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FREQUENCY AND PATTERN OF SUBSTANCE MISUSE IN PATIENTS WITH SCHIZOPHRENIA

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ABSTRACT

Objective: To determine the frequency and pattern of substance misuse in patients with schizophrenia

Methodology: A total of 425 patients with schizophrenia, as per International Classification of Diseases Research criteria version 10 (ICD-10), were included in this cross sectional study from Sarhad Hospital for Psychiatric Diseases Peshawar from September 2020 to February 2021. Patients Information was gathered through a semi-structured questionnaire. Frequency and percentage for categorical variables while mean and standard deviation for continuous variables were calculated using SPSS version 24.

Results: Out of 425, 84.9% are males while 15.1% are females. Mean ages of onset of schizophrenia and substance misuse are 21.97±6 years and 17.99±7 years respectively. Age of onset of schizophrenia and substance misuse in males is 21.97±6.01 years and 17.99±7.06 years while in females it is 24.12±8.07 years and 19.45±4.42 years respectively. Life time history for any substance misuse is 69.6%, tobacco 68.2% and non-tobacco substances 41.2%, cannabinoids 40.8%, opioids 5.2%, stimulants 5.7%, sedative hypnotics 2.6% and other substances 0.2%. 54.4% started substance misuse before the onset of schizophrenia while 12.5% started after the onset of schizophrenia. 65.9% are still (presently) misusing any substance, 65.4% are still misusing tobacco while 26.1% are still misusing non-tobacco substance. Substance misuse was more among uneducated, single and male patients.

Conclusion: Substance misuse is quiet common among schizophrenic patients and its onset usually precedes the onset of schizophrenia. Onset of schizophrenia and substance misuse is earlier in males as compare to females. Moreover frequency of substance misuse is lower in female patients, those who are educated and those who are married and vice versa.

Key words: Substance misuse; Schizophrenia; Frequency

INTRODUCTION

Schizophrenia is a lifelong major psychiatric illness with heterogeneous etiology characterized by positive and negative symptoms as well as behavioral disorganization and cognitive symptoms. About 0.5% population are effected by schizophrenia worldwide during their life time with annual incidence of about 0.16 to 1.00 per 1000 population.¹ Other than the prominent genetic factors, a range of environmental factors including substance misuse have been identified as possible etiological factors for schizophrenia.² Substance misuse causes poor prognosis, is an established fact. But however whether substance misuse plays a causal role in schizophrenia is controversial. However there is evidence that cannabis increases the risk of schizophrenia.^{1,3} Similarly tobacco and stimulants etc. are also risk factors for development of signs and symptoms similar to schizophrenia.^{1,4} Age of onset of schizophrenia is earlier in those who are misusing substanc-

es. This fact is more related with cannabis but also to some degree to use of stimulants such as amphetamine, cocaine, and ecstasy.^{5,6} Cannabis use appears to be an independent risk factor for the development of persistent psychotic disorders, particularly in those at genetic risk for developing schizophrenia and those who previously experienced psychotic symptoms.^{3,6}

The life time prevalence of substance abuse in general population in different countries varies from 16% to 42%. While The estimated lifetime prevalence of any substance misuse in schizophrenia is 47%.¹ In two large German samples of schizophrenic patients, the life time prevalence estimate for substance abuse were found to be 21.8% and 42.9%, with 3 months prevalence rates being 21.3% and 29%.³ According to a study the frequencies of substance misuse in schizophrenic patients were as; alcohol # 47%, cannabis # 42%, stimulants # 25%, Hallucinogens # 18%, sedatives # 7%. Substance misuse is more common in

males than females in each group of drugs particularly alcohol and cannabis.⁷ According to meta-analysis, the prevalence of any substance use disorder was 41.7%, followed by illicit drugs (27.5%); cannabis (26.2%), alcohol (24.3%) and stimulant use (7.3%). Meta-analysis showed the pooled variance of any substance use disorder in males with schizophrenia was 48% which was significantly higher than that for females with schizophrenia.⁸

The incidence rate of cannabis-induced psychosis increased steadily from 2.8 per 100,000 people yearly in 2006 to 6.1 per 100,000 people yearly in 2016. There was a corresponding increase in dual diagnosis with schizophrenia and cannabis use disorder, but a decrease in alcohol-induced psychosis. The data showed no trend in the other substance-induced psychosis. This increase in cannabis-induced psychosis may be due to the increase in the concentration of THC in cannabis, and the increase in cannabis use. The change in diagnostic practice does not appear to explain the increase in incidence of cannabis-induced psychosis.⁹

