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Prevalence of Anxiety and its Associated Factors Among Patients Admitted at a Tertiary Neurosurgical Center in Kathmandu, Nepal

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ABSTRACT

Introduction

The co-existence of anxiety disorders in patients with neurological and neurosurgical disease is in association with barriers to treatment and worsening medical outcomes. This study aims to identify the prevalence and associated factors of anxiety in a tertiary neurological center in Kathmandu, Nepal.

Methods

This was a hospital-based cross-sectional study conducted at Annapurna Neurosurgical Centre, Kathmandu, Nepal among patients with major neurosurgical conditions admitted for surgery from August 2017 to April 2018. The data were collected by face-to-face interview using a structured questionnaire consisting of socio-demographic characteristics, medical history and substance use. Nepali translated Hospital Anxiety Scale was used to assess the anxiety level of the participants. Chi-square test was used to test the association of anxiety with independent variables.

Results

A total of 260 patients were included in this study with the mean age of 45.7 (SD 17.9) years. Of which, 174 (66.9%) were found to have anxiety. Anxiety was found to be negatively associated with younger age group (OR=0.33, 95% CI 0.19-0.58) and positively associated with low education level (OR=2.18, CI 1.28-3.70) and presence of at least one chronic disease other than neurological condition (OR=2.03, 95% CI 1.14-3.63).

Conclusions

This study revealed a high prevalence of anxiety in patient who are undergoing neurosurgical procedure. The need for a focused approach to mental health care in the hospital should be implemented so that the patients can achieve good mental and physical health during and after hospitalization.

Keywords: anxiety; neurosurgical patient; psychiatry disorder.

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INTRODUCTION

The most commonly encountered emotional disorder in medical patients is anxiety, which has been described as a vague, uneasy feeling, the source of which is often non-specific or unknown to the individual.¹ During hospitalization, the patient undergoes a variety of stressful experiences. In addition, hospitalized patients often lose work, independence, body image, and social identity. Patients may also face invasive testing and the possibility of uncertain diagnosis, an incurable disease, or even death.

The exposure of intimacy to strangers in the hospital, the contact with other ill people, and the uncertainty toward the evolution of the treatment can also become highly anxiogenic. Studies conducted in Nepal have shown that the prevalence of anxiety among the general population ranged from 16.1% to 41%²⁻⁴ whereas the prevalence of anxiety among hospitalized patient ranged from 27.4% to 76.1%.⁵⁻⁷

There have been studies among hospitalized patients in Nepal focused on cancer, cardiac, geriatric, respiratory and substance abuse patients⁵⁻⁹, but not in patients with neurosurgical condition. This study will help to identify the mental health needs in neurosurgical patients so that they can achieve good mental and physical health during and after hospitalization. Further, this can help policymakers to formulate guidelines in addressing mental health problems. Hence, we aimed to find the prevalence of anxiety and its risk factors among the patients with neurosurgical conditions admitted at a tertiary neurosurgical center at Kathmandu, Nepal.

METHODS

This was a cross-sectional study carried out among patients at Annapurna Neurosurgical Centre, Kathmandu, Nepal from August 2017 to April 2018. The study included all patients with neurosurgical conditions admitted for major

surgery with age more than 16 years old whereas emergency conditions, already diagnosed anxiety disorder, terminally ill patients, and severe life events in the past 6 months.

The data was collected by face-to-face interview was carried out one or two days prior to the surgery using a structured questionnaire consisting of socio-demographics, duration of hospital stay, medical history, smoking and alcohol use. Validated Nepali translated Alcohol Use Disorders Identification Test (AUDIT) scale was used to assess alcohol dependence.¹⁰ The score was dichotomized into "not dependent" if score was less than 8 and "harmful use and dependent" if the score was 8 or more. Similarly, the Fagerstrom test was used to assess nicotine dependence.¹¹ It consists of six questions and score of more than six indicates a high risk of nicotine dependence, score 4-6 indicates moderate nicotine dependence and less than 4 indicates minimal dependence. The validated Nepali version of Hospital Anxiety and Depression Scale (HADS) was used to measure the anxiety status of the participants. It contains seven anxiety assessment items with minimum score of 0 and maximum of 21 points. The cut off value of 8 points was considered as having anxiety. The data was entered in Excel 2016 and analyzed with Statistical Package for Social Sciences (SPSS) version 20. Descriptive analysis was presented using frequency, percentage, mean and standard deviation. Chi-square test was used to measure the association of anxiety and related variables. Odds ratio was calculated at 95% confidence interval. A p-value of less than 0.05 was considered to be statistically significant.

