptosis. The practice persists due to widespread comfort on the part of clinicians and easy availability (16).

Neonatal seizures are a potentially life-threatening pediatric problem with a variety of causes. Thorough and timely evaluation of these patients is necessary to identify and treat the underlying etiology, therefore reducing potential morbidity and mortality. Therefore, this study aimed to assess the knowledge, attitude, and practice of medical doctor who are study pediatric specialty about neonatal seizure management.

1.3 Significance of the study

Knowledge, attitude and practice (KAP) on seizure management play crucial role for appropriate management of neonate having seizure disease. One of the tools to reduce neonatal morbidity and mortality is increase KAP of health personnel and well-equipped emergency room.

The finding of this study will be important to pediatric department in planning and designing appropriate intervention strategies to enhance on KAP of pediatric resident on neonatal seizure management.

Findings will provide information for the further researchers, policy makers to develop strategies and guidelines or standards for health care worker education about the management of neonatal seizure. The finding also important for designing an interventional project towards improving hospitalize neonatal health by improving the KAP of health personnel on neonatal seizure management.

2. LITERATURE

2.1 Definition

Neonatal seizures are common and frequently reflect serious underlying brain injury. Prolonged EEG is the gold standard for seizure monitoring, however availability remains limited at many centers. Phenobarbital, the preferred first choice medication internationally, is effective in only 50% of cases and may be harmful, especially when used in high doses or for prolonged periods. However, there is abundant evidence from animal models to show that seizures themselves disrupt the developing brain, and so there is urgent need for research to develop safe, accurate and widely available methods for identifying and treating electrographic seizures (18).

2.2 Knowledge on seizure management

Study done Jalle T. et al showed that 59.8% of respondents had good knowledge related to epilepsy, respectively (17).

The first step in successful management of seizures is to nurse the baby in thermoneutral environment and to ensure airway, breathing, and circulation (TABC). Oxygen should be started, IV access should be secured, and blood should be collected for glucose and other investigations. A brief relevant history should be obtained and quick clinical examination should be performed. All this should not require more than 2-5 minutes. If glucostix shows hypoglycemia or if there is no facility to test blood sugar immediately, 2 mL/kg of 10% dextrose should be given as a bolus injection followed by a continuous infusion of 6-8 mg/kg/min. If hypoglycemia has been treated or excluded as a cause of convulsions, the neonate should receive 2mL/kg of 10% calcium gluconate IV over 10minutes under strict cardiac monitoring. If serum calcium levels are suggestive of hypocalcemia, the newborn should receive calcium gluconate at 8 mL/kg/d for 3 days. If seizures continue despite correction of hypocalcemia, 0.25 mL/kg of 50% magnesium sulfate should be given intramuscularly (19).

2.3 Attitude on seizure management

Study done Jalle T. et al showed that 35.6% of respondents had favorable attitude related to epilepsy respectively (17).

2.4 Practice on seizure management

Study done Jalle T. et al showed that 33.5% of respondents had safe practice related to epilepsy, respectively (17).

Clinical evaluation of seizures is approximately 50% accurate for events detected at the bedside. Furthermore, clinical detection requires constant observation by the bedside staff, and even so will fail to detect seizures with no or very subtle clinical correlate (for example eye deviation or subtle colonic movements that are covered by the infant's blanket) (18).

2.5 Factors associated with KAP

2.5.1 Factor associated with knowledge

Study done Jalle T. et al showed that shows that rural dwellers (AOR =0.58, 95% CI =0.35–0.96) and participants living alone (AOR =0.36, 95% CI =0.14–0.9) were less knowledgeable about epilepsy. There was a significant association between knowledge of epilepsy and the distance between the respondent's home and health institutions: respondents who lived short distances from health institutions (31–60 minutes walking time) were likely to be more knowledgeable (AOR 95% CI, 0.47 [0.27, 0.83]); whereas respondents who lived further away from health institutions (more than 61 minutes walking time) were likely to be less knowledgeable. Respondents with a higher educational status, for instance, secondary level (AOR 95% CI, 2.30 [1.18, 4.480]) and college level (AOR 95% CI, 2.43 [1.03, 5.73]), have positive association with the level of knowledge about epilepsy. The results of this study showed that participants who had heard about epilepsy (AOR 95% CI, 0.13 [0.06, 0.27]) and knew someone who has epilepsy (AOR 95% CI, 0.57 [0.35, 0.92]) were more knowledgeable than those who had not heard (17).

2.5.2 Factor associated with attitude

Study done Jalle T. et al showed that attitude toward epilepsy, residency being rural (AOR 95% CI, 0.12 [0.07, 0.22]), had less attitude toward epilepsy, age group when 46 years (AOR 95% CI, 2.05 [1.04, 4.04]) had positive attitude than age group with early adolescence. secondary education (AOR 95% CI, 3.89 [1.87,8.07]); and college education (AOR 95% CI, 6.98 [2.67;18.31]). Further, those who lived in an urban area (AOR 95% CI, 0.12 [0.07, 0.22]) were more likely to have had a positive attitude about epilepsy than those who lived in a rural area. Moreover, respondents in the age group from 46 years to 55 years (AOR =2.05, 95% CI =1.04–4.04) had positive attitude compared to those in the younger age group. Respondents who had heard information about epilepsy had positive attitude (AOR 95% CI, 5.8 [1.26–26.81]), compared with those who had not had information about epilepsy (17).

