

A STUDY TO ASSESS THE EXTRAPYRAMIDAL SYMPTOMS AMONG PATIENTS RECEIVING ANTIPSYCHOTIC DRUGS IN SELECTED PSYCHIATRIC HOSPITAL, CHENNAI.

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ABSTRACT

Background: Antipsychotic medications are a cornerstone in the treatment of various psychiatric disorders; however, their use is frequently associated with extrapyramidal symptoms (EPS), which are distressing drug-induced movement disorders. This study is significant as it aims to assess the prevalence and severity of extrapyramidal symptoms among patients receiving antipsychotic drugs, thereby providing valuable data for mental health professionals. **Objectives:** The primary objectives of this study were to assess the level of extrapyramidal symptoms among patients receiving antipsychotic drugs and to determine the association between extrapyramidal symptoms with the selected demographic variables such as age, gender, Educational status, Marital status, Occupation, Income, Episode of Mental Illness, duration and regular medications among patients receiving antipsychotic drugs. **Methods:** A quantitative approach using a descriptive research design was adopted for the study. Using a Purposive sampling technique, 30 inpatients at selected psychiatric hospital in Chennai were recruited. Data were collected using a structured 5-point Simpson Angus Scale / Extrapyramidal side effect Rating Scale consisting of 10 items designed to measure the Parkinsonism symptoms of rigidity, tremor, akinesia and salivation, multiple version of the scale are in existence. The collected data were analyzed using descriptive statistics (frequency, mean, standard deviation) and inferential statistics (Chi-square). **Results:** The findings revealed that the majority of the participants 22 (73.3%) had extra pyramidal syndrome and eight (26.67%) had no extrapyramidal syndrome after receiving Anti-psychotic drugs. The mean score for extrapyramidal syndrome among patients receiving Anti – psychotic drugs was 41.68 (SD ± 0.407). Among demographic variables, occupation showed a statistically significant association with extrapyramidal syndrome among patients with Anti-psychotic drug ($p < 0.05$), Whereas age, gender, educational status, marital status, income, episode of mental illness, duration and regular medications did not show a significant influence on the extrapyramidal syndrome at the level of $p > 0.05$. **Conclusion:** The study concludes that, majority of patients receiving Anti-psychotic drug had extrapyramidal syndrome. Therefore, the findings of this study identified the prevalence of antipsychotic-induced EPSEs was considerably high. This will help nurses, psychiatrists, and other healthcare providers to develop early screening, monitoring, and preventive strategies for EPS.

Keywords: *Extrapyramidal symptoms, patients receiving antipsychotic drugs, Psychiatric hospitals, Chennai, Descriptive Study.*

INTRODUCTION

Antipsychotic drugs are widely used in the management of various psychiatric disorders such as schizophrenia, bipolar disorder, and other psychotic conditions. Although these medications are effective in controlling psychotic symptoms, their use is often associated with adverse effects, particularly extra pyramidal symptoms (EPS), which include Parkinsonism, tremors, rigidity, akathisia, dystonia, and tardive dyskinesia, which result from dopamine blockade in the nigrostriatal pathway. These adverse effects can significantly affect patients' physical functioning, psychological well-being, and overall quality of life.

Extrapyramidal symptoms (EPS) are drug-induced motor disorders associated more frequent with first than second generation antipsychotics. The presence of EPS may lead to poor medication adherence, increased relapse rates, prolonged hospitalization, and additional healthcare costs. Early identification and proper management of EPS are therefore essential to improve treatment outcomes and patient satisfaction. However, EPS often remain under-recognized or inadequately documented in routine psychiatric practice.

Furthermore, the results of this study may contribute to evidence-based clinical practice, guide appropriate selection and dosage of antipsychotic medications, and enhance patient education regarding side effects. Ultimately, the study seeks to promote safer antipsychotic drug use, improve quality of care, and enhance the overall well-being of psychiatric patients.

BACKGROUND OF THE STUDY

Gebremariam, E.H *et al.* (2025) conducted a study to find the prevalence and associated factors of antipsychotic-induced extrapyramidal symptoms in the Tigray region. Extrapyramidal symptoms affect an average of 37%, with a maximum prevalence of 71.4%, among individuals on antipsychotics. About one in five patients experiences Parkinsonism, and more than one in ten experiences akathisia. The study findings showed that the prevalence rates of Parkinsonism, Akathisia, Dystonia, and Tardive Dyskinesia were **9.9%**, **6.9%**, **5.0%**, and **2.4%**, respectively. These symptoms can significantly increase relapse rates, elevate healthcare costs (approximately \$27,408), and contribute to stigmatization¹.

