Summer Training at
MSN Lab. Pvt. Ltd.,
Hyderabad

Market Assessment of Lurasidone in India

By
Aniruddha Jiwane

Under the guidance of
Mr. Rahul Sharma

MBA Pharmaceutical Management
2015-2017

The IIHMR University, Jaipur
2016

INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

CERTIFICATE

TO WHOMSOEVER MAY CONCERN

This is to certify that **Mr. Aniruddha Jiwane**, student of MBA Pharmaceutical Management (MBA PM) from The IIHMR University, Jaipur has undergone internship training at **MSN Laboratories Pvt. Ltd, Hyderabad** from **1st April, 2016** to **31st May, 2016.**

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish his all success in all his future endeavors.

Col(Dr) Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur

Mr. Rahul Sharma
Assistant Professor
The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Near Sanganer Airport, Jaipur-302029, Rajasthan, India.
Ph.: 0141-3924700, 2791431- 32, Fax:0141-3924738,E-mail: iihmr@iihmr.edu.in,Web: www.iihmr.edu.in

MSN Laboratories Private Limited
MSN House, Plot No.: C-24,
Sanath Nagar Industrial Estate, Sanath Nagar,
Hyderabad, Telangana, Pincode: 500018. India.
CIN: U24239TG2003PTC041583
Phone: +91-40-30438600 Fax: +91-40-30438798

July 27, 2016

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Mr Aniruddha Jiwane**, S/o Rushi Jiwane bearing Registration No: 0032 from IIHMR University, Jaipur has successfully completed his project work in our Formulation Marketing Department on **"Market Assessment of Lurasidone in India"** at MSN Laboratories Pvt. Ltd under the guidance of **Mr B S Karthikeyan, Marketing Manager** from 1st April, 2016 to 31st May, 2016.

During Project work **Mr Aniruddha Jiwane** performance was found satisfactory.

for MSN Laboratories Pvt. Ltd

P Narsimha Rao
Senior Vice President - Group HR

MSN LABORATORIES PRIVATE LIMITED ★ Hyderabad

ACKNOWLEDGEMENT

The satiation and euphoria that accompany the successful completion of the project would be incomplete without the mention of the people who made it possible.

I would like to take the opportunity to thank and express my deep sense of gratitude to my corporate mentor Mr.Vishal Arora and my guide Mr.Karthikeyan. I am greatly indebted to both of them for providing their valuable guidance at all stages of the study, their advice, constructive suggestions, positive and supportive attitude and continuous encouragement, without which it would have not been possible to complete the project.

I would also like to thank Mrs.Kiranmayi who has co-operated with me continuously and indeed, his valuable contribution and guidance have been certainly indispensable for my project work.

I am thankful to Mr. P. Srinivas (Senior Manager HR) for giving me the opportunity to work with MSN Laboratories Pvt. Ltd. and learn.

I owe my wholehearted thanks and appreciation to the entire staff of the company for their cooperation and assistance during the course of my project.

I hope that I can build upon the experience and knowledge that I have gained and make a valuable contribution towards this industry in coming future.

Thanks
Sincerely,
Aniruddha Jiwane
MBA 1st Year,
IIHMR University, Jaipur

Contents

Section – 1
Introduction

Section – 1

Introduction:

Company Profile:

MSN Laboratories Private Limited

MSN Group is one of the fastest growing manufacturers of Active Pharmaceutical Ingredients (APIs) and finished dosages in India. Established in the year 2003, MSN Group comprises of eight API manufacturing plants (including one for Oncology), three finished dosage facility (including one for Oncology) and a dedicated R&D Center. Company plants are ISO 90012000 certified, WHO: GMP, EU: GMP and USFDA approved. Company manufacturing units are designed to confirm to the principles of Quality, Safety and sound Environment. (1)

Founded in 2003, the Hyderabad based MSN Laboratories is one of the fastest growing research based pharmaceutical company in India. Boasting a diverse product portfolio, with multiple products in the market and in the pipeline, MSN has 8 API (including Oncology) and 3 finished dosage facilities (including one for oncology) and an integrated R&D Center for Contract Research and Manufacturing Services (CRAMS) located in Hyderabad. (1)

MSN has won the trust of more than 250 customers across 65 countries around the globe covering the US, Europe, Latin America, Middle East, Asia Pacific, Africa and CIS markets. Company product basket offers over 200 APIs & 120 Formulations covering 35 major therapies. (1)

Company Vision

Company would like to be the preferred supplier of quality Pharmaceuticals to global markets complying with international regulatory requirements and aim for the highest possible customer satisfaction. (2)

Financial

In a short span of 8 years, company recorded 100% growth in multiple years from USD 22 million in 2005 to USD 130 million in 2011. (1)

Schizophrenia & Bipolar Depression:

Schizophrenia

Schizophrenia is a serious mental illness that interferes with a person's ability to think clearly, manage emotions, make decisions and relate to others. Research has linked schizophrenia to changes in brain chemistry and structure. Like diabetes, schizophrenia is a complex, long-term medical illness that affects everybody differently. The course of the illness is unique for each person. (3)

Diagnosis of Schizophrenia:

There is no single laboratory or brain imaging test for schizophrenia. Treatment professionals must rule out multiple factors such as brain tumors, possible medical conditions and other psychiatric diagnoses, such as bipolar disorder.

Individuals with schizophrenia have two or more of the following symptoms occurring persistently. However, delusions or hallucinations alone can often be enough to lead to a diagnosis of schizophrenia.

Positive symptoms are also known as "psychotic" symptoms because the person has lost touch with reality in certain ways.

• Delusions or the belief in things not real or true.

• Hallucinations are hearing or seeing things that are not real.

• Disorganized speech expressed as an inability to generate a logical sequence of ideas.

Negative symptoms refer to a reduction of a capacity, such as motivation.

• Emotional flatness or lack of expressiveness.

• Inability to start and follow through with activities.

• Lack of pleasure or interest in life.

Cognitive symptoms pertain to thinking processes.

• Trouble with prioritizing tasks, memory and organizing thoughts.

• Anosognosia or "lack of insight" being unaware of having an illness. (3)

Causes of Schizophrenia:

Research strongly suggests that schizophrenia involves problems with brain chemistry and structure and is thought to be caused by a combination of genetic and environmental factors, as are many other medical illnesses.

One percent of the world's population or one in every 100 people will develop the disorder in their lifetime. The most common onset is in the teens and 20s. It is uncommon for schizophrenia to be diagnosed before 12 years of age or after the age of 40. (3)

Treatments:

The treatment of schizophrenia requires an all-encompassing approach that includes medication, therapy and psychosocial rehabilitation. Medication is an important aspect of symptom management. Antipsychotic medication often helps to relieve the hallucinations, delusions and, to a lesser extent, the thinking problems people can experience.

Therapy has been shown to be an effective part of a treatment plan. Cognitive behavioral therapy (CBT), which engages the person living with schizophrenia in developing proactive

coping strategies for persistent symptoms, is particularly effective. Cognitive enhancement therapy works with improving cognition.

Psychosocial rehabilitation helps with the achievement of life goals often involving relationships, work and living. Most often delivered through community mental health services, it employs strategies that help people successfully live in independent housing, pursue education, find jobs and improve social interaction.

