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## SUICIDE THOUGHTS PREVALENCE IN CHILDREN AND ADOLESCENTS WITH EPILEPSY

**Background/Aims:** Review: Suicide is important and high prevalent problem in the world especially in adolescent. And it is one of the dangerous issue for epileptic children and adolescent. Also Epilepsy is a prevalent problem in the world, mostly among children and adolescent. It seems that epilepsy is the most common neurological disorder in children and adolescents. They suffer from seizures, traumas and with some degree of dysfunction. Due to epileptic seizures, low quality of life, social and emotional problems and maturing issues, so epileptic children and adolescents are at risk of affection. The purpose of this study was to investigate the prevalence of suicidal thoughts among epileptic children and adolescents in Herat city of Afghanistan. In addition epilepsy is a high cost disorder, because continues long time and need continuous treatment. In epilepsy treatment both pharmacotherapy & surgery is used. Many authors point to a link between epilepsy and an increased risk of suicide.

**Methods and Materials:** A cross-sectional study using a probability sampling process, by completing questionnaires and direct observation of the subjects during the first five months of 2020 was conducted at neurological center in Herat city.

**Results:** Among the 300 samples, 287 samples have completed the questionnaire (response rate was 95.6%). 92 individual with epilepsy had suicidal thoughts 32%. 56.5% of subjects was male and 43.5% was female. In this study the participants age was (7-18 year), assessment by questionnaire and direct observation was measured.

**Key words:** Suicide, Epilepsy, Children.

### Introduction

Epilepsy.

Epilepsy is a prevalent problem in the world, around 50-70 million people worldwide have epilepsy, mostly among children and adolescent. (WHO, 2016,2019) [1,2].

It seems epilepsy is one of the most common neurological disorder in this age[1,2].

The epileptic children and adolescents suffer from seizures, traumas due to seizure and this disorder is associated with some degree of dysfunction. Due to epileptic seizures, low quality of life, social and emotional problems and maturing issues, so epileptic children and adolescents are at risk of suicide. Epilepsy is a high prevalent disorder (0.7%) [1,2].

Nearly 80% of people with epilepsy live in low income countries [3,4,5].

The prevalence of epilepsy is more in male than female. Epilepsy is a chronic disorder that brings some limitation in person's life. In addition epilepsy is a high cost disorder, because continues long time and need continuous treatment. In epilepsy treatment both pharmacotherapy and surgery is used [1,2].

Many authors point to a link between epilepsy and an increased risk of suicide [6,7]. The frequency of suicidal events is significantly higher in patients with epilepsy than in the general population and reaches 8-12% compared to 1.1-1.2% in the general population [6].

The link between epilepsy and suicide is a complex and multifactorial problem.

The reason may be the peculiarities of the disease itself, which depends both on the form of epilepsy, the type of seizures, the localization of brain damage and social stigmatization [6]. Some of the latter associate the cause of suicide with taking anti-epileptic drugs [7].

The people that think and commit suicide, 80 % of them have depressive disorders [6,7]. Suicide is currently the third leading cause of death among young people and the school-aged population [6,7,8].

These comorbidities may negatively influence the course of epilepsy and, therefore, lead to a reduced quality of life as well as increased mortality, was found in the United States [9] and suicide rate

was twofold more than in epileptic children than comparison group (in Taiwan, 2018).

In a recent study conducted in a Western country, Jones et al. found that suicidal ideation was noted in 20.3% of children with epilepsy [10].

Moreover, among adolescents in the United States who had any type of physical disability or long-term health problem, Everett-Jones and Lollar found that they had a 2.7fold higher risk of having suicide ideations and a 3.5-fold higher risk of attempting suicide than healthy students [11].

Those with epilepsy had a significantly higher rate of any self-injurious behavior and suicidal ideation (mailto:wirrell.elaine@mayo.edu).

Suicidal ideation is also more prevalent, with one study reporting a 25% lifetime risk of suicidal ideation in persons with epilepsy compared to 12.2% in controls [12].

Several factors may increase the risk of self-injurious or suicidal behavior in persons with epilepsy. Epilepsy is frequently associated with other psychiatric comorbidities, such as anxiety, depression. Some patients experience postictal depression, which may explain the increased risk of suicide in persons with temporal lobe epilepsy [13, 14].

