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Study of Co-morbidities in Schizophrenia in Patients Admitted to a Tertiary Care Centre: An Observational Study

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Abstract

Introduction: Patients with schizophrenia vary substantially relative to their symptoms, response to treatment, disease impact on function and biological correlates. Approximately 50% of patients with schizophrenia have at least one comorbid psychiatric or medical condition. This study was conducted to assess various psychiatric and medical comorbidities complicating the clinical picture of schizophrenia.

Methods: A hospital-based descriptive cross-sectional study was conducted at the Department of Psychiatry of a medical college in Nepal from November 2018 to December 2019. All the admitted patients in Psychiatry Ward, 18 years and above with diagnosis of schizophrenia were included. Patients admitted in intensive units and outpatient patient visits were excluded. Ethical approval was taken from Institutional Review Committee. A data collection tool which contained of semi-structured questionnaire was developed for data collection of clinical and demographic profile. The Positive and Negative Syndrome Scale, Beck Anxiety Inventory Nepali version, Beck Depression Inventory II Nepali version and CAGE Questionnaire was used for assessing syndrome of Schizophrenia, depression, anxiety and use of alcohol. The collected data was entered in the Microsoft Excel and Descriptive statistics were used to summarize and present the data.

Results: Out of 60 patients, 55 (91.68%) and 37 (61.68%) had psychiatric and medical comorbidities respectively. Co-morbid psychiatric conditions such as substance use, anxiety and depression were found in 37 (61.68%), 35 (58.33%) and 30 (50%) of them. Sexual dysfunction and menstrual dysfunction were common co-morbidities followed by dyslipidaemia and electrolyte imbalance.

Conclusions: This study found the substantial burden of comorbid conditions in the patients with schizophrenia.

Keywords: *comorbidity; Nepal; schizophrenia.*

Introduction

Schizophrenia is a severe mental disorder associated with significant morbidity and reduced life expectancy.[1] Patients vary substantially relative to their symptoms, response to treatment, disease impact on function and biological correlates.[2] Globally, schizophrenia affects approximately 23 million people or 1 in 345 people (0.29%).[3] In Nepal the prevalence of schizophrenia is roughly 0.20%.[4]

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Approximately 50% of patients with schizophrenia have at least one comorbid psychiatric or medical condition increasing the morbidity and mortality of the patients.[5] Comorbid conditions have a deleterious effect on the course of schizophrenia. Depression, anxiety and substance abuse are common comorbid psychiatric conditions and obesity, hypertension, diabetes, etc., are common comorbid medical conditions.[6]

There has been limited published literature available regarding the prevalence of the comorbidities in schizophrenia. This study was conducted to assess various psychiatric and medical comorbidities complicating the clinical picture of schizophrenia.

Methods

A hospital-based descriptive cross-sectional study was conducted at the Department of Psychiatry, Kathmandu Medical College, Sinamangal, Kathmandu, Nepal from November 2018 to December 2019. The study was carried out among the admitted patients in the Psychiatry Ward with the diagnosis of Schizophrenia. Ethical approval was taken from Institutional Review Committee of Kathmandu Medical College (Ref. No. 26092187).

Total enumerative sampling method was used to include all the admitted patients in Psychiatry Ward with age of 18 years and above with diagnosis of schizophrenia, confirmed by two consultant psychiatrists as per ICD-10 Diagnostic Criteria for Research. Patients admitted in intensive units and outpatient patient visits were excluded. Patients visiting outpatient department were excluded because detailed history taking, documenting comorbidities and administering various tools required a time-consuming workup. This level of evaluation could not be guaranteed in the outpatient setting, where clinical contact is usually brief and intermittent. Informed written consent was obtained from the patients and from guardians in those cases where insight was not intact. We strictly maintained the confidentiality, anonymity and voluntary participation.

A data collection tool which contained of semi-structured questionnaire was developed for collection of clinical and demographic profile of the patients. In addition, the Positive and Negative Syndrome Scale (PANSS), Beck Anxiety Inventory Nepali version, Beck Depression Inventory II Nepali version and CAGE Questionnaire was used for assessing syndrome of Schizophrenia, depression, anxiety and use of alcohol respectively. PANSS was administered by the researcher to the patient and the remaining scales were self-administered by the patients themselves in the presence of the researcher. Apart from alcohol, other substances abused were assessed with a yes/no questions and no other tools were used. Sexual dysfunction was assessed during the detailed history taking session and no particular tool was used for this. Regarding the medical comorbidities, we developed a yes/no questions for common diagnosed co-morbidities, the diagnosis of whose was done by the physicians of the concerned departments.