Long-term research demonstrates that, over time, individuals living with schizophrenia often do better in terms of coping with their symptoms, maximizing their functioning while minimizing their relapses. Recovery is possible for most people, though it is important to remember that some people have more trouble managing their symptoms. (3)

Bipolar Disorder

Bipolar disorder is treatable medical illness marked by extreme changes in mood, thought, energy and behavior. A person mood can alternate between two poles of 'mania' and 'depression'. This change in mood or mood swing can last for hours, weeks or even months. It adversely affects spouses, family members, friends and people in the workplace. (4)

It usually begins in late adolescence and also it can start in early childhood and as late as 40s and 50s. An equal number of men and women develop this illness and it is found among all the ages, races and social classes. Mood swings that come with bipolar disorder can be severe, ranging from extreme in energy to deep despair. (4)

Symptoms of Mania:

- Increased physical and mental activity & energy
- Heightened mood, exaggerated self confidence
- Excessive irritability, aggressive behavior

- Decrease need for sleep
- Grandiose delusions
- Racing speech, racing thoughts, flight of ideas
- Reckless behavior such as rash business decisions
- In most severe cases, delusions and hallucination (4)

Symptoms of Depression:

- Prolonged sadness
- Significant changes in appetite and sleep patterns
- Irritability, anger, worry & anxiety
- Loss if energy, persistent lethargy
- Unexplained aches & pain
- Feelings of guilt, hopelessness
- Inability to concentrate
- Social withdrawal
- Excessive consumption of alcohol or use of chemical substances
- Recurring thoughts of death or suicide (4)

Types of Episodes:

1) Manic episodes
2) Major depressive episodes
3) Hypomanic episodes
4) Mixed episodes
5) Rapid cycling (4)

Types of Bipolar Disorder:

1. Bipolar I Disorder:

One or more manic episodes or mixed episodes & often one or more major depressive episodes. Depressive episode may last for several weeks or months. Symptoms of mania may last just as long. Between episodes there may be period of normal functioning. Symptoms may also related to seasonal changes. (4)

2. Bipolar II Disorder:

One or more major depressive episodes with at least one Hypomanic episodes. Hypomanic episodes have symptoms similar to manic episodes but are less severe. Between episodes there may be period of normal functioning. Symptoms may also relate to seasonal changes. (4)

3. Cyclothymic Disorder:

Chronic, fluctuating mood disturbance involving periods of hypomanic symptoms and depressive symptoms. Milder form of bipolar disorder. The periods of both depressive and hypomanic symptoms are shorter, less severe and do not occur regularly. (4)

4. Bipolar disorder NOS (Not Otherwise Specified):

Includes disorder with bipolar features that do not need criteria for any of the above specified disorders.

for example:

Having recurrent hypomanic episodes without depressive syndromes. Having very rapid alteration between symptoms of mania and depression that do not meet criteria for manic episodes or major depressive episodes. (4)

Causes of Bipolar Disorder:

- Imbalance in brain chemical called 'neurotransmitters'.
- Genetic, biochemical & environmental factors play role in developing disease.
- Body chemistry can bring on a depressive or manic episodes, due to presence of another illness, altered health habits, stress, substance abuse or hormonal changes. (4)

Medications for Bipolar Disorder:

1. Mood Stabilizers:

First line agent for bipolar disorder. It is used to decrease the chance of having further episodes of mania or depression. Depending on associated symptoms with this disorder antidepressants and antipsychotic agents may also be used. It regulate mood swings of patient.

Examples: Lithium Carbonate, Carbamazepine & sodium valproate. (4)

2. Antidepressants:

Can be used as single and use with mood stabilizers in acute, continuation, and /or maintainace phases of medical treatment.

Example: 1) SSRIs – fluoxetine, paroxetine.

2) Tricyclics- Imipramine, desipramine.

3) MAO Inhibitors- Phenelzine. (4)

3. Antipsychotic medication:

Used in acute phase & longer term treatment. Combined with the mood stabilizers to control hallucination and delusions, to improve sleep, or to decrease irritability and impulsive behavior.

Example: haloperidol, chlorpromazine, thioridazine, risperidone, olanzapine. (4)

Conceptual Discussion:

Lurasidone is a new atypical antipsychotic developed by Sunovion Pharmaceuticals, Inc., that was approved for use in schizophrenia in the United States in 2010. It was approved for use in bipolar depression in July 2013. Lurasidone is a strong dopamine D2 receptor blocker, as are almost all currently known antipsychotics used in schizophrenia, so its development and approval came as no surprise. Consistent with the major thrust of development in the schizophrenia treatment area today, lurasidone's preclinical development was associated with the search for a dopamineD2 blocker with little or no extrapyramidal symptoms and little or no prolactin rise. Sometimes an absence of cholinergic muscarinic blockade and a felicitous balance of agonism and antagonism at some of the large number of serotonin receptor subtypes can achieve this desirable side effect profile. It has been achieved already in some other compounds, but the big prize today in pharmaceutical development of atypical antipsychotics is avoidance of the metabolic side effects such as weight gain, hyperlipidemia, and impaired glucose metabolism. The molecular basis of this cardiovascular profile is not fully known, so it has not been possible to use designer medicinal chemistry to create the ideal compound from basic principles. Some trial and error is necessary both in animals and eventually in clinical trials. Lurasidone may fit this basic bill. (5)

Bipolar disorder or manic-depressive illness has been distinguished from schizophrenia since Kraeplin over 100 years ago, although a persistent group of psychiatrists, scientists, and

accompanying facts seems to turn up in every generation to resurrect the concept of "a unitary psychosis" that may even include depression. The discovery of lithium as a simple ion effective in bipolar disorder and not in schizophrenia presaged an era in which the distinction between bipolar disorder and schizophrenia was a foundation of Psychiatrist treatment, and a prediction of lithium response a clinical tour de force to make any psychiatrist proud. The later discovery that some anticonvulsants, such as valproate and carbamazepine, are also effective in bipolar disorder did not undermine the essential concept. However, the rise of atypical antipsychotic use in bipolar disorder and the large quantity and quality of the evidence justifying its use over the last 10 years is having a major impact on clinical diagnostic thinking. This is not yet evident in DSM-5, but I predict that it will be evident in DSM-6. Most, if not all, of the new atypical antipsychotics are effective in mania and in the prophylaxis of new episodes in bipolar disorder. But what about bipolar depression? Bipolar depression is a major clinical problem, and the evidence that antidepressants can be useful seems less and less convincing. Like a brave knight on a white horse, atypical antipsychotics have rushed in to save us, the Psychiatrist maidens. It could be said that we have rediscovered the wheel. But it could be a better wheel. (5)

Quetiapine is clearly effective in bipolar depression, and its evidence base is backed up by clinical satisfaction. However, weight gain, hyperlipidemia, and glucose impairment are striking, although not as striking as with olanzapine, another atypical antipsychotic clearly shown to be useful not only in bipolar mania and in the prophylaxis of bipolar episodes but also in the treatment of bipolar depression with or without an adjunctive mood stabilizer. (5)

Research Question:

What is the opinion of Psychiatrist about new antipsychotic Drug Lurasidone in Hyderabad City?

Objective:

- To assess the Psychiatrists opinion about new antipsychotic Lurasidone.
- To find out market potential of Lurasidone in future.
- To know the limitations of current antipsychotic drugs.
- To know the main advantage of Lurasidone over other Antipsychotic drugs.

Project Review:

The objective of this project to understand what are the limitations of current antipsychotics & develop a medical positioning for Lurasidone. For this we have to understand customer needs (Psychiatrists), beliefs and emotions of psychiatrists regarding the product, so they can contribute their valuable inputs for introducing the 'Lurasidone' in India. The objective of this study is to know the opinion about the new antipsychotic 'Lurasidone' in Hyderabad city with respect to survey in best hospitals of the city.

The project was started on 1st April, 2016 after knowing the all relevant information regarding the project. The first part of my project involves the study of CNS system and specifically the disease 'Schizophrenia' and 'Bipolar Disorder'. It also involves the classes of drugs used in the treatment of this disease.

Then I studied the 'Dopaminergic Pathways' on which the antipsychotic drugs act to treat the patient from Schizophrenia. Also I studied about antipsychotic drugs in deep.

At last I studied about the drug Lurasidone on which I am doing this project. I thoroughly studied about the International Brand **Latuda.** I studied about the launching of LATUDA brand in various countries, its sales and also the promotional activities done by the company for marketing of the product.

Next main part of my project was to develop questionnaire respected to medical positioning to Lurasidone and to know the opinion of psychiatrist about the Lurasidone. Hence, the detailed study provided me a rough idea in developing questionnaire and my corporate Guide guided me in finalizing the questionnaire. For this questionnaire was prepared which gave vague idea about the psychiatrists, who were really interested in practicing the new molecule and wanted to know about the availability of molecule in the country. The marketing research was undertaken for Hyderabad city during two weeks. The sample size of the marketing research was 50.