According to Mazza M., et al (2004), the risk of suicide is 25 times higher in temporal lobe epilepsy and in complex focal seizures [13]. This is due to the existence of a link between temporal lobe epilepsy and depression [14]

Quiske A., Helmstaedter C., Lux S. and Elger C.E. (2000) Depression in patients with temporal lobe epilepsy is related to mesial temporal sclerosis. *Epilepsy Res* 39: 121-125

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*Epilepsy Res* 39: 121-12

### Objective

Evaluation of suicidal thoughts prevalence in children and adolescents with Epilepsy in Neurological center – Herat – Afghanistan.

### Material and Methods

This was a descriptive study which was held in cross – sectional method. The subjects was randomly taken from children and adolescent who had epilepsy. Sample Size was 287, first the sample size was determined 300 person but during the process some individual didn't cooperate well (regretted to participate or haven't given complete history to the interviewer), so they were excluded from the study.

This study was conducted during first 5 months of 2020 in neurological center in Herat city of Afghanistan. And epilepsy diagnosis was based on

EEG (Electroencephalography) and history which was taken by specialist of neurology from patient and patient's caregivers. All children with the diagnosis of epilepsy (aged 7-18 years), regardless of the seizure type, were included to this study over period of 5 months (five month of 2020). The diagnosis of epilepsy in children was certified by all member of neurology center's board. The diagnosis of epilepsy was made after obtaining information from a history, physical examination and encephalography. After patients diagnosed epilepsy, with their caregivers both sent to a child and adolescents psychiatrist for suicidal evaluations. The child psychiatrist evaluated for suicidal thoughts, took a history from patients by help of their caregivers with special question for suicidal thoughts and behaviors, then suicide questionnaire was given them to fill out by help of their caregivers. Patients and patients caregivers' consent was taken before including to the study.

#### *Inclusion criteria:*

- Children and adolescents who had epilepsy
- Children and adolescents who was aged 7-18 years
- Children and adolescents who didn't have high grades of mental retardation
- Children and adolescents who or whose family was interested to participate the study

#### *Exclusion criteria:*

- Children and adolescents who didn't have epilepsy
- Children and adolescents who had high grades of mental retardation
- Older than 18 years or under 7 years old
- Children and adolescents who or whose family wasn't interested to participate the study

#### *Ethics consideration:*

The research committee of neurological center approved the research proposal. All the participants' one family member (caregiver) signed an informed consent before their inclusion in this study. The participants were reassured of the confidentiality and anonymity of the study, they were told that the participation was voluntary and they could refuse to participate.

#### *Statistics:*

We used Excel and SPSS software for analysis the data.

### Result

This research was accomplished about suicide thoughts in children and adolescents with epilepsy in Neurological center during 5 months of 2020 in Herat city of Afghanistan.

Age distribution of children with seizures.

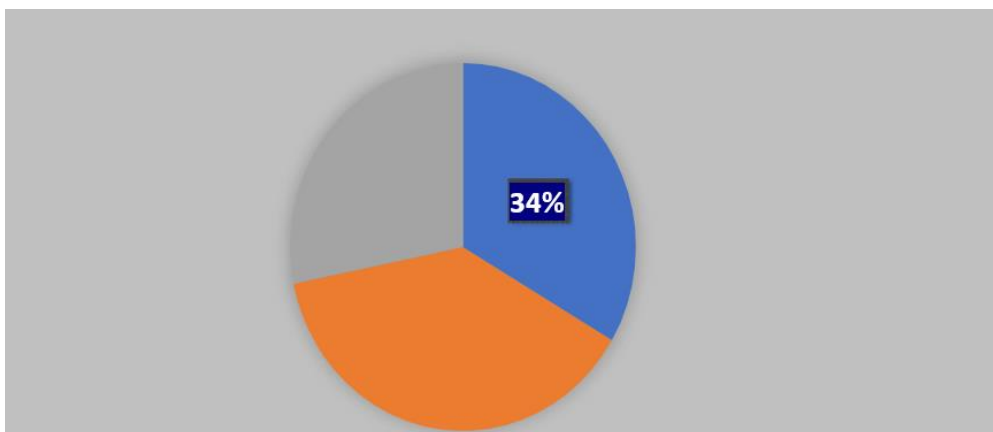


Figure 1. Age distribution of children with seizures.

Table 1. Distribution of epileptic children by age

Age. year	frequency
7-9	96
10-15	110
16-18	81
Total:	287

Table 1, Figure 1. This table shows that the epileptic children and adolescents were measured by age and these are the results 33.4% of them were 7-9 years old, 38.3% was within 10-15 years old and 28.2% was 16-18 years old.

