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MANAGING THE EFFECT OF SEIZURE FREQUENCY ON DEPRESSION AND QUALITY OF LIFE IN EPILEPTIC PATIENTS THROUGH CBT

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ABSTRACT

The aim of current research was to manage the effect of seizure frequency on depression and quality of life in epileptic patients through cognitive behavioral therapy. The initial sample consisted of 113 epileptic patients from Nishter Hospital Multan through purposive sampling technique. Liverpool Seizure Severity Scale (Baker, 1991), Neurological Disorders Depression Inventory in Epilepsy (Wagner, 2016) and Quality of life in Epilepsy (Cramer, 1998) were used to measure their seizure frequency, depression and quality of life. Utilizing an experimental approach, a sample of 20 epileptic patients who scored high on depression and low on quality of life were randomly categorized into experimental (n=10) and control group (n=10). Experimental group received the cognitive behavioral therapy whereas control group did not receive any therapy. Results revealed that there is a positive correlation between seizure frequency and depression. It was also found that there is a negative correlation between seizure frequency and quality of life except for social function which is also considered as one of the part of quality of life. Results indicated that there is an effectiveness of cognitive behavioral therapy for reducing depression and improving quality of life in patients suffering from epilepsy

Keywords: *epilepsy, seizure frequency, depression, quality of life, cognitive behavior therapy*

Introduction

This research aims to manage the effect of seizure frequency on depression and quality of life in epileptic patients through cognitive behavior therapy. The number of Individuals suffering from epilepsy is 5-10 per 1000 in North America (Theodore, 2006). The rate is lower if we compare the rate in Canada where the range is 5.2-6.0 per 1000 (Wiebe, 1999; Tellez-Zenteno, 2004, 2007). It is seen that epileptic individuals face a lot of psychological issues when they are compared to those who have no symptoms of epilepsy. The Individuals suffered from chronic conditions (Strine, 2005; Tellez-Zenteno, 2005), have worse self-reported health (Kobau, 2004), and experience increased pain (Strine, 2005).

The epilepsy patients who become seizure free lead almost the same life as general population. Both have same quality of life (Stavem, 2000; Leidy, 1999). There seen an improvement of quality of life to those epileptic patients who become seizure free (Devinsky, 1995; Baker, 1997; Van Hout, 1997). Depression is very common in epilepsy and it also correlates with lower quality of life (Perrine, 1995; Lehrner, 1999; Gilliam, 2002). The rate of Diagnostic and Statistical Manual of Mental Disorders (DSM) defined major depression is 30% across published studies (Hermann, Seidenberg, & Bell, 2000) which is significantly elevated compared with the general population lifetime to date estimate of 16% (Kessler, Berglund, & Demler, 2003). Depression is most commonly found in the individuals suffered from epilepsy (Victoroff, 1994; Gaitatzis et al., 2004; Jones, 2005). When the occurrence of depression is found between the individuals of epilepsy and healthy life, a significant higher level of depression is found in epileptic individuals (Gaitatzis et al., 2004a; Strine et al., 2005; Kobau et al., 2004). Depression is even lower in those individuals also who suffered from other chronic diseases like asthma when it is compared to epileptic patients (Ettinger, 2004). Epilepsy is a disease that affects the quality of life of Individuals (Sillanpaa, 2004; Mrabet, 2004). It is associated with physical, psychological and social consequences and the impact of it on quality of life can be greater than that of other chronic conditions also (Mehta, S., 2014). It is also seen that depression also affects the epileptic individuals in the lowering of quality of life (Tracy et al., 2007). Cognitive behavioral therapy is a therapy having the combination of cognitive and behavioral therapies and it is found to be effected in treating the individuals of depression as well as anxiety also (Derubeis, 1990). It is found to be one of the best therapy in treating depression and its effects are seen on the depressed individual with mild, moderate and severe level too (Beck, 2005).

