

## ORIGINAL PAPER

# Impact of adverse drug reactions on quality of life in patients with schizophrenia

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## ABSTRACT

**Objective:** To monitor the adverse drug reactions of antipsychotic drugs used in patients with schizophrenia in the outpatient department of psychiatry & to find out the impact of adverse drug reactions on quality of life in those patients. **Methodology:** A prospective observational study was carried out in the outpatient department of psychiatry. New patients with schizophrenia and above 18 years of either sex with only one antipsychotic drug were included. ADRs reported spontaneously by the patients and also responses obtained in a questionnaire related to the likely ADRs from the patients were recorded in the case record form. QOL was assessed with the help of World Health Organization Quality of Life-BREF questionnaire method and scoring system at the beginning and after 1 month. **Results:** The incidence of ADR was 64.78% in males and 35.21% in females. Weight gain was the most common ADR observed. The psychological health is mostly affected by ADRs. A low QOL was noted in all patients with ADRs. **Conclusion:** Atypical antipsychotics are frequently used to treat schizophrenia. It is due to their better patient compliance and high margin of safety compared to typical antipsychotics.

**Keywords:** Outpatient, Antipsychotics, WHOQOL-BREF.

## INTRODUCTION

Schizophrenia is one of the most common psychiatric disorder belongs to the diseases of the central nervous system and characterized by disturbances in emotion, cognition, motivation, and socialization. Due to their high prevalence, early onset and persistence they contribute substantially to the burden of illness worldwide. The diagnosis of schizophrenia continues to be made solely from clinical observations using criteria in the diagnostic and statistical manual of mental disorders of the American Psychiatric Association (2000), 4<sup>th</sup> edition, text revision (DSM-IVTR).<sup>1</sup> Schizophrenia is characterized by impairment in the perception

or expression of reality, leading to occupational and social dysfunction.<sup>2</sup> Schizophrenia affects general health, functioning, autonomy, subjective well-being, and life satisfaction of those patients who suffer from it. It is one of the top causes of disability in the world even after the pharmacological and psychosocial intervention for almost 50 years.<sup>3</sup>

In recent years there has been a broadening in focus in the measurement of health beyond traditional health indicators such as mortality and morbidity. Now a days Quality of Life (QOL) has turned into an important outcome in clinical and interventional studies.<sup>4</sup> The WHO defines Quality of Life (QOL) as 'an individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns.'<sup>5</sup> In order to evaluate the true impact of treatment benefit, it is important to quantify not only the impact of the disease on health-related quality of life but also the impact of treatment-related adverse events.

There are many published quality of life (QOL) measures but there is still a lack of consensus among researchers about its definition and this is reflected in the choice of items for their instruments. Therefore, in determining QOL, the WHOQOL group takes the view that it is important to know how satisfied or worried people are by vital aspects of their life, and this interpretation will be a highly individual matter. The World Health Organization Quality of Life assessment,

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the WHOQOL-100 is a cross-culturally valid assessment of well-being. Assessment is operationalized through 100 items representing 25 facets organized in six domains.<sup>10,11</sup> Based on these results, the WHOQOL-BREF was developed in the context of four domains of QOL: physical, psychological, social and environmental.<sup>12</sup>

**Objectives:** 1. To detect the adverse drug reactions of antipsychotic drugs in patients with schizophrenia at the outpatient department of psychiatry. 2. To assess the quality of life in those patients.

### METHODOLOGY

It is a prospective observational study in the psychiatry outpatient department of Silchar Medical College and Hospital, Silchar for a period of 1 year from April'2015 to march' 2016. The patients who are newly diagnosed with schizophrenia are included and data are recorded in a pre-designed case record form, after taking the consent from the patient/attendant of the patient. Clearance from the institutional ethical committee was taken.

Quality of life was assessed with the help of World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire method and scoring system at the beginning and after 1 month.

### Inclusion Criteria

1. Patients diagnosed with schizophrenia between 18-50 years age group of either sex.
2. Patients with normal blood haemogram, normal blood sugar level, normal lipid profile and normal ECG.