Table 2. Epileptic cases who was student

variable	Frequency	percentage
student	210	73.2%
Not student	77	26.8%
total	287	100%

From 287 epileptic children and adolescents, who participated this study 73% was student, but 26.8% of them wasn't student (Table 2).

Distribution of patients by the number of attacks and the duration of the disease



**Figure 2.** Distribution of patients by the number of attacks and the duration of the disease

**Table 3.** Number of seizure in children and adolescents in neurological center.

Characteristic	Frequency, n=287
Number of seizure in last year	
0-5	28
5-10	67
>10	192
Age of onset of epilepsy	
<5 year	127
5-10 year	146
>10 year	14

Number of seizures were measured in epileptic children and adolescents in one year, 67% had more than 10 seizures and 10% had 5 or less than 5 seizures in a year. The epileptic patients were studied

by age of onset of epilepsy also, 51% of them reported that their seizures started between 5 – 10 years old. But 5% of subjects reported that their epilepsy started after 10 years old (Figure 2, Table 3).

**Table 4.** Suicidal thoughts in epileptic children and adolescents.

Suicidal thoughts	Frequency	Percentage
yes	92	32%
No	195	68%
total	287	100%

From 287 epileptic patients (epileptic children and adolescents) 92 of them had suicidal thoughts

32% and 195 individual didn't have suicidal thoughts and ideations (Table 4).

**Table 5.** Distribution of epileptic children and adolescents who had suicidal thoughts, by sex.

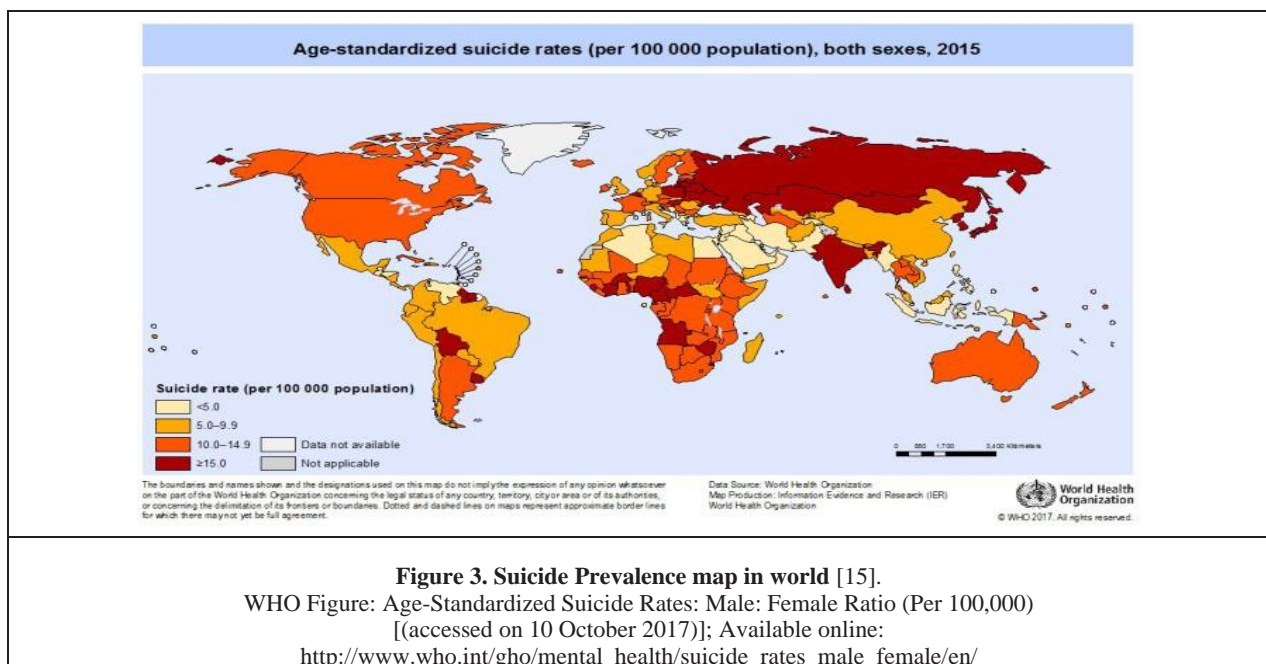
Variable	Frequency	percentage
female	40	43.5%
male	52	56.5%
Total with suicidal thought	92	100%

92 individuals of children and adolescents had suicidal thoughts that, 43.5% of them was female and 56.5% was male (Table 5).

