SUMMARY AND CONCLUSION
SUMMARY AND CONCLUSION

Psychiatric problems are known to the society since ages, such disorders if not treated in the very beginning may be very fatal to the victim which can ruin the peaceful atmosphere of one's family to such an extent that his/her family members live in a strangulated environment which can not be describe in words. Among the psychiatric disorders the Mood-disorders are very prominent. Mood-disorders section includes disorders that have a disturbance in mood as prominent feature. Bipolar affective disorder is a recurrent long term mood disorder characterized by the presence of both depressive and manic phases. Bipolar-I, is characterized by one or more manic or mixed episodes usually accompanied by major depressive episodes.

Bipolar disorder or manic-depressive illness, is a psychiatric disorder marked by a periods of depression "very low mood" and elevation "very high mood". It is very chronic and often very disabiling illness. It is distinguished from "Unipolar depression", a condition in which people get depressed but not elevated or manic.

Bipolar disorder is a mental illness characterized by the presence of one or more of the following:

I-Manic Episodes
II- Mixed Episodes
III-Hypomanic Episodes
Clinical depression is different from a bad mood. All people go through a periodic bad mood. However, the bad mood associated with clinical depression is a mood that can not be shaken through simply "Snapping out of it" or looking on the bright side. In clinical depression, a helpless, hopeless or apathetic mood often accompanied physical symptoms, such as sleeping to much or too little, having no appetite or greatly increased appetite, having low energy or feeling tired all time. In addition, people who get depressed may have serious difficulty in concentrating or making decisions. They may feel restless and unable to sit still, or they may feel slowed down, they may feel weighted down as though they are carrying a tons of the bricks or as though their, legs are made of lead. Additionally they often feel depressed, anxious or filled with dread. They may feel quite irritable or tense.

Mania is a high, excited, energetic mood state; In this state, the persons mood is "too high"-so high that other get concerned about the person that the person gets into trouble or, that people around the person recognize that something is not right. Many people may think the person is high on drugs. Some people who get manic feel that they are" on the top of the world" and able to do anything, others may feel very irritable, hyper or out of control. People who are manic often need very little sleep but still feel rested. They may experience racing thought and feel as though others around them are moving too slowly. This can lead
to impatience with others. People with mania are very talkative and may talk so fast that it is hard for others to get a word in edgewise. They tend to take on lots of activities (or simply keep moving, such as pacing back and forth) and may have trouble following through on them. They may be easily distracted so that they jump from one activity to another or one topic of conversation to another.

Mania also involves cognitive changes. People who are manic tend to see the world in extremely positive terms. They may minimize or ignore possible problems and over estimate the likelihood of positive outcomes. This can lead them to make poor or risky judgement such as (starting unwise relationships, making foolish investment, quitting jobs, gambling or spending money they do not have). Drug or alcohol abuse, reckless driving or unusual sexual activities are common among them. Once manic episodes ends, person may feel devastated by the consequences of his or her manic behaviours, which may include job loss, financial debt, social embarrassment, irreversible decisions and so on. Finally patients may have a mixed episodes, during which they show symptoms of depression and mania concurrently or symptoms of one type or the other on different days with in the same week.

Lithium has been found to be effective in manic-depressive disorder. Manic-depressive disorder (also called bipolar disorder) is a mood disorder in which a person alternates between depression and
mania. Mania (or a manic episode) is a mood disorder in which a person tends to be hyperactive and wildly optimistic. A person suffering from a manic phase is overtalkative, overactive, elated, loud, and hard to understand. He or she has little need for sleep, shows fewer sexual inhibitions, and has grandiose optimism. Though people who suffer from mania find advice irritating, they need protection from their own poor judgement (Myers, 2001). Lithium aids to control manic episodes, but is not as effective at controlling depressive episodes. This is why patients who respond to lithium most effectively are those with manic depressive psychosis and a predominate behaviour of mania. Patients whose behaviour alternates between manic and depressive often, do less well with lithium treatment (Kolb, 1973).

Lithium cation, sodium cation, and potassium cation are monovalent (are cations with one positive charge). Lithium’s ionic radius (0.08 nm) is similar to both the sodium ionic radius (0.1 nm) and the magnesium ionic radius (0.07 nm). Also the lithium ion has a similar charge density to both the sodium ion and calcium ion (Fieve, 1984).

