The Impact of Social Support on The Mental and Physical State of Patients with Epilepsy During the Covid-19 Pandemic

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ABSTRACT

Background: Social support has a significant role for patients with chronic conditions like epilepsy. The Covid-19 pandemic has had a negative impact on people around the world and is expected to have a greater impact on people with disabilities. As a part of our Covid-19 pandemic study, we're looking at the impact of social support on patients with epilepsy (PWE).

Objective: This study aims to assess social support and its effects on PWE during the Covid-19 pandemic.

Patients and Methods: A total of 290 PWE were included in this study. Personal interviews with each patient were conducted using the Oslo Social Support Scale (OSSS 3) for measuring social support, the Patient Health Questionnaire 9 (PHO 9) scale for diagnosing and assessing the severity of depression, and the Generalized Anxiety Disorder scale for diagnosing and assessing the severity of anxiety (GAD 7). **Results:** During the pandemic, we observed a decrease in family support for PWE, which was associated with an increase in depression and anxiety. As the pandemic spreads, we found that a lack of social support is linked to an increase in depressive symptoms and seizures.

Conclusion: Social support plays an important role in psychological well-being and for a better course of disease in PWE.

Keywords: Social support, Epilepsy, Covid-19.

INTRODUCTION

Individuals in one's immediate social circle provide social support in the form of assistance [1]. Social support is a critical mechanism in the management of chronic conditions, and it is especially important in the treatment of epilepsy [2]. Emotional and physical stress can lead to seizures, which necessitate the assistance of family members and friends [3]. Social support is thought to alleviate stressful events, ongoing life stressors, and long-term health issues [1].

It has been noticed that patients with epilepsy who lack social experience a worse course of the disease [1]. The COVID-19 pandemic has instilled fear, uncertainty, and a sense of helplessness within people all over the world [4].

Distress during the pandemic is caused not only by medical issues, but also by related phenomena such as business closures, cultural discrimination, isolation brought on by home quarantine, and financial problems [5]. When a pandemic lasts for weeks or months, people experience a great deal of stress and anxiety due to the stress of being cooped up for long periods and not knowing whether or not they will succumb to the disease [6]. Evidence showed that many PWE experienced major disruptions in the quality and availability of care and that some people's seizure frequency had increased since the pandemic began. Furthermore, many PWE may experience higher levels of stress and social isolation than others [7].

The lack of social support during the pandemic is expected to have a negative impact on PWE. During the Covid-19 pandemic, our study aims to assess social support for PWE and investigate the possible effects of social isolation on PWE's mental and physical health.

PATIENTS AND METHODS

To conduct this cross-sectional study, we enrolled two hundred and ninety patients who had been previously diagnosed with epilepsy using the most recent ILAE classification. From August 2020 to September 2021, at Zagazig University Hospital, Sharkia, Egypt, patients were gathered from the Neurology Department's outpatient clinic and inpatient ward.

In the study, both sexes between the ages of 19 and 60 were included. Non-epilepsy-related medical conditions such as psychiatric illness and substance abuse were excluded from the study. Patients with Covid-19 infections were also excluded.

Measures:

1-Form for collecting demographic and clinical data on patients, including questions about their health history and personal characteristics, as well as information about the COVID 19 pandemic. Inquire about the patient's current and past health and well-being as well as their family's history of mental illness and epilepsy, as well as their marital and employment status, and the number and ages of their children. Specific seizures, response to antiepileptic drugs (AEDs), the age of onset and time of the seizure as well as how many AEDs have been taken., Prevalence of seizure visits to emergency rooms before and during the pandemic, as well as the number of such visits during the pandemic itself, the epidemic, fear of having an uncontrollable seizure, and regular follow-up during the epidemic. People who are close to someone who is infected or dies as a result of the pandemic and sleep disturbances, Data on family support, job changes, and

job loss anxiety during the pandemic can all be traced back to Covid-19.

2- Oslo 3 Social Support scale: When used in conjunction with the 14-point Oslo Social Support Scale (also known as the Oslo 3 Social Support Scale), the OSSS-3 is a quick and cost-effective way to gauge the degree of social support [8].

The researchers in this study used a scale with a verified Arabic translation.

