

Understanding the Treatment of Schizophrenia

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Introduction

Schizophrenia is one of the many debilitating mental illnesses affecting approximately 1% of the world population (Stepnicki et al., 2018). Schizophrenia is associated with individuals interpreting realities abnormally. Schizophrenia results in delusions, hallucinations, a disordered way of thinking, and extremely disordered behavior that can be both disabling and affect the daily functioning of the affected person. Negative symptoms like failure and inability to maintain eye contact, speaking in monotones, and the inability to use appropriate facial expressions are also other consequences of schizophrenia.

The path mechanism through which the disease develops is not fully understood. The presenting triad of symptoms is positive symptoms (hallucinations), negative symptoms (social withdrawal), and cognitive symptoms that encompass learning and attention disorder (Stepnicki et al., 2018). However, researchers allude that a combination of brain chemistry, the environment, and genetics could contribute to schizophrenia. For example, naturally occurring brain chemicals like neurotransmitters such as dopamine and glutamate significantly contribute to schizophrenia. The risk factors for schizophrenia include; having a family history of schizophrenia, taking mind-altering drugs like psychoactive and psychotropic drugs, and some pregnancy and birth complications like malnutrition could lead to an individual becoming schizophrenic.

The primary complications associated with schizophrenia include; suicidal attempts, thought of suicide and actual suicide, anxiety disorders, obsession, and compulsive disorders, depression, alcohol and substance abuse, inability to go to school or work, homelessness,

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financial constraints, social isolation, victimization, and aggressive behaviors. There is, however, no sure way to prevent schizophrenia.

Despite the many drug regimens found and developed to help treat this disease, the currently available antipsychotic drugs have significant limitations that significantly affect their efficacy (Kane & Correll, 2010). In light of these shortfalls, I venture out to deduce more on the's best treatment of schizophrenia; This includes looking into the hypotheses that suggest how the disease develops with the implicated neurotransmitter systems and their drug targets. In addition to deciphering efficacy levels of specific drugs, side effects, treatment modalities for various clinical variants of the disease, and the different approach considerations that can be applied in managing this disease. There is a shift in management approach; the treatment is more focused on the individual patient's characteristics with the significant conclusion that the outcomes of pharmacologic treatment of the disease heavily depends on many other factors such as the patient's stage, phase, the drug used, and the concurrent application of other non-pharmacological therapies (Kane & Correll, 2010).

There are several pharmacological advancements for the treatment of schizophrenia. However, there are still too frequent suboptimal outcomes making the treatment of schizophrenia challenging. It is not clear whether it is the first generation medication that should be used for the treatment of schizophrenia and on which particular schizophrenic patients (Kane, & Correll, 2010). A comprehensive treatment that considers the current symptoms, comorbidities, and prior therapies, as well as the possibility of adverse side effects, is essential for schizophrenia. Olanzapine remains the only best treatment for refractory patients. There is a need for additional research to understand the efficacy of combining pharmacological and non-pharmacological treatments for schizophrenia.

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Methodology

For this study, I used the biomedical life sciences search engine pubmed.gov to access various resources on schizophrenia. I located the agency for healthcare research and quality website to acquire information on whether it is the first -generation medications or the second-generation medications for the treatment of schizophrenia that are effective. I also used the British Journal of Medical Practitioners Organization website to ascertain the effectiveness of combining pharmacological and non-pharmacological interventions for handling persistent auditory hallucinations in schizophrenic patients.

Results

In the context of first-generation versus second-generation medications, the past decade has been witnessing a lot of research to understand the advantages of both first and second-generation medications in the treatment of schizophrenia (Corbo et al., 2016). Therefore, psychiatrists have carried out extensive trials on the same most of which have been funded by governments of countries. The experiments conducted have been applying the principles of past effectiveness studies, together with data obtained from various traditional efficacy studies. However, a shift in the prescription practices from the 1990s as questions of the cost-effectiveness of different prescriptions is considered.

In the 1970s and 1980s, there were significant efforts geared towards building much knowledge on the indications and benefits of using long-term pharmacotherapies in the management of schizophrenia. Most studies involved understanding relapse and prevention as well as understanding whether continuous administration of antipsychotic drugs significantly reduces the risks of psychotic relapse as well as re-hospitalization of patients.

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According to Tripathi et al. (2018), the conventional antipsychotics otherwise the first-generation medications, including the haloperidol and chlorpromazine, act the dopaminergic systems and consequently block the dopamine type 2 receptors. Unfortunately, this working mechanism has several side effects. It leads to extrapyramidal impacts like slurred speech, tremor, dystonia, and akathisia. The tardive dyskinesia appears after long term exposure of patients to conventional medications. First-generation medications are also effective against the positive consequences of schizophrenia but are quite ineffective in treating negative symptoms associated with schizophrenia. These adverse effects are responsible for the production of both social and vocational disabilities in many schizophrenic patients.