The final part of project was compilation and interpretation of data in the questionnaire. Most important part is analyzing the information.

Section – 2
Mode of Data Collection

Section – 2

Mode of Data collection:

Methodology:

A questionnaire was prepared to Gauge the awareness of new molecule in customer.

- Study Design: Descriptive.
- Primary data was collected from Psychiatrist in Hyderabad.
- Secondary data: journal, books & web was used.
- Structured questionnaire was used to collect the information from Psychiatrist.
- Total Respondents: 50.
- Study area: Hyderabad, India.
- Sampling: Convenience Sampling.

Material and tools:

Data type: Primary data & Secondary data.

Data collection tool:

Data will be collected through questionnaire and responses were compiled in the Excel sheet.

Data Collection:

Secondary Data was collected from the article, publications & books which are assessed through web.

Primary data was collected through designed **structured questionnaire**. The questions are based on the how Psychiatrist will prefer new antipsychotic Lurasidone after this drug will hit the market. For data collection each Psychiatrist will be selected as per the convenience. There are ten questions in the questionnaire. Ten days spend to collect the data from desired sample size of 50 Psychiatrist.

Ethical consideration:

Before collecting the primary data and responses from Psychiatrist, information was given to them that this internship project is part of my curriculum to complete my MBA degree. All the data collected through this survey will be kept confidential & will not be commercialized.

Section – 3
Data Compilation, Analysis & Interpretation

Section – 3

Data Compilation & Analysis:

Primary data collected through the survey forms, where organized and assigned individual forms with the specific numerical number from 1 to 50 are there. This makes easier for segregating data and allotting specific form its individual identity. The questionnaire is develop as first some options are given in the questions and also one question can be answered to the multiple choice in some question.

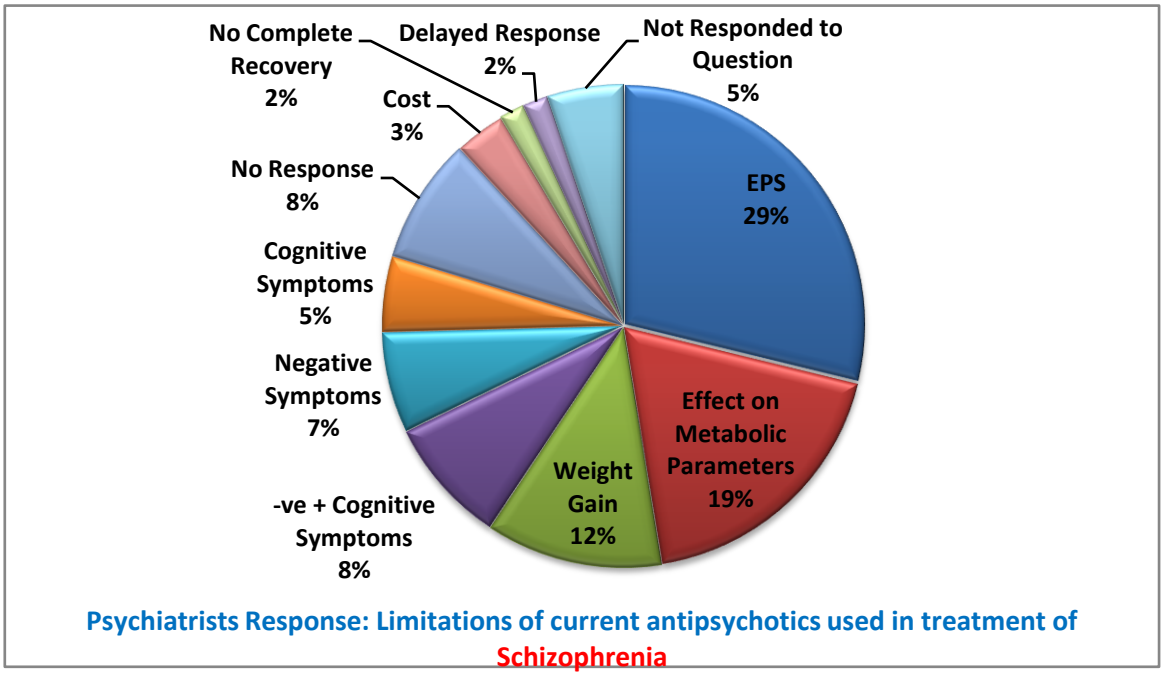
After collecting the data total responses of each options of each question were counted. These responses are compared with total a response which is 50, and then % were calculated of each responses of Question to the total response 50.

Results & Findings:

1. Limitations of current antipsychotics.

Limitations	No. of Psychiatrists Response
EPS	17
Effect on Metabolic Parameters	11
Weight Gain	7
-ve + Cognitive Symptoms	5
Negative Symptoms	4
Cognitive Symptoms	3
No Response	5
Cost	2
No Complete Recovery	1
Delayed Response	1
Not Responded to Question	3

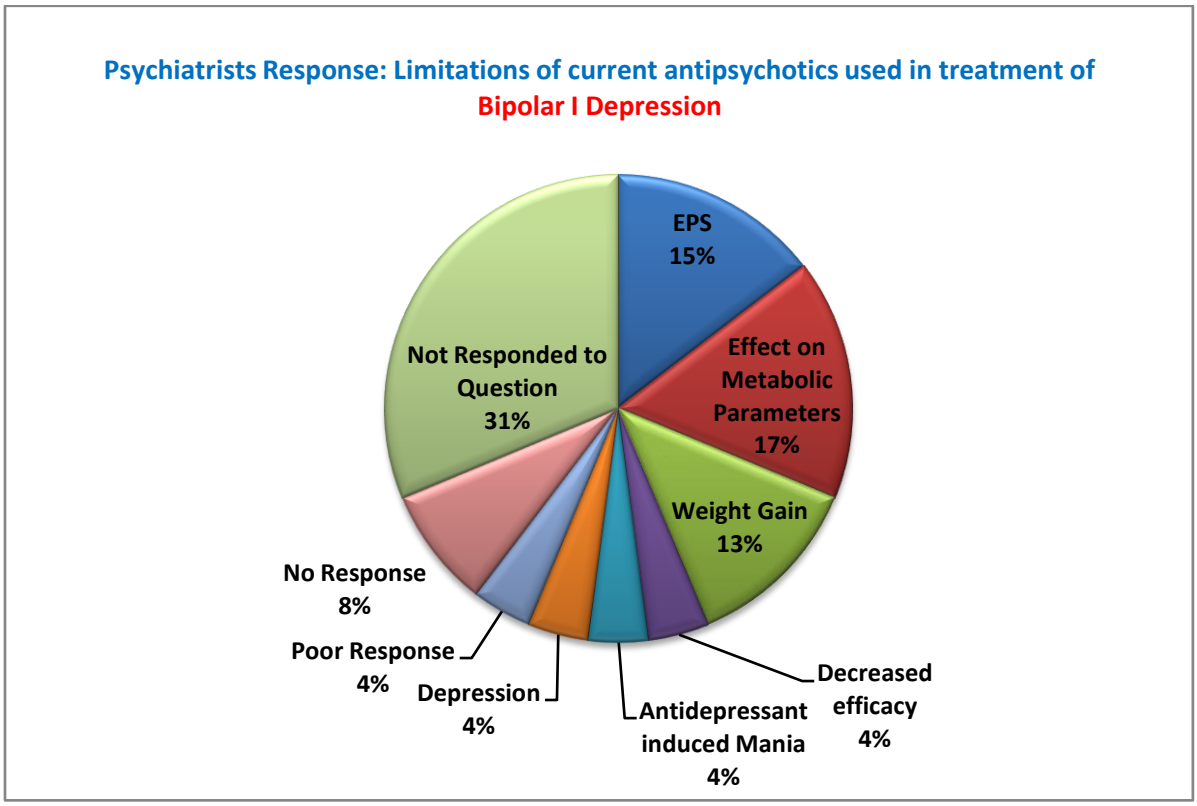
Table 1.Psychiatrists Response: Limitations of current antipsychotics used in treatment of Schizophrenia.