3-PHQ 9 (Patient Health Questionnaire 9): It is widely used in the medical and psychiatric fields to identify depressive symptoms and diagnose depressive disorders because of its excellent psychometric properties. A depression score of 5, 10, 15, or 20 indicates mild, moderate, or severe depression, respectively. In this study, a validated Arabic translation of the scale was used [9, 10]. 4-GAD- 7 (Generalized Anxiety Disorder 7): On a scale ranging from 0 (not at all) to 3 (almost every day), the GAD-7 assesses the severity of recent anxiety symptoms. Anxiety levels of 5, 10, and 15 indicate mild, moderate, and severe anxiety, respectively [11]. The study made use of a scale with an Arabic translation that had been validated [12].

Ethical consent:

Approval of the study was obtained from Zagazig University Academic and Ethical Committee. Every patient signed informed written consent for the acceptance of participation in the study. This work has been carried out following The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Statistical analysis

The collected data were coded, processed, and analyzed using the SPSS (Statistical Package for Social Sciences) version 22 for Windows® (IBM SPSS Inc, Chicago, IL, USA). Data were tested for normal distribution using the Shapiro Walk test. Qualitative data were represented as frequencies and relative percentages. Chi-square test ($\chi 2$) to calculate the difference between two or more groups of qualitative variables. Quantitative data were expressed as mean ± SD (Standard deviation). Independent samples t-test was used to compare two independent groups of normally distributed variables (parametric data). P-value < 0.05 was considered significant.

RESULTS

We found that 70.3% of the patients suffered from depression according to PHQ9 (6.2% mild, 14.8% moderate, 28.3% moderately severe, 21% severe), and 52.2% suffered from anxiety (6.9% mild, 26.2% moderate, 19.3% severe).

Table 1 shows the sociodemographic data of the group.

Table (1): Demographic characteristics of the studied group

Variable		(n=290)	
Age: (years)	Mean ± SD	33.69 ± 9.14	
	Range	18 – 60	
		No	**%**
Sex:	Female	138	47.6
	Male	152	52.4
Residence:	Urban	145	50
	Rural	145	50
Live with:	Alone	12	4.1
	Spouse and siblings	162	55.9
	Parents	102	35.2
	Brother & sisters	10	3.4
	Sibling only	4	1.4
Marital status:	Single	96	33.1
	Married	163	56.2
	Widow	6	2.1
	Divorced	25	8.6
Education:	Illiterate	44	15.2
	Secondary	157	54.1
	University	80	27.6
	Post graduated	9	3.1
Occupation:	Not working	173	59.7
	Working	117	40.3
Financial status:	Low	113	39
	Satisfying	157	54.1
	High	20	6.9
No. of children	No	109	37.6
	1-2	115	39.6
	>2	66	22.8

SD: Stander deviation

Table 2 shows that there was a statistically significant increase in the frequency of seizures among the studied group during the pandemic compared to before the pandemic.

Table (2): seizures rate among the studied group before and during the pandemic

Variable		(n=290)	
		No	%
Seizure rate before the pandemic	No seizure 1-1.5 y	24	8.3
	No seizer <1y	13	4.5
	1-2 /m	174	60
	3-4/ m	68	23.4
	>4/m	11	3.8
Seizure rate during the pandemic	No seizure 1-1.5 y	19	6.6
	No seizer <1y	12	4.1
	1-2 /m	161	55.5
	3-4/ m	66	22.8
	>4/m	32	11
P^		**0.02***	

^: Sign test *: Significant (P<0.05) **: Highly significant (P<0.001) SD: Stander deviation

Table 3 shows that 43.8% of PWE reported decreased social support during the pandemic, and Oslo 3 social support scale ranged from 3 to 14 with a mean of 8.83.

Table (3): Assessment of social support in PWE during the COVID-19 pandemic

Variable		(n=290)	
		No	%
Social support before & during the pandemic	No change	163	56.2
	Decrease	127	43.8
Oslo 3 Social Support scale during the pandemic	Mean ± SD Range	8.83 ± 2.73 3-14	

SD: Stander deviation, IQR: Interquartile range

Table 4 shows that there was a statistically negative significant correlation between both PHQ-9, GAD-7, and OSLO-3.