### Exclusion criteria

1. Pregnant and lactating woman
2. Patients with severe psychosis and violent behavior.
3. Patients who have already taken any other antipsychotic or antidepressant medication.
4. Patients with renal or hepatic impairment.
5. Patients with a history of alcohol or substance abuse.
6. Patient unable or not willing to give consent.

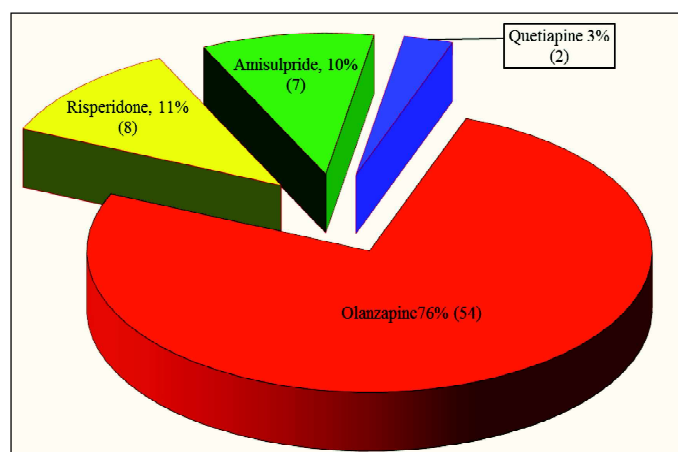
### WHOQOL-BREF scoring system

A quality of life profile can be created by WHOQOL-BREF (Field Trial Version). It produces four domain scores, and in each score, denote an individual's perception of quality of life in each domain (higher scores denote higher quality of life). Scores are noted in a positive direction and mean score is calculated out from each item in each domain. To make it comparable with the scores used in the WHOQOL-100 (original complete version), each mean score from each domain is to be multiplied by 4 (four) and the mean score is converted to a domain score. Two items that are examined separately are: question 1 asks about an individual's overall perception of quality of life and question 2 asks about an individual's overall perception of their health. The first transformation method converts scores to range between 4-20, comparable with the WHOQOL-100. The second