Olanzapine has the initial second-generation antipsychotic. Unlike first-generation medications, second-generation medications like the quetiapine and the risperidone, as well as Olanzapine, have been found to have more benefits, according to- to Fatani et al. (2017). As a result, second-generation drugs replace first-generation drugs and are becoming drugs of choice for many psychiatrists and schizophrenic patients. The second-generation medications are also not void of shortcomings. They are more effective in preventing extrapyramidal effects and tardive dyskinesia. However, they have side effects like sexual dysfunctions, weight gain, sedation, and hypotension. They are also associated with metabolic side effects as much as their long term effects have not been documented.

The second-generation medications have therefore been criticized for their inclusion of patients with both negative and positive effects, making it challenging to understand whether the drugs have indirect effects, direct effects, or both direct and indirect impact on their main negative symptoms. The drugs have also been criticized for their derivation of data on the negative signs observed in short-term trials, which involved patients selected based on their

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positive symptoms or long-term trials based on their clinical stability. Recent studies from the Cost Utility of the Latest Antipsychotic Drugs in Schizophrenia Study, as well as those from the Clinical Antipsychotic Trials of Intervention Effectiveness Study, have revealed that there are very few differences between the first generation and the second-generation antipsychotics in the management of schizophrenic patients that are non-refractory.

The list of antipsychotics used in the comparative effectiveness review

First-generation antipsychotics	Second-generation antipsychotics as a monotherapy	Second-generation antipsychotics as a combination therapy
Perphenazine	Ziprasidone	Olanzapine plus fluoxetine
Pimozide	Risperidone	
Prochlorperazine	Quetiapine	
Haloperidol	Olanzapine	
Loxapine	Paliperidone	
Fluphenazine	Aripiprazole	
Droperidol	Asenapine	
Chlorpromazine	Lurasidone	
Thioridazine	Clozapine	
Trifluoperazine	Iloperidone	
Thiothixene		

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Upon the testing for effectiveness, it is proposed that to manage bipolar disorders in schizophrenic patients; polytherapy should be used in severe manic and mixed episodes (Fatani et al., 2017). Lithium or valproate should thus be combined with an antipsychotic. At the same time, monotherapy should be used for less ill patients. Lithium or valproate or an antipsychotic should, therefore, be used. All these should be chosen with the conviction that the choice drug has the least side effects.

Schizophrenic patients often experience auditory verbal hallucinations because of the morbid objectification of their inner dialogues. However, the auditory verbal hallucinations are subjective and involve a dynamic, non-consensual, and psychologically charged experiences and voices echoed from different emotions. These auditory hallucinations often arise because of the interactions between the perceptual and cognitive factors and biological predisposition (Tripathi et al., 2018). The critical voices are usually a result of an un-conscious self-hatred. Auditory verbal hallucinations are dangerous to the quality of life of schizophrenic patients as it is a common cause of suicide. Sadly, one in every four schizophrenic patients experiences auditory verbal hallucination, accounting for fifty-three percent of all schizophrenic patients.

Therefore, different patients respond differently to auditory verbal hallucinations as each patient's evaluation of the same. Most responses include anxiety and panic, feelings of humiliation, fear, self-harm thoughts, resistance, amusements, appeasements, substance and alcohol abuse, avoidance and withdrawal, and thoughts of harming others. Since auditory verbal hallucination is a subjective experience, it is difficult to measure it objectively. However, several rating scales have been developed. These scales are designed to facilitate better engagements with schizophrenic patients by reinforcing the patients' messages and considering their experiences carefully. The various measurement scales for auditory verbal hallucinations

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include; the positive and negative syndrome scale, the examination of anomalous self-experience, the voice power differential scale, the Bonn scale, the risk of action on commands scale, the schizophrenia proneness instrument and the beliefs about voice questions scale.

Corbo et al. (2016) reveal that both drug treatments and non-invasive physical treatments are used to treat auditory verbal hallucinations. Drug treatments are used to manage and eradicate symptoms, while psychological therapies like the TMS are used to foster healing, personal growth, and recovery. Self-help approaches, mindfulness-based treatments, normalizing techniques, attention training techniques, distraction techniques, and cognitive-behavioral therapies are some of the commonly used non-pharmacological medicines used in combination with drugs like Olanzapine to manage schizophrenia.

