Effects of demographic and stroke characteristics on post stroke quality of life and consequences of early physiotherapy on quality of life following stroke

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Abstract

Aim: to assess the quality of life of stroke survivors, what factors are affecting the quality of life and how the quality of life of these stroke survivors improves with early administration of physiotherapy treatment.
Methodology: A total of 20 patients with stroke who were admitted in the medicine department were examined and assessed thoroughly.
Result: Significant findings were obtained.
Conclusion: The present study supports that the quality of life is affected by severity of stroke and is improved by early administration of physiotherapy.

Keywords: Stroke, Quality of Life, Early Physiotherapy, Stroke Consequences

1. Introduction

Stroke has been defined as Rapidly developing clinical signs of focal (at times global) disturbance of cerebral function, lasting more than 24 hours or leading to death with no apparent cause other than that of vascular origin [1].

Stroke is classically characterized as a neurological deficit attributed to an acute focal injury of the central nervous system (CNS) by a vascular cause, including cerebral infarction, intracerebral hemorrhage (ICH), and subarachnoid hemorrhage (SAH), and is a major cause of disability and death worldwide [2].

The word "stroke" was likely first introduced into medicine in 1689 by William Cole in *A Physico-Medical Essay Concerning the Late Frequencies of Apoplexies*. Before Cole, the common term used to describe very acute nontraumatic brain injuries was "apoplexy." Apoplexy was used by Hippocrates circa 400 BC [2].

Signs and Symptoms have been defined in various studies. In a study conducted on 474 subjects, it was observed that more than 25 % of subjects hospitalized with a confirmed stroke presented with a headache at admission, while vertigo, convulsions, and gait disturbances were less frequent. The most common stroke sign was speech deficit (24%), followed by hemianopia (14.6%) and deplopia (5.5%). More than 80% of subjects presented with some paresis, most often of the arms (75.5%), although a majority reported paresis of face (54.6%) and legs (68.6%); location of paresis was equally distributed among right and left sides. A near majority of subjects (44.5%) presented with some sensory deficit, most often of arms (38.6%) and also, in the decreasing frequency, of legs (34.4%) and face (20.7%). A majority of sensory deficits involved the left side of the affected location [3].

As expected, stroke signs and symptoms varied considerably by stroke sub type, subjects with hemorrhagic strokes had a higher frequency of headaches (mostly severe) and convulsions at admission. In contrast, speech deficits were most common among ischemic strokes, while hemianopia and diplopia were comparable in occurrence. Hemorrhagic stroke events had a lowest frequency of paresis and sensory deficits in all sites [4]. In India, several epidemiological studies have been undertaken in different parts of the country since the eighties. Most of these populations based surveys however, were cross-sectional and determined the prevalence rates of stroke in the communities [5].

The first community-based study on stroke was carried out in and around the town of Vellore in South India during the period 1969-71, followed by the study in Rohtak in North India during 1971-74. Subsequently there was a spate of population-based surveys on stroke in various parts of India both in urban and in rural communities during the eighties and nineties [7].

1.1 Procedure

The Study design was a Co-relational study and the Sample Size was 20. In the present study patients with stroke who were admitted in the medicine department were examined and assessed thoroughly. Patients who were found suitable for the participation in the study according to inclusion and exclusion criteria were requested to sign consent forms.All the patients were explained about the purpose and procedure of the study. Participants were informed about the confidentiality and were given choice to withdraw from the study at any stage.

Sufficient opportunity was given to the patients to interact with the investigator/physiotherapist for any clarification, if needed. Patients capable of filling out the questionnaires were allowed to complete them by themselves and patients who were incapable of filling them due to upper limb weakness was assisted by the therapist herself. Demographic details including age, sex, marital status, educational status, occupation, and socioeconomic status were collected. Stroke details like symptoms, type, severity was collected according to modified National Institute of Health Stroke Scale (mNIHSS). Oxfordshire Community Stroke Project Classification was

used to classify stroke and outcome of stroke was measured by modified Rankin Scale (mRS). Quality of life was assessed using WHOQOL-BREF questionnaire. Quality of life questionnaire (WHOQOL-BREF) and mNIHSS were filled twice during this present study. First, at the time when patients were admitted in the medicine ward and second, two months later when patients came for the follow up in the medicine OPD.