transformation method converts domain scores to a 0-100 scale.<sup>13</sup>

### RESULTS

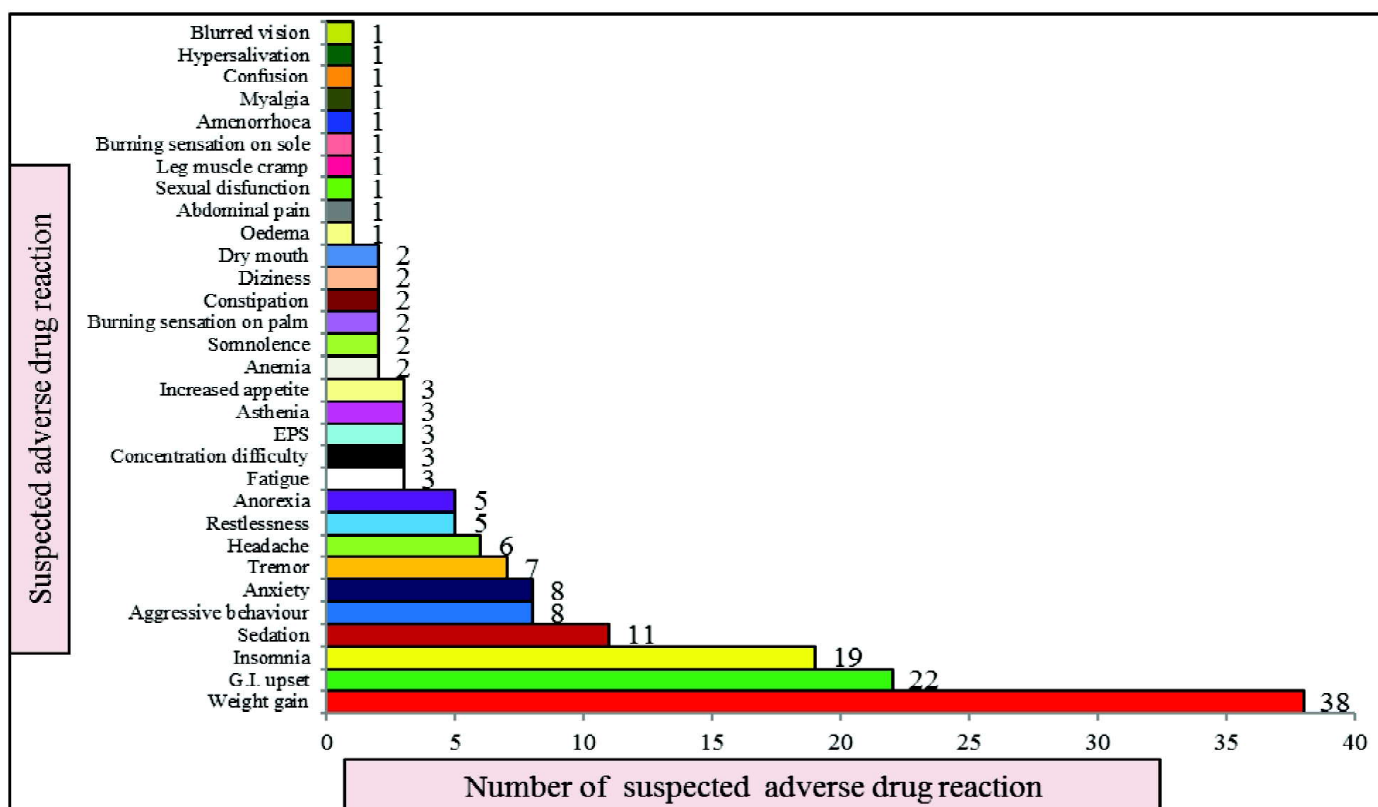
A total of 82 patients were enrolled and the quality of life was assessed to each and every patient with the help of WHOQOL-BREF questionnaire and scoring system. Patients who were showing or complaining at least one adverse drug reaction after one month with antipsychotic treatment were included in the study and enlisted them for evaluating QOL. Consequently, 11 patients with schizophrenia who were not showing any adverse drug reactions with antipsychotic therapy were evaluated separately. 71 patients have shown different types of ADRs with antipsychotic therapy, out of which 46(64.78%) were male and 25(35.21%) were female and prescribed atypical antipsychotic medications were olanzapine 54(76.05%), risperidone 8(11.26%), amisulpride 7(9.85%) and quetiapine 2 (3%) respectively. Olanzapine 76.05% (54 patients) and risperidone 11.26%(8 patients) were the most repeatedly prescribed antipsychotic drugs. Amisulpride was used in 9.85%(7) patients and quetiapine to 2.81% (2) patients.



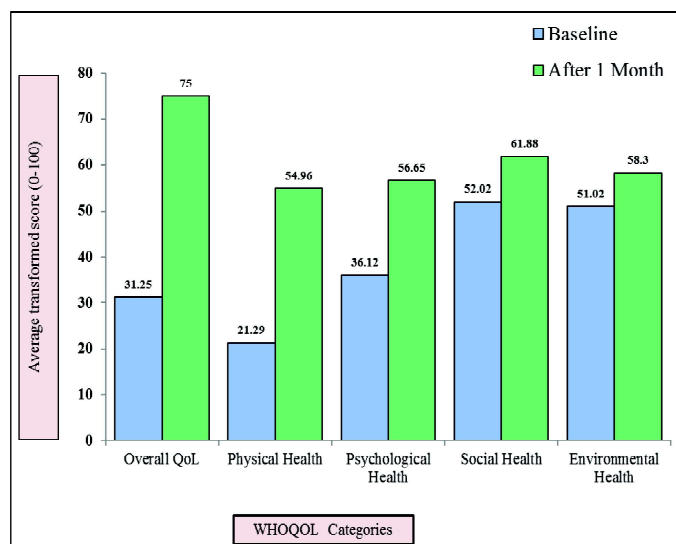
**Figure 1** Antipsychotic drugs causing adverse drug reactions

Weight gain, GI upset, insomnia, sedation, aggressive behavior, and anxiety accounted for nearly 64% of all adverse drug reactions. Mild to moderate ADRs included a headache, tremor, concentration difficulty, fatigue, anemia, dizziness, constipation, restlessness, EPS, asthenia, and were treated by changing the dose and/or relevant medications to treat the symptoms. A total of 166 times ADRs were noted in those 71 patients. Weight gain was seen in 38(53.52%) patients, the gastrointestinal upset was seen in 22(30.98%) patients, insomnia and sedation were seen in 19(26.76%) and 11(15.49%) patients respectively, likewise aggressive behavior and anxiety were seen in 8(11.26%) patients.