Ethical Approval was taken from the Nepal Health Research Council before the study. The objectives of the study were explained to the participants and written consent was obtained prior to the interview.

RESULTS

A total of 260 patients were included in this study. The mean age of the participants was found to be 45.7 years (SD=17.9) ranging from 16 to 91 years. The most common age group was 30 to 45 years (29.6%) followed by 45 to 60 years

(80.8%) were staying in the hospital for less than 7 days. Half of them were literate and 42.7% were unemployed. Around 19.6% and 13.8% of them were alcohol consumers and current smokers, respectively. About 34.6% of them had at least one chronic disease (Table 1).

Table 1. Sociodemographic characteristics, medical history and substance use among the participants. (n=260).

Variables	Categories	Frequency (n)	Percentage (%)
Age in years	16-30	62	23.8
	30-45	77	29.6
	45-60	66	25.4
	> 60	55	21.2
Mean age (SD)	45.7 (17.9)		
Gender	Male	141	54.2
	Female	119	45.8
Duration of hospital stay (in days)	< 7	210	80.8
	≥ 7	50	19.2
Mean duration of stay (SD)	4.7 (2.6)		
Marital status	Married	212	81.5
	Single	34	13.1
	Widow	14	5.4
Occupation	Unemployed	111	42.7
	Employed	149	57.3
Educational status	Illiterate	130	50.0
	Literate	130	50.0
Current Smoker	Yes	36	13.8
	No	224	86.2
Current alcohol use	Yes	51	19.6
	No	209	80.4
Exercise	Yes	73	28.1
	No	187	71.9
Any chronic diseases	Yes	90	34.6
	No	170	65.4

(25.4%). Male composed of 54.2%, and majority (81.5%) were married. Most of the participants

Among alcohol users, 47.1% were alcohol dependent according to AUDIT scale. Similarly,

among current smokers, 36.1%, 36.1%, and 27.8% were found to be minimally, moderately, and highly dependent on nicotine as per Fragerstorm scoring (Table 2). A total of 174 (66.9%) were found to have anxiety using HADS scoring system.

likely to have anxiety than literate participants and this association was found to be statistically significant (OR=2.176, 95% CI=1.281-3.697). Those participants who had at least one chronic disease were found to have anxiety two times more than those who did not have any

Variables	Categories	Frequency (n)	Percentage (%)
Alcohol dependence (n=51)	Harmful use & dependent	24	47.1
	Not dependent	27	52.9
Nicotine dependence (n=36)	Minimal dependent	13	36.1
	Moderately dependent	13	36.1
	Highly dependent	10	27.8

In this study, anxiety was found to be statistically significant with the age of the participant. Table 3 shows that the younger participants of age 45 years and below were 0.333 time less likely to have anxiety than those of more than 45 years (OR=0.333, 95% CI=0.192-0.579). Similarly, illiterates were found to be 2.176 time more

chronic illness (OR=2.034, 95% CI=1.141-3.626). Other variables such as gender, marital status, duration of hospital stay, occupation, smoking status, alcohol consumption, exercise, alcohol and nicotine dependence were not found to be statistically significant with anxiety (Table 3).