During the hospital stay of the patients, physiotherapy treatment was started side by side along with medical treatment. Physiotherapy interventions were administered as soon as the physical examination of the patient was over. Accordingly the physiotherapy interventions were administered. Different interventions or approaches which were used include Neurodevelopment treatment (NDT), Propriceptive Neuromuscular Facilitation (PNF), Frenkel's Exersices, Motor Imagery, visual feedback.Two sessions of physical therapy interventions each of duration 1 hour was administered for 6 day a week during the hospital stay of the patients. On discharge, a home exercise program was given to the patients, in written on their discharge cards. Demonstration of the exercises was also given to the care givers, so that they can help out the patient.

2. Results

Table 1: One-Sample Statistics - Table showing Mean & Standard Deviation of WHOQOL- BREF for various demographic parameters for total no. of subjects N= 20.

Demographic Variables		N	WHOQOL-BREF			
			Minimum	Maximum	Mean	Standard Deviation
Age	<= 60 yrs	10	73	109	86.10	9.860
	> 60 yrs	10	70	106	87.80	12.255
Family	Joint	10	0	106	77.60	29.945
	Nuclear	7	0	94	73.29	32.760
Gender	Female	7	70	106	83.00	12.302
	Male	13	75	109	89.08	9.853
Income	Lower	10	73	106	87.40	11.825
	Upper	9	70	109	86.78	11.020
Occupation	Salaried	10	75	109	87.20	9.378
	Others	10	70	106	86.70	12.685
Risk factors	Hypertension	19	70	109	87.47	10.895
	Diabetes Mellitus	9	10	106	84.22	11.245
	Alcohol	4	84	94	89.25	4.113
	Smoking	8	75	109	91.63	12.045
	Coronary Artery Disease	1	77	77	77.00	-
Type of Stroke	Haemorrhagic	10	0	106	77.60	29.789
	Ischaemic	9	0	109	78.89	31.151
Education	With Schooling	10	75	109	88.90	8.850
	Without Schooling	10	70	106	85.00	12.373
Severity of Stroke	After Stroke	20	70	109	86.95	10.860
	1 Month after Stroke	20	73	113	97.00	10.775

Table 1 shows One Sample statistics is done for total no. of subjects N= 20 to calculate Mean $\pm$ Standard Deviation of WHOQOL- BREF for various demographic parameters. Results of mean $\pm$ Standard Deviation are tabulated above.

Table 2: Paired Samples Correlations- Table showing Significance value (2-tailed) and Pearson Correlation for various pairs of Demographic variable and WHOQOL score for total number of subjects N = 20

S. no	Pair Between		N	Mean	Standard Deviation	Significance Value	Pearson Correlation
1	Age-WHOQOL	<= 60 yr	10	86.10	9.860	0.061	-0.610
		>60 yr	10	87.80	12.255	0.061	-0.610
2	Family Status- WHOQOL	Joint	10	77.60	29.945	0.002	0.934**
		Nuclear	7	73.29	32.760	0.002	0.934**
3	Gender- WHOQOL	Female	7	83.00	12.302	0.108	0.685
		Male	13	89.08	9.853	0.108	0.685
4	Income- WHOQOL	Lower	10	87.40	11.825	0.267	0.415
		Upper	9	86.78	11.020	0.267	0.415
5	Occupation- WHOQOL	Salaried	10	87.20	9.378	0.186	0.455
		Other	10	86.70	12.685	0.186	0.455
6	Risk Factor- WHOQOL	HTN	19	87.47	10.895	0.000	0.836**
		DM	9	84.22	11.245	0.007	0.820**
		ALC	4	89.25	4.113	0.014	0.986*
		SMO	8	91.63	12.045	0.001	0.923**
		CORO	1	77.00	-	a	a
	Stroke Type- WHOQOL	Hemorrhagic	10	77.60	29.789	0.001	0.907**