Psychiatrists Response: Limitations of current antipsychotics used in treatment of Schizophrenia

Limitations	No. of Psychiatrists Response
EPS	7
Effect on Metabolic Parameters	8
Weight Gain	6
Decreased efficacy	2
Antidepressant induced Mania	2
Depression	2
Poor Response	2
No Response	4
Not Responded to Question	15

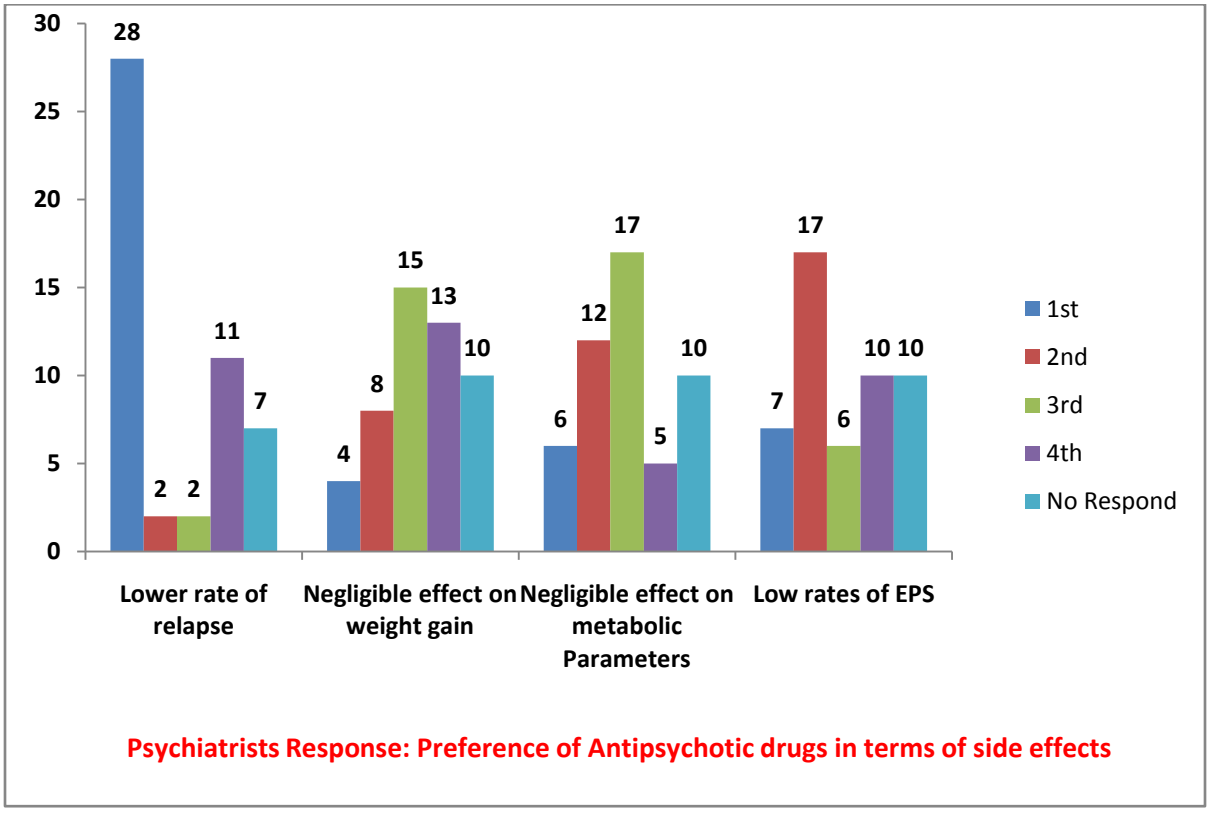
Table 2.Psychiatrists Response: Limitations of current antipsychotics used in treatment of Bipolar I Depression.



2. Preference of Antipsychotic Drugs.

Preference	Lower rate of relapse	Negligible effect on weight gain	Negligible effect on metabolic Parameters	Low rates of EPS
1st	28	4	6	7
2nd	2	8	12	17
3rd	2	15	17	6
4th	11	13	5	10
No Respond	7	10	10	10

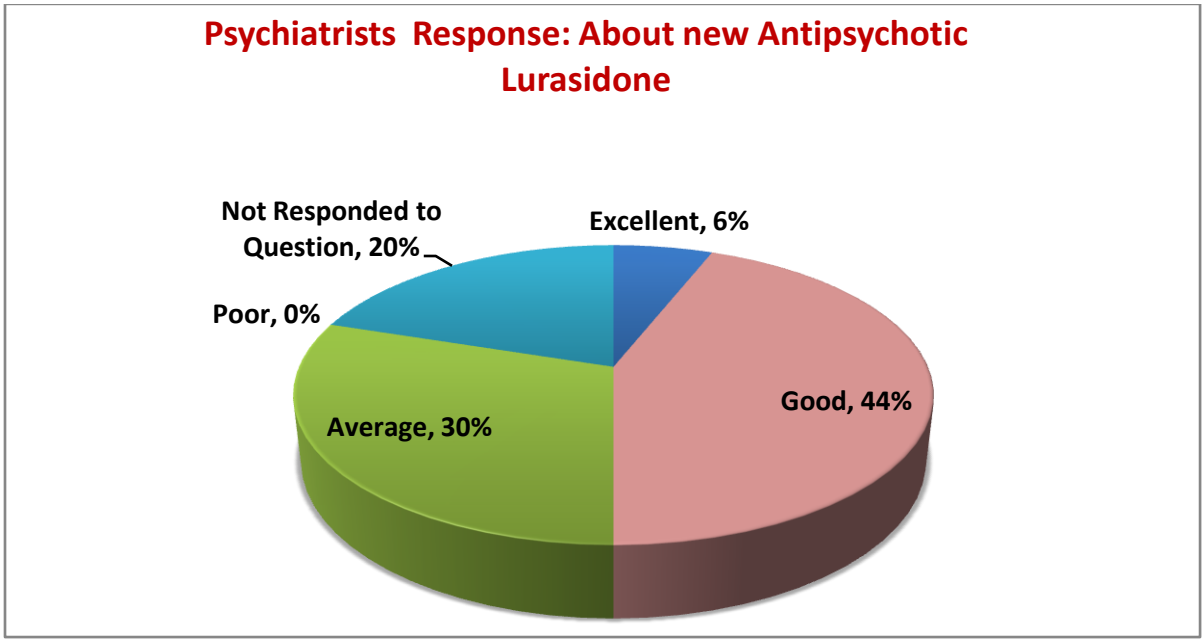
Table 3.Psychiatrists Response: Preference of Antipsychotic drugs in terms of side effects.



3. Opinion of Psychiatric about new antipsychotic Lurasidone.

Opinion	No. of Psychiatrists response
Excellent	3
Good	22
Average	15
Poor	0
Not Responded to Question	10

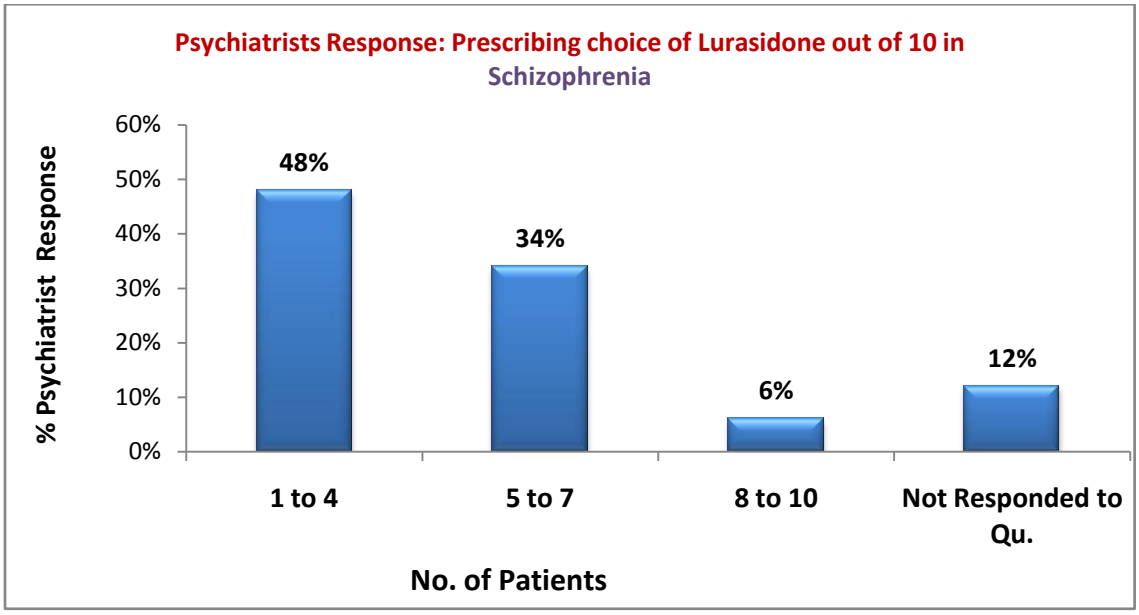
Table 4.Psychiatrists Response: About new Antipsychotic Lurasidone.