Reshma Ekka. (2021) done a study in Dr. Bhim Rao Ambedkar Memorial Hospital, Raipur, Chhattisgarh among 60 psychosis patients attending outpatient and inpatient in department of psychiatry for the assessment of the extrapyramidal side effects in consuming antipsychotic medication. The findings revealed that the majority of them, 37 (66.66%), were within the normal range. Eleven of them (18.33%) exhibited minimal movement disorders, while seven (11.66%) had clinically significant extrapyramidal side effects. Only five participants (8.33%) were found to have a severe degree of movement disorder. A statistically significant association was observed between extrapyramidal side effects with duration of illness, duration of antipsychotic drug use, and immediate side effects of antipsychotic medications at the 0.05 level of significance².

Extrapyramidal symptoms should be identified by the primary caregiver at an early stage to prevent complications and worsening of movement disorders. Patients and their family members should be educated and made aware of the early signs and symptoms of extrapyramidal symptoms to ensure timely reporting and appropriate management.

Therefore, this study helps primary caregivers better understand the use of antipsychotic medications in treating mental illnesses and recognize extrapyramidal symptoms early for timely care.

OBJECTIVES OF THE STUDY

1. To assess the level of extra pyramidal symptoms among patients receiving antipsychotic drugs.
2. To determine the association between extra pyramidal symptoms patients receiving antipsychotic drugs with the selected demographic variables.

SIGNIFICANCE OF THE STUDY

- Helps healthcare administrators to understand the prevalence and severity of extra pyramidal symptoms among patients receiving antipsychotic medications.
- Provides insights into medication-related risk factors influencing the development of extrapyramidal symptoms and patient treatment outcomes.
- Contributes to strategies for early identification, prevention, and effective management of extrapyramidal symptoms, thereby improving patient adherence and quality of life.
- Supports policy formulation and clinical guidelines to promote safe antipsychotic use, regular monitoring of side effects, and quality psychiatric patient care.

OPERATIONAL DEFINITIONS

Assess: Refers to the occurrence of extra pyramidal symptoms on patient receiving antipsychotic drugs.

Extra pyramidal symptoms (EPS): Refers to common side effect of Anti- Psychotic medication like acute dystonia, pseudo Parkinsonism, akathisia, tardive dyskinesia and neuroleptic malignant syndrome which is measured by Simpson Angus Scale (SAS).

Patients: Refers to a client admitted in the selected psychiatric hospital who are directly involved in patient care.

Anti Psychotics medication: Refers to a type of psychotropic drugs used mainly to treat the psychiatric disorders like psychosis, mood disorder, schizophrenia and delusional disorder.

DELIMITATIONS OF THE STUDY

- The study is limited to patients receiving antipsychotic drugs in a selected psychiatric hospital in Chennai.
- Only patients involved in direct care with antipsychotic drugs will be included.

METHODS:**Research Approach**

The study adopted **quantitative research approach** using a **descriptive design** to assess level of extra pyramidal symptoms among patients receiving antipsychotic drugs. Descriptive research is appropriate because it helps to assess, explore, and identify the level of extra pyramidal symptoms by patients in the selected psychiatric hospital setting without manipulating variables.

Research Design

The study follows a **descriptive research design**. This design allows the researcher to systematically collect data, describe the patients receiving antipsychotic drugs, and evaluate their level of extra pyramidal symptoms in clinical setting.

Setting of the Study

The study was conducted in a **selected psychiatric hospital in Chennai**, including psychiatric wards and specialty units where patients receiving antipsychotic drugs. The hospital is chosen for its diverse treatment policy and varied clinical practices.

Population

The population of the study includes **all** patients receiving antipsychotic drugs **in the selected hospital** who are directly admitted in psychiatric wards.

Sample and Sampling Technique

- **Sample Size:** The study included 30 **inpatients**, depending on patient's availability and care takers consent to participate.
- **Sampling Technique: Purposive sampling** technique was used for selecting patients who are available and willing from care takers to participate during the data collection period.

Inclusion Criteria

1. Patients currently admitted in psychiatric units.
2. Patients receiving antipsychotic drugs and involved in direct patient care.
3. Both male and female patients within the age group of 20-60 yrs.

