The Stroke Journal

ORIGINAL ARTICLE

Depression and anxiety in stroke patients: a hospital based cross-sectional study

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ABSTRACT

Background: Depression and anxiety are major contributors of global health burden of disease and important mental health condition in Nepal being very highly prevalent, co-morbid and associated with psychosocial health. The present study was undertaken to assess status of depression and anxiety among patients with stroke.

Materials and methods: This was a cross-sectional study conducted on stroke patients (n=31) visiting Neuro-medicine outpatient department of National Institute of Neurological and Allied Sciences from July to September 2017. A semi-structured proforma was used to collect sociodemographic information and stroke type while Hospital Anxiety and Depression Scale (HADS) was used to measure depression and anxiety. Descriptive statistics were obtained for all the variables and bivariate analysis was performed to determine the factors associated with depression and anxiety. All the analysis were performed using IBM-SPSS version 20.

Results: Majority of the participants were males (22, 71.0%), mature adults aged 30 to 65 years (21, 67.7%), housewives (10, 32.3%), Hindu (25, 80.6%), out of valley (18, 58.1%) and had education below secondary level or under SLC (17, 54.8%). Almost all of them had ischemic stroke (30, 96.8%). Of the total 31 stroke patients clinical depression was observed in 29% while 13% had clinical anxiety. None of the variables had statistically significant association with depression status but anxiety was significantly associated with education (p=0.002) and place of residence (p=0.025).

Conclusion: Depression and anxiety were present in patients with stroke. A larger study can further elaborate the findings of our study.

Keywords: Anxiety, Depression, Stroke

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INTRODUCTION

Depression and anxiety are common in patients with stroke and are associated with increased morbidity and mortality. Depression is globally the third–leading cause of disability as measured in terms of disability–adjusted life–years.[1] It has also been associated with non–communicable diseases.[2] Meta–analyses of point–prevalence rates are suggestive towards having post–stroke depression among one third of stroke–survivors and post–stroke anxiety among one quarter.[3] Similarly anxiety disorders are the most common mental health problem around the world. It could be appropriate or normal reaction while experiencing a life threatening event such as stroke and might be helpful in promoting healthy behaviour. However, elevated levels of anxiety symptoms are associated with reduced quality of life lead to increased healthcare utilization, and risk of disabling health conditions and may even augment risk of death.

Among several explanations the first and least likely explanation for the association between physical illness and depression, is a coincidental relationship. The second possible explanation is a negative mood reaction to the physical consequences of the stroke. The impact of the physical illness may wield its effect through the losses it causes to the individual as a major negative life event (losses to self–esteem, independence, employment, etc). The third possible explanation is a neurotransmitter imbalance as a result of cerebral damage caused by the stroke.[4] We aim to explore the status of depression and anxiety in patients with stroke.

MATERIALS AND METHODS

This was a cross–sectional study conducted at National Institute of Neurological and Allied Sciences, Bansbari, Kathmandu, Nepal between July to September 2017. The study population were patients (n=31) with stroke diagnosed and referred by the consultant neurologist. Those above 18 years of age, providing informed consent to participate, having either ischemic or hemorrhagic stroke but no co–morbid psychiatric illnesses and substantial cognitive impairment were assessed with a semi–structured proforma to collect the demographic information and Hospital Anxiety and Depression Scale (HADS) to assess the level of depression and anxiety.

Hospital Anxiety and Depression Scale (HADS) which was originally developed by Zigmond and Snaith in 1983 comprises of seven questions for anxiety and seven questions for depression, and takes 2–5min to complete. HADS focuses on non–physical symptoms so that it can be used to diagnose depression in people with significant physical ill–health. Any overlap, for instance impaired concentration secondary to pain rather than depression, is usually easy to separate on an individual basis. HADS does not include all of the diagnostic criteria of depression. (Diagnostic and Statistical Manual of Mental Disorders, Fourth/Fifth Edition (DSM IV/V)) or all those required by the Health and Work Development Unit (HWDU).[5] The HADS questionnaire has been validated in many languages, countries and settings including general practice and community settings. It is useful for initial diagnosis and to track progression (or resolution) of psychological symptoms. It is one of the tools which are recommended by National Institute for Health and Care Excellence (NICE) for diagnosis of depression and anxiety.

The ethical approval for this study was obtained from the Institutional review Committee of National Institute of Neurological and Allied Sciences, Kathmandu. Data was entered in Microsoft Excel–2007 and analysed using IBM SPSS version 20 (IBM Corporation, Armonk, NY, USA).

RESULTS

Altogether 31 patients were included who fulfilled the enrolment criteria of the study during the three months period. Of the total 31 patients, 21 (67.7%) were between the age group 30–65 (Mature Adulthood), 71 % were male and 97% were married (table 1).