4. Prescribing choice for Lurasidone out of 10 (after the molecule hits the market)

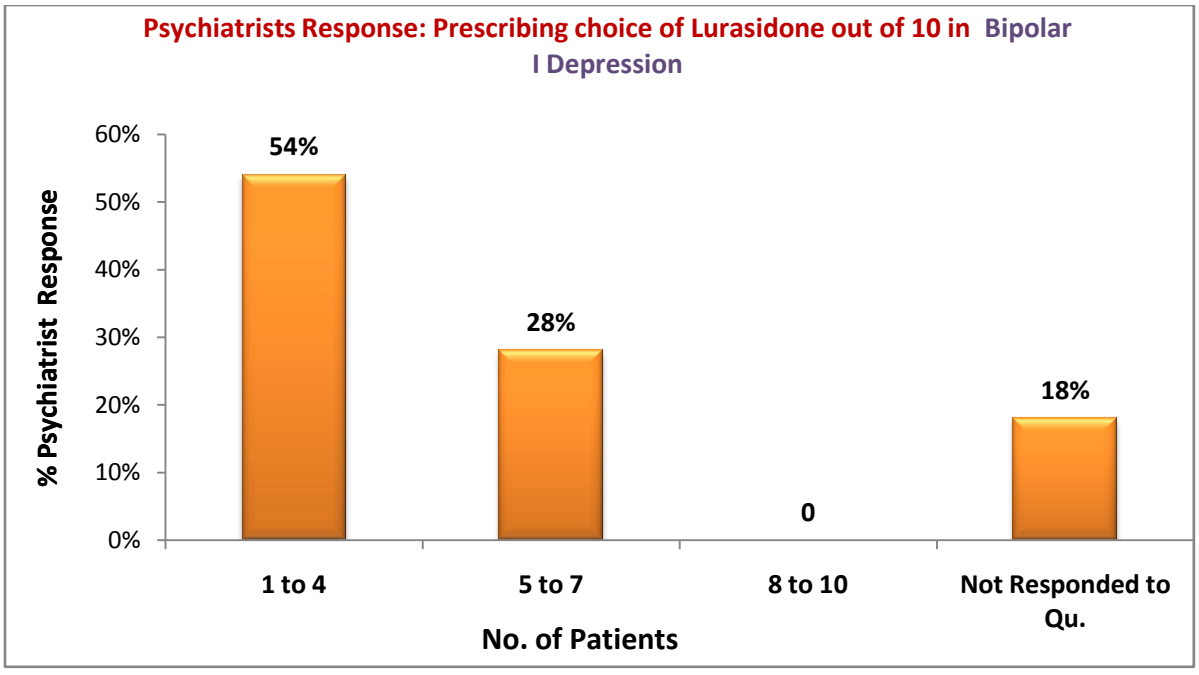
No. of Patients	No. of Psychiatrist Response
1 - 4	**24**
5 - 7	**17**
8 - 10	**3**
Not Responded to Question	**6**

Table 5.Psychiatrists Response: Prescribing choice of Lurasidone out of 10 in Schizophrenia.



No. of Patients	No. of Psychiatrist Response
1 - 4	**27**
5 - 7	**14**
8 - 10	**0**
Not Responded to Question	**9**

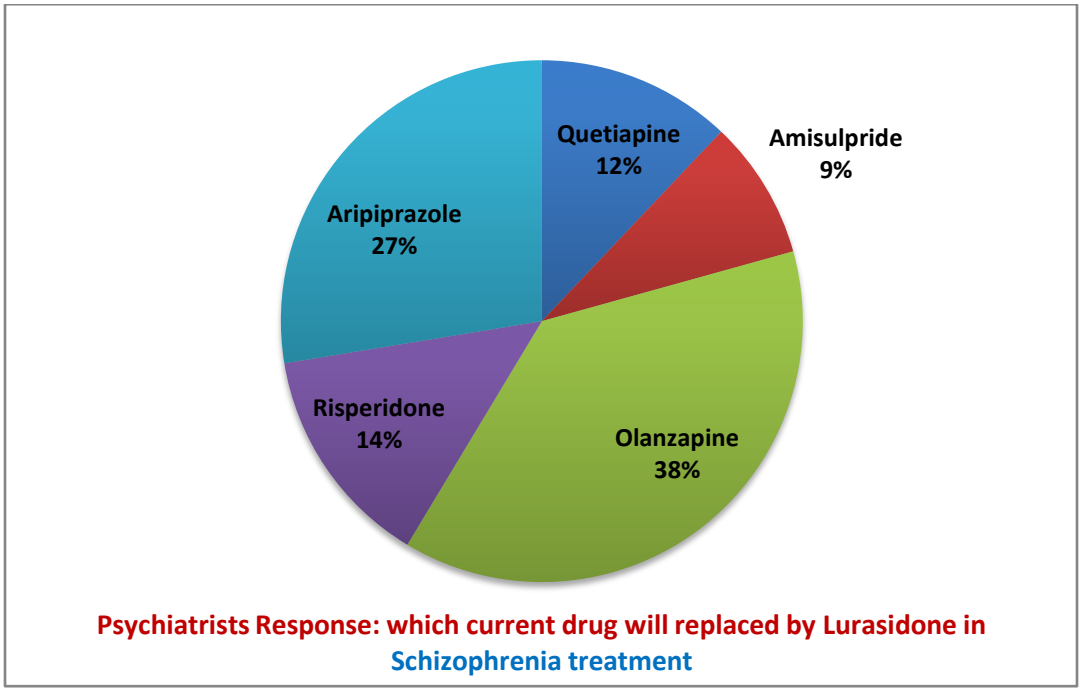
Table 6.Psychiatrists Response: Prescribing choice of Lurasidone out of 10 in Bipolar I Depression.