Variables	Categories	Anxiety		OR	95% CI
		Yes n(%)	No n(%)		
Age in years	≤45	78 (56.1)	61 (43.9)	0.333	0.192-0.579
	>45	96 (79.3)	25 (20.7)		
Gender	Male	94 (66.7)	47 (33.3)	0.975	0.580-1.638
	Female	80 (67.2)	39 (32.8)		
Duration of stay	< 7 days	136 (64.8)	74 (35.2)	0.580	0.286-1.178
	≥7 days	38 (76.0)	12 (24.0)		
Marital status	Married	143 (67.5)	69 (32.5)	1.137	0.589-2.194
	Single/ widow	31 (64.6)	17 (35.4)		
Occupation	Unemployed	81 (73.0)	30 (27.0)	1.626	0.953-2.774
	Employed	93 (62.4)	56 (37.6)		
Education	Illiterate	98 (75.4)	32 (24.6)	2.176	1.281-3.697
	Literate	76 (58.5)	54 (41.5)		
Current smoker	Yes	28 (77.8)	8 (22.2)	1.870	0.813-4.299
	No	146 (65.2)	78 (34.8)		

Current alcohol use	Yes	40 (78.4)	11 (21.6)	2.035	0.986-4.201
	No	134 (64.1)	75 (35.9)		
Exercise	Yes	46 (63.0)	27 (37.0)	0.785	0.446-1.384
	No	128 (68.4)	59 (31.6)		
Chronic disease	Yes	69 (76.7)	21 (23.3)	2.034	1.141-3.626
	No	105 (61.8)	65 (38.2)		
Alcohol dependence	Harmful use & dependent	19 (79.2)	5 (20.8)	1.086	0.284-4.143
	Not dependent	21 (77.8)	6 (22.2)		
Nicotine dependence	Minimal dependent	11 (84.6)	2 (15.4)	1.941	0.330-11.407
	Moderate and high dependent	17 (73.9)	6 (26.1)		

DISCUSSION

This is the first study of its kind reporting prevalence of anxiety amongst the patients admitted for neurosurgery in Nepal. The overall anxiety among the participants in our study was found to be 66.9%. This prevalence was higher compared to other studies conducted in Nepal, where 31% was seen in general patients and 39% in patients with tuberculosis.^{12,13} This study was conducted in a Neurological hospital, so the anxiety with the disease pertaining to the neurological system may be more than the average variety of diseases, the patient might be having in the other centers.

The prevalence of anxiety was higher in this study than in general population. Since, this study was focused on hospitalized patients compared to the non-hospitalized ones, the anxiety prevalence in this study was bound to increase as, hospitalization itself was a very significant factor for anxiety. Similar findings was reported in India among the hospitalized orthopedics patients.¹⁴ A study conducted in a rural part of Nepal showed that anxiety was three times more common in COPD patients compared to participants from the general population.¹⁵ In accordance to our study, other

research showed a significant association of anxiety with age and with at least one chronic disease.⁶ Similarly, studies in Brazil and Ethiopia also showed a significant association with age, hypertension, Diabetes Mellitus, and obesity.¹⁶⁻¹⁷ Anxiety symptoms are reported to be strongly connected to physical health. This partly explains the strong association with people of older ages and with chronic diseases.

This study showed the prevalence of anxiety in illiterate was higher. This may be due to the fact that literate people have more access, and easily understand the nature of their condition as well as share the problems. This finding was inconsistent with the study conducted in India among orthopedics patient¹⁴. This study also showed that the prevalence of anxiety among females higher than males, which was similar to other studies.^{17,12,5}

Diagnosing the hospital-associated anxiety could be beneficial, not only to patients in many aspects, but also to health care providers in efficiently treating the patients. This can also improve patient's compliance with treatment and medications, leading to better outcomes. The patient would also be more participating in their medical decision, be more willing to

share the relevant symptoms during the stay, that might not only further decrease the anxiety but also help to address the existing illness for which they were admitted, and thus speeding the recovery.

There are some limitations to this study. This study does not help establish causality of the risk factors associated with anxiety, as it has a cross-sectional design. As this was conducted in only one hospital, the findings could not be generalized.

CONCLUSIONS

This study reported a high prevalence of

anxiety among hospitalized patients admitted for neurosurgical treatment. Regular and proper counseling prior surgery should be done to alleviate anxiety among patients with special attention to old, illiterates and patients with chronic diseases. Early recognition and diagnosis of anxiety while treating the main underlying disease should be an approach in hospitalized patients, which would lead to a better outcome. This study also points out a real need to make an approach to address mental health among hospitalized patients in the scenario of Nepal.

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