Exclusion Criteria

1. Patients who do not receive antipsychotic drugs in psychiatric units.
2. Care takers who refuse to give consent.

Data Collection Tool

- Demographic variables of patients receiving antipsychotic drugs such as Age, gender, Educational status, Marital status, Occupation, Income, Episode of Mental Illness, duration and regular medications.
- Simpson Angus Scale / Extra pyramidal side effect Rating Scale: It is five- point scale consists of 10 items that measure the Parkinsonism symptoms of rigidity, tremor, akinesia

and salivation, multiple version of the scale are in existence. The items are easily scored after a sample neurological examination and observation of the patient's gait.

RESULTS AND ANALYSIS

Table 1: Description of Demographic Characteristics (n= 30)

Selected Demographic Variables	Frequency (n)	Percentage (%)
Age in years		
21–30	12	40.0%
31–40	11	36.7%
41–50	6	20.0%
Above 50 years	1	3.3%
Gender		
Male	21	70.0%
Female	9	30.0%
Educational Status		
Non-Literate	4	13.3%
Schooling	23	76.7%
Graduate	3	10.0%
Marital status		
Married	19	63.4%
Unmarried	10	33.3%
Separated	1	3.3%
Widowed/Widower	0	0%
Occupation		
Unemployment	10	33.3%
Employed	11	36.7%
Business	1	3.3%
Farmer	8	26.7%
Income in Rs.		
> 5000	20	66.7%
5001-10000	9	30.0%
Above 10000	1	3.3%
Episode of Mental Illness		
Once	3	10.0%
Twice	14	46.7%
More than twice	13	43.3%
Do you take medication regularly		
Yes	10	33.3%
No	20	66.7%
Duration of drug intake		
< 1 Year	4	13.3%
1 – 3 Years	11	36.7%
3 – 5 Years	9	30.0%
> Years	6	20.0%

Table 1: reveals the frequency and percentage distribution of demographic variables among patients receiving Anti-psychotic drugs. Majority of participants were male 21(70.0%) aged 21–30 years 12(40.0%), 23 (76.6%) were finished schooling, 19(63.4%) were married, 11(36.7%) were employed and 20(66.7%) earns less than Rs.5000.

Concerning with duration of Anti-psychotic drugs, 11 (36.7%) were taking drug for 1 – 3 years, regarding the episode of mental illness 14 (46.7%) had twice and mostly 20(66.7%) were irregular towards drug.

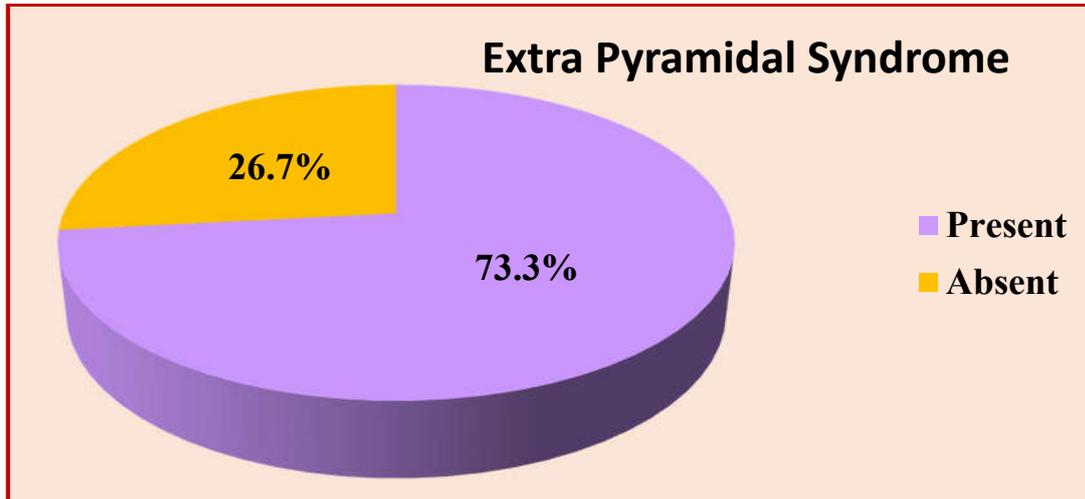


Fig: 1 Percentage distribution of extra pyramidal syndrome among patients receiving Anti-psychotic drugs

Fig 1 reveals the frequency and percentage distribution of extra pyramidal syndrome among patients receiving Anti-psychotic drugs. 22 (73.3%) had extra pyramidal syndrome and eight (26.7%) had no extra pyramidal syndrome.