5. Which Current Antipsychotics drugs replaced by Lurasidone in future:

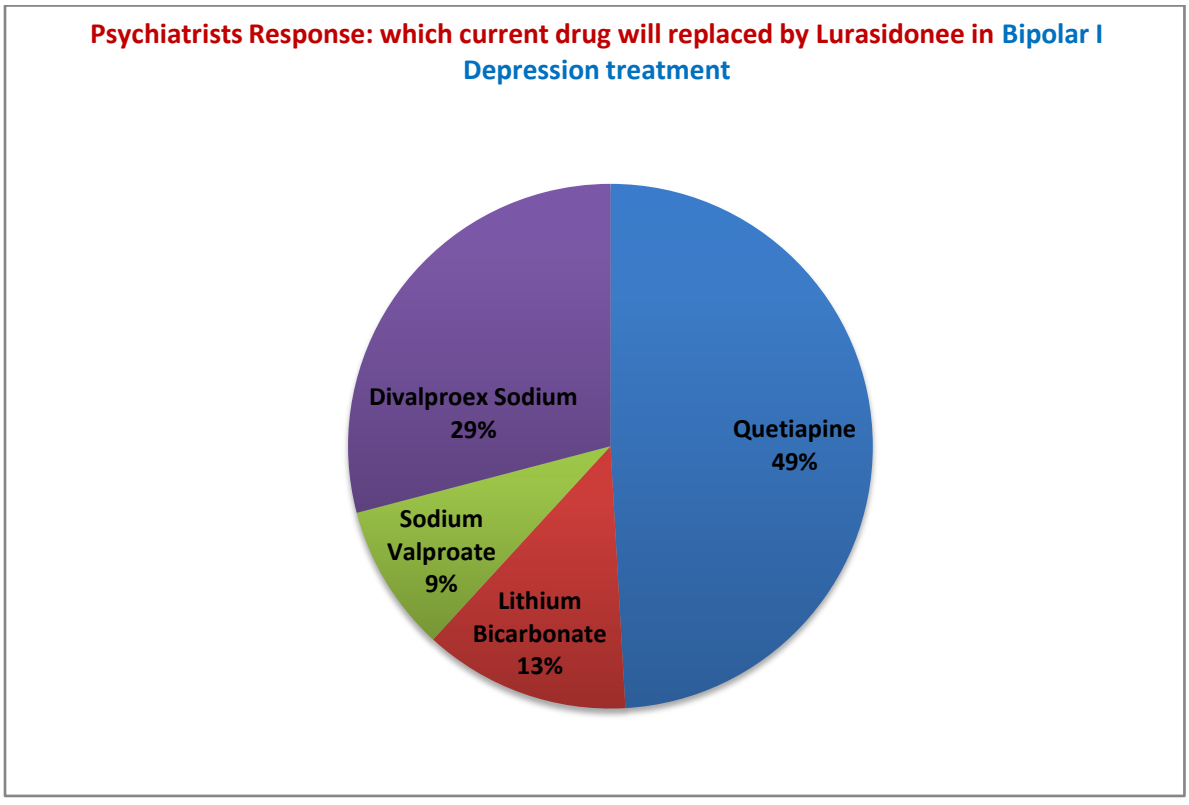
Molecule Name	No. of Psychiatrist Response
Quetiapine	7
Amisulpride	5
Olanzapine	22
Risperidone	8
Aripiprazole	16

Table 7.Psychiatrists Response: which current drug will replaced by Lurasidone in Schizophrenia treatment.



Molecule Name	No. of Psychiatrist Response
Quetiapine	27
Lithium Bicarbonate	7
Sodium Valproate	5
Divalproex Sodium	16

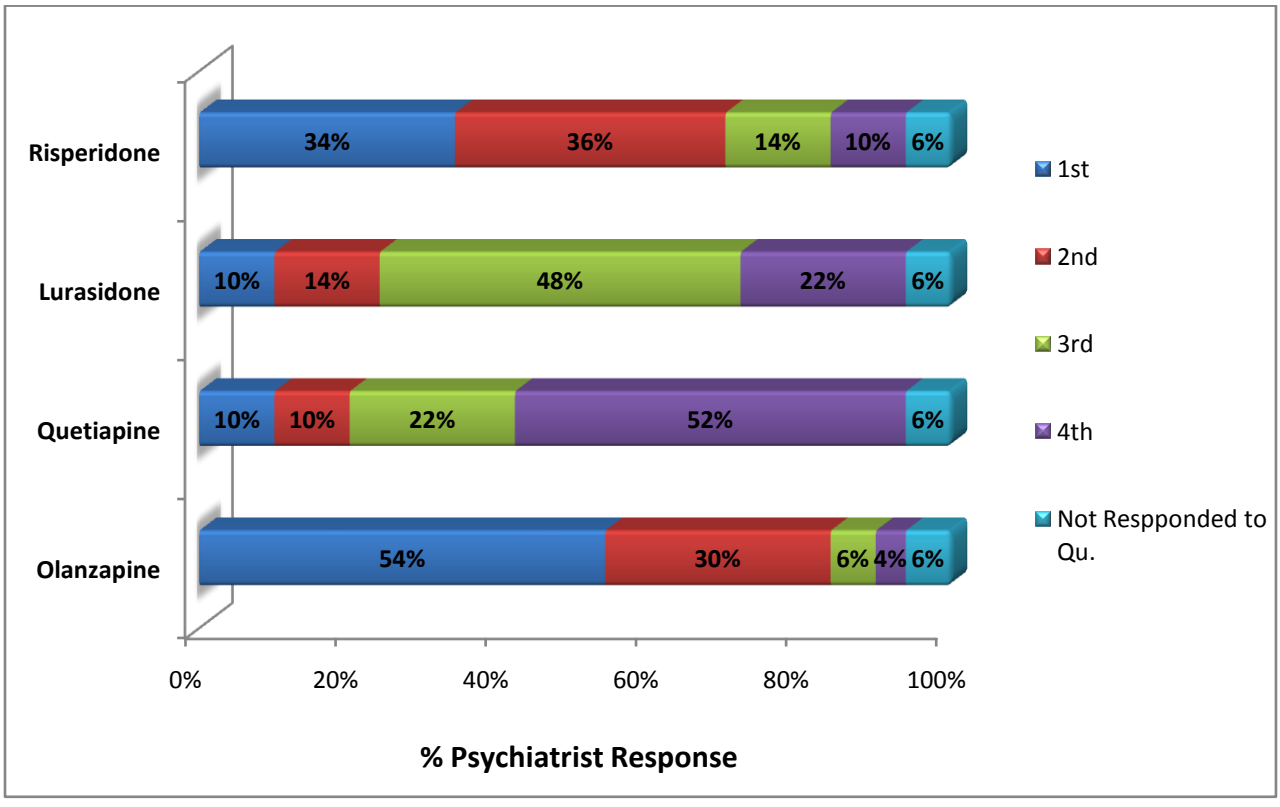
Table 8.Psychiatrists Response: which current drug will replaced by Lurasidone in Bipolar I Depression treatment.



6. Preference of Antipsychotic drugs in terms of higher rate of remission.

Preference	Olanzapine	Quetiapine	Lurasidone	Risperidone
1st	27	5	5	17
2nd	15	5	7	18
3rd	3	11	24	7
4th	2	26	11	5
No Respond	3	3	3	3

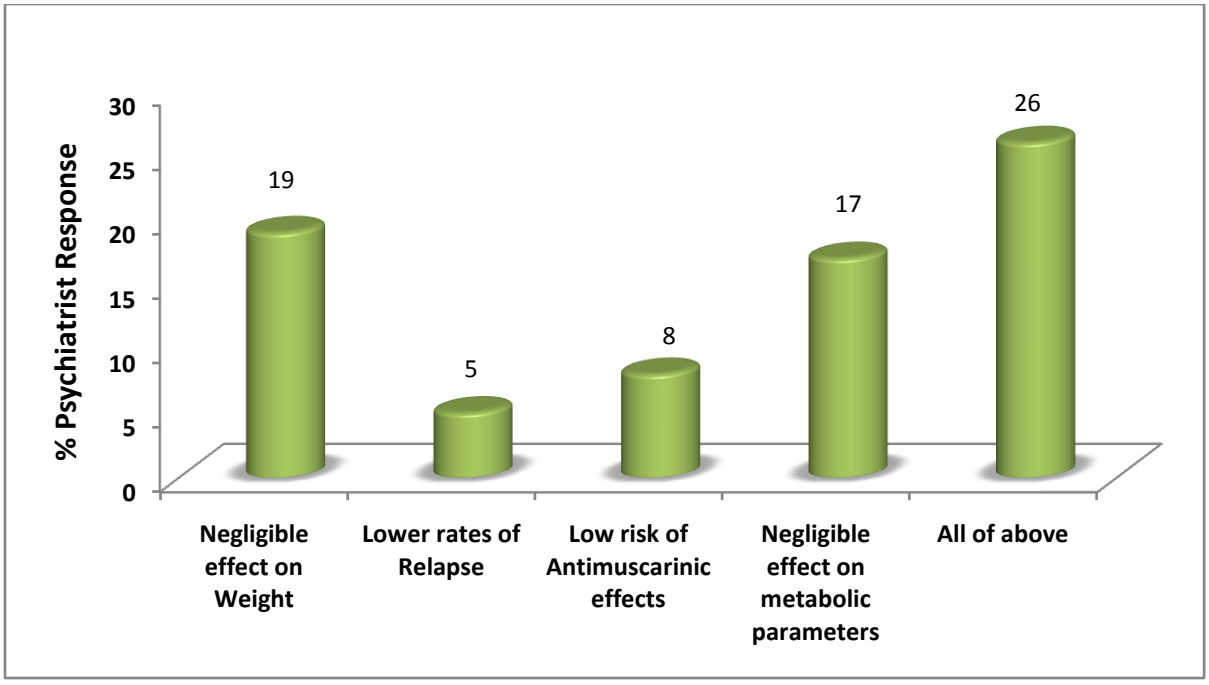
Table 9.Preference of Antipsychotic drugs in terms of higher rate of remission.



