EXPLORATION OF KNOWLEDGE AND PRACTICES AMONG PEDIATRIC NURSES TOWARDS EPILEPTIC CHILDREN MANAGEMENT IN A TERTIARY CARE SETUP OF LAHORE, PAKISTAN

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Abstract:

Background: There is only a limited study available among pediatrics nurses regarding knowledge and practices towards epileptic children in South Asian population. Standard of knowledge of nurses' play a vital role in providing optimum nursing care for epileptic children and disease education to their parents. Objectives: To assess the level of knowledge and practice (KP) of pediatrics nurses regarding epileptic children management at a tertiary care setup of Lahore, Pakistan.

Methods: It is a cross-sectional study that was conducted during the period from June to September 2020 at inpatient pediatrics department of The Children's Hospital and Institute of Child Health Lahore, Pakistan. Convenience sampling technique was used to select all nurses (50) working and providing direct nursing care for epileptic children in in-patient pediatrics department of The Children's Hospital and Institute of Child Health Lahore, Pakistan regardless of their age, qualification or religion. The study was based on a pretested, semi structured questionnaire including the demographic data and occupational characteristics, knowledge and practice (KP) concerning epileptic children management.

Results: Most of the included nurses (96.0%) rated epilepsy as a noncontagious disease. Concerning causes of epilepsy, the percentages of correct answers in descending order were brain hemorrhage 88%, meningitis 82%, brain tumors 76%, head injury 72%, not known cause 70%, 66% birth defects. '' Majority of the studied nurses (72%) stated that epilepsy occur in all age stages and a large percent (74%) of them knew the treatment duration of 1-3 years. The total knowledge score of most of the nurse was adequate among 94.0%. Regarding practice score was satisfactory among most of the included nurses (92.0%).

Conclusion and Recommendations: The study revealed an adequate level of knowledge, significant level of awareness for the nursing care, and satisfactory practice regarding management of acute attack of epilepsy. However there is a still a need to titrate the prevailing norms with the latest knowledge and guidelines about epilepsy to the nursing staff. Comprehensive future health educational initiatives are the need of the hour to ensure evidence based treatment regimens and management protocols to all health care professionals.

Keywords: Knowledge, practice, Epilepsy, nurses.

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INTRODUCTION:

Epilepsy is one of the leading non-communicable neurological disorder involving multiple attacks of fits, leading to neurobiological, cognitive, psych socioeconomic consequences in children and their families. Epilepsy has no age, geographical, racial, or social restraints. (Almutairi et al.2016, Vancini et al .2012and Ngugi et al.2010). Beginning at any age, it is most frequently diagnosed in the childhood in more than half (60%) of cases with most of clinically implications occurring during childhood (Hamdy, 2018, WHO, 2010 and Mahmoud, 2009).

According to World Health Organization (WHO) 2019 statistics, about 50 million people of all ages globally are affected by epilepsy, with more than eighty percent belonging to the developing world. (WHO 2010and Farghaly et al. 2018). Epilepsy is one of the most common neurological disorders with a worldwide prevalence between five and ten cases per thousand with considerable variations between different settings. 9.99 per 1000 being in Pakistan with a higher trend being seen in the people younger than 30 years of age. (Khatri et al. 2003)

There are two main types of epilepsy Idiopathic vs. symptomatic. It can also be classified depending the change in the level of consciousness with simple in which a person remains conscious during the fits and complex causing the patient to lose his/her conscious level.

Additional qualitative descriptive categories such as tonic-clonic, myoclonic, atonic, and absence is used to describe generalized seizures that present with particular manifest behavioral patterns. For example, tonic-clonic is used to describe seizures that involve a sudden stiffening of the body (tonic phase) followed by jerking and convulsing of the limbs (clonic phase) may also be associated with up rolling of eyes, tongue bite and urine and stool incontinence. In contrast, absence seizures are much less noticeable and usually involve a cessation of movement and staring or fluttering of eyeballs (Berg et al. 2008).

