



Brief Communication

Hopelessness in persons with epilepsy: Relationship with demographic, clinical, and social variables

Roberta Ciuffini ^{a,d,*}, Paolo Stratta ^b, Rodolfo Rossi ^c, Enrico Perilli ^a, Alfonso Marrelli ^d

^a Department of Life, Health and Environmental Sciences, University of L'Aquila, Italy

^b Department of Mental Health, ASL1, L'Aquila, Italy

^c PhD program Psychiatry, Tor Vergata University, Roma, Italy

^d Clinical Neurophysiology Unit, San Salvatore Hospital, L'Aquila, Italy

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ABSTRACT

Persons with epilepsy show a higher risk of suicidal ideation and behavior than the general population. Hopelessness, as a feature of demoralization, is considered an emerging risk factor for suicidal ideation. Psychopathological comorbidity, mainly depression, has to be taken into account to predict suicidal attempts but the relationship between suicidality and epilepsy has been also reported independently from depressive disorders. The aim of the study was to investigate hopelessness in a sample of persons suffering from epilepsy without comorbidity with psychiatric disorders and its association with demographic, social, and clinical variables, putatively predictive of suicidal behaviors.

Beck Hopelessness Scale (BHS) has been used as measure of suicidal ideation in 72 consecutive outpatients afferent to a third level epilepsy center. Exclusion criterion was psychiatric comorbidity evaluated by clinical approach and quantified by Clinical Global Impression (CGI) Scale. Clinical (focus localization, age at onset, number of drugs), demographic, social variables, and intellectual level were considered.

Age, age at onset, gender, intellectual level, socioeconomic status, duration of illness and therapy, number of drugs, seizure frequency, and localization of the epileptic focus and side involved were found associated with BHS score increase.

In a sample of persons with epilepsy, without psychiatric comorbidity, our data show an association between factors related to the biological pathophysiology and the clinical course of the disease with the sociodemographic status, as a risk factor for suicidal ideation.

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1. Introduction

Epilepsy influences the quality and expectations of life, with existential repercussions, both for the clinical features and the social consequences of the disease. A two-/three-fold increased risk of unnatural mortality has been reported in people with epilepsy, with relevant hazard reason for suicide [1]. Although the relationship between suicidality and epilepsy is still misunderstood and likely underestimated [2], several authors report relevant rates of suicidal ideation and thoughts of death [3,4] as well as higher risk of suicide [5] in persons with epilepsy compared to general population.

According to comprehensive literature about suicidal risk in the general population, the most exposed individuals seem to be the males, the elderly, the singles, the unemployed, the immigrants, people from

middle and higher social classes, and those living in urban areas. Seasonal factors (spring, summer) and serious frustrations (sentimental disappointments, death of relatives, economic losses, social role and job changes, chronic pain, psychiatric illness, previous suicidal attempts, drug abuse, and the familiarity) can play a triggering role [6]. Most of these risk factors are relevant for persons with epilepsy too [7]. Other factors related to the epilepsy can be the stigma, the social consequences of the disease, and the neuropsychological alterations such as the social cognition disturbance and the dysexecutive syndrome.

The relationship between epilepsy and depression is multidimensional and bidirectional: a mood disorder can anticipate, overlap, or follow the epilepsy. Some hypotheses have been advanced to explain the pathophysiological link between epileptic and depressive symptoms: the periictal state, the dysfunction of the temporo-amygdala-orbitofrontal network in the limbic system, the unbalance of the serotonergic and dopaminergic pathways, the effect of the seizures, and, likely, the forced normalization [8].

Although psychopathological symptoms, mainly the depressive ones, may be relevant predictors of suicidal attempts, some studies,

* Corresponding author at: U.O. Neurofisiopatologia Ospedale San Salvatore, 67010 Coppito, L'Aquila, Italy.

E-mail address: roberta.ciuffini@univaq.it (R. Ciuffini).

however, report high risk for suicide independently from depressive disorders and other psychiatric comorbidity [9].

The onset of epilepsy, the first six months after the diagnosis, the adolescence, the localization in the temporal lobe of the focus, the seizure rate, and the pharmacological and surgical therapy could determine a higher risk for suicide [10].

Antiepileptic drugs (AED) can also have an impact on suicidality, above all in newly treated patients, although the studies on this issue are discordant [11]. Food and Drug Administration, however, issued an alarm on the basis of meta-analysis of randomized controlled trials showing a twice higher risk for suicidal events (behavior and ideation) in patients treated with AED compared to placebo [12].