Table (4): Correlation between PHQ-9, GAD-7 score, and OSSS-3 among the studied group

Variable	PHQ 9 (n=290)		GAD 7 (n=290)	
	r	P	r	P
OSLO-3	**-0.28**	**0.03***	**-0.32**	**0.02***

r: Spearman's correlation coefficient. *: Significant (P<0.05)

Table 5 shows that there was a statistically significant increase in the frequency of moderately severe to severe depression among persons who had decreased social support during the pandemic, and there was a statistically significant increase in the frequency of severe anxiety among patients who had decreased social support during the pandemic.

Table (5): The relationship between depression, anxiety and decreased social support during the Covid-19 pandemic among the studied group

Variable	N	None (n=86)		Mild to moderate (n=61)		Moderately to severe (n=143)			χ²	P-value
		No	%	No	%	No	%			
Social support before & during the pandemic	No change Decrease	163 127	51 35	31.1 27.8	45 16	27.4 12.7	68 75	% of depression 41.5 59.5	12.34	0.002*
Social support before & during the pandemic	No change Decrease	163 127	99 39	60.7 30.7	57 39	35 30.7	7 49	% of anxiety 4.3 38.6	57.38	<0.001 **

χ²: Chi-square test, NS: Nonsignificant (P>0.05), *: Significant (P<0.05), **: Highly significant (P<0.001)

Table 6 shows that decreased social support and decreased OSSS score during the pandemic increase the risk of depression by 3.9 & 2.8 respectively.

Table (6): Binary logistic regression analysis of social support as a predictor of depression among the studied group

Variable	B	S.E.	B	S.E.	OR	95% C. I	
Decrease social support during pandemic	**3.057**	**1.706**	**10.006**	**0.03***	**3.945**	**1.237**	**23.772**
OSSS-3 Score	**-3.809**	**1.196**	**11.898**	**0.03***	**2.873**	**2.660**	**33.155**
Age >40	0.134	0.150	0.793	0.373	0.875	0.651	1.175
Female sex	1.774	1.016	2.456	0.060	0.062	0.009	0.457
Divorced	1.623	0.42	1.796	0.616	1.439	0.234	5.314.
Not working	**8.671**	**2.059**	**17.736**	**<0.001****	**5.831**	**1.030**	**32.985**

Table 7 shows that deceased social support and decreased OSSS-3 scores during the pandemic increased the risk of anxiety in PWE by 2.4 & 1.8 respectively.

Table (7): Binary logistic regression analysis of social support as a predictor of anxiety among the studied group

Variable	B	S.E.	Wald	P	OR	95% C. I	
Decrease social support during pandemic	**-2.657**	**0.856**	**4.426**	**0.02***	**2.432**	**1.468**	**9.868**
OSSS-3 Score	**-1.155**	**0.676**	**3.053**	**0.03***	**1.856**	**1.118**	**8.219**
Age >40	0.155	0.676	0.053	0.818	0.856	0.228	3.219
Female sex	0.189	0.987	0.918	0.605	1.440	0.836	5.358
Divorced	0.196	0.425	0.357	0.98	1.302	0.365	9.314
Not working	**2.822**	**1.106**	**6.511**	**0.011***	**2.059**	**1.007**	**8.520**

OR: Odds ratio CI: Confidence interval. *: Significant (P<0.05)
**: highly significant (P<0.001).

Table 8 shows that decreased social support and decreased OSSS score increase the risk of having more seizures during the pandemic by 1.7 & 1.6 respectively.

Table (8): Binary logistic regression analysis of social support as a predictor of increased seizers' rate during the pandemic among the studied group

Variable	B	S.E.	Wald	P	OR	95% C. I	
Decrease social support during pandemic	**-1.581**	**0.811**	**3.999**	**0.03***	**1.765**	**1.106**	**9.011**
OSSS-3 Score	**-1.441**	**0.706**	**3.757**	**0.04***	**1.606**	**1.011**	**8.389**
Age >40	0.395	1.974	0.040	0.841	2.674	0.014	3.245
Female sex	0.361	0.753	0.230	0.632	1.435	0.328	6.273
Divorced	1.522	2.161	0.496	0.481	1.583	0.066	6.257
Not working	0.029	0.702	1.349	0.434	2.131	0.033	6.521

DISCUSSION

There was a significant rise in the number of seizures in PWE at the time of the Covid-19 pandemic, as well as a high prevalence of depression and anxiety (70.3% and 52.4%, respectively). Seizures increased for 33.1% of patients in our study during the pandemic.