Globally, the most common substrate for the development of epilepsy are cerebrovascular accidents, brain tumors, developmental vascular anomalies, head injuries, hereditary diseases and meningo-encephalitis (Vancini et al.2012 and UPMC Health Beat 2019). The psychosocioecomic and medical impact of epilepsy represents an important public health burden. Epilepsy influences the emotional status, working functionality, family coherence and self-esteem of the children with epilepsy, as they encounter greater risk than healthy counterparts as well as those with other non-neurological chronic illnesses, such as asthma and diabetes; for cognitive impairment, educational and cultural challenges (Dunn et al. 2010 and Hamiwka et al. 2011). Moreover, they are prone to develop other variant of psychological problems, like depression, anxiety, and psychosis (Gibson 2007). Sometimes, the social discrimination against epileptics may be more devastating than the disease itself (Millogo &Siranyan 2004 and Khanal et al.2015). Fear and stigmatization are common among the general population and are shared by 40% of health staff (Barennes et al.2011).

In addition to diagnosis and treatment by a physician, children with epilepsy are supported by the multidisciplinary supports teams including of disease specialist nurses and community healthcare workers (Higgins 2008). The role of epilepsy specialist nurses have been reported in uplifting the quality of life in epileptic children (Hopkins 2012).

There is evidence that attitudes towards people with epilepsy is directly proportional to their degree of disease knowledge. Vanciniet al .2012 In primary school teachers, some incorrect procedures used when attending a person that is having a seizures have been related to misconceptions. These myths were associated with poor educational background for epilepsy. In contrast, higher levels of education are positively correlated with awareness, knowledge and attitude concerning epilepsy (Ab Rahman 2005).Unfortunately, many of the misconceptions about epilepsy that are prevalent in the local population arealso present in health professionals and nurses (Barennes et al.2011 and Mecarelli et al. 2011). Taking into account the multifactorial management methodologies, an evaluation of the knowledge about epilepsy among paediatric nurses could contribute to an improvement in epilepsy care management. Thus, the current study was designed to assess the epilepsy knowledge and practice among pediatrics nurses at *The Children's Hospital and Institute of Child Health Lahore, Pakistan*

SUBJECT AND METHODS:

It is an exploratory-descriptive cross sectional study. This study was carried out at in-patient pediatrics department of *The Children's Hospital and Institute of Child Health Lahore, Pakistan* The data collection process started from June 2020 to September 2020. The subjects were a convenience sample comprised of all nurses (50) working and providing direct nursing care to the admitted epileptic children at *The*

Children's Hospital and Institute of Child Health Lahore, Pakistan irrespective of their age, qualification or years of experience. The knowledge of nurses was assessed regarding signs and symptoms of epilepsy, risk factors, diagnosis, triggers, prognosis, treatment and side effects of anti-epileptic drugs. During this stage, researchers also surveyed their practice regarding management before, during and after epileptic attack.

Data collection tools:
The pre-validated, semi-structured self-administered questionnaire was used in conducting the assessment stage. The self-administered questionnaire was composed of three parts of multiple choice questions. Response to KP questions was binary—either —yes‖ or —no.‖ Correct (positive) responses scored one point whereas incorrect (negative) responses scored zero points. The first part was *"Demographic and Occupational characteristics assessment part."* This part was used to assess demographic and occupational characteristics of in-patient nurses such as age, religion and qualification. The second part was *"knowledge assessment part."* It was a content valid part that was adapted from the study of Nishina &Yoshioka(2017). This part included 12 questions were relevant to the scope of this study which was designed to assess in-patient nurses' knowledge regarding definition, causes, diagnosis, triggering factors, treatment of epilepsy, and side effects of anti-epileptic drugs. The total knowledge scores were categorized into poor score = less than 50% of the total score, fair score = 50 to 75% of the total score, and good score =more than 75 % of the total score. The

third part was *"self-reported practice regarding management before, during and after epileptic attack."* This part was divided into before, during and after epileptic attack divisions. It was adapted from an original questionnaire of Khanal et al. (2015). It composed of eight multiple choice questions based on the parameters of the epilepsy management guidelines (WHO (2019).Practice part's scores were categorized into satisfactory practice that equal ≥75% of the total score, and unsatisfactory practice that equal 75% of the total score.

