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A Quasi Experimental Study to Assess the Effectiveness of Psycho Education Delivered by Different Health Professionals on Knowledge among Family Members of Patients with Lithium Therapy at Sneka Mind Care Centre, Thirunelveli, Tamil Nadu

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Abstract: ***Introduction: Bipdar disorder is a psychiatric disorder that causes extreme shifts in mood energy and functioning. It is characterized by episodes of mania and depression that can last from days to months and usually begins in late adolescence, but can begin in early childhood or as late as a person's 40s and 50s. All of us experience changes in our mood day by day. Some days we might feel irritable and frustrated, other days we are happy and excited. However, individuals with bipolar disorder experience sever mood savings that impair their daily life and negatively affect their relationship (Cehassemi R.2005). Lithium has the narrow therapeutic index and many factors can upset the balance lithium concentrations that are well tole rated and produce side effects or toxicity. This is imperative that the person taking lithium can be educated about signs and symptoms of toxicity, factors that affect lithium levels how and when to obtain laboratory testing and the importance of regular communication with the prescribing physician. Proposed Topic of Research: A Quasi experimental study to assess the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patients with lithium therapy at sneak mind care centre, Thirunelveli. Objectives: 1) To assess the pretest knowledge of family members regarding lithium therapy in experimental and control group. 2) To assess the posttest knowledge of family members regarding lithium therapy in experimental and control group. 3) To find out the effectiveness of psycho education on lithium therapy of family members in experimental group. 4) To compare the pretest and posttest knowledge of family members regarding lithium therapy between experimental and control group. 5) To find out the relationship between pretest knowledge of family members regarding lithium and selected demographic variables. Hypotheses: There will be a significant difference between knowledge of family members regarding lithium therapy before and after psycho education intervention programme. 1) There will be a significant difference in the knowledge gained by the family members through the psycho education delivered by different health professionals regarding lithium therapy. 2) There will be a significant association between knowledge of family members and selected demographic variables. The conceptual frame work for the present study was based on J.W. Kemy's open system model, which guided the investigator to help the family members to gain adequate knowledge about lithium therapy. A quasi experimental design was adopted for the study the independent variable was psycho education on lithium therapy and the dependent variables was level of knowledge. The study was conducted for a period of one year. Two hundred and fifty family members of patients with lithium therapy, who fulfilled the inclusion criteria, were selected for the study knowledge was assessed by structured knowledge questionnaire regarding lithium therapy. The tool was validated by experts in various field of Nursing, Medicine and Statistician. Purposive sampling technique was used to select the sample subjects. The sample size was estimated by power analysis. The sample size was 125 for each group (experimental and control group). The psycho education was delivered by the investigator to experimental group and for control group psycho education was delivered by ANM for 30 minutes. The investigator adhered to human right beneficence and non-malfeasance, dignity, confidentiality and justice. The major findings of the study: In the assessment of level of knowledge among family members of patient with lithium therapy in experimental group it was found that, in the pretest 96.8% family members had inadequate knowledge, 3.2% family members had moderately adequate knowledge and none of family members had adequate knowledge. In the posttest 74.4% family members had adequate knowledge and 24% family members had moderately adequate knowledge and 1.6% family members had inadequate knowledge in the experimental group. 1) While assessing the level of knowledge among family members of patient with lithium therapy in control group. In the pretest 92% of family members had inadequate knowledge and 8.0% of family members had moderately adequate knowledge and none of them had adequate knowledge. In the posttest 58.4% of family members had inadequate knowledge, 40.8% of family members had moderately adequate knowledge and 0.8% had adequate knowledge. 2) It is evident from the findings of the study that the mean score and standard deviation of pretest knowledge score was 6.2 ± 2.4 and after administration of psycho education the knowledge score was 18.2 ± 2.9. The mean difference was 12 ± 3.1 and the 't' test value was t = 42.784 and this is greater than the table value at p < 0.001. This reveals that there is a significance difference in pretest and post test score in experimental group. 3) The findings of the study reveals that the pretest mean and standard deviation knowledge score of family members of patient with lithium therapy in control group was 6.6 ± 2.5, the same after administration of psycho education post test score was 10.6 ± 2.2. The mean difference was 4 ± 2.4 and the 't' test value was 19.066 and this is greater than the table value at p < 0.001. This reveals that there is a significance difference in pretest and posttest. 4) The findings of the study show that while comparing the knowledge among family members of patients with lithium therapy in experimental group and control group. The mean and standard deviation of experimental group was 12±3.1 and control group was 4± 2.4. The mean difference was 8 and 't' test value was t = 22.853. The mean reduction of experimental group was highly significant than the control group. 5) There is no significant association between pretest level of knowledge among family members of patient with lithium therapy and selected demographic variables such as age, sex, type of relationship, education, monthly income, occupation and marital status except religion and type of family in experimental group. 6)***