7		Ischaemic	9	78.89	31.151	0.001	0.907**
8	Education- WHOQOL	With Schooling	10	88.90	8.850	0.856	0.066
		Without Schooling	10	85.00	12.737	0.856	0.066
9	Severity- WHOQOL	After Stroke	20	86.95	10.860	0.000	0.843**
		1 Month after Stroke	20	97.00	10.775	0.000	0.843**

Lower Income- Less than Rs 10,000 per month; Upper Income- More than Rs 10,000 per month; HTN- Hypertension; DM- Diabetes Mellitus; ALC- Alcohol; SMO- Smoking; CORO- Coronary Artery Disease; a- Cannot be computed because atleast one of the variable is constant).Table 2 shows Paired Samples Correlations test for total no. of subjects N= 20.

Table 3: One- sample statistics- Table showing descriptive analysis for entire sample N= 20 showing mean and standard deviation of mNIHSS one week and one month after stroke.

	N	Minimum	Maximum	Mean	Std. Deviation
mNIHSS_1	20	2	28	14.40	5.816
mNIHSS_2	20	0	22	5.45	5.889
Valid N (listwise)	20	-	-	-	-

Table 3 shows mean $\pm$ Standard Deviation for mNIHSS- 1 and 2 is 14.40 ± 5.816 and 5.45 ± 5.889 respectively.
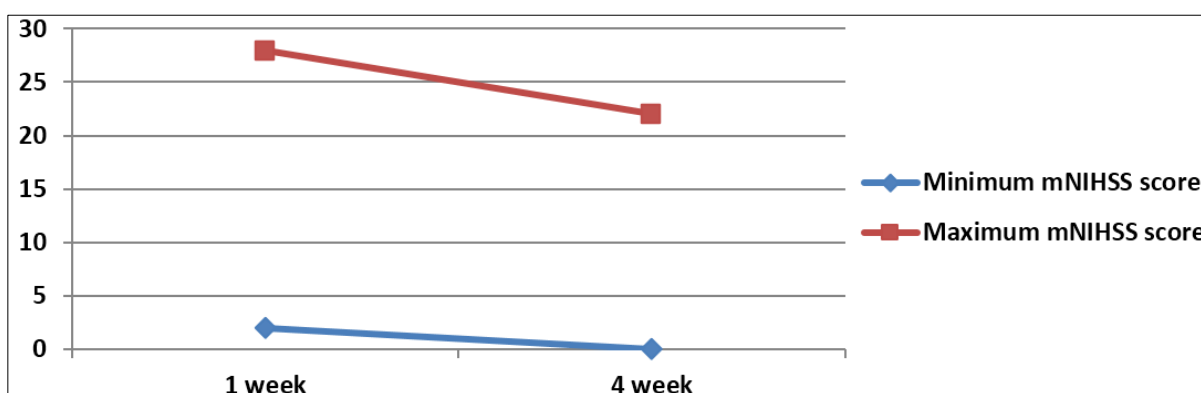

Fig 1: Graphical representation of table 3 showing improvement in minimum and maximum scores of mNIHSS after one week and one month.

Table 4: One- sample statistics- Table showing descriptive analysis for entire sample N= 20 showing mean and standard deviation of WHOQOL one week and one month after stroke.

	N	Minimum	Maximum	Mean	Std. Deviation
WHOQOL_1	20	70	109	86.95	10.860
WHOQOL_2	20	73	113	97.00	10.775
Valid N (listwise)	20	-	-	-	-