2.5.3 Factor associated with practice

Study done Jalle T. et al showed that the practice of the community related to the management of epilepsy, respondents in the age group ranging from 46–55 years (AOR 95% CI, 2.41 [1.21, 4.77]) had an association with safe practice in the management of epilepsy. Additionally, tertiary level of educational background (AOR 95% CI, 0.15 [0.05, 0.45]), and individuals who had occupational history in labor and business areas, had a positive association with safe practice in management of epilepsy. Having prior information about epilepsy (AOR 95% CI, 0.27 [0.10, 0.690]) had a positive association with safe practice of epilepsy management. Having previous exposure/knowing epileptic patients, previous experience in the management of epilepsy, epilepsy in a family member, and safely managing epilepsy would be associated related to safe practice in epilepsy (17).

2.6 Conceptual frame work

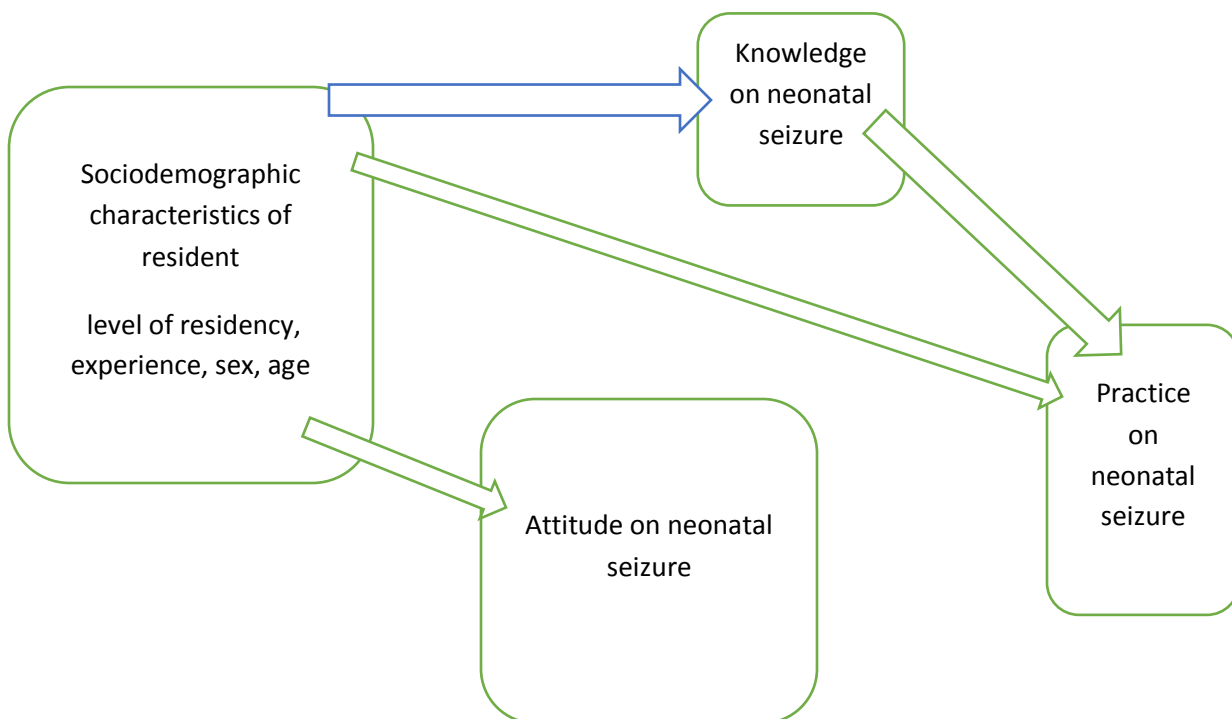


Figure 1. The conceptual frame work develop by the author from the literature

3. OBJECTIVE

3.1 General objective

- To assess the knowledge, attitude and practice and its associated factors of pediatric residents on neonatal seizure management in SPMMC & AAU

3.2 Specific objective

- ✓ To describe the resident level of knowledge about neonatal seizure management among pediatric residents in SPMMC & AAU
- ✓ To examine attitude of pediatric residents on management of neonatal seizure
- ✓ To explore the practice of pediatric resident on neonatal seizure management in SPMMC and AAU
- ✓ To assess determinant factors for KAP on neonatal seizure management

4. METHODS AND MATERIALS

4.1 STUDY AREA

The study was conducted in Addis Ababa, capital city of Ethiopia lies at an altitude of 2300 meter, at Tikur Anbessa specialized hospital (TASH) and St. Paul millennium medical college

which are the two largest governmental teaching hospitals. Those tertiary hospitals had both clinical and academic services, giving all types of specialized health services to patients coming from all directions of the country they both have pediatrics department for both clinically and also academically. Currently TASH has 93 pediatrics residents and its NICU, located in close proximity to the labor and delivery area, has 2 consultant pediatrician, neonatologist and has 43 bed and with monthly admissions above 250 and SPMMC and its NICU also has 40 bed with one neonatologist and currently 75 pediatrics residents attending there.