The development of cognitive behavioral therapy has been considered to be innovation in the treatment of depressed individuals (Beck, 2011). It is the therapy that affects the thinking, feeling and also behavior of the individuals also (Marian & Filimon, 2010).CBT is acknowledged as the most empirically supported psychotherapy treatment for depression (Cuijpers, 2008). It is most common therapy used for treatment of depression throughout the world. It is used in public as well as private sectors too and it is successfully administered on individuals, couples, and groups format (Andersson & Cuijpers, 2009).

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Method

Participants

Sample was consisted of 20 epileptic male patients aged between 23-49 years. This sample was randomly selected from the pool of initially contacted patients (N = 113) at Nishtar hospital Multan. Participants reported the demographic information in terms of gender, age, and duration of epileptic.

Instruments

Neurological Disorders Depression Inventory

This inventory developed by Wagner (2016) comprises of six statements identified with depression that an epileptic patient experiences in their daily life. Items were appraised on a 4-point scale ranging from 0 = never to 3 = consistently. The higher scores on inventory indicates the higher depression.

Quality of Life in Epilepsy (QOLIE-31):

The quality of life of epileptic patients was measured using Quality of Life in Epilepsy Scale (Cramer, 1998). It has seven subscales that assess the accompanying wellbeing ideas: emotional healthy, socially active, strength or tiredness, mental functioning, worry caused due to seizures occurrence, effects occurred due to medication and overall QOL.

Liverpool Seizure Severity Scale

The scale is developed by Baker (1991). Later on, he revised it in 1998 and latest addition was published by him on 2001 and named as LSSS 2.0. This scale has 19 items which are answered by the patient without clarification by the restorative treatment provided to address seizure activity during the past about a month. Items were assessed on a 4-point scale, ranging from 1 = always to 4 = never. The higher scores shows the high seizures severity and frequency of epileptic.

Procedure

The design of the study is experimental using two groups; experimental group (n=10) and control group (n=10). The initial sample consists of 113 epileptic patients from Nishter hospital Multan. The seizure frequency is measured by Liverpool Seizure Severity Scale (LSSS 2.0). The depression and quality of life is assessed by Neurological Disorders Depression Inventory in Epilepsy (NDDI-E) and Quality of life in epilepsy (QOLIE-31) respectively. The secondary sample consisted of 20 patients having almost same scoring in depression and quality of life scales. 10 patients were assigned to experimental group and 10 patients were assigned to control group. The experimental group received cognitive behavioral therapy and control group did not receive any therapy. When the therapy sessions ended, post testing was done on all measures with both groups. Results were compiled to find out the differences in depression and quality of life in these two groups.

Results

SPSS 20.0 version was used to analyze the data. All the scales are reliable between 0.6 to 0.8. Correlation analysis was done between seizure frequency, depression and quality of life.

Table 1

Correlation Matrix among Study Variables

No.	Variables	1	2	3.1	3.2	3.3	3.4	3.5	3.6	3.7
1	Liverpool Seizure Severity	1	.59**	-.56**	-.40**	-.32**	-.20**	-.66**	.17**	-.03
2	Neurological Disorders Depression		1	-.53**	-.63**	-.36**	-.29**	-.55**	-.03	-.21**
Quality of Life In Epilepsy										
3.1	Seizure Worry			1	.42**	.67**	.57**	.66**	.19**	.41**
3.2	Overall Quality of Life				1	.42**	.34**	.45**	.08	.26**

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3.3	Emotional	1	.84**	.56**	.47**	.72**
3.4	Energy		1	.45**	.46**	.73**
3.5	Cognitive			1	.07	.23**
3.6	Medication				1	.66**
3.7	Social					1

**p>.001

Table 1 shows the positive correlation between seizure frequency and depression. It also depicts that a negative correlation between seizure frequency and quality of life except for social functioning which is also a part of quality of life.

Independent sample t-test were computed to compare the depression and quality of life between experimental and control group.