The study was conducted after approval from the ethical review board and informed and written consent from the volunteers of *The Children's Hospital and Institute of Child Health Lahore, Pakistan.*

Statistical analysis:
The collected data were coded and entered to the statistical package of social sciences (SPSS) for windows version 20. After complete entry, data were explored for detecting any error. After data analysis, descriptive statistics were calculated for each question of the demographic, knowledge and practice of epilepsy management.

RESULTS:
The characteristics of the included nurses are shown in Table 1. The age of majority of the participants was 20-<30 years old among (64%) of the nurses with mean of 25.28±3.72. Regarding educational level, (44%) subjects were diploma and (8.2%) had bachelor degree. Concerning religion, (88%) were Muslim.

Table (1): Demographic data of the nurses.

Nurses' socio-demographic and occupational characteristics		No=50	
		No.	%
Age in year	<20ys	3	6
	20-<30ys	32	64
	30-<40ys	8	16
	≥40ys	07	14
	□± SD	25.28±3.72	
Educational Level	Diploma	22	44
	Technical education	8	16
	Bachelor Degree	15	30
	Post Graduation	05	10
Religion	Muslim	44	88
	Christian	06	12

Of 50 collected questionnaires, **table (2)** illustrates that 96 % answered correctly that epilepsy is not a contagious disease. Regarding the epilepsy definition, the percentages of correct answers in descending order were 94% for ―increase electrical activity of brain'', 92 % for seizures, 84% for―disturbances in some brain functions'' and 62% for ―behavioral arrest''. Concerning causes of epilepsy, the percentages of correct answers in descending order were brain hemorrhage 88%, meningitis 82%, brain tumors 76%, and head injury 72%, not known cause 70%, 66% birth defects.

Majority of the studied nurses (72%) stated that epilepsy occur in all age stages and a large percent (74%) of them knew the treatment duration of 1-3 years. In relation to diagnosis of epilepsy, nearly half of the studied nurses enumerated diagnostic measures of epilepsy as taking complete patient history, electroencephalogram (EEG), Radiological examination, and performing the required Laboratory (blood) tests.

Table (2): Distribution of knowledge of nurses about the epilepsy

Items of nurses' knowledge	No=50	
	No.	%
Definition of epilepsy*		
Disturbances in brain functions (T)	42	84
Period of amnesia(T)	32	64
Increase Electrical Activity Of Brain(T)	47	94
Seizures (T)	46	92
Loss consciousness (T)	41	82
Period of behavioural arrest(T)	31	62
Is epilepsy a contagious disease?		
Yes (F)	02	04
No (T)	48	96
What are the causes of epilepsy?		
No known causes(T)	35	70
Hereditary disease(T)	30	60
Head traumatic injury(T)	36	72
Mental illnesses(F)	12	24
Brain tumors(T)	37	74
Birth defects(T)	33	66
Meningitis (T)	41	82
Brain Haemorrhage (T)	44	88
At what age epilepsy occurs?		
In childhood only (F)	10	10
In adulthood only (F)	03	06
In all age stages(T)	36	72
I don't know	01	02
Diagnosis of epilepsy is established through?		
Taking complete patient history(T)	27	54
Electroencephalogram (EEG)(T)	32	64
Radiological examination(T)	30	60
Laboratory (blood) tests(T)	26	52
Duration of epilepsy treatment?		
Less than 1 year(F)	03	06
From 1 to 3 years(T)	37	74
Throughout the life(F)	08	16
I don't know	02	04
Other	00	00
Do you know the types of epileptic fits?		
Yes	27	54
No	23	26

*Answer For Multiple Responses, T: true. F: false.