4.2 Study period

The study was conducted from July, 1-30, 2021.

4.3 STUDY DESIGN

Facility based cross-sectional study design was employed.

4.4 POPULATION

4.4.1 SOURCE POPULATION

All pediatric residents who follows their specialty in SPMMC and AAU

4.4.2 STUDY POPULATION

All pediatric residents who were involved in the study

4.5 INCLUSION AND EXCLUSION CRITERIA

INCLUSION CRITERIA

All pediatric and child health resident who learn in SPMMC and AAU

EXCLUSION CRITERIA

- Monthly off
- Maternity leave
- Medically admitted.

4.6 SAMPLE SIZE DETERMINATION

The total sample was determined by using single population proportion formula by considering the following assumptions

95% confidence level,

Margin of error=5%,

P=50% since no previous study in anywhere else on knowledge, attitude and practice of pediatric resident on identifying neonatal seizure management

The following formula were used to calculate sample sizes.

$$n = \frac{(Z\alpha/2)^2 * p(1-p)}{d^2}; \text{ then after substituting } \frac{(1.96)^2 (0.5*0.5)}{(0.05)^2} = 384$$

There for the total population in this study is less than 10,000, so using reduction formula

$$n_f = \frac{n}{1+n/N}$$

The minimum sample size required for the study was estimate to be 117 then by adding 20% non-response rates, a total sample size of **141** obtained.

4.7 SAMPLING TECHNIQUES AND PROCEDURES

All pediatric and child health resident were recruited from the SPMMC and AAU. Due to the limited number of study participants

4.8 VARIABLES

DEPENDENT VARIABLE

- KAP of pediatric resident on neonatal seizure management

INDEPENDENT VARIABLE

- Level of residence
- ✓ Sex
- ✓ Age
- ✓ religion

4.9 DATA COLLECTION INSTRUMENT

The data were collected using a questionnaire which will be developed from different literatures addressing variables of interest. The facilitator oriented the professionals before distributing the

questionnaires. The questionnaire was pretested out of the study area in one of the specialty universities which will not be selected for study. English version questionnaire will be used to collect data as English is the medium of instruction for academic purpose.

4.10 Data processing and analysis

The data was checked for completeness and consistency by principal investigator on daily basis. It was coded in non-overlapping code. Then it was entered into SPSS version 25.0 statistical software for analysis. Descriptive statistics were carried out to describe dependent and independent variables. Relative risk (risk ratio) was used with 95% confidence interval to quantify the magnitude of association of knowledge, attitude and practice of pediatric resident in identifying neonatal seizure management. Significant association between dependent and independent variables were declared at p-value <0.05. Finally, the result was summarized by using measure of central tendency, percentiles and measures of dispersions.

4.11 Operational Definition

Good Knowledge-Respondents who score above or equal to the mean score (10.49 ± 1.94) of knowledge related questions.

Poor knowledge-Respondents who score below mean score of knowledge related questions.

Favorable attitude-Respondents who scored more or equal to mean score (5.11 ± 1.28) of attitude related questions.

Unfavorable attitude - Respondents who scored below mean score of attitude related questions.

Good practice-Respondents who scored more or equal to mean score (7.12 ± 1.68) of practice related questions.

Poor practice - Respondents who scored below mean score of practice related questions.

4.12 Ethical considerations

Ethical clearance was obtained from Addis Ababa University College of health sciences, department of pediatrics and child health ethical review board. In addition to this, the letter of cooperation will be written to SPMMC.

4.13 Dissemination plan

The result of this study will be submitted to Addis Ababa University department of Pediatrics and child health and SPMMC research and emergency management directorate. The study may

be presented in national and international medical conferences. Finally, it will be submitted to peer reviewed journal for possible publication.

5. Result

5.1 Sociodemographic characteristics

In this study 134 participants were participated making a response rate of 95% and 2/3rd of the participants was in the age group of 26-30 years with mean and SD of 29.1 ±2.4 respectively. Forty one percent of the participants were year one resident and 4/5 the of them working in Working experience in new born corner and 92.5% provide care for provided care for seizure neonate.

Table1. The socio-demographic characteristics of study participants on neonatal seizure management among pediatric residents who are learning in SPMMC and AAU, Addis Ababa, Ethiopia, 2021.

