Original Article

Impact of substance misuse and demographic factors on medication adherence in patients with schizophrenia

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Objective: To analyze impact of substance misuse and demographic factors on medication adherence in patients with schizophrenia.

Methodology: In this cross sectional analytical study, 430 patients were included through convenience sampling technique. Frequency and percentage for categorical variables while mean and standard deviation for continuous variables were calculated. SPSS version 24 was used for statistical analysis.

Results: The frequency of tobacco misuse was 65.5% and having statistically no significant impact on medication adherence. Frequency of substance misuse other than tobacco was 26.5% and having statistically significant impact on adherence. Gender, marital status, education, current age, age of onset of schizophrenia and age of onset of substance misuse had no statistically significant impact on medication adherence.

Conclusion: Tobacco misuse and demographic factors had no significant impact while substance misuse other than tobacco has significant impact on medication adherence in schizophrenia.

Keywords: Substance misuse, demographic factors, medication adherence, schizophrenia.

INTRODUCTION

Schizophrenia is a lifelong chronic psychiatric illness with almost 0.3% to 0.5% prevalence worldwide.[1] Comorbid substance misuse is quiet common and has been reported up to 70%, which not only precipitates and exacerbates schizophrenia but also affects its outcome.[2-4] Moreover, it causes poorer prognosis, increased burden of psychotic symptoms, poorer treatment compliance, violence, homelessness, medical problems, poor money management, and greater use of crisis-oriented services that result in higher costs of care.[5]

Poor adherence among schizophrenic patients is 26%. Comorbid substance misuse is a significant risk factor for medication non-adherence in schizophrenic patients with OR of 1.49 (95% CI 1.469 – 1.503).[6] The prevalence of poor medication adherence in schizophrenia is varies from 41%[7] to 52%.[8] The rate of good medication adherence is higher among females and lower among those with comorbid substance misuse.[9] Age, gender and years of education had no impact on medication adherence.[10]

The war against terrorism in KhyberPakhtunkhwa and surrounding districts has changed statistics about prevalence of substances misuse in general population.[11] Tobacco misuse is very common in this geographical area as compare to other substances. Impact of substance misuse on medication adherence is also an established fact.[12] In this study, we aimed to find impact of tobacco misuse alone on adherence as compare to misuse of substances other than tobacco.

METHODOLOGY

In this cross sectional analytical study, 430 patients were included from Sarhad Hospital for Psychiatric Diseases, Peshawar through non-probability convenience sampling technique from October 2020 to March 2021. Any patient who met criteria of ICD-10-F20 (International classification of diseases version 10, F20) for schizophrenia was included. Approval from institution and informed consent from patient or his/her attendant were taken.

We used self-prepared questionnaire filled by trained health worker after confirmation of diagnosis by consultant psychiatrist. Substance misuse was defined 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.[1]

Substances that are misused were grouped into two for this study; 1.tobacco misuse 2.substance misuse other than tobacco, which includes alcohol, opioids, cannabinoids, sedative hypnotics, cocaine, other stimulants excluding caffeine, hallucinogens and volatile solvents.Medication-adherence was defined as the patient is taking medicines in dosage as advised by physician for at least one month or since last visit to psychiatrist whichever is longer.[13]

Statistical Analysis: Data were analyzed on SPSS version 24. Frequency and percentage for categorical variables while mean and standard deviations for continuous variables were calculated. Odds ratios (ORs) and 95% confidence intervals (CI) were derived from logistic regression analysis as some of the independent variables were related with one another. $P < 0.05$ was considered significant.

RESULTS

Out of 430 patients, 85.1% were males and 14.9% females. Mean age was 33.86 ± 10.77 years. Mean ages of onset of schizophrenia and substance misuse were 22.28 ± 6.36 years and 18.01 ± 6.96 years, respectively. We found that 48.4% were educated at least up to primary level while 51.6% were uneducated, 49.3% were married, 65.5% were misusing tobacco while 26.5% were misusing substances other than tobacco that included alcohol, opioids, cannabinoids, sedative hypnotics, cocaine, other stimulants excluding caffeine, hallucinogens and volatile solvents.

The frequency of poor medication-adherence was 58.1% while 41.9% were having good medication – adherence. Table 1 and 2 present the effect of substance misuse and demographic features on medication-adherence in schizophrenia, respectively.

Table 1: Impact of substance misuse on medication – adherence (n = 430).

		Medication Adherence		Sig.	EXP (B)	95% C.I for EXP (B)
		Poor	Good			
Tobacco misuse	Yes	175	106	0.098	2.50	0.84 – 7.41
	No	74	74			
Substance misuse other than tobacco	Yes	90	24	0.000	3.31	1.84 – 5.94
	No	160	156			

Table 2: Impact of demographic factors on medication – adherence (n = 430).