Though the exact route lithium takes within the body is unknown, the above hypothesis are very plausible. It is amazing that with all the organic and other complex compounds that are used for medication, lithium is effective as just one element. Lithium is so effective because of our body’s use of similar elements (sodium, potassium, calcium, and magnesium). By replacing and competing with these elements lithium alters
the chemistry inside our bodies (most likely resulting in a decrease of norepinephrine). The altered chemistry controls a person's mania allowing those who suffer from mania to regain control of their lives.

The present study pertaining to the biochemical changes in the level of lipid profile, blood sugar, serum electrolytes and some other parameters were carried out in manic-depressive patients attended/admitted in the Department of Psychiatry in M.L.B. Medical College, Jhansi (U.P.).

The present study was carried out in 200 manic-depressive patients and 50 normal healthy subjects without any psychiatric complication or otherwise.

Blood and serum were analysed for the parameters which have or could possibly be associated with manic depression. These parameters were:

1. Lipid profile which included serum cholesterol, serum triglyceride, HDL-cholesterol, LDL-cholesterol and VLDL-cholesterol.
2. Blood sugar
3. Blood urea
4. Serum Li⁺, Na⁺, K⁺ and Ca²⁺ and
5. Serum creatinine
* A record of clinical history of manic depression included age, sex, height, weight and clinical manifestations etc. related to manic depression.

From each study subject 6.0 ml of blood sample was aseptically collected from antecubital vein by disposable syringe. 1.0 ml of the blood was placed in a vial containing EDTA and 1.0 ml in a vial containing oxalates & 4.0 ml in a plain vial.

Blood samples were collected in plain vial were kept for half an hour at 37°C & then samples were centrifuged at 3000 rpm for 10 minutes and the supernatant serum was placed in a plain vial for estimation of different parameters.

The blood samples collected in a vial containing EDTA were centrifuged at 3000 rpm for 10 minutes and supernatant plasma was placed in a plain vial and used for estimation.

* **Inclusion Criteria:**

* Age group 15-65 years
* Duration 1-2 months
* Patients diagnosed as mood disorder either depression or mania or both according to DSM-IV/ICD-10 criteria.

* **Exclusion criteria:**

* Beyond the age group more than 5 years & less than 15 years.
* Pregnant or lactating woman.
* Presence of any medical illness.
* Presence of any other mood disorder such as cyclothymia, dysthymia, hypomania and other psychiatric illness.

Findings of the Study

1. In the present study, 200 manic depressive and 50 normal patients were studied and observed that the mean age were more among the normal cases (39.62 years) as compared to mean age of manic-depressive patients (33.65 years).

2. Among the study group (ie manic-depressive patients), the males were more prone to the disease than the females while among the control group again the males were more prone than the females subjects.

3. Among the study group, the cases of manic-depressive patients were more from rural area than the urban area. Among the control group, normal subjects were equal from rural and urban areas. Further, it was noted that the manic-depressive patients were more from rural areas as compared to control group.

4. Among the study group, the cases were more from the low socio-economic status followed by high socio-economic status and the minimum were of middle socio-economic status whereas, among the control group, the normal subjects were more from the low socio-economic status followed by middle
socio-economic status and a minimum were from the high socio-economic status.

5. Among the study group, the married manic-depressive patients were more and unmarried manic-depressive patients were less whereas among the control group, the married normal subjects were more and unmarried normal subjects were less. Further, it was observed that the unmarried manic-depressive patients were more as compared to unmarried normal subjects and married normal subjects were more as compared to married manic-depressive patients.

6. Among the study group, majority of them were high school followed by graduate and a minimum were post graduate and professionals. Among the control group, majority of them were intermediate followed by graduate and minimum were professionals.

7. In the present study, the mean weight was more among the control group as compared to mean weight among the study group and mean height was more among the control group as compared to mean height of manic-depressive patients.

8. The mean BMI was more (24.78) in normal subjects as compared to manic-depressive patients (23.27) Statistically, significant difference regarding mean BMI was observed between the manic-depressive patients and normal subjects.