Table 4 shows mean $\pm$ standard deviation for WHOQOL- 1 and 2 is 86.95 ± 10.860 and 97.00 ± 10.775 respectively.
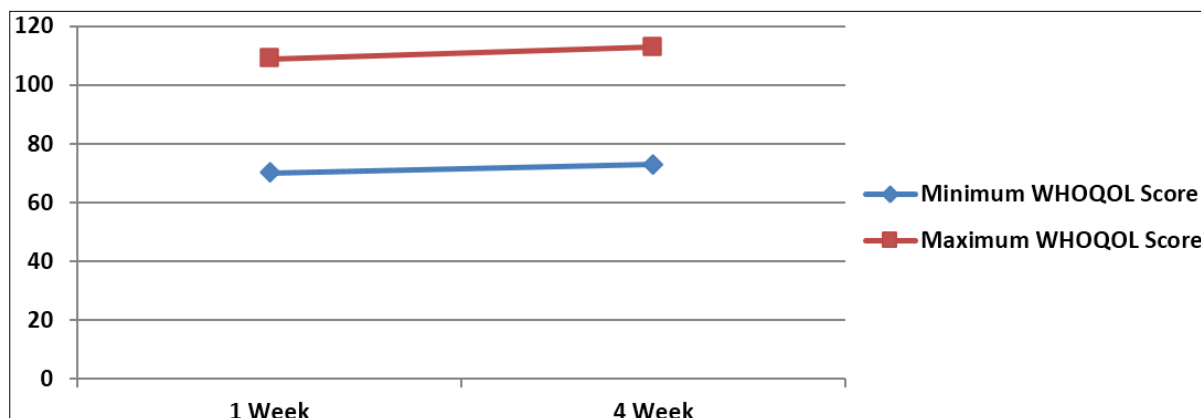

Fig 2: Graphical representation of table 4 showing improvement in minimum and maximum scores of WHOQOL- BREF after one week and one month.

Table 5: shows Paired Samples Correlations test for total no. of subjects N= 20

Pair Between		N	Significance Value	Pearson Correlation
mNIHSS and WHOQOL	mNIHSS-1 and WHOQOL-1	20	0.000	-0.733**
	mNIHSS-2 and WHOQOL-2	20	0.000	-0.778**

mNIHSS-1 and WHOQOL-1 are the scores recorded within one week of stroke. mNIHSS-2 and WHOQOL-2 are the scores recorded after one month of stroke).

Table 5 shows significance value and Pearson correlation for pair mNIHSS and WHOQOL. For pair mNIHSS-1 and WHOQOL-1, Significance value is 0.000 and Pearson Correlation is -0.733.

3. Discussion
Family status, Risk factors and stroke status were significantly related with the post stroke quality of life. Stroke severity was also related significantly with the QOL post stroke. This means that quality of life of stroke survivors is highly affected by these factors. This has also been proved in other studies as well [6, 7, 8, 9, 10].

Quality status is positively related to quality of life. Patients living in joint family were having better quality of life as compared to patients living in nuclear families. This is because in India, a majority of stroke patients are cared for by relatives in the joint family. Stroke patients receive family support from careers during their process of recovery. Therefore, the psychosocial problems in Indian stroke patients could differ from those experienced by patients in other developed countries [6] Quality of life is significantly influenced by the presence of risk factors. Patients with the risk factors like Alcohol and coronary artery disease had more impaired quality of life as compared to patients having risk factors like hypertension, Diabetes and smoking. Risk factors are negatively associated with post stroke quality of life as presence of risk factors means poor quality of life as compared to patients having no risk factors [28]. Other variables like age, gender, income, occupation and education of patients were not related significantly to quality of life of patients post stroke as per this study. Other studies have shown their effects on QOL [7, 8, 9, 10].

Also there is significant correlation between the stroke severity and quality of life of patients as prove in other studies also [7, 8] The results have shown that after administrating physiotherapy in the acute stage of recovery post stroke, the condition of patients improved and also QOL was better than recorded one month earlier.

4. Conclusions
There were no notable differences in QOL among stroke survivors in the present study as compared with those in studies from other developed countries. Patients living in joint families have better QOL as compared to those living in nuclear families. Hypertension, diabetes mellitus, Smoking, Alcohol and Coronary Artery Disease tend to decline the quality of life after stroke. Stroke whether hemorrhagic or ischemic equally affects the QOL. Also the quality of life is affected by severity of stroke and is improved by early administration of physiotherapy.

5. References
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