Hopelessness is one of the most relevant risk factors for suicidal behavior: it represents a negative attributional style to the future which can lead to considering suicide the only way out, a cognitive vulnerability for suicide. Hopelessness has been observed predicting suicidal ideation, suicide attempts, and completed suicide in community samples as well as across psychiatric disorders [13,14].

We investigated hopelessness in a sample of persons with epilepsy without comorbidity with psychiatric disorders and its association with demographic, social, and clinical variables, putatively predictive of suicidal behaviors.

2. Method

Out of the 98 consecutively afferent people to the Center for the Epilepsies of L'Aquila, 72 (46 men, 26 women, medium age: 24.8 ± 3.2 , range: 16–67) have been included in the study. The study was approved by the review board of the University of L'Aquila (Italy), and informed consent was obtained from all participants.

Criteria of exclusion were as follows: evolutionary cerebral pathologies, chronic disease, abuse of substances, and previous attempts of suicide.

In order to investigate the suicidal risk closely related to epilepsy, psychiatric comorbidity, current or anamnestic, has been considered as an exclusion criterion. For this purpose, a careful evaluation was made by a senior psychiatrist (PS), on the basis of more than thirty years of clinical experience, by means of the clinical approach, quantified using the Clinical Global Impression (CGI) Scale severity of illness. The scale rates behavioral disturbances along a 7-point Likert scale where 1 is "normal, not ill" and 7 is "extremely ill" [15]. Only the patients reporting CGI evaluations within the 1–2 range (normal, not ill–minimally ill) were included.

The following demographic and social variables were considered: age, educational level, marital status, working condition, socioeconomic level, and house accommodation. Clinical variables, such as age of onset and duration of the epilepsy, syndrome diagnosis, typology and frequency of the crises, and therapy, have been taken into account. Raven Progressive Matrices 38 [16] have been used as measure for the intellectual level.

The Italian validated version of the Beck Hopelessness Scales (BHS) has been used [17]. Beck Hopelessness Scale is a self-administered scale considered a valid measure to predict suicide ideation [18] regardless of the depressive symptomatology. It consists of 20 true–false statements scored 1 or 0; the total score is the sum of the individual item scores (range: 0–20). A score equal to or greater than 9 on the scale is considered indicative of a significant suicidal risk.

2.1. Statistical analysis

Student *t*-test was used for comparisons of continuous variable. Pearson's correlation was also used. Multiple regression analysis was performed to determine the best predictors of the Beck Hopelessness score among the potential predictors considered. All the statistical tests were two-tailed, and significant alpha value was set at $p < .05$.

3. Results

t-Test comparisons show higher BHS score for women, subjects with temporal lobe localization of the epileptic focus, right side of the focus, and low socioeconomic level (Table 1).

Beck Hopelessness Scale score showed significant positive correlation in association with Raven Matrices scores and the number of drugs used in the therapy. Negative correlation coefficients were instead found with age, duration of illness, and socioeconomic level (Table 2).

The studied variables (age, age at onset, gender, intellectual evaluation, socioeconomic level, duration of illness and therapy, number of drugs, seizure rate, localization of the epileptic focus in terms of both area and side involved) were considered as predictors of the BHS score in a multivariate regression model (Table 3). Four of the variables (temporal lobe localization, seizures rate, Raven Matrices score, socioeconomic level) significantly predicted explaining relevant part of the variance (R square: 0.59) of the score.

4. Discussion

Suicidal ideation is more frequent among people with epilepsy than in general population [3], and the level of hopelessness can be well considered related to it [18]. The BHS is considered a reliable, valid, multidimensional instrument for measuring hopelessness and could integrate the clinical assessment of individuals with epilepsy [18].

We found that sociodemographic and clinical factors have predictive value to hopelessness. Some factors are related to the biological pathophysiology, such as the limbic involvement and the side of the disease. The medial temporal localization of the epileptogenic focus can be related to the emotional dysregulation. The right side of the disease could interfere more with the impairment of social cognition. Both these factors could be concomitant for the onset of suicidal ideation. Other factors are related to the clinical history, such as age at onset, seizure rates, and therapy. Finally, factors such as high intellectual level and low socioeconomic condition arise as predictive of higher hopelessness, as the result of an interaction between exogenous and endogenous factors.

Recent data show association between the burden of epilepsy and sociodemographic status, specifically with socioeconomic level. Low socioeconomic status is a risk factor for epilepsy, somatic and psychiatric comorbidities, injuries, are all factors leading to stigma and poverty [19]. Our results can also be considered in agreement with the recent observation of the dissociation between function and cognitive performance, showing people with suicidal ideation worse functioning but with higher cognitive performance. It may suggest that high intelligence cannot be seen by physicians as a protective factor from suicidal ideation [20].