Table 2: Mean and standard deviation of extra pyramidal syndrome among patients with Anti-psychotic drugs. (n= 30)

MEAN	STANDARD DEVIATION
41.68	0.407

Table 2 reveals the mean and standard deviation of extra pyramidal syndrome among patients receiving Anti – psychotic drugs. The mean value was 41.68 with SD 0.407.

Table 3: Association of selected demographic variables with the extra pyramidal syndrome among patients with Anti – psychotic drug (n=30)

Selected Demographic Variables	Present		Absent		Chi-Square χ^2
	n	%	n	%	
Age in years					
21–30	9	40.9	3	37.5	4.562
31–40	6	27.3	5	62.5	
41–50	6	27.3	0	0	
Above 50 years	1	4.5	0	0	
Gender					
Male	17	77.3	4	50.0	2.078
Female	5	22.7	4	50.0	
Educational Status					
Non-Literate	3	13.6	1	12.5	0.0772
Schooling	17	77.3	6	75.0	
Graduate	2	9.1	1	12.5	
Marital status					
Married	15	68.2	4	50.0	1.411
Unmarried	6	27.3	4	50.0	
Separated	1	4.5	0	0	
Widowed/Widower	0	0	0	0	
Occupation					
Unemployment	4	18.2	6	75.0	8.587 *
Employed	10	45.5	1	12.5	
Business	1	4.5	0	0	
Farmer	7	31.8	1	12.5	
Income in Rs.					
> 5000	13	59.1	7	87.5	2.081
5001-10000	8	36.4	1	12.5	
Above 10000	1	4.5	0	0	
Episode of Mental Illness					
Once	2	9.1	1	12.5	4.350
Twice	8	36.4	6	75.0	
More than twice	12	54.5	1	12.5	
Do you take medication regularly					
Yes	5	22.7	5	62.5	3.349
No	17	77.3	3	37.5	
Duration of drug intake					
< 1 Year	4	18.2	0	0	1.8026
1 – 3 Years	8	36.4	3	37.5	
3 – 5 Years	6	27.2	3	37.5	
> Years	4	18.2	2	25.0	

*- Significance.

Table 3 reveals the association of selected demographic variables with extra pyramidal syndrome among patients with Anti-psychotic drug.

The association between occupation and extrapyramidal symptoms among patients receiving antipsychotic drugs was found to be statistically significant at the level of $p < 0.05$. In contrast, age, gender, education status, marital status, income, number of episodes of mental illness and duration of mental illness showed no statistically significant association with extrapyramidal symptoms ($p > 0.05$).

Major Findings of the study

1. Majority of the participants were male, aged 21–30 years, finished schooling, mostly they were married and employed, whereas earns less than Rs.5000 per month
2. Concerning with duration of Anti-psychotic drugs, 11 (36.7%) were taking drug for 1 – 3 years, regarding the episode of mental illness 14 (46.7%) had twice and mostly 20(66.7%) were irregular towards drug.
3. The distribution of extrapyramidal symptoms among patients receiving antipsychotic drugs showed that 22 participants (73.33%) experienced extrapyramidal symptoms, while only 8 participants (26.67%) did not exhibit any extrapyramidal symptoms.
4. The mean value was 41.68 with SD 0.407.
5. **Occupation** had a positive association with extra pyramidal syndrome among patients with Anti-psychotic drug

DISCUSSION

The purpose of the study was to assess extra pyramidal symptoms among patients receiving antipsychotic drugs in selected psychiatric hospital, Chennai. A sample of 30 inpatients participated, and data were collected using a Simpson Angus Scale.

The majority of participants were male (70.0%) aged 21–30 years (40.0%), (76.6%) were finished schooling, Most participants (63.4%) were married, (36.7%) as well employed and (66.7%) earns less than Rs.5000. Concerning with Anti-psychotic drug administration, (36.7%) were taking drug for 1 – 3 years, (46.7%) had twice the episode of mental illness and (66.7%) were irregular towards drug. These findings are consistent with studies conducted in similar hospital settings, where the majority of patients are male and developed extra pyramidal symptoms after receiving antipsychotic drug.