As per WHOQOL-BREF questionnaire and scoring method, the overall QOL has improved due to the antipsychotic therapy in all the patients. At the beginning or before the start of the therapy the overall average QOL score was 31.25 (0-100 scale) and it has increased up to 75 after 1 month of the antipsychotic therapy. In every domain of assessment of the



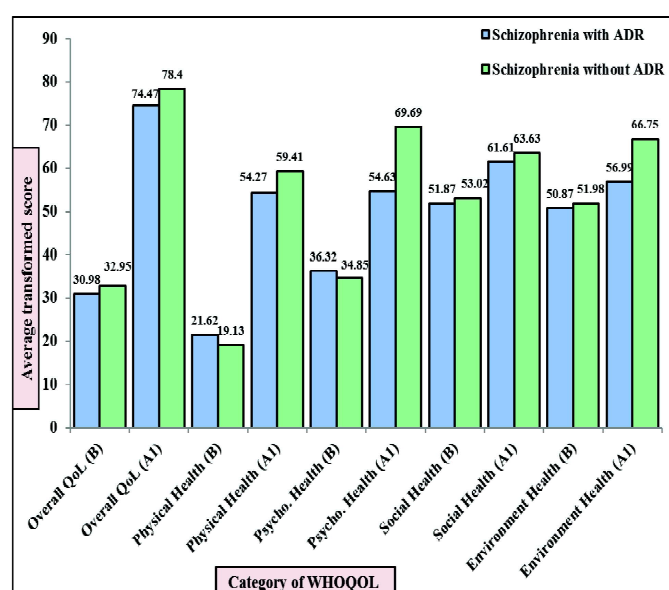
quality of life, score increase was remarkable. The maximum health-related quality of life has increased in physical health and psychological health category. Comparatively less increase was seen in social health and environmental health category.



**Figure 3** Category wise WHO Quality of Life-BREF scores

A baseline score was recorded for each and every patient who was diagnosed as a case of schizophrenia. Scores after 1 month were different for patients who were showing different types of ADRs and for patients who were not showing any signs and symptoms of ADRs. Baseline values for both groups of patients were almost same. The WHOQOL-BREF transformed score was always higher in

schizophrenic patients without any ADRs after 1 month of antipsychotic therapy. The score was 59.41 (0-100 scale) in the physical health category, 69.69 in the psychological health category, 63.63 in social health category and 66.75 (0-100 scale) in the environmental health category. Sharp decreases in scores were seen in patients with schizophrenia with ADRs. The scores were 54.27 (0-100 scale) in physical, 54.63 (0-100 scale) in psychological, 61.61 in social and 56.99 in the environmental health category.



**Figure 4** Category wise WHOQOL scores at baseline (B) and after 1 month (A1) in patients with ADR and without ADR

## DISCUSSION

Out of all ADRs, 72.28% reactions are recorded in patients treated with olanzapine followed by 16.86% events in risperidone. 11(13.41%) patients who were not showing any signs of ADR having a higher quality of life compared to 71(86.58%) patients who were showing different kinds of ADR. EPS has the maximum detrimental effect on QOL compared to other ADRs.

A study conducted in Kolkata reported that atypical antipsychotics were responsible for 57.1% of ADRs. Tremors (19.6%), weight gain (15.34%) and constipation (14.49%) were the most common adverse reactions. Olanzapine (31.82%) followed by haloperidol (19.03%) were the most common drugs responsible for ADRs.<sup>14</sup>

Another study done in Gujarat reported 93 ADRs from 84 prescriptions. Maximum ADRs were due to risperidone and olanzapine. Common ADRs encountered were weight gain, dizziness, and sleep and appetite disturbances.<sup>15</sup>