Our study found that social support has been greatly affected in PWE during the pandemic. 43.8% of PWE reported having less social support during the pandemic. This fact is very concerning since PWE are in continuous need of family help and support, so this will be negatively reflected on psychological wellbeing, drug adherence, and seizures control.

Social support in PWE during the pandemic has been studied very little. **Guilhoto et al.** [13] found that 56.1 percent of respondents reported a decrease in support from other people. They were alarmed by this finding, as the difficulties PWE face in social relationships is critical to their quality of life and their social stigma.

In our study decreased social support can be explained by the prolonged quarantine which followed the emergence of the Covid-19 pandemic, and the accompanying lockdown which made it hard for people to maintain social relationships. The stress evoked by the pandemic affected all people and made it harder for them to maintain caring for a chronically ill relative or friend.

We also found that the OSSS-3 score ranged from 3 to 14 with a mean of 8.83. We are the first to assess social support in PWE during the Covid-19 pandemic, according to the findings of this study.

Our study found a statistically significant increase in the frequency of moderately severe to severe depression among those who had less social support during the pandemic period. Decreased social support enhances the feeling of loneliness in patients with epilepsy who suffer from pre-existing stigma and who can't always properly help themselves and need frequent care.

-As the pandemic progressed, we found a statistically significant increase in the frequency of patients experiencing severe anxiety. The stress-induced by the fear of having a seizure without the presence of close social support is enough to provoke anxiety in PWE.

Very few studies have assessed the relationship between depression, anxiety in PWE, and social support, especially during the pandemic. Our study is consistent with **Lacey et al.** [14] who found a link between PWE depression and a lack of social support. **Wang et al.** [15] found that weaker social support is associated with increased anxiety among PWE. **Rudenstine et al.** [16] found that COVID-19–related experiences, such as lack of social support, increase the level of anxiety in PWE.

Both PHQ-9, GAD-7, and OSSS-3 scores showed a statistically significant negative correlation. It means that decreased social support represented by OSSS-3 scores is associated with increased depression represented by PHQ9 scores, and increased anxiety represented by GAD-7 scores.

Our study is consistent with **Tong et al.** [2] who found a negative correlation between Hospital Anxiety and Depression Scale for depression (HADS-D) and Social Support Rating Scale (SSRS).

Our study found that decreased social support and decreased OSSS score during the pandemic are independently associated with both depression and anxiety in PWE during the pandemic. Our study found that decreased social support and decreased OSSS scores are independently associated with having more seizures during the pandemic. No other studies were done on this aspect. Up to our knowledge, our study is the first to include a social support scale in regression analysis models of depression, anxiety, and increased seizures in PWE during the Covid-19 pandemic.

These facts are very concerning. They clarify the huge importance of social support in PWE, especially during unusual circumstances like the Covid-19 pandemic, and how the lack of social support can lead to serious negative effects on the psychological wellbeing of those patients and the disease control.

Strengths and limitations of the study:

As a cross-sectional study lacks causation evidence between exposure and outcome, longitudinal studies are recommended. Despite this, our research offers several advantages.

In the pandemic, PWE who are already under a lot of stress is going to be more affected. No online or self-submitted questionnaires were used in our study, which ensures that the patients' responses to the questions were accurate and that accurate interpretations of the findings can be drawn from them. A primary care clinic was not used for our study, which gave us access to the patients' medical records, allowing us to confirm their diagnoses, seizure types, length of illness, number of anti-seizure medications, and past medical history. An epilepsy clinic was the setting for our research.

CONCLUSIONS

Social support is of great importance in patients with chronic conditions like epilepsy, especially since the emergence of the Covid-19 pandemic and its associated stressors. Lack of social support under such circumstances can lead to serious psychological and medical worsening in those patients.

RECOMMENDATIONS

PWE families should be educated and more awareness should be spread about the importance of social support for PWE and the possible negative consequences of a decrease in social support for PWE.

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