Variable	frequency	percent
Age of study participants		
≤25 years	3	2.2
26-30 years	88	65.7
≥31years	43	32.1
sex of participant		
male	90	67.2
female	44	32.8
Level of residence		
RI	55	41.0
RII	47	35.1
RIII	32	23.9
Year of graduation		
≤2 years	27	20.1
3-4 years	60	44.8
≥5years	47	35.1
Working in new born corner		
YES	106	79.1
NO	28	20.9
Experience as GP in pediatric unit		
≤2 years	59	44.0
3-4 years	55	41.0
≥5years	20	14.9
provided care for seizure neonate		

YES	124	92.5
NO	10	7.5

5.2 The knowledge base of study participant of study participants

Mean knowledge were used as a cut of point to determine the level of knowledge and 74(55%) of the study participants were scored above the mean value or considered as good knowledge as shown in the figure below

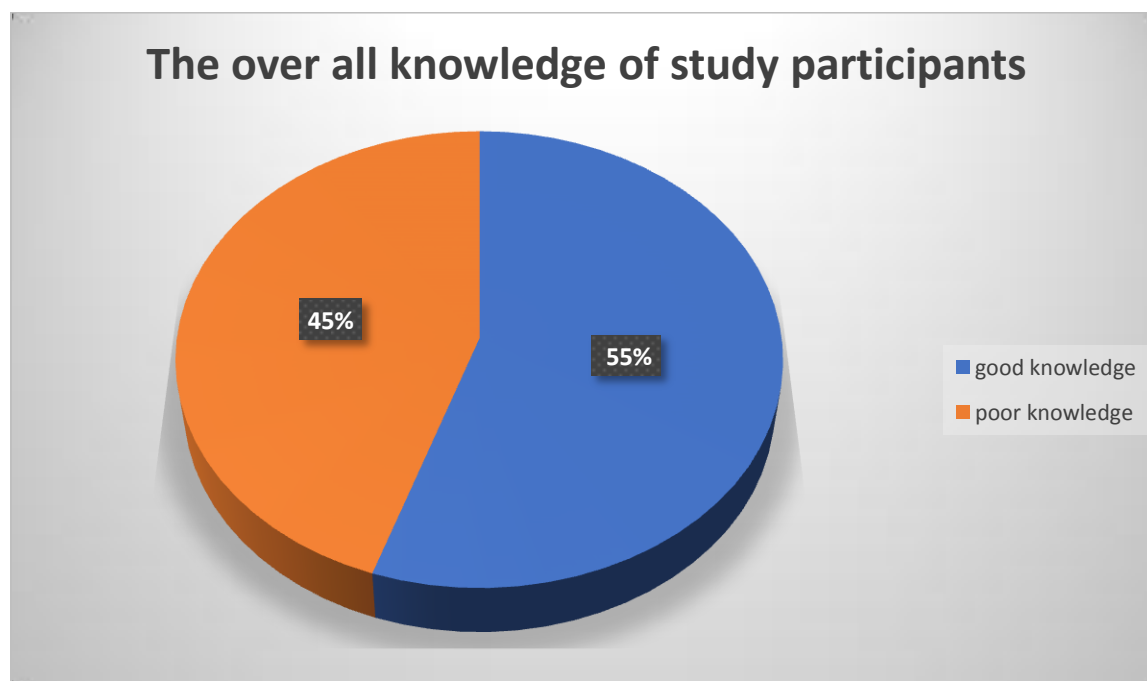


Figure 2. The overall knowledge of study participants on neonatal seizure management.

Concerning to the specific knowledge measurement, 26.1% of the participants know about the impulsive behavior sign of neonatal seizure, 83.6% knows that brain infection cause to neonatal seizure, and 85.8% knows that healthy pregnancy and delivery reduce risk of neonatal seizure and 72.4% knows that brain tumor causes neonatal seizure as shown in the table below

Table 2, The knowledge-based characteristics of study participants about neonatal seizure management

Variable	Correctly answered (134)	Percent

Theoretical training or seminar received on neonatal seizure management	110	82.1
Clinical demonstration training or seminar received on neonatal seizure management	56	41.8
impulsive behavior sign of neonatal seizure	35	26.1
Unexpected weight loss sign of neonatal seizure	20	14.9
starring is sign of neonatal seizure	39	29.1
neonatal seizure a disease that cannot not cured/controlled	117	87.3
Neonatal seizure occurs when an abnormal electric discharge happens in the brain	124	92.5
neonate seizure known to occur in the family	58	43.3
loss of oxygen in brain cause to neonatal seizure	111	82.8
brain infection cause to neonatal seizure	112	83.6
inadequate nutrition cause to neonatal seizure	75	56.0
head injury cause to neonatal seizure	68	50.7
every neonate that had convulsion has seizure	80	59.7
subtle seizure major types of seizure	98	73.1
neonatal seizure needs lifelong treatment	91	67.9
healthy pregnancy and delivery reduce risk of neonatal seizure	115	85.8
prevent brain injury prevent neonatal seizure	82	61.2
prevent brain injury effect for prevent neonatal seizure	82	61.2

avoidance of mistaken diagnosis neonatal seizure	66	49.3
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5.3 Determinant of participants knowledge about neonatal seizure management

The relation of dependent and independent variable was assessed using binary logistic regression model. Accordingly, being female were 3.5 times knowledgeable than male on neonatal seizure management (AOR=3.5, 95%CI=1.16, 10.62) and year three resident was 4.3 folds increase the knowledge on neonatal seizure management than year one resident (AOR=4.3, 95%CI=1.53, 35.34) and having experience pediatric unit during General practitioner had 14 folds increase knowledge than not having experience (AOR=14, 95%CI=9.50, 21.12). attitude on seizure also another statistically significant variable