Table 2
Comparison between Experimental and Control groups for their Scores of Pre Testing on Depression and Quality of Life (n = 10, 10)

Variables	Groups	Mean	SD	t	p	Lower	Upper
Neurological Disorder Depression	Experimental	23.10	.99	1.88	.076	-.102	1.90
	Control	22.20	1.13			-.103	1.90
Seizure Worry	Experimental	6.90	1.19	-.920	.370	-1.31	.513
	Control	7.30	.674			-1.33	.530
Quality of Life	Experimental	4.30	1.56	-1.47	.159	-2.18	.385
	Control	5.20	1.13			-2.19	.394
Emotional Well-Being	Experimental	7.60	.966	-1.54	.140	-1.65	.252
	Control	8.30	1.05			-1.65	.253
Energy/Fatigue	Experimental	6.40	1.07	.000	1.00	-.907	.907
	Control	6.40	.843			-.911	.911
Cognitive	Experimental	8.70	1.63	.000	1.00	-1.25	1.25
	Control	8.70	.948			-1.27	1.27
Medication Effects	Experimental	4.90	.875	-.287	.777	-.831	.631
	Control	5.00	.666			-.834	.634
Social Function	Experimental	8.20	1.22	18	.229	-1.88	.482
	Control	8.90	1.28			-1.88	.482

P = Non-significant

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Table 2 shows the no-significant differences between experimental and control groups for their scores on neurological disorder depression and quality of life along with its subscales. Results implied that participants from experimental and control groups are similar on their scores of depression and quality of life before intervention.

Table 3

Comparison between Experimental and Control groups for their Scores of Post Testing on Depression and Quality of Life (n = 10, 10)

	Groups	**Mean**	**SD**	T	p	**Lower**	**Upper**
NDDIE	Experimental	7.00	2.49	-16.7	.000	-16.8	-13.1
	Control	22.0	1.33			-16.9	-13.0
Seizure Worry	Experimental	18.4	2.50	12.1	.000	9.50	13.4
	Control	6.90	1.66			9.48	13.5
Quality of Life	Experimental	11.8	1.54	10.2	.000	5.00	7.59
	Control	5.50	1.17			5.00	7.59
Emotional Well-Being	Experimental	23.9	1.52	28.4	.000	14.4	16.7
	Control	8.30	.823			14.4	16.7
Energy/Fatigue	Experimental	19.5	1.58	26.8	.000	12.9	15.2
	Control	5.40	.516			12.9	15.2
Cognitive	Experimental	23.6	2.98	14.9	.000	13.5	18.0
	Control	7.80	1.47			13.5	18.0
Medication Effects	Experimental	10.0	1.82	7.63	.000	3.40	5.99
	Control	5.30	.674			3.35	6.04
Social Function	Experimental	19.2	1.87	15.1	.000	9.13	12.0
	Control	8.60	1.17			9.11	12.0

p>.001

Table 3 shows the significant differences between experimental and control groups for their scores of post testing on neurological disorder depression and quality of life along with its subscales. Results implied that participants from experimental group demonstrated the decrease in depression and an increase in quality of life after intervention as compared to control group.

t-test for paired samples are applied between pre and post scales of the experimental group to found out differences before and after therapy.

Table 4

Comparison between the Scores of Pre and Post Testing of Experimental Group

	Groups	**Mean**	**SD**	**t**	P	**Lower**	**Upper**
Pair 1	Pre NDDIE	23.1	.994	18.1	.000	14.09	18.10

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	Post NDDIE	7.00	2.49				
	Pre Seizure Worry	6.90	1.19			-13.6	-9.33
Pair 2	Post Seizure Worry	18.4	2.50	-12.0	.000		
	Pre Overall Quality	4.30	1.56			-9.47	-5.52
Pair 3	Post Overall Quality	11.8	1.54	-8.57	.000		
	Pre Emotional	7.60	.966			-17.7	-14.8
Pair 4	Post Emotional	23.9	1.52	-25.7	.000		
	Pre Energy	6.40	1.07			-14.6	-11.5
Pair 5	Post Energy	19.5	1.58	-18.5	.000		
	Pre Cognitive	8.70	1.63			-16.5	-13.2
Pair 6	Post Cognitive	23.6	2.98	-20.6	.000		
	Pre Medication	4.90	.875			-6.33	-3.86
Pair 7	Post Medication	10.0	1.82	-9.32	.000		
	Pre Social	8.20	1.22			-12.2	-9.73
Pair 8	Post Social	19.2	1.87	-19.7	.000		

p>.001

Table 4 indicated the significant differences between the scores of pre and post testing of experimental group on Neurological Disorders Depression Inventory in Epilepsy and Quality of Life Scale. Findings demonstrated that participants from experimental group reported the decrease in depression and an increase in quality of life after intervention at post testing as compared to scores on pre testing before intervention.