The present study determined the effect of ADRs on the various aspects of health using quality of life scale and as expected, the quality of life of patients with schizophrenic disorders with adverse drug reactions was lower than in the patients with schizophrenic disorders without adverse drug reactions. The results support the conclusions of previous studies, showing the lower health-related quality of life in schizophrenic patients with ADRs compared to the schizophrenic patients without ADRs.<sup>16,17</sup>

In the psychological health category, patients with schizophrenia with ADRs scores were significantly lower than in the patients with schizophrenia without ADRs. It is not surprising that psychological well-being of the mentally ill patients was lower than in healthy subjects since this domain includes questions related to satisfaction towards life, meaningfulness, enjoyment, concentration and negative feelings and these areas might be fully affected by their illness. The results of the present study support the findings of a study done by Chawla *et al.*<sup>16</sup> where patients with bipolar disorder had significantly higher scores than a schizophrenia group in the psychological domain.

In physical health category also scores of patients with schizophrenia with ADRs were significantly lower than in the patients with schizophrenia without ADRs. This domain includes physical pain, need of medical treatment for bodily function, energy to work, sleep, daily living activities, moving around and capacity for work.

In the environmental health domain, patients with schizophrenia with ADRs again has a lower score and this implies a disadvantage with respect to physical safety and security, financial resources, health and social care and their availability, opportunities for acquiring new information and skills and participation in recreational activities and transport. This may be due to lack of rehabilitation program or may be due to excessive financial dependency on their families.

Social health domain includes the personal relationship, sexual

health, and support from friends. Antipsychotic therapy has a positive impact on this category and significantly improves the quality of life but with an ADR has an equally negative effect and degrades the quality of life score more down.

Psychiatric patients with ADRs reported less satisfaction in all domains of WHOQOL compared to patients without ADRs. In a study done by Akvardar *et al.*<sup>18</sup> indicates that patients with schizophrenia obtained the lowest scores on all domains except in physical domain confirming the third hypothesis. Schizophrenia is a chronic disorder that results in a significant social, psychological, and occupational dysfunction.

Measurement of quality of life is equally important when treating patients with any chronic conditions that significantly impair their life, as in schizophrenia.<sup>19</sup> Every aspect of daily life is affected by schizophrenia, including what activities they can perform, where they live and work and how they interact with other people. Therefore, social integration, work, social contacts and a sense of belonging in the community must be the therapeutic goal to improve their subjective quality of life.

The benefit of conducting quality of life surveys lies in providing these patients with an opportunity to express what is working and what is not in their lives. From the clinical viewpoint, this study implies that, in general, treatment programs should encourage patients and staff to work jointly to identify strategies for promoting the patient's quality of life.

Schizophrenia causes enormous socioeconomic burden, consequently, it causes remarkable low resources and services in a society.<sup>20</sup> And along with its various ADRs may complicate the condition more.

Research and clinical experience show that community-based care achieves better treatment results in mentally ill persons. Clinical trials are also an effective way to curb the mental health problems. In India and in other developing countries the combinations of pharmacotherapy and psychosocial interventions (rehearsal of independent living skills, training in social skills, vocational training, social support networks, family interventions) and still lacking and needs to be addressed as a priority.

A small sample size was the major weakness of the present study and it affects the generalizability of the results. WHOQOL-BREF is a valuable generic instrument. It provides useful results consistent with clinical as well as theoretical knowledge. Psychiatric illness like in schizophrenic disorder is a potential target for therapeutic intervention and methods like WHOQOL-BREF are suited for assessing health-related quality of life in those areas.

## CONCLUSION

The nature of adverse drug reactions was confined to mainly metabolic, reproductive, gastrointestinal, and neurological systems by the use of atypical antipsychotics in patients with schizophrenia. Presence of an adverse drug reaction sharply decreases the physical, psychological, social and

environmental aspect of health-related quality of life. The impact of an ADR on the quality of life and the total cost due to use of an expensive antipsychotic or due to ADR needs to be measured. This study recommends caution in prescribing any antipsychotic drugs which are known to have the higher incidence of adverse drug reactions in patients with schizophrenia and also promotes the awareness that psychiatric patients may contribute valuable self-reports on selected aspects of their quality of life.

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**Conflicts of interest:** None declared.

**Ethical clearance:** Taken.

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