Table 3. The determinant knowledge of study participant on neonatal seizure management using binary logistic regression model

variable	Knowledge		p-value	COR (95%CI)	P-value	AOR (95%CI)
	Good	Poor				
sex of participant						
male	46	44	1		1	
female	28	16	0.0173	1.7(0.79, 3.51)	0.026	3.5(1.16, 10.62)
Residence						
RI	30	25	1		1	
RII	19	28	0.156	0.57(0.28, 1.24)	0.768	0.83(0.23, 2.92)
RIII	25	7	0.031	2.9(1.10, 8.03)	0.000	4.3(1.53, 35.34)
Year of graduation						
<=2 years	13	14	1		1	
3-4 years	37	23	0.240	1.7(0.69, 4.33)	0.002	11.8(2.52, 25.60)
>=5years	24	23	0.809	1.12(0.44, 2.89)	0.161	0.28(0.05, 1.67)

Work in new born corner						
YES	64	42	1		1	
NO	10	18	0.022	0.36(0.15, 0.87)	0.597	0.72(0.21, 2.43)
Experience as GP in pediatric unit						
<=2 years	31	28	1		1	
3-4 years	28	27	0.862	0.94(0.45, 1.95)	0.923	1.1(0.33, 3.41)
>=5years	15	5	0.85	2.7(0.87, 8.42)	0.000	14(9.50, 21.12)
Attitude on neonatal seizure management						
unfavorable attitude	35	44	1		1	
favorable attitude	39	16	0.003	3.1(1.47, 6.37)	0.000	22.6(5.46, 39.93)

5.4 The attitude characteristics of study participants

The over all attitude of study participants on neonatal seizure management as shown in the figure below

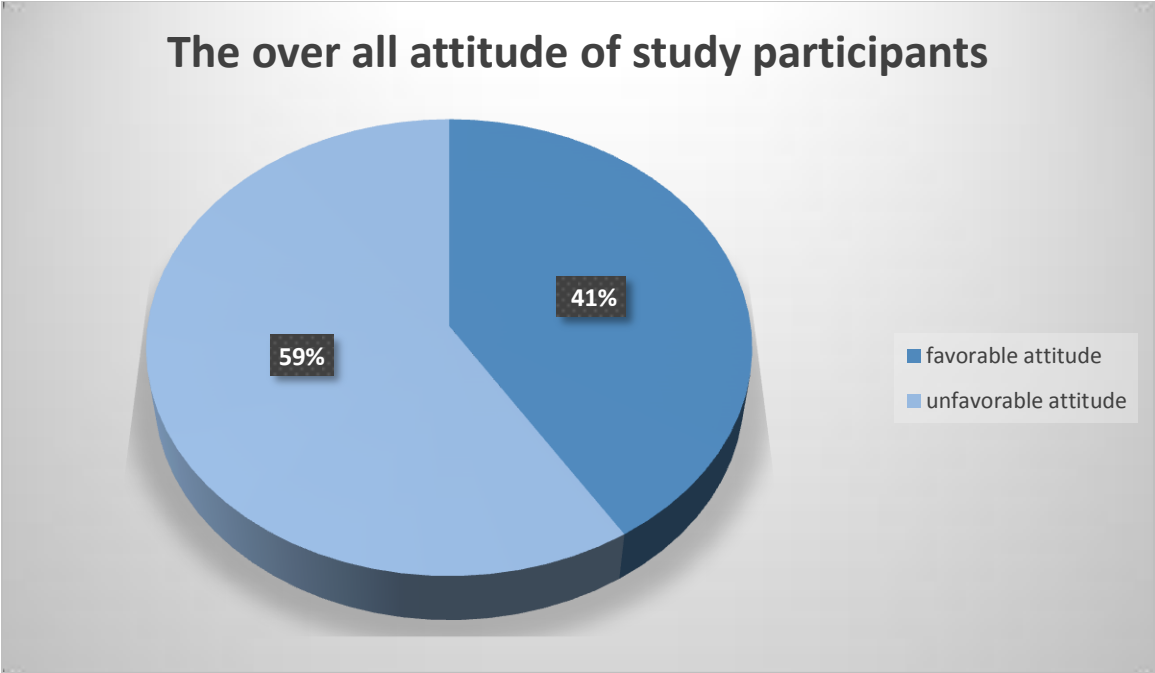


Figure 3- The overall attitude of study participants on neonatal seizure management

From all participants, 91% don't feel to refuse care of neonatal seizure, 69.4% don't feel to caring seizure neonate and 76.9% of them fee positive for providing give oxygen to maintain SaO₂ of >95 and 70.9% feel positive for monitor blood glucose, Electrolyte and blood gases