7. Main advantage of Lurasidone over other antipsychotics.

Advantage	Negligible effect on Weight	Lower rates of Relapse	Low risk of Antimuscarinic effects	Negligible effect on metabolic parameters	All of above
No. of Psychiatrist Response	**19**	**5**	**8**	**17**	**26**

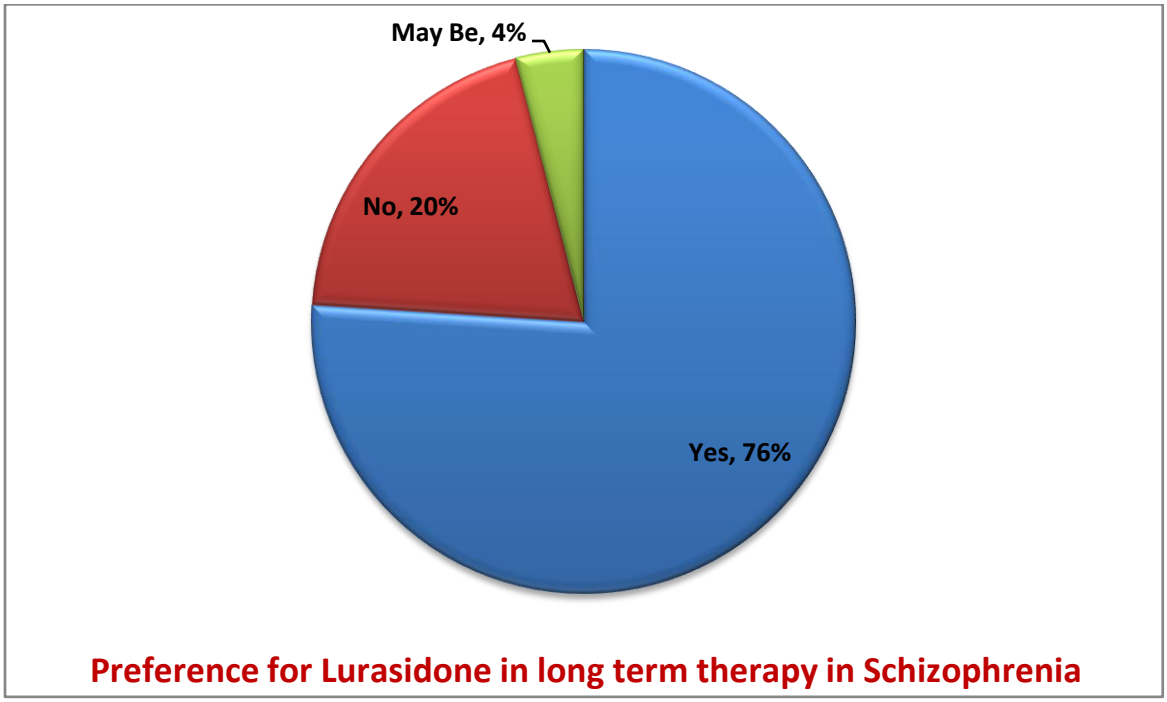
Table 10.Main advantage of Lurasidone over other antipsychotics.



8. Preference for Lurasidone in the long term therapy in Schizophrenia.

Preference	No. of Psychiatrist Response
Yes	38
No	10
May Be	2

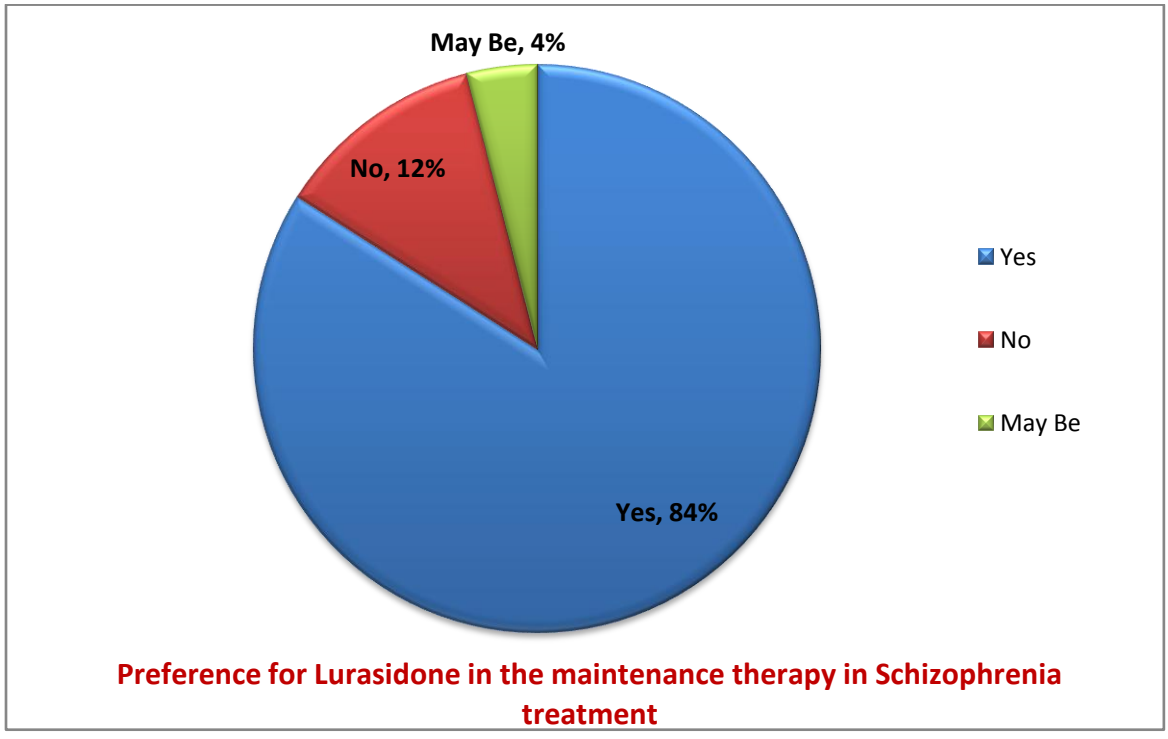
Table 11.Preference for Lurasidone in long term therapy in Schizophrenia.