PANSS: Schizophrenia was diagnosed using ICD 10 criteria. We used the Positive and Negative Syndrome Scale (PANSS) for assessing the symptom severity. It is a scale developed by S R Kay et al in the late 1980.[7] The scale consists of 30 items divided into three subcategories: seven positive (PANSS P), seven negative (PANSS N), and 16 general psychopathological symptoms. Each item is rated from 1 (absent) to 7 (extremely present). The total score is the sum of all points, called PANSS total (PANSS T). Remission is usually defined as a score of <3 in all positive PANSS items. Reliability for each scale has been shown to be fairly high, with excellent internal consistency and interrater reliability. Validity appears good based on correlation with other symptoms.

Beck Depresssion Inventory II: Beck Depression Inventory II (BDI) developed by Aaron T. Beck in early 1960.[8] The BDI contains 21 items in which the patient selects one of the four defined options that best corresponds to how he feels over the past 2 weeks. Scores of 0 to 9 are considered minimal, 10 to 16 mild and 17 to 29 moderate and 30 to 63 severe. Internal consistency has been high in numerous studies, test-retest reliability is not consistently high. Validity is supported by correlation with other depression measures. The validated Nepali version of the Beck Depression Inventory was used for this study.[9]

Beck Anxiety Inventory: The Beck Anxiety Inventory (BAI) is made up of 21 items with a 4-point Likert scale, according to which the individual indicates the severity of the anxiety symptoms they suffered in the last week.[10] The validated Nepali version of Beck Anxiety Inventory done by Kohrt et al., published in 2007 was used, the sensitivity of which is 0.91 and specificity of 0.89. Reliability for the BAI is comparable to most studies in Western countries (0.89).[11]

CAGE Questionnaire: CAGE was developed in the mid- 1970s to serve as a very brief screen for significant alcohol problems which could be followed up by clinical inquiry. Each “yes” answer is scored as 1. Scores of 2 or more strongly suggest significant alcohol problems. Reliability has not been formally assessed. Validity has been assessed against a clinical diagnosis of alcohol abuse or dependence and the four questions perform well.[12]

The collected data was entered in the Microsoft Excel maintaining the anonymity. The same software was used for analysis of the data. Descriptive statistics were used to summarize and present the data. Categorical variables were expressed as frequency and percentage.

Results

Out of 60 patients who met the inclusion criteria, 55 (91.68%) and 37 (61.68%) had psychiatric and medical comorbidities respectively (Table 1). Baseline and socio-demographic characteristics of the participants is shown in Table 1.

Table 1: Baseline characteristics (n= 60).

Variables	Category	Frequency n (%)
Age Group	10-20	2 (3.33)
	21-30	29 (48.34)
	31-40	14 (23.33)
	41-50	7 (11.67)
	51-60	4 (6.67)
	61-70	2 (3.33)
	>70	2 (3.33)
Gender	Male	33 (55)
	Female	27 (45)
Address	Koshi	2 (3.33)
	Madesh	9 (15)
	Bagmati	40 (66.67)
	Gandaki	3 (5)
	Lumbini	6 (10)
Marital Status	Unmarried	22 (36.66)
	Married	29 (48.34)
	Divorcee	5 (8.33)
	Widowed	4 (6.67)
Religion	Hindu	50 (83.33)
	Buddhist	7 (11.67)
	Christian	3 (5)
Family Type	Nuclear	27 (45)
	Joint	29 (48.34)
	Broken	4 (6.66)
Education Status	Masters/Bachelors	9 (15)
	High school/ Certificate level	26 (43.33)
	Primary level	13 (21.67)
	Illiterate	12 (20)
Occupation	Employed	21 (35)
	Unemployed	39 (65)
Monthly Income (NPR)	<10,000	5 (8.33)
	10,000-30,000	19 (31.67)
	30,000-50,000	25 (41.67)
	50,000-above	11 (18.33)
Socio-economic status	Lower	19 (31.67)
	Upper lower	17 (28.33)
	Lower middle	17 (28.33)
	Upper middle	7 (11.67)
Psychiatric Comorbidities	Present	55 (91.68)
Medical Comorbidities	Present	37 (61.68)

The mean of PANSS positive was 23.90±4.79, PANSS negative 28.45±10.02, PANSS general psychopathology 40.37±9.65 and PANSS total showed 92.17±18.25. Out of 55 (91.68%) co-morbid psychiatric conditions, substance use, anxiety and depression were found in 37 (61.68%), 35 (58.33%) and 30 (50%) of them (Table 2).

Table 2: Psychiatric co-morbidities (n= 60).

Conditions	Frequency n (%)
Depression	30 (50.00)
Anxiety	35 (58.33)
Substance use	37 (61.68)
Both anxiety and depression	17 (28.33)
No psychiatric co-morbidities	5 (8.33)

Table 3: Medical co-morbidities (n= 60).