Table (3) shows nurses' responses regarding triggering factors, treatment, provoking problems of epilepsy and side effects of anti-epileptic drugs. Regarding triggering factors, the percentages of nurses' correct answers in descending order were 72% for —non-compliance of epilepsy treatment,'' 24% for —worry and fear,'' 16 % for— lack of sleep,''20% for seeing flashes of light 16% for sudden noise. Concerning epilepsy treatment, (80%) of the studied nurses choose medication as a prominent treatment modality and less than one fifth of them selected other modalities. In relation to provoking problems of epilepsy, those with high correct response rates were —health problems‖ (64%), —psychological problem‖ (48%), —Social problem‖ (44%), and —Learning problem‖ (40.%). For side effects of anti-epileptic drugs, the percentages of correct answers in descending order were 36% for dizziness, 32% for headache, 28% for headache, 22% for nervousness, 18% for difficulty of concentration and 16% for worry.

Table (3): Distribution of the nurses according to their knowledge about epilepsy disease.

Items of nurses' knowledge	No=50	
	No.	%
Triggers for epileptic fits		
Non-compliance of treatment (Missing medication doses)(**T**)	36	72
Lack of sleep(**T**)	08	16
Worry and fear (**T**)	12	24
Sudden noise (**T**)	08	16
Exhaustion(**T**)	05	10
Drinking certain types of drinks (alcohol)(**T**)	03	06
Severe noise(**T**)	02	04
Seeing flashing lights(**T**)	10	20
Treatment Mode of epilepsy		
Medication (**T**)	40	80
Surgical treatment (**T**)	04	08
Nutritional treatment(**T**)	04	08
All of above (**T**)	02	04
Adverse effects of anti-epileptic drugs		
Feeling tired(**T**)	06	12
Worry(**T**)	08	16
Nervousness(**T**)	11	22
Headache(**T**)	16	32
HairLoss(**T**)	00	00
Rash(**T**)	01	02
Difficulty of concentration(**T**)	09	18
Weight Gain(**T**)	02	04
Dizziness(**T**)	18	36
Sleepy(**T**)	14	28
All of above(**T**)	02	04
Implications of epilepsy disease?		
Health problems (**T**)	32	64
Social problem(**T**)	22	44
psychological problem(**T**)	24	48
Learning problem(**T**)	20	40
All of above(**T**)	22	44

*Answer For Multiple Responses, T: true. F: false.

Table (4) shows the nursing practices of *The Children's Hospital and Institute of Child Health Lahore, Pakistan* for epileptic children. 74% of the studied nurses can recognize changes before epileptic attack. When asked about the details of changes before attack, the percentages of nurses' correct responses in

descending order were 54% for blurred vision, 34% for —difficulty of concentration,'' and 28% for —headedness and speech arrest''. Concerning how to protect for epileptic attack, those with high correct response rates were —avoid emotional and physical stress‖ (70%), —Keep child away from heights‖ (54 %), —Avoid showering alone and keeping away from dark places (28%) , and— avoid leaving child alone in closed places''(26%).

Table (4): Distribution of the studied nurses according to their practice before epileptic attack:

Items of nurses' practice	n=50	
	No.	%
Treatment of epileptic attack occur:*		
Before epileptic seizures(fits)**(T)**	22	44
During epileptic seizures(fits)**(T)**	13	26
After epileptic seizures(fits)**(T)**	10	20
I don't know	05	10
Can you recognize changes before epileptic attack?		
Yes	37	74
No	11	22
I don't know	2	4
If yes, what are these changes?*		
Speech arrest (Make a sound like a scream)**(T)**	14	28
Difficulty of concentration**(T)**	17	34
Headedness**(T)**	14	28
Fear and stupor**(T)**	07	14
Blurred vision**(T)**	27	54
All of above**(T)**	12	24
How can you protect epileptic child from danger*		
Avoid emotional and physical stress**(T)**	35	70
Keep child away from heights**(T)**	27	54
Avoid showering alone**(T)**	24	28
Avoid leaving child alone in closed places**(T)**	23	26
Keep child away from dark places**(T)**	24	28
Keep child away from fire**(T)**	18	36