According to Kaplan and Sadock, the life time prevalence of any substance misuse in patients with schizophrenia is greater than 50%. Schizophrenia is considered to affect the neural circuit mediating drug reward, leading to an increased vulnerability to addiction. Moreover abnormalities in the hippocampal formation and frontal cortex associated with schizophrenia effect, the reinforcing effects of drug reward and reduce inhibitory control over drug-seeking behavior.¹⁰ Up to 90% patients of schizophrenia may be dependent on nicotine. This increased prevalence of nicotine in patients with schizophrenia is due to abnormality in nicotine receptors which in turn affect glutamatergic and dopaminergic pathways in mesolimbic system. Nicotine may improve some cognitive impairments and parkinsonism in schizophrenia which also leads to fre-

quent usage of tobacco by such patients.^{10,11} Comorbid substance misuse is not only associated with increased burden of positive symptoms but also increases risk of suicide and depression, frequent admission to hospital, poor compliance and poorer social and occupational outcome.⁸ Most patients with schizophrenia abuses illicit drugs. This comorbidity is on one hand due to overlap of biological genetic susceptibility^{10,12} but on another hand may be due to drugs that are used to treat schizophrenia. Because these drugs may produce negative symptoms or enhance the euphoric response to abuse drugs. Acute medication with neuroleptics seems to decrease effect of abused drugs. However their chronic use may enhance their reinforcing properties.¹² Similarly those Individuals who have a stronger genetic predisposition to schizophrenia are more likely to initiate cannabis use, use cannabis more regularly, and consume more cannabis over their lifetime.¹²

Although similar studies have been conducted in hospitals of district Peshawar but they are either too old or have insufficient sample size. Moreover in this study, other than frequency we wanted to find out pattern of substance misuse in term of age of onset of substance misuse versus age of onset of schizophrenia that had not been studied before in hospitals of this geographical area. In pattern of substance misuse we tried to answer questions regarding what percent of patients had started substance misuse before the onset of schizophrenia and vice versa.

METHODOLOGY

This descriptive cross sectional study was carried out in Sarhad Hospital for Psychiatric diseases, Peshawar from September 2020 to February 2021. A total of 425 patients were enrolled through convenience sampling technique. Sample size was calculated while considering life time frequency of substance

misuse as 50% and that is 385 plus 40 for any expected loss. All patients who met ICD10 criteria for schizophrenia, diagnosed by qualified psychiatrist were included. Information regarding demographic variables like age, sex, education and marital status etc. and disease related characteristics like age of onset of schizophrenia and substance misuse, any history of substance misuse in past and presently etc. were gathered through Questionnaires from patient, accompanying medical records, attendant and hospital record if any. Substance misuse was defined per ICD10 criteria as maladaptive patterns of substance use that impair health in broad sense (physically, psychologically and or socially). And the pattern of use has persisted for at least past one month. The life time history of any substance misuse was defined as the proportion of individuals in the sample that at some point in their whole life (up to the time of assessment) have qualified for the diagnoses of substance misuse at least once. By the pattern of substance misuse in this study we mean what percent of patients have started substance before the onset of schizophrenia and vice versa. Mean and standard deviation for continuous data while frequency and percentage for categorical data was calculated using SPSS version 24. Informed consent from each patient and where not valid due to lack of insight then from guardian was taken. Confidentiality was maintained by using OPD No instead of patient name. NOC was obtained from Head of institution before starting data collection.