In the present study we used Hospital Anxiety and Depression Scale (HADS) and clinical history to identify post stroke anxiety and depression. As depicted in figure 1, among the 31 patients, 12.9% had anxiety in clinical range, 16.1% patients had borderline anxiety and 71% had normal range of anxiety. Similarly, 29% had depression in clinical range, 19.4% patients had borderline level of depression and 51.6% had normal range of depression. Our study showed that depression and anxiety is present in stroke patients as assessed by

HADS. We found that almost half (48.4%) the patients had depression when both borderline and clinical categories are combined together.

Table 1: Baseline characteristics (n=31).

Baseline characteristics		n(%)
Age (years)	30-65 (Mature Adulthood)	21(67.7)
	66-90 (Old Age)	10(32.3)
Sex	Male	22(71.0)
	Female	9(29.0)
Marital Status	Unmarried	1(3.2)
	Married	30(96.8)
Education	Illiterate	9(29.0)
	under SLC	17(54.8)
	SLC-Intermediate	2(6.5)
	Bachelors	3(9.7)
Occupation	Housewife	10(32.3)
	Business	3(9.7)
	Farming	5(16.1)
	Army	3(9.7)
	Government job	3(9.7)
	Others	7(22.6)
Religion	Hindu	25(80.6)
	Buddhism	5(16.1)
	Muslim	1(3.2)
Place of residence	Kathmandu	13(41.9)
	Out of valley	18(58.1)
Type of stroke	ischemic	30(96.8)
	Haemorrhagic	1(3.2)

Table 2 shows that the association between baseline characteristics of patients and their depression status was not significant at p<0.05 though most of them within clinical range of depression were aged 30-65 years (7, 22.6%), were male (6, 19.4%), married (8, 25.8%), illiterate (4, 12.9%), housewives (3, 9.7%), hindu (7, 22.6%), out of valley (6, 19.4%) and had ischemic stroke (9, 29.0%).
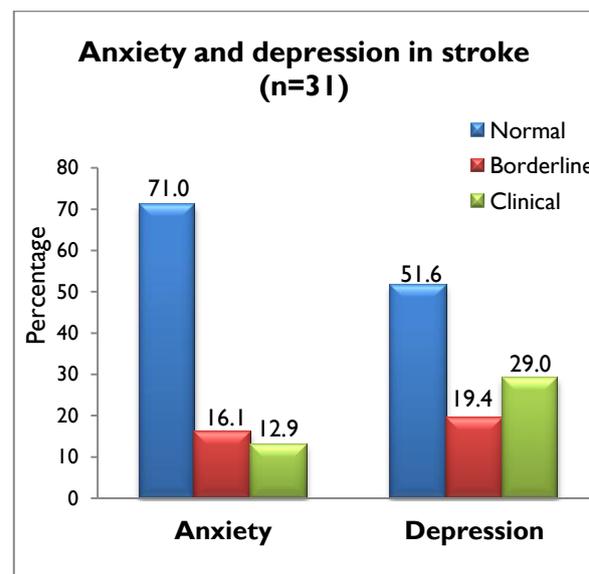

Fig 1: *Status of anxiety and depression among patients with stroke at NINAS*

Table 2: Crosstabulation of Depression status and baseline characteristics (N=31).

Variables		Depression status			P-value
		Normal n(%)	Borderline n(%)	Clinical range n(%)	
Age (years)	30-65	9(29.0)	5(16.1)	7(22.6)	0.347
	66-90	7(22.6)	1(3.2)	2(6.5)	
Sex	Male	12(38.7)	4(12.9)	6(19.4)	0.878
Marital status	Unmarried	0	0	1(3.2)	0.279
	Married	16(51.6)	6(19.4)	8(25.8)	
Education	Illiterate	4(12.9)	1(3.2)	4(12.9)	0.104
	Under SLC	10(32.3)	5(16.1)	2(6.5)	
	SLC-Intermediate	0	0	2(6.5)	
	Bachelors	2(6.5)	0	1(3.2)	
Occupation	Housewife	5(16.1)	2(6.5)	3(9.7)	0.284
	Business	1(3.2)	0	2(6.5)	
	Farming	1(3.2)	3(9.7)	1(3.2)	
	Army	3(9.7)	0	0	
	Government job	2(6.5)	0	1(3.2)	
	Others	4(12.9)	1(3.2)	2(6.5)	
Religion	Hindu	12(38.7)	6(19.4)	7(22.6)	0.428
	Buddhism	3(9.7)	0	2(6.5)	
	Muslim	1(3.2)	0	0	
Residence	Kathmandu	8(25.8)	2(6.5)	3(9.7)	0.641
	Out of valley	8(25.8)	4(12.9)	6(19.4)	
Type of stroke	Ischemic	16(51.6)	5(16.1)	9(29.0)	0.180
	Haemorrhagic	0	1(3.2)	0	

*Significant at P<0.005; Chi-square test was performed in all cases

In contrast to depression status depicted in table 3, table 2 shows that there was statistically significant association of anxiety status with education (p=0.002) and place of residence (p=0.025). None of the patients who had clinical depression had bachelor degree or above but most of them were SLC–intermediate (2 out of 31, 6.5%) followed by

under SLC (1, 3.2%) and illiterate (1, 3.2%). Similarly, most of them who were under clinical range of depression had ischemic stroke (3/31, 9.7%).