Table 1
Student *t*-test comparisons for the Beck Hopelessness Scale score (n = 72).

	Beck Hopelessness Scale	<i>t</i> -Test <i>t</i>	<i>p</i> <<
Gender			
Men (n = 46)	4.88 ± 3.07		
Women (n = 26)	6.85 ± 3.06	2.77	0.01
Localization			
Temporal lobe epilepsy (n = 37)	8.00 ± 2.78		
Other localizations (n = 35)	4.17 ± 1.75	7.02	0.0005
Localization side			
Right (n = 23)	8.30 ± 2.32		
Nonright (n = 49)	5.12 ± 2.77	2.73	0.005
Socioeconomic level			
Low (n = 30)	7.37 ± 3.27		
Medium-high (n = 42)	5.26 ± 2.50	3.08	0.0005

Table 2
Correlation coefficients (Pearson *r*) among the variables (*n* = 72).

	Age	Educational level	Raven Matrices score	Age at onset	Duration of illness	Number of drugs	Duration of therapy	Socioeconomical level	Beck Hopelessness Scale
Age	1	−0.09	−0.27*	0.62***	0.67***	0.05	0.51**	0.12	−0.27*
Educational level		1	0.33**	−0.06	−0.06	−0.06	0.19	0.16	0.04
Raven Matrices score			1	−0.11	−0.25*	0.06	−0.14	0.28*	0.25*
Age at onset				1	−0.16	0.02	−0.19	−0.05	−0.03
Duration of illness					1	0.05	0.98***	0.202	−0.31**
Number of drugs						1	0.08	0.02	0.30*
Duration of therapy							1	0.23	−0.26
Socioeconomical level								1	−0.35**
Beck Hopelessness Scale									1

* *p* < .05.** *p* < .005.*** *p* < .0005.

High intellectual level could be related to higher insight of having a severe illness, above all if the crises are very frequent and polypharmacy is needed; so a better insight can paradoxically not lead to an advantage, but can be related to depression and hopelessness eventually. This is also the case of a severe mental illness, such as schizophrenia, where the so-called 'insight paradox' is related to depression, including demoralization, decreased self-esteem, hopelessness, and suicidal ideation [21].

Although several studies indicate that hopelessness is well conceptualized as a risk factor for suicide ideation, this does not mean that it is able to distinguish attempters from ideators, i.e., the progression from ideation to attempts [22]. As a matter of fact, suicidal ideation is not directly linked to the real suicidal behavior. It can be present in people that will never attempt to their life and lack in those who really commit suicides; hopelessness has not been found as a strong predictor of suicide risk, as previously imagined [18]. Furthermore, recent systematic literature researches on suicide prediction models have shown a very limited accuracy of prediction and practical utility [23].

Taking into account these considerations, the variables we observed associated with hopelessness can be predictive of suicide attempts or deaths to the extent that they predict ideation. These warning flags for suicidal ideation need to be coped with a complex biopsychosocial approach [24].

We investigated hopelessness in a sample of persons suffering from epilepsy without psychiatric comorbidity. Although speculatively, if hopelessness, along with Beck's formulation, can be considered as a link between depression and suicide [16], in our sample, it can at least be hypothesized as link between epilepsy and suicidal ideation.

Table 3
Summary of multiple simple regression analyses for the variables predicting Beck Hopelessness Scale score (*N* = 72).

Variable	Beck Hopelessness Scale score		
	Unstandardized coefficients		Standardized coefficients
	B	Standard error B	Beta
Localization (temporal lobe vs other)	−2.44	0.53	−0.41***
Crisis frequency	1.11	0.29	0.34***
Raven Matrices score	0.15	0.05	0.25**
Socioeconomical level	−1.16	0.45	−0.23*
R square		0.59	
F		6.67*	

* *p* < .01.** *p* < .005.*** *p* < .0005.

Some limitations have to be considered. The cross-sectional design prevents making causal inferences; moreover, the relatively small sample size does not allow further subgrouping, e.g., for localization of the epileptic focus. We used as an assessment of hopelessness a self-rating instrument. Although psychiatric diagnosis has been clinically excluded, investigation of the personality traits was not conducted. These issues need to be addressed in further investigations with a larger sample. This is the object of our ongoing research.

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Declaration of Competing Interest

None of the authors has any conflict of interest to disclose. We confirm that we have read the journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

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