9. Among the study group, most of the manic depressive patients were the moderate followed by severe and minimum were mild.
10. The mean values of serum creatinine, Urea, SLI, SNA, SK, Cholesterol, TG, LDL and VLDL were found more in manic-depressive patients as compared to normal subjects while the mean values of Sugar, SCA and HDL were found more among the normal cases as compared to manic-depressive patients. Statistically, significant differences regarding mean values of Creatinine, Sugar, SLI, SNA, SK, Cholesterol, TG, HDL LDL and VLDL were observed among manic-depressive patients and normal subjects. However, no significance differences were observed regarding the mean values of Urea and SCA between the manic-depressive patients and normal subjects.

11. Among the study group, males were 109 while in the control group males were 29. The mean values of Creatinine, Urea, SLI, SNA, SK, Cholesterol, TG, LDL, and VLDL were found to be more among the manic-depressive male patients as compared to the normal male subjects. Whereas the mean values of Sugar, SCA, and HDL were found less among the manic-depressive male patients as compared to the normal male subjects. Statistically, significant differences regarding the mean values of the Creatinine, Urea, SLI, SNA, SK, SCA, Cholesterol, TG, HDL LDL and VLDL were observed between the manic-depressive male patients and normal male subjects. However, no significant difference regarding mean values of Sugar, was observed between manic-depressive male patients and normal male subjects.
12. Among the study group, the females were 91 while in control group females were 21. Among the females, in the manic depressive patients, the mean values of SLI, SNA, SK, SCA, Cholesterol, TG, LDL and VLDL were found more among the manic-depressive female patients as compared to the normal female subjects. Whereas the mean values of the Creatinine, Urea, Sugar and HDL were found to be more among the normal female subjects as compared to the manic-depressive female patients. Statistically, significant differences regarding the mean values of Urea, Sugar, SLI, SNA, SK, SCA, TG, HDL, LDL and VLDL were observed in females between the study and control groups. However, no significant differences regarding the mean values of Creatinine and Cholesterol were observed between manic-depressive female patients and normal female subjects.

13. The mean values of Creatinine, Urea, SLI, SNA, SK, Cholesterol, TG, LDL and VLDL were found more among the study group in rural areas as compared to control group while the mean values of Sugar, SCA and HDL were found more among control group as compared to the study group in the rural areas. Statistically, significant differences regarding the mean values of Sugar, SLI, SNA, SK, SCA, TG, HDL, LDL and VLDL were observed between the manic-depressive patients and normal subjects belonged to rural area (p < 0.05). However, no significant differences regarding the mean values
of Creatinine, Urea and Cholesterol were observed between the manic-depressive patients and normal subjects belonged to rural area.

14. The mean values of Creatinine, SLI, SNA, SK, SCA, Cholesterol, TG, LDL and VLDL were observed to be more among the manic-depressive patients as compared to normal subjects belonged to urban areas, whereas the mean values of Urea, Sugar and HDL were found to be less among the manic-depressive patients as compared to normal subjects belonged to urban areas. Statistically, significant differences regarding the mean values of Creatinine, Urea, SLI, SNA, SK, Cholesterol, TG, HDL, LDL and VLDL were observed between manic-depressive patients as compared to normal subjects belonged to urban areas (p<0.05). However no significant differences were observed regarding the mean values of Sugar and SCA between the manic-depressive patients and normal subjects belonged to urban areas.

15. The mean value of Cholesterol was found more among the severe manic-depressive patients as compared to mild and moderate manic depressive patients whereas the mean value of TG was found to be more among the moderate manic-depressive patients as compared to mild and severe manic-depressive patients. The mean value of HDL and LDL were more among the severe manic-depressive patients as compared to mild and moderate manic depressive patients,
while the mean value of VLDL was more among the moderate as compared to mild and severe manic-depressive patients. Statistically, significant differences regarding the mean values of TG, HDL, LDL and VLDL were observed between the mild vs severe manic-depressive patients while significant difference regarding the mean values LDL was found between the moderate and severe manic-depressive patients. However, no significant differences regarding mean values of all lipid profile were observed between mild vs moderate manic-depressive patients and mean value of Cholesterol between mild with severe manic-depressive patients and mean values of Cholesterol, HDL and VLDL were observed between moderate with severe manic depressive patients.