According to Ganguly et al. (2018), the holistic treatment of schizophrenia can only be achieved by combining pharmacological and non-pharmacological therapies. Different symptoms of schizophrenia-like psychiatric symptoms, unemployment, homelessness, poor relationships, lack of education, and financial constraints are best addressed through approaches like cognitive-behavioral therapies, yoga, and the use of antipsychotics. For example, pharmacological interventions have been proven to cause a full recovery of schizophrenic symptoms in six percent of schizophrenic patients upon a single episode of psychosis. Complementary interventions and diet have also been found to be efficient in managing schizophrenia.

Prior studies have revealed that schizophrenic patients have poor dietary habits. Schizophrenic patients have been found to consume less retinol, less total fiber, less carotene, less vitamin c, less vitamin E, fewer fruits, and fewer vegetables. Administering vitamin D to schizophrenic individuals, thus helps a great deal in alleviating their negative symptoms. Other

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studies have revealed that schizophrenic patients consume higher quantities of food with proteins, carbohydrates, and fats. These foods predispose schizophrenic patients to cardiovascular diseases like type II diabetes and systemic inflammation. These diseases are associated with shorter life spans among schizophrenic patients. To assist these patients, they are fed with high-fiber diets that improve their immune systems and boost their cardiovascular systems preventing premature mortalities among schizophrenic patients. These patients are also given folic supplements which help with reducing both negative and positive symptoms. Vitamin E, C, and B are also efficient in managing schizophrenic symptoms among patients (Galaszkiwicz et al., 2017).

Cognitive-behavioral therapy helps in modifying the undesirable modes of thinking, feelings, and behaviors among schizophrenic patients. Therefore, the self-help therapies involved in cognitive-behavioral therapies have been found to be effective in reducing the positive symptoms in schizophrenic patients. The treatment aids schizophrenic patients to develop healthy thoughts and behaviors (Kim et al., 2017). Cognitive-behavioral therapies are useful in reducing disorganized behaviors in schizophrenic patients. It helps improve positive symptoms, negative symptoms, social anxiety, and the general mood of schizophrenic patients. Common schizophrenic symptoms like hallucinations, delusions, depression, and negative symptoms in schizophrenic patients are effectively managed using cognitive-behavioral therapies.

The yoga therapy is another effective non-pharmacological therapy for managing schizophrenia. It becomes more effective when used in combination with pharmacological interventions. Yoga is effective in treating both positive and negative symptoms of schizophrenia (Chawla, 2018). Unlike the pharmacological treatments that are often associated with weight gain, Yoga therapy helps in weight management among schizophrenic patients. The yoga therapy

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also treats the side effects of endocrinological and menstrual dysfunctions caused by the use of pharmacological therapies. The yoga therapy also helps with improving social dysfunctions in schizophrenic patients. The yoga therapy reduces both psychiatric symptoms and alleviates mental challenges. It generally improves the quality of life and reduces metabolic risks. Engaging in yoga stimulates the production of oxytocin in the body. This hormone is responsible for the general wellbeing of the human body. Yoga also improves cognitive awareness in schizophrenic patients and reduces psychotic symptoms.

According to Vancampfort et al. (2019), non-pharmacological strategies have also been found to foster adherence and continuity of care among schizophrenic patients. Non-adherence can be both intentional and unintentional. Involuntary non-adherence happens when signs and symptoms like cognitive deficits bar the patients from taking their medication. Intentional non-adherence, on the other hand, occurs when the patients consciously decide to stop taking medication. However, the most common reason for non-adherence is schizophrenic patients forget to take their medication due to the various memory difficulties these patients battle with. Other factors that make schizophrenic patients not adhere to treatments include; illness awareness, distorted and ambiguous beliefs about the procedure, lack understanding of the illness, cognitive impairment, psychopathology, lack of prior therapeutic responses, and medication side effects.

Non-pharmacological strategies like memory aids, education sessions, motivational interviewing, adherence, and compliance therapies have, however, been found to be effective in encouraging adherence to treatment by schizophrenic patients. The psychoeducation strategies help provide information to schizophrenic patients and their family members on the disorder, the treatments available, and the approach to managing schizophrenia. For example, the patient

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psychoeducation strategy involves individual and group counseling sessions and the use of written and audiovisual materials to inform schizophrenic patients about the illness, the available medications, their side effects, and strategies to prevent relapse.