**Table 6.** Diagnosis of epileptic children with suicidal thoughts.

Diagnosis	number	percentage
G. epilepsy	62	67.4%
Partial seizures	30	32.6%
total	92	100%

From 92 children and adolescents who had suicidal thoughts, 67.4% had generalized epilepsy and 32.6% had partial seizures (Table 6).



**Discussion**

The purpose of this study is the evaluation of suicidal thoughts prevalence in children and adolescents with Epilepsy in Neurological center – Herat – Afghanistan. In this study 287 children and adolescents were studied and some variables were discussed. They were studied by age and 38.3% of them were within 10-15 years old, 34% was within 7-9 years old and 28% of them were 16-18 years old. Also the participants were studied by sex, 56.5% was male and 43.5% of them were female. The children and adolescents were studied by number of seizure in last year and it was, 67% of patients had more than 10 seizure in last one year. But in a study which was done by Jana E. Jones, PhD and her colleagues in University of California Los Angeles, they found

55.6% of children had more than 10 seizures in one year [10]. Our percentage is higher than what they found in Los Angeles, maybe because of the compliance of our patients are low, this issue also can have many reasons that one them could be low economic situation in Afghanistan and reason could be low level of education and low information about epilepsy in our country. The participants were studied by age of onset and this percentage was found 51% of patients seizures’ started in 5-10 years old. It seems that many epileptic patients’ seizures appear in childhood. One third of the epileptic children and adolescents who was studied, 92 individuals from 287 epileptic patients had suicidal ideation and thoughts 32%. As in Butabika and Mulago hospitals epileptic children had suicidal thoughts, almost one

in every three adolescents with epilepsy as indicated by prevalence of 30.5%. The percentage was found in Afghanistan is near with the percentage they found, maybe because both countries are poor countries.

In a Brazilian study the epileptic children under 13 were studied, the prevalence of suicidal thought was 39.6% [16]. More than the percentage in our study was found (Figure 3).

This result was near to the study was done in Afghanistan with a little difference. In the USA a study was done on 177 children and adolescents with epilepsy aged 5-16 years old, 20.3% reported suicidal thoughts [10].

The difference with our study lies in this fact that the children in there study were younger and were less likely to have suicidal thoughts than adolescents. Another cause is the big difference in economic situation between two countries in addition educational level differences also its effect on the percentage of suicidal thoughts and epilepsy. Also the study which was done in Mulago hospital found that suicidal thoughts and behavior was more in older adolescent aged 14-17 years [17]

And these 92 epileptic patients with suicidal thoughts was measured by sex, 43.5% were female and 56.5% were male. Also the study was done by Hillary Kuteesa and her colleagues in Uganda, they found that the participants, who had epilepsy and suicidal thoughts 55.2% was male [17], Also a study was done at University of California Los Angeles found suicide in epileptic children in male 55.5% and in female 44.4% the difference between male

and female is almost the same. The epileptic patients with suicidal thoughts was studied by type of epilepsy, from 92 children and adolescents who had suicidal thoughts, 67.4% of subjects had generalized epilepsy and 32.6% had partial seizures. It means that the participants of this study in Herat city of Afghanistan most of children and adolescents' seizure was generalized epilepsy. Also the Study was done by Vladimir V. Kalinin and his colleagues, 60% of epileptic patients with suicidal thought had generalized epilepsy [18].

### Conclusion

Epileptic disorders rate is high especially in children and adolescents in Afghanistan. Suicide thoughts was high in epileptic children and adolescents as in this study found. And suicide thoughts rate was found higher in male patients than in female. However we can't forget that in Afghanistan the prevalence of mental health disorders are high, maybe epilepsy is one of the precipitating factor for suicidal ideation or it is the cause of the problem for epileptic children and adolescents.

### Recommendations

Prevention of problems (suicide and Epilepsy), is an important issue. One way is to Increase public information about risk factors of epilepsy and mental health disorder especially depression among epileptic children and adolescents. Another important issue is stigma about epilepsy and suicide, it should be decreased in the society. Complete treatment of epilepsy and mental disorders in epileptic children and it is needed to do more research in this area.

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