16. The mean values of Creatinine, Urea and Sugar were more among the severe manic-depressive patients as compared to mild and moderate manic-depressive patients. Statistically, significant differences regarding the mean values of Creatinine and Urea were observed between mild with moderate patients, mild with severe and moderate with severe manic-depressive patients whereas significant difference regarding the mean value of Sugar was observed between mild with severe manic-depressive patients. However, no significant difference regarding the mean value of Sugar were
observed between mild with moderate and moderate with severe manic-depressive patients.

17. The mean values of all electrolytes were more among mild manic-depressive patients as compared to the moderate and severe manic-depressive patients. Statistically, significant differences regarding the mean values of all electrolytes except SLI between mild with moderate, mild with severe and moderate with severe manic-depressive patients were observed.

18. Statistically, significant and positive correlations were observed between the age with Urea, Sugar and TG among the study group ie as the age advances Urea, Sugar and TG also increase and vice versa. Significant and negative correlations were observed between age with SLI, SCA, HDL and LDL among the study group ie as the age advances SLI, SCA, HDL and LDL decrease and vice versa. Further, it was also noted that insignificant and positive correlations were observed between age with Creatinine, SK, Cholesterol and VLDL among the study group while insignificant and negative correlation was observed between the age with SNA in the study group.

19. Statistically, significant and positive correlations were observed between age with Creatinine, SCA and HDL among the control group. ie. as the age increases Creatinine, SCA and HDL also increase and vice versa. Further data reveals
that insignificant and positive correlations were observed between age with Urea, Sugar, SLI, SNA, Cholesterol, TG and VLDL among the control group while the insignificant and negative correlations were observed between age with SK and LDL among the control group.

20. Statistically, significant and positive correlations were observed between BMI with Creatinine, Urea, Sugar and Cholesterol among the manic-depressive patients i.e. as the BMI increases, the creatinine, Urea, Sugar and Cholesterol also increase and vice versa. Significant and negative correlations was observed between BMI with SCA among the manic-depressive patients i.e. as the BMI increases the SCA level decreases and vice versa. It was also observed that in significant and positive correlations between BMI with TG, HDL, LDL, and VLDL were observed whereas insignificant and negative correlations were observed between BMI with SLI, SNA and SK among the manic-depressive patients.

21. Statistically, significant and positive correlations were observed between BMI with SNA, Cholesterol and HDL among the normal subjects while statistically significant and negative correlations was observed between BMI with SLI among the normal subjects. Analysis also showed that the insignificant and positive correlations were observed between BMI with Creatinine, Sugar, SK, SCA and LDL where as
insignificant and negative correlations were observed between BMI with Urea, TG and VLDL among normal subjects.

22. Significant and positive correlations were observed between manic-depressive level of patients with HDL and LDL. Where in significant and negative correlation between manic-depressive level of patients with TG and VLDL were observed. Analysis also reveals insignificant and positive correlation between manic-depressive level of patients with Cholesterol was observed.

23. Significant and positive correlations between manic-depressive level of patients with Creatinine, Urea, and sugar were observed i.e. as the manic depressive level increases the values of Creatinine, Urea and Sugar also increase.

24. Statistically, significant and negative correlations between manic-depressive level with SNA, SK, and SCA were observed among the study group. However, insignificant and negative correlation between manic depressive level of patients with SLI was observed.
CONCLUSION:

The bipolar disorder or manic-depressive illness, is a psychiatric disorder marked by a period(s) of depression "very low mood" and mania, "very high mood". It is very chronic and often very disabling illness. It is distinguished from unipolar depression, a condition in which people get depressed but not elevated or manic.

In the present research work "A comparative study of various biochemical parameters in manic-depressive (Mood disorder) patients versus normal subjects", the investigated data were compared. Efforts were made to correlate the findings statistically with the degree of severity, age, sex, weight, height, body mass index and others biochemical parameters.

The present research work will help in the early diagnosis or just after the onset of first episode (either manic or depressive) of bipolar mood disorder. Lipid profile, serum creatinine, all electrolytes (in mild and moderate patients), their sex, location of residence, socio-economic status and marital status can be used as tools/parameters for the diagnosis, to know the degree of severity and then in the treatment of manic-depressive patients.