Family psychoeducation reduces the relapse rates and facilitates recovery among schizophrenic patients, especially those with mental illnesses. The strategy involves educating the family members about the condition their family members are suffering from, the available treatments for the same and their side effects, and ways to prevent relapse. The behavioral interventions are also relevant as they assume that behavior is learned and conditioned and can thus be modified through targeting, rewarding, and reinforcing desired behavior patterns. The interventions, therefore, include; skill-building, practical activities, reinforcement strategies, and behavioral modeling. The behavioral tailoring activities encourage the development of neural prompts by integrating the taking of medication into each schizophrenic patient's usual routine (Laws et al., 2018).

The healthy behavior management strategy is also relevant in fostering adherence. This strategy helps improve beliefs that contribute to adherence. It improves the perceived adherence benefits and the possibility of a schizophrenic patient being free of the illness. It also enhances the perceived barriers to adherence, including addressing challenges like side effects and stigma. The strategy also addresses the perceived susceptibility to the disease, like addressing patients' beliefs feeling they have high relapsing. The plan further improves the perceived severity of the outcomes, for example, by treating the idea that in case a relapse occurs, it shall have more negative consequences.

The healthy behavior management strategy addresses factors like personality attributes such as the health locus of control and dysfunctional attitudes. The approach also tackles

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influences of the significant other like family members, friends, and mental health experts. The strategy addresses cultural contexts and beliefs and fosters general health motivations. It improves the general orientation of schizophrenic patients towards medications and consequently promotes adherence to drugs. Community interventions are also non-pharmacological interventions used alongside pharmacological interventions to enhance schizophrenic patients (Galaszkiwicz et al., 2017). These interventions include encouraging community members to provide a reliable and supportive social network to schizophrenic patients. The created social network also helps with the close monitoring of the clinical status of the patients. Such may include analyzing and following up with a medication regimen and providing supportive services like suitable housing and well-balanced diets. Community interventions also improve adherence to medication besides increasing the recovery rates of schizophrenic patients.

Psychosocial interventions are also beneficial when used in combination with pharmacological treatments. These interventions help create more frequent and more prolonged visits of schizophrenic patients to health facilities and foster adherence to therapy. When schizophrenic patients and psychiatrists have numerous personal meetings with detailed explanations of different diagnoses and comments and possibilities of positive outcomes, their relationship becomes healthy and productive. It improves adherence to medication as studies have shown that a weak therapeutic relationship between schizophrenic patients and their psychiatrists, is associated with poor adherence to medication and other therapies. This healthy relationship is also essential in monitoring the patients' progress and the side effects of different medicines.

It has been found out that lack of responsive communication between family members of schizophrenic patients, the schizophrenic patients under the medication, and the psychiatrists in

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charge of these patients, often leads to non-adherence to medication and discontinuation of drugs against medical guidelines. Further, the provision of detailed information on how to manage particular side effects by schizophrenic patients is associated with sustained adherence to medication. Mixed modality interventions are other necessary and useful intervention non-pharmacological strategies for the management of schizophrenia. These strategies involve combining both educational and behavioral interventions. These strategies can be used to support the use of pharmacological interventions. These strategies also target the entire society as they often involve concerted efforts among community members, social groups, healthcare professionals, family members of schizophrenic patients, and schizophrenic patients themselves. The strategies have been proven to be very useful in fostering adherence of schizophrenic patients to medication and other relevant therapies (Laws et al., 2019).

Studies on the Pharmacologic Treatment of Schizophrenia have also been carried out. Different treatment outcomes revealed that clinicians' response is used to determine whether a specific treatment is valid or not. Laboratory tests, physical signs, and imaging are used to measure patients' reactions to certain medications. Response to treatment is also used to insinuate any significant improvement by the target patient. It could also mean an increase in the psychopathology of the condition being treated. Dosage, treatment duration, adherence to medication taking, metabolism, and bioavailability are vital considerations in measuring the response. The degree of residual psychopathology is also relevant in determining what subsequent treatments a patient may require (Kane & Correll, 2010).

Remission happens within four to six weeks of treatment. In the diagnosis of schizophrenia, the reduction is measured using the positive and negative syndrome scale (PANSS), the range for the assessment of positive symptoms, and the size of the evaluation of

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negative symptoms. According to the PANSS scale, when the eight corresponding items rated to be less than mild for six concurrent months, then the response is desirable (Kane & Correll, 2010). In the event a patient does not undergo remission within these six months, the clinician is required to carry out evaluation tests like a diagnostic error, inadequate dosage, non-adherence, comorbid conditions, insufficient blood levels, drug-drug interaction, substance abuse, ineffective drugs and analysis for any other adverse effects that could interfere with clinical processes. Clinicians then respond to the evaluation appropriately, like adding a second drug.