Table 4. the Attitude characteristics of study participants on neonatal seizure management

variable	frequency	percent
Do you feel to refuse care of seizure neonate		
YES	12	9.0
NO	122	91.0
Feel to prefer to care for seizure neonates than others		
YES	84	62.7
NO	50	37.3
Feel do not mind caring seizure neonate		
YES	41	30.6
NO	93	69.4
Feel that turn the patient on their sides at 20–30-degree head up		
YES	55	41.0
NO	79	59.0
Hold them dawn in decubitus and restrict their movement		
YES	1	.7
NO	133	99.3
Feel to providing give oxygen to maintain SaO ₂ of >95		
YES	103	76.9
NO	31	23.1
Feel that monitor blood glucose, Electrolyte and blood gases		
YES	95	70.9

NO	39	29.1
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5.5 Determinant factor affecting participant's attitude

Sex of study participant were a statistically significant variable on attitude of neonatal seizure management. Being female was 69% less likely of favorability of attitude on seizure management than male (AOR=0.31, 95%CI=0.14, 0.72).

Table 5. The determinant attitude of study participant on neonatal seizure management using binary logistic regression model.

variable	Attitude		p-value	COR (95%CI)	P-value	AOR (95%CI)
	favorable	unfavorable				
Sex of participants						
Male	45	45	1		1	
female	10	34	0.003	0.29(0.13, 0.67)	0.006	0.31(0.14, 0.72)
Year of residence						
RI	27	28	0.059	2.5(0.97, 6.27)	0.192	1.9(0.72, 5.27)
RII	19	28	0.264	1.7(0.66, 4.56)	0.461	1.5(0.53, 1.04)
RIII	9	23	1		1	
Working newborn corner						
Yes	42	64	1		1	
no	13	15	0.516	1.3(0.57, 3.05)	0.677	1.2(0.49, 2.98)

5.6 Practice of study participants on neonatal seizure management

The over all practice of study participants

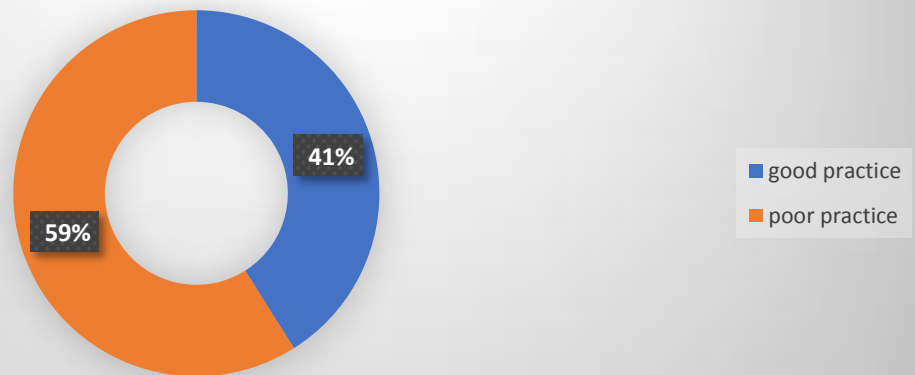


Figure 4- The overall practice of study participants on neonatal seizure management

The practice of study participants on neonatal seizure showed that, 39.6% done on acute antiepileptic drug treatment for clinically apparent seizure, 94% had to know giving anti-epileptic drug for lasts more than 3-minute seizure and 81.3% knows the way to discontinued for antiepileptic drug treatment with normal EEG and normal neurological examination as shown in the table below

Table 6. the practice of study participants on neonatal seizure management

Practice based question	Frequency of correctly respondent (n=134)	Percent
clinically apparent seizure requires acute antiepileptic drug treatment	53	39.6
lasts more than 3-minute seizure need antiepileptic drug	126	94
empirical treatment of neonate with seizure stated after rule out hypoglycemia	122	91.0
empirical treatment of neonate with seizure stated after rule out meningitis	122	91.0
absence of obvious etiology pyridoxine may be considered before antiepileptic drug	54	40.3

preferred first line antiepileptic drug for new born with seizure	124	92.5
preferred second line antiepileptic drug for new born with seizure	90	67.2
Know time to discontinued for newborn has seizure and is controlled on current antiepileptic drug treatment with normal EEG and normal neurological examination	48	35.8
Know way to discontinued for newborn has seizure and is controlled on current antiepileptic drug treatment with normal EEG and normal neurological examination	109	81.3
Absence of clinical seizure neonate with HIE do not need to be prophylactic treatment	51	38.1
EEG should not be performed for the sole purpose of determining the etiology in neonate with clinical seizure	53	39.6

5.7 Determinant factor for practice of participants neonatal seizure management

The odds of multivariate regression should that, being female were 72% less likely good practice on neonatal seizure management than male (AOR=0.28, 95%CI=0.11, 0.73) and year two and year three resident had 6.7- and 3.5-times good practice than year one resident respectively.