		Medication Adherence		Sig.	EXP (B)	95% C.I for EXP(B)
		Poor	Good			
Gender	Male	215	151	0.961	0.96	0.20 – 4.44
	Female	35	29			
Education	Uneducated	137	85	0.483	1.21	0.70 – 2.08
	Educated	113	95			
Marital status	Single	125	93	0.994	1.00	0.56 – 1.77
	Married	125	87			
Family history of Schizophrenia	Yes	72	60	0.186	0.68	0.38 – 1.20
	No	150	102			
Age of onset of Schizophrenia				0.097	0.95	0.89 – 1.00
Age of onset of Substance misuse				0.447	0.98	0.94 – 1.02
Current age				0.504	1.01	0.97 – 1.04

DISCUSSION

Our study suggests that the poor medication adherence among schizophrenic patients was 58.1%. These are contradictory to the study by Patel, et al, where the frequency of poor medication – adherence is only 26%.[6] In our study, 66.5% were misusing tobacco while 26.5%

are misusing substances other than tobacco. This is similar to range reported by Winklbaur, et al.[3] Patel et al have reported significant impact of substance misuse on medication – adherence.[6] But in our study, risk of poor medication-adherence is increased in those who were misusing substances other than tobacco with O.R of 4.17 (95% CI = 1.65 – 10.52).

Tobacco misuse had no statistically significant impact ($p = 0.098$) on medication-adherence with OR of 2.50 (95% CI = 0.84 – 7.41). The difference between the impact of tobacco and substances other than tobacco, on medication-adherence may be due to the reason that substances other than tobacco induce or exacerbate the symptomatology in schizophrenia, which may lead to loss of insight into the illness or its treatment. Alternatively, it is also possible that substance seeking behavior may replace medication taking behavior. Moreover, these substances are costly than tobacco and the patients may be diverting their limited financial resources towards purchase of substances instead of medication.

In our study, the mean age of onset of substance misuse (18.01 ± 6.96 years) precedes mean age of onset of schizophrenia (22.28 ± 6.36 years) and both have statistically no significant impact on medication-adherence. Similarly, current age, marital status and education had statistically no significant impact ($p > 0.05$) on medication-adherence. These findings are similar to study by Bitter et al.[10]

This study helps us to find out factors which may impact medication-adherence and hence the problem of poor medication-adherence faced by patients, Severity or status of the illness (acute relapse, recurrence, partial remission and full remission) has also impact on medication-adherence which may confound our results. Moreover patients and attendants were asked retrospectively about the compliance, age of onset of illness and substance misuse, so recall bias may be there.

Further studies are needed with large sample size, taken from community and also to include other factors in analysis like level of education, employment status, severity or status of the illness and impact of individual substance other than tobacco e.g. Cannabinoids, Alcohol, Opioids, sedative hypnotics, stimulants, Hallucinogens and volatile solvents etc.

CONCLUSION

Substance misuse other than tobacco was significantly associated with poor medication adherence while gender, education, marital status, current age, age of onset of illness and age of onset of substance misuse had no statistically significant impact on medication adherence.

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REFERENCES

1. Gelder M, Harrison P, Cowen P. Shorter Oxford textbook of psychiatry. 7th ed. London: Oxford University Press, 2018.
2. Crockford D, Addington D. Canadian schizophrenia guidelines: schizophrenia and other psychotic disorders with coexisting substance use disorders. Can J Psychiatry, 2017; 62: 624–34.
3. Winklbaur B, Ebner N, Sachs G, Thau K, Fischer G. Substance abuse in patients with schizophrenia. Dialogues Clin Neurosci. 2006; 8: 37-9.
4. Turkington A, Mulholland CC, Rushe TM, Anderson R, Mccaul R, Barrett SL, et al. Impact of persistent substance misuse on 1-year outcome in first-episode psychosis. Br J Psychiatry, 2009; 195: 242–8.
5. Nielsen SM, Toftdahl NG, Nordentoft M, Hjorthoj C. Association between alcohol, cannabis, and other illicit substance abuse and risk of developing schizophrenia: a nationwide population based register study. Psychol Med. 2017; 47: 1668.
6. Patel RS, Sreeram V, Vadukapuram R, Baweja R. Do cannabis use disorders increase medication non-compliance in schizophrenia? United States Nationwide inpatient cross-sectional study. Schizophria Res. 2020; 224: 40–4.
7. Tareke M, Tesfaye S, Amare D, Belete T, Abate A. Antipsychotic medication non-adherence among schizophrenia patients in Central Ethiopia. South Afr J Psychiatry, 2018; 22: 24-7.
8. Sendt K-V, Tracy DK, Bhattacharyya S. A systematic review of factors influencing adherence to antipsychotic medication in schizophrenia-spectrum disorders. Psychiatry Res. 2015; 225: 14–30.
9. Arranz S, Mane A, Berge D, Monserrat C, Vilella E, Sanchez-Gistau V. The impact of sex and cannabis on clinical features in first–admitted patients with psychosis. Eur Neuropsychopharmacol. 2020; 36: 235–43.
10. Bitter I, Feher L, Tenyi T, Czobor P. Treatment adherence and insight in schizophrenia. Psychiatria Hungerica, 2015; 30: 18–26.
11. Bergenstrom A, Andreeva V, Reddy A. Overview of epidemiology of injection drug use and HIV in Asia.

Retrieved from Bangkok, Thailand, UNODC. 2013. Available from: https://www. unodc. org/documents.
12. Medic G, Higashi K, Littlewood KJ, Diez T, Granstrom O, Kahn RS. Dosing frequency and adherence in chronic psychiatric disease: systematic review and meta-analysis. Neuropsychiatr Dis Treat. 2013; 9: 119-22.
13. Taylor D, Barnes T, Young A. The Maudsley Prescribing Guidelines in Psychiatry. 13th ed. 111 River Street Hoboken USA: John Wiley & Sons, 2020: 873–74.