Extra pyramidal symptoms:

Overall, patients reported the presence of extrapyramidal symptoms after receiving antipsychotic drugs and very few did not exhibit any side effects. Statements with the highest mean scores (Mean = 41.68 ± 0.407). These findings suggest that patients develop the importance of drug administration in enhancing patient care and professional practice.

Comparison with Literature:

The findings are consistent with previous studies (e.g., Ryan S. D'Souza et al., 2015) that indicate:.

- Extrapyrarnidal symptoms may subside on their own or improve after discontinuation of the offending antipsychotic drug. When symptoms persist, appropriate pharmacological treatment can offer substantial symptomatic relief.
- Acute dystonic reactions are generally short-lived; however, late-onset and persistent forms such as tardive dystonia may continue for several years. Evidence from long-term follow-up studies indicates that only a small proportion of patients achieve complete remission.
- Acute akathisia may resolve spontaneously or respond well to treatment, but in some cases, tardive akathisia has been reported to persist for prolonged periods.
- Tardive dyskinesia is often irreversible, with studies showing a high rate of long-term persistence among patients with schizophrenia.
- The presence of extrapyramidal symptoms in individuals with schizophrenia is strongly associated with poor adherence to antipsychotic medication, increasing the risk of relapse and morbidity. Inadequate recognition and management of akathisia have also been linked to serious outcomes such as self-harm, suicidal thoughts, aggression, and violent behavior⁴.

Overall, the study highlights that extrapyramidal symptoms are commonly observed among patients receiving antipsychotic drugs in the selected psychiatric hospital, Chennai, and that clinical and treatment-related factors influence their occurrence, identification, and management.

CONCLUSION:

The present study concludes that extrapyramidal symptoms are prevalent among patients receiving antipsychotic drugs in the selected psychiatric hospital, Chennai. A considerable proportion of patients experienced varying degrees of extrapyramidal symptoms, highlighting the need for early identification and continuous monitoring. The study also found significant associations between extrapyramidal symptoms and selected clinical variables such as occupation. These findings emphasize the important role of nurses and caregivers in recognizing early signs of extrapyramidal symptoms, providing timely interventions, and educating patients and their families. Implementation of standardized assessment protocols and regular follow-up can help reduce complications, improve treatment adherence, and enhance the overall quality of psychiatric care.

IMPLICATIONS OF THE STUDY:

Nursing Practice

- Nurses need to enhance their awareness and understanding of extra pyramidal symptoms while showing dedication to patients on antipsychotic medications in their recovery from mental illness.
- Nurses should be skilled in recognizing extra pyramidal symptoms at an earlier stage for patients taking antipsychotic medication.
- Nurses ought to provide psychoeducation regarding the side effects of antipsychotic medications and any related minor ailments.

Nursing Education

- Greater focus should be placed on the side effects of antipsychotic medications, and students should be trained to recognize these side effects.
- Workshops and in-service training programs can enhance nurses' on the side effects of antipsychotic medications.

Nursing Administration

- Hospitals should implement policies for regular screening, early identification, and systematic monitoring of extrapyramidal symptoms in patients receiving antipsychotic medications.
- Clinical leadership should recognize the importance of timely detection and management of EPS to enhance patient safety, treatment adherence, and overall outcomes.
- Highlights areas where nurses require ongoing education, training, and supervision to improve their knowledge and skills related to EPS assessment and intervention.
- Promotes a collaborative healthcare environment where nurses actively advocate for patients experiencing medication-related side effects and ensure holistic psychiatric care.\
- Encourages nurse managers and healthcare administrators to support nurses in promptly reporting, assessing, and managing extrapyramidal symptoms in clinical practice.

Nursing Research:

- Provides baseline data for future studies on side effects of Anti- psychotic medication in clinical settings.
- More researches can be motivated among health professionals on side effects of Anti- psychotic medication to improve the knowledge for better quality care.

Nursing Recommendations

1. The study can be tested or tried with any interventions to educate the mentally ill patients.
2. The study can be done as randomized control trail to evaluate the impact of specific interventions on the prevention and management of extrapyramidal symptoms.
3. The findings highlight the need to develop and implement a standardized protocol for assessing and monitoring extrapyramidal symptoms and other side effects of antipsychotic medications among psychiatric patients.
4. The study can be replicated in larger clinical settings with a greater sample size to enhance the generalizability of the findings.

Limitations of the Study

- The study was conducted in a single hospital, limiting generalizability.

- The sample size (30 inpatients) was moderate; larger samples may provide more robust results.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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