Conditions	Frequency n (%)
Sexual dysfunction	20 (33.33)
Menstrual dysfunction	18 (30.00)
Dyslipidemia	15 (25.00)
Electrolyte imbalance	15 (25.00)
Hypertension	9 (15.00)
Obesity	9 (15.00)
Thyroid dysfunction	6 (10.00)
Diabetes	4 (6.67)
Ischemic Heart Disease	3 (5.00)
Asthma	1 (1.67)
Hepatitis	1 (1.67)
Stroke	1 (1.67)

Sexual dysfunction and menstrual dysfunction were

common co-morbidities followed by dyslipidemia and electrolyte imbalance (Table 3).

Discussion

This hospital-based study reveals a high prevalence of both psychiatric 55 (91.68%) and medical 37 (61.68%) comorbidities among admitted schizophrenia patients. Majority of the patients were from 21 to 30 years of age group 29 (48.34%). The findings in this study were also similar to the findings in the study done by Adewuya AO and Makanjuola RO in a teaching hospital in Nigeria, including 99 schizophrenia patients in which majority of the patients were below the age of 35.[13] The similarity in the age group in these studies may be due to the age of onset of schizophrenia, which is usually at age 18-25 years.[14]

There were 55% males and 45% females. The findings in our study, were also similar with the findings of the study done by Chabungbam et al., in PGIMER India including 40 schizophrenia patients, among which majority were male.[15] The findings of less proportion of women as compared to men in this study may be because the majority of patients in our study belonged to the age group 21-30 years and so, women diagnosed as schizophrenia may be less represented in our study, as women have two peaks in the age of onset, first being after menarche and second after menopause.[14]

Among the 60 participants 55 (91.70%) had co-morbid psychiatric illness. The co-morbid psychiatric illnesses were depression, anxiety and substance abuse. Among 55 out of the 60 participants who had psychiatric co-morbidity, 30 (50%) had depression, 35 (58.33%) had anxiety and 37 (61.70%) had co-morbid substance use. These findings were similar to the study done by Tsai J. and Rosenheck RA. in 2013, who had reanalyzed the 1446 participants of CATIE study, which showed majority of the participants had comorbid condition as depression, comorbid anxiety and drug abuse/dependence. Sexual dysfunction and menstrual dysfunction were more prominent concerns followed by dyslipidemia, electrolyte imbalance and so on.[16] The high prevalence of depression in our study may be due to the assessment done in the acute phase while admitted to hospital, as studies have found the depressive symptoms are common in acute phase. We did not find any of the patients in our study reporting other psychiatric conditions such as obsessive-compulsive disorder, sleep disorders, headache disorders, etc.,

Regarding medical comorbidities, the finding was that 25% of patients had dyslipidemia and 15% were hypertensive. This is similar to studies done previously showing that metabolic disorders as hypertension, dyslipidemia, diabetes are significantly prevalent in populations with schizophrenia.[17]

These metabolic disturbances are often exacerbated by antipsychotic use and sedentary lifestyles. Notably, this study identified sexual dysfunction (33.33%) and menstrual dysfunction (30%) as prominent concerns, which may significantly impact treatment adherence. Of the 27 females among the 60 participants, 18 (66.67%) had irregular menses, majority (37.93%) belonging to age group of 21-30 years. These findings were similar to the study done by Murke et al., including 113 patients, the mean age was 30.04 years and 50 (44.24%) showed menstrual irregularities.[18] The sexual dysfunction was found in 54.05% among the 37 of those who had medical co-morbidity, 60% (n = 12) were below the age of 40 and male. These findings were similar to the findings of the prospective, international study done by Dossenbach et al., including 27 countries; with total 7655 participants where the mean age was 35.8 years with 48% male participants.[19]

The substance-use prevalence of 61.68% found in this study is notably higher than the 47.5% reported in previous Nepalese research.[20] While alcohol was common (52.60%) cannabinoid followed with 26.3% in the mentioned study[20], our study showed that 91.89% were using tobacco, 70.27% were using alcohol followed by 67.56% using cannabis. Furthermore, the high rates of comorbid anxiety (58.33%) and depression (50%) align with literature suggesting these conditions are pervasive but frequently under-recognized in schizophrenia.[21,22] This discrepancy could be explained by the population sample of this study being limited to the inpatient settings.

This study had few limitations. Being an institution-based study, this study does not represent the whole population. It was a cross-sectional study representing the scenario only during the duration of study. Outpatients were excluded from the study, which could have added more details and generalizability of the findings. Further multicentric studies with a long-term follow-up is likely to give further insights.

Conclusions

This observational study done in the patients with schizophrenia admitted to a tertiary care centre found out the substantial burden of comorbid conditions. The high prevalence of both psychiatric and medical comorbidities highlights that schizophrenia rarely presents as an isolated condition. The high ratio of psychiatric comorbidities reflects the complex psychopathological profile.

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