Recovery is essential because functional outcomes are the apparent goals for schizophrenic interventions. Improvement is measured using symptomatic remission, the minimum level of educational functioning, the patient's ability to carry out their daily duties and undergo supervision. The patient has at least one social contact outside the family line for an in a week. If this happens for two concurrent years, then the patient can be said to have recovered. It is also essential to combine pharmacological treatments, targeted psychosocial therapies, and broad psychosocial treatments to enhance vocational and psychosocial functioning. Strategies aimed at improving medication adherence levels are also critical as they facilitate recovery.

It is still challenging to determine whether a patient has had enough trial upon response, recovery, and remission being achieved. Current studies have revealed that while controlling the placebo responses, the most significant improvement in psychotic symptoms and signs occurs in the first week of trial. Simultaneously, the separation between the drug and placebo effects regarding positive psychotic symptoms occurs in twenty-four hours. Patients who have an inadequate early response are more likely to discontinue trials (Kane & Correll, 2010). Consequently, the cost of caring for these patients is higher than that of caring for patients with robust early responses. Switching schizophrenic treatments to using Olanzapine is very efficient.

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However, it is noteworthy that the patients who are more severely ill the most from the switch to using Olanzapine. The lack of at least a minimal response within two weeks of treatment indicates that the procedure the patient is on is most likely going to bring the desired positive response.

While switching antipsychotics, it is wise to choose an agent that has a different receptor binding profile. Antipsychotic poly-pharmacy aims at making effective the switching to a medication that has a different receptor mandatory profile to cater to the needs of poor and partial responders (Kane & Correll, 2010). The combination of multiple drugs is responsible for the complex receptor binding profile that Olanzapine has. Combination therapy is thus most efficient when used from the beginning of the treatment instead of rushing to Olanzapine when the patient is poorly or partially responding to antipsychotics. Olanzapine is superior to the second-generation antipsychotics and is useful in managing poor responders. Lamotrigine has been found to have some significant effects in treating schizophrenia. Augmentation treatments combined with glycine transporter inhibitors also yield positive results on schizophrenic patients. Combining adjunctive therapy with antidepressants also reduces negative symptoms in schizophrenic patients.

There are some subgroups of patients who do not relapse, although there is no direct way of determining that before stopping medications on them. The type of medication chosen is vital as different drugs have short and other long-term adverse effects. Second-generation drugs have lower relapse rates compared to first-generation antipsychotics. It is essential that adverse effects be watched out for in the management of schizophrenia. Adverse effects can hinder effective treatment, the subjective wellbeing of the patients, the functional capacity, the life expectancy, and the quality of life among different patients. Sleeping difficulties, sedation, sexual and

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reproductive health challenges, changes in blood pressure, blood glucose, blood lipids as well as weight changes, and involuntary movements should be watched in the management of schizophrenia.

While treating refractory patients, and in order to avoid cardiovascular complications, switching medications is relevant. The use and sequence of drugs should be prioritized as opposed to the type of drugs. Most schizophrenic patients are asymptomatic, have functionality impairments, often develop intolerance to different treatments, and are often dissatisfied with treatment; medication switching has become prevalent in schizophrenia management. However, clinicians are required to consider the current psychosocial situation, the level of support, comorbidity conditions, and the patient's level of support before switching medication. The consideration of pharmacologic profiles of the pre-switch and post-switch needs to be analyzed for appropriate switching to be done. To avoid a phenomenon where pharmacodynamics and pharmacokinetic rebound occurs, an overlapping cross titration should be implanted, or withdrawal symptoms are treated (Kane & Correll, 2010).

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Conclusions

The management and treatment of schizophrenia still a challenge despite many pharmacological advances having being reached (Kane, & Correll, 2010). There are still too frequent suboptimal outcomes. There is still no adequate mapping measure for the functional consequences of schizophrenia as much as there are treatment goals of response and effective recovery measures. There is also a need for the field of schizophrenia to adapt to changes and adopt its treatment and management strategies. There should be an adoption of both the first and second-generation antipsychotics (Corbo et al., 2016). The approaches used in the field also ought to be more clinical and practical than they are theoretical.

A comprehensive treatment approach is necessary. The plan should note the current symptoms, existing comorbidity conditions, therapeutic responses done in the past, any unexpected side effects, and the choice and expectations of the patients. This comprehensive approach should balance the acute and long term objectives and consequences of any medication given to schizophrenic patients (Kane, & Correll, 2010). The advantages and disadvantages of both the first and second-generation medications must be analyzed critically, and the medicines with the least negative consequences are preferred. Since many schizophrenic symptoms are resistant to pharmacological treatments and non-pharmacological treatments used as monotherapies, the two should be combined to achieve better results.

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