9. Preference for Lurasidone in the maintenance therapy in Schizophrenia.

Preference	No. of Psychiatrist Response
Yes	**42**
No	**6**
May Be	**2**

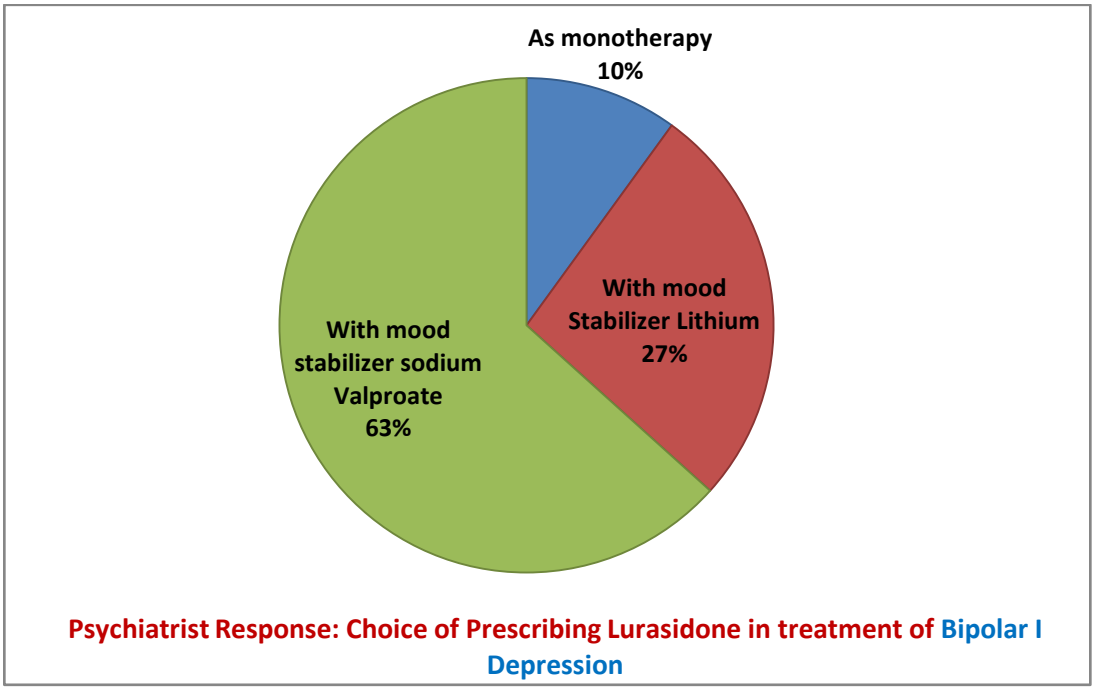
Table 12.Preference for Lurasidone in the maintenance therapy in Schizophrenia



10. Choice of Prescribing Lurasidone in Bipolar I Depression.

Preference	No. of Psychiatrist Response
As monotherapy	**6**
With mood Stabilizer Lithium	**16**
With mood stabilizer sodium Valproate	**38**

Table 13.Psychiatrist Response: Choice of Prescribing Lurasidone in treatment of Bipolar I Depression.



Section – 4
Limitation, Conclusions and Suggestions

Section – 4

Conclusions:

- Weight gain, EPS & Effect on metabolic Parameters are the main limitations of currents antipsychotic drugs used in the treatment of the Schizophrenia and Bipolar I Depression.
- Antipsychotic which has Lower rates of relapse is the first choice of psychiatric to prescribe.
- Opinion about the new antipsychotic Lurasidone was good (44%) as per the response given by psychiatrists.
- Prescribing choice of the Lurasidone by psychiatrist in Schizophrenia was 48% for 1-4 patients, 34 % for 5-7 patients and 6% for the 8-10 patients.
- Prescribing choice of the Lurasidone by psychiatrist in Bipolar I Depression was 54% for 1- 4 patients, 28% for 5-7 patients and 0% for the 8-10 patients.
- The drug will be replaced by Lurasidone in Future was Olanzapine in schizophrenia treatment, and Quetiapine in Bipolar I Depression.
- Olanzapine is the first choice of Psychiatrist in the terms of higher rate of remission as per the responses given by psychiatrists.
- Negligible effect on weight, lower rates of relapse, negligible effect on metabolic parameters, lower muscarinic effects are the main advantage of the Lurasidone over the other antipsychotic drugs.
- The responses given by the psychiatrists for the use of Lurasidone in 'Long term' and "Maintenance' therapy for Schizophrenia in future was 76% & 84% respectively.

- With the mood stabilizer Sodium Valproate is first preference of psychiatrists to prescribe in the Bipolar I Depression.

Suggestions:

- First of all the responses given by psychiatrist for the opinion about the new antipsychotics Lurasidone was positive. Hence, it can be considered that the market conditions and initial opinion about the product is ideal for the launch of Lurasidone.
- EPS, Weight Gain and effects on Metabolic Parameters are the main limitation which Psychiatrists write of current antipsychotic used in Schizophrenia and the Bipolar I Depression. Lurasidone has 'Negligible effect on weight as well as on metabolic parameters', thus it should be counted on marketing strategy of the product.
- It is observed that Psychiatrists are less aware about the indication of Lurasidone in Bipolar I Depression than the indication in Schizophrenia. So while the promotion company should give more impact on indication that is Bipolar I Depression.
- Antipsychotic which has 'Lower rate of relapse' was the first preference to prescribe as per responses given by psychiatrist. Lurasidone also has advantage of 'Lower rate of relapse' over the other antipsychotics. So company should focus on this advantage.
- The responses given by the psychiatrists for the use of Lurasidone in 'Long term' and "Maintenance' therapy for Schizophrenia in future was 76% & 84% respectively. This is huge positive response given by psychiatrists. So this is also counted on marketing Strategy of product.
- In terms of Lurasidone the market development is essential which would help the company in creating increased market share.

Limitation:

- This market survey is limited to Hyderabad City only.
- The sample size has limited due to time constraint.

Reference:

1. MSN Laboratories Pvt. Ltd. [Online] 2016. [Cited: May 25, 2016.] http://www.msnlabs.com/about.html.

2. MSN Laboratories Pvt. Ltd. [Online] 2016. [Cited: May 25, 2016.] http://www.msnlabs.com/vision-mission.html.

3. **Duckworth, Ken.** Schizophrenia Factsheet. [Online] National Alliance on Mental Illness, April 2013. [Cited: April 12, 2016.] http://www2.nami.org/factsheets/schizophrenia_factsheet.pdf.

4. **Alan J. Gelenberg, Dr.Galenberg.** Guide to Depression & Bipolar Disorder. [Online] DBSA, 2002. [Cited: April 13, 2016.] http://www.dbsalliance.org/pdfs/guide1.pdf.

5. **BELMAKER, R.H.** Lurasidone and Bipolar Disorder. [Online] American Journal of Psychiatry, February 2014. [Cited: 25 May, 2016.] http://ajp.psychiatryonline.org/doi/pdf/10.1176/appi.ajp.2013.13091240.

Annexure:

Questionnaire:-

1) What are the limitations of current antipsychotics used in the treatment of Schizophrenia & Bipolar I Depression?

Schizophrenia: _____

Bipolar I Depression: _____

2) How will you prefer antipsychotic? (Give the Priority in the order 1 to 4)

- ☐ Lower rates of relapse
- ☐ Negligible effect on weight
- ☐ Negligible effect on metabolic parameters
- ☐ Lower rates of EPS

3) What is your opinion about the new antipsychotic Lurasidone (Atypical antipsychotic)?

☐ Excellent ☐ Good ☐ Average ☐ Poor

4) Out of 10, how many patients you may prescribe Lurasidone for Schizophrenia & Bipolar 1 Depression? (Once the molecule hits the market)

Schizophrenia: _____ Bipolar I Depression: _____

5) Which current drug will be replaced by Lurasidone in future for the treatment of Schizophrenia and Bipolar I Depression?

Schizophrenia:
- ☐ Quetiapine
- ☐ Amisulpride
- ☐ Aripiprazole
- ☐ Olanzapine
- ☐ Risperidone

Bipolar I Depression: ☐ Lithium Bicarbonate ☐ Sodium Valproate ☐ Divalproex Sodium ☐ Quetiapine

6) How will you prefer Antipsychotic drugs in terms of higher rate of remission? (Give priority in the order 1 to 4)

- ☐ Olanzapine
- ☐ Quetiapine
- ☐ Lurasidone
- ☐ Risperidone

7) What is the main advantage of Lurasidone over other antipsychotics in your opinion?

- ☐ Negligible effect on weight
- ☐ Lower rates of relapse
- ☐ Low risk of antimuscarinic effects
- ☐ Negligible effect on metabolic parameters
- ☐ All of the above

8) Will you prefer Lurasidone for the long term therapy in Schizophrenia?

☐ Yes ☐ No

9) Will you prefer Lurasidone for the maintenance therapy in Schizophrenia?

☐ Yes ☐ No

10) Your choice of prescribing Lurasidone in the treatment of Bipolar I depression?

- ☐ As monotherapy
- ☐ With mood stabilizer Lithium
- ☐ With mood stabilizer Valproate