***Answer For Multiple Responses, T: true. F: false.**

Table (5) reveals that 88% of *The Children's Hospital and Institute of Child Health Lahore, Pakistan* nurses can implement first aids during epileptic attack. When asked about the details of nurses' practice during attack, those with high correct response rates —Protecting the child head from injury and positioning safely‖ (84%), — Remove anything from the child mouth (80%). Press child tongue with tongue depressor or spoon‖ (70%), —Put any-thing between child teeth to protect tongue‖ (64%) and—Maintain safe place around him''(60%). Concerning nurses' practice after attack, 90 % of the studied nurses implement post attack supportive measure, those with high correct response rates —Observe/ Check child breathing''(86%),—Put child in side lying position and Turn his head on the same side''(84%) and —Child should be given rest or sleep after the attack''(72%)

Table (5): Distribution of the studied nurses according to their practice during and after epileptic attack:

Items of nurses' practice	n=50	
	No.	%
Nurses' practice during epileptic attack		
Can you apply the first aid protocol for the epileptic fits?		
Yes	44	88
No	06	12
First aid management of epileptic attack include?		
Press child tongue with tongue depressor or spoon(**T**)	35	70
Protect the child head from injury and position safely(**T**)	42	84
Maintain safe place around him(**T**)	30	60
Loosen all the tight clothing(**T**)	22	44
Do not Restrain child movement(**T**)	14	28
Put any-thing between child teeth to protect tongue(**T**)	32	64
Remove any thing from child mouth(**T**)	40	80
Maintain good room ventilation(**T**)	23	46
Call ambulance(**T**)	25	50
Go with child to hospital(**T**)	24	48
Stay with the child until s/he is fully alert and oriented(**T**)	22	44
Put child in comfortable position and Turn the child's head on one side(**T**)	32	64
Clean mouth from any saliva or any other discharge(**T**)	30	60
Give child anti- epileptic medication(**T**)	34	68
Other managements	03	06
Nurses' practice after epileptic attack		
Do you know the post epileptic care for the children?		
Yes	45	90
No	05	10
If yes, how?		
Head tilt chin lift (Push the lower jaw upwards) (**T**)	43	86
Put child in side lying position and Turn his head on the same side(**T**)	42	84
Observe/ Check child breathing(**T**)	40	80
Take care of child clothing(**T**)	26	52
Reassure child(**T**)	25	50
Give child warm fluid after he is fully oriented(**T**)	19	38
Child should be given rest or sleep after the attack(**T**)	36	72

*Answer For Multiple Responses, T: true. F: false.

Figure (1). Overall Knowledge of Nurses Regarding Epilepsy Management
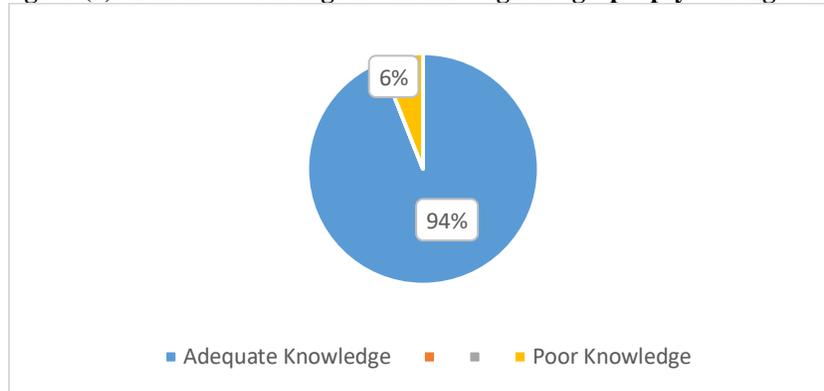
Figure (2). Overall Practice of Nurses Regarding Epilepsy Management
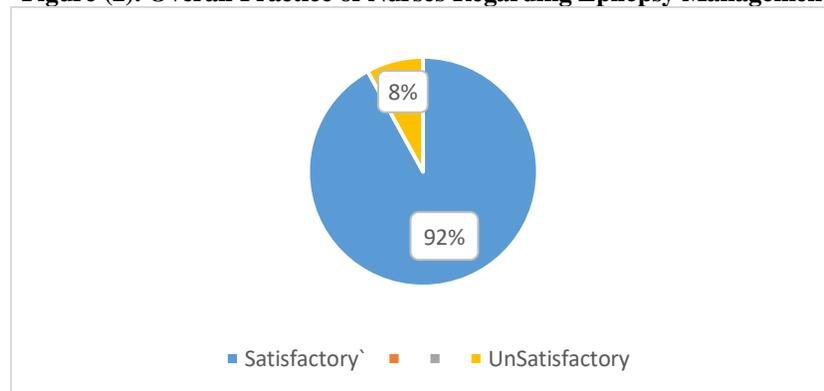
DISCUSSION:

This is one of its kind study conducted at a tertiary care hospital of Pakistan. The results were surprising, and comparable to the ones conducted in Arab countries and Egypt as most of the subjects possessed inadequate knowledge and unsatisfactory practice toward epilepsy management. The findings of the current study illustrated that 64% of participants were 20-<30 years old with mean age of 25.28±3.72, nearly half of them were diploma holders (44%), and 88% of them were Muslims. These findings were similar to (Khanal et al.2015, Falavigna et al.2009, Rathor et al.2018 and Shewangizaw & Teferi 2015), who indicated that more than half of their respondents were 20-30 years old and majority of them were Muslim.

Nursing care of epileptic children is important because the disease course poses many risks and complications. Knowledge and practices of pediatrics nurses are key determinants regarding children with epilepsy. Therefore it was imperative to investigate nurses KP with reference to the management of epileptic children. The current study revealed that most of pediatrics nurses (94.0%) showed adequate level of knowledge. These findings are congruent with three different studies, which were conducted by

Rathor et al.2018, Doshi et al.2012 and Vancini et al.2012 This findings may be due to coherent and continued medical education programs, ward rounds and the clinicopathological conferences in the teaching setups about epilepsy management.

The findings of the current study were seen contrary to the other studies of the developing world (Falavigna et al.2009, Panda et al.2011, Shehata et al.2015, Locharernkul et al.2010, Vancini et al.2010,Thapa et al.2017and Nishina, & Yoshioka 2018) which manifested lack of prompt information and evidence based knowledge on various aspects of the epilepsy management. Therefore, further study on this topic is essential in health care setups to unveil some aspects concerning the disease management enhancing patient care and skill development. The pediatrics nurses practice is essential tool for uplifting quality of nursing care and level of satisfaction among the parents. Therefore, it was crucial to assess nurse's practice regarding the disease management. The current study revealed satisfactory practice among 92.0 % of the studied nurses related to management of clinical presentation of pre and post epileptic seizures. This may be attributed to the conduction of continuous education and hands on approach training sessions.

The study finding revealed that the most of the volunteered nurses performed pre and post epileptic fits protocols satisfactorily. This study results are similar to the one with Youssef et al.2007, Nishina , & Yoshioka, 2018 study which reported satisfactory practice especially during epileptic attack. On the contrary, the findings reciprocated to the ones of Shewangizaw & Teferi 2015 and Shehata et al. 2015 which reported incompetency in delivering nursing care during acute and post-ictal phase.

CONCLUSION AND RECOMMENDATIONS:
The study revealed an adequate level of knowledge, significant level of awareness for the nursing care, and satisfactory practice regarding management of acute attack of epilepsy. However there is a still a need to titrate the prevailing norms with the latest knowledge and guidelines about epilepsy to the nursing staff. Comprehensive future health educational initiatives are the need of the hour to ensure evidence based treatment regimens and management protocols to all health care professionals

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