Table 7 the determinant factor for practice of study participant on neonatal seizure management using binary logistic regression model.

variable	practice		p-value	COR (95%)	P-value	AOR (95%CI)
	Good	Poor				
Sex of study participants						
Male	44	46	1		1	
female	11	33	0.010	0.35(0.16, 0.77)	0.009	0.28(0.11, 0.73)
Year of residence						
RI	12	43	1		1	
RII	28	19	0.000	5.3(2.22, 12.55)	0.000	6.7(2.51, 17.7)
RIII	15	17	0.017	3.2(1.23, 8.13)	0.021	3.5(1.21, 10.36)

Graduate years duration						
≤ 2 years	7	20	1		1	
3-4 years	24	36	0.208	1.9(0.69, 5.19)	0.790	0.12(0.36, 3.79)
≥ 5 years	24	23	0.038	2.9(1.06, 8.38)	0.407	1.6(0.50, 5.45)
Work in newborn corner						
Yes	49	57	1		1	
no	6	22	0.022	0.32(0.12, 0.85)	0.061	0.34(0.11, 1.05)

6. Discussion

Neonatal seizure is the common neurological disorder. neonate who suffers from seizures tend to have significant motor development difficulties that are more noticeable when seizures coexist with other chronic disorders. Neonate having seizure also needs special attention of management for increase the chance of possibility of treatment appropriately. So, the most appropriate and selected profession involved in the management of neonatal seizure were pediatric and child health profession/ physician. Therefore, this study was assessed the level of knowledge, attitude and practice of pediatric and child health resident on neonatal management.

Accordingly, the study finding of this study showed that the overall knowledge of pediatric and child health resident of the two teaching hospital of Addis Ababa on neonatal seizure management was 55%. There is no study were found in the literature on neonatal seizure management but study This finding was comparable with study done by Study done Jalle T. et al on knowledge of health provider on childhood epileptic management (17). From the listed knowledge-based characteristics, 26.1% of the participants know about the impulsive behavior sign of neonatal seizure, 83.6% knows that brain infection cause to neonatal seizure, and 85.8% knows that healthy pregnancy and delivery reduce risk of neonatal seizure and 72.4% knows that brain tumor causes neonatal seizure.

Even though, no comparatively assessed the level of participants knowledge, the participants knowledge was low. This tool was adopted from the protocol of neonatal seizure management and as a clinician, every resident was suspected to know the risk and cause and management of neonatal seizure but as we see from the finding the pertinent of knowledge-based question were answered correctly by less than half of the participants.

And the determinant of study participants knowledge on neonatal seizure management were female 3.5 times knowledgeable than male on neonatal seizure management and year three resident was 4.3 folds increase the knowledge on neonatal seizure management than year one resident and having experience pediatric unit during General practitioner had 14 folds increase knowledge than not having experience and attitude on seizure also another statistically significant variable.

The level of attitude of study participants on neonatal seizure management were 41%. In fact, attitude/ personal intentional observation was a mirror for the knowledge and practice of one's

activity, but for in this case, the attitude of the participant as we see in the figure above were significantly low. And the determinant for the attitude of study participants were the sex of the resident. Being female was 69% less likely of favorability of attitude on seizure management than male (AOR=0.31, 95%CI=0.14, 0.72).

The overall practice of the study participant was 41% and 39.6% done on acute antiepileptic drug treatment for clinically apparent seizure, 94% had to know giving anti-epileptic drug for lasts more than 3-minute seizure and 81.3% knows the way to discontinued for antiepileptic drug treatment with normal EEG and normal neurological examination. This study was higher than the study done Jalle T. et al on-childhood seizure management of middle health level professional (17). The difference may be due to difference of the population, the tool and management protocol difference.

7. Conclusion

The study finding of this research showed that the overall knowledge, attitude and practice of study participants on neonatal seizure management was 55%, 41% and 41% respectively. The determinant of participants knowledge was female sex, year of residency, having experience in pediatric unit during General practitioner and attitude on seizure. were statistically significant variable and the determinant of attitude was sex then determinats of practice on neonatal seizure management were sex and year of residency.

8. Recommendation

As seen in the above finding the KAP of study participants on neonatal seizure management was significantly low.

Therefore, the researcher recommends therefore

For the study participates: - update yourself by revieing the national and international neonatal seizure management protocol and make your activity strictly by following the protocol.

For the department: - prepare training, work shop, seminars on neonatal seizure management

For researchers: - For future research should entail on comprehensive evaluation of clinical practice through direct observation, interviews, and/or prospective audits.

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Annex II: English Version Information Sheet

Questionnaire Identification Number _____

My name is _____. I am working as data collector in the research Conducted by Dr Hanna Bayu, who is conducting this research for the partial fulfillment of her specialty in pediatrics and child health in AAU. We are trying to assess Knowledge, attitude and practice of neonatal seizure management among pediatric resident who are learning in SPMMC and AAU, Addis Ababa, Ethiopia.

Purpose: I am hopeful that this research will benefit all neonatal seizure for improvement and quality of care. I will provide research results to concerned body for intervention.

Procedure: To assess the Knowledge, attitude and practice of neonatal seizure management among pediatric resident who are learning in SPMMC and AAU, Addis Ababa, Ethiopia. If you are willing to participate in this project, you need to understand and say ‘yes’ on the agreement form.

Risk/ Discomfort: By participating in this research project, you may feel that it has some discomfort especially on spending time about 30 minutes. We hope you will participate in the study for the sake of the Benefit of the research result. I am sure there is no risk in participating in this research project.