RESULTS

In this study, the mean current ages for male and female patients were 33.91±10.76 and 34.12±11.03 respectively. The means of age of onset of schizophrenia and substance misuse in males are 21.97±6.01years and 17.99±7.06 years, while among females these are 24.12±8.07 years and 19.45±4.42 years respectively. Out of 425 patients, 52% have no education

Table 1: Demographic details of the samples (n=425)

Variable		Frequency	Percent
Education	Uneducated	221	52 %
	Educated	204	48%
Gender	Male	361	84.9%
	Female	64	15.1%
Marital status	Married	211	49.6%
	Single	214	50.4%

Table 2: Life time history of misuse of different groups of Substances (n=425)

S.No	Substance	Frequency	Percent
01	Any substance	296	69.6%
02	Tobacco	290	68.2%
03	Non-tobacco	175	41.2%
04	Cannabinoid	174	40.8%
05	Volatile solvents	1	0.2%
06	Stimulants	25	5.7%
07	Opioids	22	5.2%
08	Alcohol	13	3.1%
09	Sedatives hypnotics	11	2.6%
100	Other substances	1	0.2%

Table 3: Onset of substance misuse vs. onset of Schizophrenia (n=425)

Variable	Frequency	Percent
Substance misuse started before the onset of schizophrenia	231	54.4
Substance misuse started after the onset of schizophrenia	53	12.5
Onset of substance misuse was during first reported clinical symptoms of schizophrenia	11	2.6
No history of any substance misuse	130	30.5

and 48% have some education at least up to primary level. Marital status and gender wise distribution is given in table 1. 69.6% patients were having the life time history of substance misuse while life time history of misuse for individual group of substances is given in table 2. Further details of the study are given in table 3.

DISCUSSION

In this study the frequency of still/presently misuse of different groups of substances was according to the finding of Barnes et al.⁶ It was also noted that these frequency of still misusing any substance, tobacco and non-tobacco substance were higher among males as well those who were uneducated as vice versa. However the fre-

quency of non-tobacco substance is higher among those who are single as compare to those who are married. So we can conclude that possibly marriage provides protection against only non-tobacco substances while education and female gender provides protection against all groups of substances. Tobacco misuse was almost equal between married and unmarried patients. This fact may be due to the reason that tobacco misuse is socially more acceptable as compare to non-tobacco substances.

In our study the life time history of substance misuse among schizophrenic patients was 69.6%, while that of tobacco and non-tobacco substances was 68.2% and 41.2% respectively. Similar studies conducted in Europe, UK and USA had also conclud-

ed that life time history of tobacco misuse was 70% while that of non-tobacco misuse was up to 50%.^{6,7,9} Similar to these studies, in our study too tobacco is at the top to be misused. The increased frequency of tobacco might be due to the fact that tobacco is cheap, more easily available, and socially more acceptable and has positive impact on thalamic functions including improvement in sensory gating and hence improved cognitions. Moreover among non-tobacco substances, cannabinoid is at the top to be misused by schizophrenic patients as compare to alcohol contrary to western countries where alcohol is at the top to be misused after tobacco misuse.⁹⁻¹¹ This again may be due to the fact that cannabis is easily available and socially more acceptable as compare to alcohol in our set up as compare to west. Another reason may be that cannabis induces positive symptoms in chronic schizophrenic patients, which alleviates the negative symptoms and hence apparent improvement in social interactions.¹¹

The onset of substance misuse precedes the onset of schizophrenia both males and females. 54.5% reported that they had started substance misuse before the onset of schizophrenia while 12.5% started substance misuse after the onset of schizophrenia. In males the mean age of onset of schizophrenia was 2.15 years while that of substance misuse was 1.46 years earlier as compare to females. Earlier studies had almost similar results.^{13,14} The early onset of substance misuse as compare to schizophrenia in most cases may be due to the overlap of biological genetic susceptibility of both disorders. And the later onset in females may be due to the protective role of possibly female sex hormones.^{10,12}

CONCLUSION

Substance misuse is quiet common among schizophrenic patients and its onset usually precedes the onset of schizophre-

nia. Onset of schizophrenia and substance misuse is earlier in males as compare to females. Moreover frequency of substance misuse is lower in female patients, those who are educated and those who are married and vice versa.

RECOMMENDATIONS

In future analytical studies should be performed while urine/blood screening test for illicit substances should be done to confirm or exclude claim of any currently/presently misuse of any substance and larger sample should be taken from community instead of hospital, particularly for calculation and comparison of age of onset of schizophrenia versus age of onset of substance misuse.

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Author's Contribution

MS conceived the idea, planned the study, confirmed the diagnosis in each case, drafted and analyzed the data and manuscript. AA helped in data collection. MA helped in data collection, entry of data into SPSS software and analysis of data. Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of Interest

Authors declared no conflict of interest

Grant Support and Financial Disclosure

None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.