T test for paired samples are also applied on the pre and post scales of the control group also to find out any difference in control group too.

Table 5

Comparison between the Scores of Pre and Post Testing of Control Group

	Groups	**Mean**	**SD**	T	P	**Lower**	**Upper**
	Pre NDDIE	22.20	1.13			-.612	1.01
Pair 1	Post NDDIE	22.00	1.33	.557	.591		
	Pre Seizure Worry	7.300	.674			-.777	1.57
Pair 2	Post Seizure Worry	6.900	1.66	.768	.462		
	Pre Overall Quality	5.200	1.13			-.782	.182
Pair 3	Post Overall Quality	5.500	1.17	-1.406	.193		
Pair 4	Pre Emotional	8.30	1.05	.000	1.00	-.476	.476

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	Post Emotional	8.30	.823				
Pair 5	Pre Energy	6.40	.843	3.354	.008	.3255	1.67
	Post Energy	5.40	.516				
Pair 6	Pre Cognitive	8.70	.948	1.711	.121	-.289	2.08
	Post Cognitive	7.80	1.47				
Pair 7	Pre Medication	5.00	.666	-1.000	.343	-.978	.378
	Post Medication	5.30	.674				
Pair 8	Pre Social	8.90	1.28	.709	.496	-.656	1.25
	Post Social	8.60	1.17				

P = non-significant

Table 5 indicated the non-significant differences between the scores of pre and post testing of control group on Neurological Disorders Depression Inventory in Epilepsy and Quality of Life Scale. Findings demonstrated that participants from control group reported the same levels of depression and quality of life at post testing as the score were on pre testing.

Discussion

The aim of the present study was to manage the effect of seizure frequency on depression and quality of life of epileptic patients through cognitive behavior therapy. The sample was taken from Nishter Hospital Multan. The initial sample consisted of 113 epileptic patients from Nishter Hospital Multan. There seizures frequency, depression and quality of life assessed by Liverpool Seizures Severity Scale, Neurological Disorders Depression Inventory in Epilepsy (NDDI-E) and Quality of life in epilepsy (QOLIE-31). The secondary sample consisted of 20 patients having almost same scoring in depression and quality of life scales. 10 patients assigned to experimental group and 10 patients assigned to control group. The experimental group received cognitive behavioral therapy and control group did not receive any therapy. When the therapy sessions end, post testing had done on these groups and there results were compared to find out difference in depression and quality of life between these two groups. The data obtained was further analysed by SPSS. First of all, reliability analysis was done and the results showed that the scales are reliable.

Correlation analysis on the sample revealed the positive correlation of seizure frequency and depression. The analysis also revealed the negative correlation of seizure frequency with quality of life except for medication effects subscale. Independent sample t-test was computed between pre experimental group and pre control group and the results were found non-significant. Independent sample t-test was also performed between post experimental group and post control group and the result were found significant. Paired sample t-test was computed within pre and post experimental group and the result were found significant. Paired sample t- test was calculated within pre and post control group and the result were non-significant. Thus it was confirmed that there was an effect of cognitive behavioral therapy to reduce the depression and to improve the quality of life of epileptic patients.

Conclusion

The present study concluded that CBT has been found effective for epileptic seizures to manage the levels of depression and quality of life of epileptic patients.

Limitations and Suggestions

Hence the study has presented significant findings in terms of managing the depression and quality of life of epileptic patients, some limitations and weaknesses are important to acknowledge. Study should be replicated with gender differences as only the male participants were studied in the present study. Other demographics such as family history and duration of epileptic disease are also significant to study and therefore should be incorporated in future research. Questionnaires used in the study should also be developed indigenously to collect the accurate responses of patients.

Implications of the Study

Study findings can have the implications for the health professionals of epileptic patients, family members and care takers of epileptic patients, and psychologists.

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