Benefits there may not be direct benefit to you but your Participation is likely to help us in assessment of Knowledge, attitude and practice of neonatal seizure management among pediatric resident who are learning in SPMMC and AAU, Addis Ababa, Ethiopia.

Confidentiality: The information collect from this research project will be kept confidential and information about you that will be collected by this study will be stored in a file, without your name, but a code number assigned to it. In addition, it will not be revealed to anyone except the principal investigator and will be kept locked with key.

Right to refuse or withdraw: You have full right to refuse from participating in this research. You can choose not to respond to some or all questions if you do not want to give your response. If you have additional questions about the study, please contact

6. Have you ever been working in NBCC (new born care corner)? I. YES II. NO
7. Working experience as a general physician-----
8. Have you already provided care to a neonate having seizure in your practice?

II. Question on Knowledge of neonatal seizure management, you can choose more than one

9. What Type of training or seminar received on neonatal seizure management any time in the past?

- I. Theory only II. Clinical demonstrations only III.Both I & II IV.Other specify-

10. Among the following signs, what are the signs of a neonatal seizure?

- I. Impulsive behavior II.Unexplained weight loss III.Stairing IV.Other specify

11. Neonatal seizure a disease that cannot be cured or controlled?

- I. Yes II. No III. I don't know

12. Neonatal Seizure occurs when an abnormal electric discharge happens in the brain.

- I. Yes II.No III.I don't know IV. Other specify-----

13. Is Neonatal seizure known to occur in the family?

- I. Yes II.No III.I don't know

14. What are the causes of neonatal seizure?

- I. Loss of oxygen to the brain II.Brain infection III.Inadequate nutrition

- IV. Head injury V Brain tumor VI. Possession by evil IV.Other specify---

15. "Every neonate who has a convulsion has seizure." I. True II. False

16. What are the major types of seizures in neonate?

- I. subtle seizure II.Spasm seizures III.Tonic seizure IV Focal seizures

V. Clonic seizures VI. Myoclonic seizures IV. Other specify -----

17. Does any neonatal seizure need lifelong treatment? I. yes II. No III. Other

18. The Most common way to reduce the risk of developing neonatal seizure is:

I. Having a healthy pregnancy and delivery

II. Prevent brain injuries

III. Prevents hypoglycemia

IV. Avoidance of mistaken diagnosis of neonatal seizures v. all

III. Questions on Attitude of neonatal seizure management you can choose more than one.

19. How do you feel about providing care for a neonate with seizure using the following scale:

I. I refuse to care for these neonates

II. I prefer to care for these neonates than other

III. I do not mind caring for these neonates

20. What would you do for a neonate who is having seizure?

I. Place a hard object in the mouth

II. Turn the patient on their side at 20 – 30° head up

III. Hold them down in decubitus and restrict their movements

IV. Give oxygen to maintain SaO₂ of $\geq 95\%$

V. Monitor blood glucose, electrolytes and blood gases

IV. QUESTION ON PRACTICE OF NEONATAL SEIZRE MANAGEMENT, YOU CAN CHOOSE MORE THAN ONE.

21. Which neonatal seizures require acute antiepileptic drug treatment?

A. clinically apparent seizure B. lasts more than 3 min. C. brief serial seizures D. all

22. What is the clinical efficacy of empirical treatment of neonates with seizures (prior to laboratory tests) for hypoglycemia, hypocalcaemia, and bacterial infection/meningitis?

A. In all neonates with seizure hypoglycemia should be ruled out

B. If there are clinical signs suggestive of sepsis or meningitis, it should be ruled out

C. In the absence of obvious etiology pyridoxine may be considered before antiepileptic drug

D. A&B E. All

23. Which is preferred first line antiepileptic drug for a new born with seizure requiring treatment with anti-epileptic drug?

24. Which is the preferred second line antiepileptic drug treatment for a new born with seizures not responding to maximal tolerated dose of phenobarbital?

25. If a new born has seizure and is controlled on current antiepileptic drug treatment, with normal EEG and normal neurological examination **when** should the medication be discontinued?

A. Immediately B. If seizure free for >72 hrs. C. After 2 yrs. D. Never discontinued E. none

26. If a new born has seizure and is controlled on current antiepileptic drug treatment, with normal EEG and normal neurological examination **HOW** the medication should be discontinued?

A. Abruptly without any tapering B. with tapering C. In neonate with more than one epileptic drug stopping all drugs at a time D. All E. none

27. What is the effect of prophylactic treatment of at risk neonates with HIE on mortality, recurrence of seizures and/or long term neurological outcomes?

A. In the presence of seizure neonates with HIE DO NOT need to be given prophylactic treatment.

B. In the absence of clinical seizure, neonate with HIE do not need to be given prophylactic treatment.

C A&B D. None

28. What is the value of EEG in the management of new born with seizure?

A. Performing EEG on a neonate is max. Despite discomfort and scalp irritation

B. All clinical seizures in the neonate should be confirmed by EEG

C. EEG should not be performed for the sole purpose of determining the etiology in neonates with clinical seizure

D. All E. none