As shown in table 4, the Pearson correlation revealed that a positive correlation (r=0.460**) exist between depression and anxiety.

Table 3: Crosstabulation of Anxiety status and baseline characteristics (n=31).

Variables		Anxiety status			P-value
		Normal n(%)	Borderline n(%)	Clinical range n(%)	
Age (years)	30-65	13(41.9)	4(12.9)	4(12.9)	0.122
	66-90	9(29.0)	1(3.2)	0	
Sex	Male	17(54.8)	2(6.5)	3(9.7)	0.281
	Female	5(16.1)	3(9.7)	1(3.2)	
Marital status	Unmarried	0	0	1(3.2)	0.114
	Married	22(71.0)	5(16.1)	3(9.7)	
Education	Illiterate	5(16.1)	3(9.7)	1(3.2)	0.002*
	Under SLC	16(51.6)	0	1(3.2)	
	SLC-Intermediate	0	0	2(6.5)	
	Bachelors	1(3.2)	2(6.5)	0	
Occupation	Housewife	6(19.4)	3(9.7)	1(3.2)	0.225
	Business	1(3.2)	1(3.2)	1(3.2)	
	Farming	5(16.1)	0	0	
	Army	3(9.7)	0	0	
	Government job	2(6.5)	1(3.2)	0	
	Others	5(16.1)	0	2(6.5)	
Religion	Hindu	17(54.8)	5(16.1)	3(9.7)	0.595
	Buddhism	4(12.9)	0	1(3.2)	
	Muslim	1(3.2)	0	0	
Residence	Kathmandu	10(32.3)	0	3(9.7)	0.025*
	Out of valley	12(38.7)	5(16.1)	1(3.2)	
Type of stroke	Ischemic	22(71.0)	5(16.1)	3(9.7)	0.114
	Haemorrhagic	0	0	1(3.2)	

*Significant at P<0.005; Chi-square test was performed in all cases

Table 4: Correlation of depression and anxiety

HADS	Depression	Anxiety
Anxiety	0.460**	-
Depression	-	0.460**

**Significant at p<0.01(2-tailed)

DISCUSSION

Our study revealed that clinically significant depression and clinically significant anxiety in stroke patients are common. Post stroke depression and anxiety were found significantly high among male patients and between age group of 30–65 years in our study. It could be because of less coping abilities of men as compared to female. Both depression and anxiety were found more frequent among patients educated below school leaving certificate (SLC), patients residing in semi–

urban areas and among Hindu patients but no significant relation was observed with marital status of the patients. In this study we found that almost one third (29%) of the patients with stroke were depressed. It illustrates that the post stroke depression was higher than the post stroke anxiety in our study which is quite similar with the review study of Robinson and Spalletta (2010) in which the prevalence of depression was higher (24%).[6]

Likewise the combined ratio of borderline (16.1%) and clinical range (12.9%) of anxiety in our study was one half of the stroke patients under study whereas the study of Chun et. al in the year 2018[7] reported 22% of the stroke patients had any form of anxiety disorder. The output of this study suggest that screeening for both depression and anxiey should be integrated in the routine check ups. This will

provide better opportunities for the early identification of patients at risk because they both are found being co–morbid in stroke. This may enhance the quality of service delivery in the health care units.

Our study did not show statistcally significant relationship of depressive and anxiety symptoms with age, sex and other socio demographics like some of the other studies.[2,8] This may be due to the proportion of the sample size taken and also the cultural differences.

The correlation (r=0.46) between depression and anxiety in our study was to some extent similar to the correlations (0.59 to 0.63) mentioned in other studies.[9,10] This is indicative towards anxiety being significant predictor of depression and depression being predictor of anxiety after stroke.

We have several limitations in this study. This study could benefit from larger sample size for providing more appropriate inference, probably a multi–centred study can be useful. Furthermore, we did not consider taking equal number of patients of both stroke types if not other variables. However, each case of stroke was diagnosed by a registered Neurologist and the depression and anxiety were assessed by psychologist.

CONCLUSION

Depression and anxiety exist among stroke patients particularly ischemic type with depression being more common. Appropriate intervention for optimal management of stroke patients is warranted. A multi–centered study considering larger sample size is suggestive for further exploration of the status of depression and anxiety together with factors affecting these conditions in patients with stroke.

COMPETING INTERESTS

The authors declare that there are no competing interests regarding the publication of this paper.

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