There is no significant association between pretest level of knowledge among family members of patient with lithium therapy and selected demographic variable such as age, sex, type of relationship with patient, education, monthly income, occupation, marital status, religion and type of family in control group.

Keywords: Effectiveness, Pscho Education, lithium Therapy, Family Members

1. Introduction

Mental Health is the level of Psychological wellbeing or an absence of mental illness. It is the state of someone who is functioning at a satisfactory level of emotional and behavioral adjustment.

Mental health is the positive sense of the wellbeing and a under lying belief in our and other dignity and worth. Mentally healthy individuals in all aspects enjoy the changes in life. He will take it as a challenge. Thereby he will shine in socially effective manners. It is an active quality of an individual's daily living. Mentally healthy people understand that they are prefect and they can do all things to all people. They experience a few range of emotions including sadness, anger, frustration as well as joy, love and satisfaction. While they can typically handle the life's challenges and changes, they can reach out for help if they are having difficulty dealing with major tracimas and transitions, loss of loved ones, relationships difficulties, school work problems and the prospect of retirement **(GuptaR.K.2010)**

Mental illness encompasses the numerous psychiatric disorders and just like illness that affects the other parts of the body. They can vary in serenity. Many people suffering from mental illness may not look as though they are ill or that something is wrong while others may appear to be confused, agitated or withdrawn. The mental illness is a collective team that refers to all the different types of mental condition, including those that affect your mood, you're thinking and your behavior (**GuptaP.K.2010).**

Bipolar disorder is a severe mood disorder characterized by recurrent Mania or hypomania and depressive episodes, as defined in Diagnostic and statistical Manual of Mental Disorders (DSM). It is frequently associated with functional and cognitive impairment and lower quality of life. (**Gutierreze et al, 2008)**.

The World Health Organization (**WHO)** has, undertaken a global survey of 26 countries in all regions of the world, based on International Classification of Diseases (ICD) and Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria. The published figures indicate that, of those disorders assessed, mood disorders are the second common in all (0.8% to 9.6%). (**Moon, 2012)**

The World Bank report revealed that the Disability Adjusted Life Year (DALY) loss due to psychiatric disorders is 11.5%. According to the estimates DALY's loss due to mental disorders is expected to constitute 15% of the global burden of disease by 2020. During last decades, many epidemiological studies have been conducted in India, which shows that the prevalence of major psychiatric disorders is about same all over the world. The prevalence reported from these studies is 65 per 1000. In India one in eleven persons suffers from mental illness. (**Chandrasekhar, 1995)**.

In India, a community based cross-sectional study was done to assess the prevalence and pattern of mental disability. 1000 subjects were randomly selected from 4 villages in Karnataka. Prevalence of mental disability was found to be 2.3% and was higher among elderly (3%) and illiterates (34%). (**Kishore. J, 2002)**.

Bipolar disorder is a psychiatric disorder that causes extreme shifts in mood, energy and functioning. It is characterized by episodes of mania and depression that can last from days to months and usually begins in late adolescence, but can begin in early childhood or as late as a person's 40s or 50s. (Kumar SG, 2008). All of us experience changes in our moods. Some days we might feel irritable and frustrated; other days, we're happy and excited. However, individuals with bipolar disorder experience severe mood swings that impair their daily life and negatively affect their relationships. (**Cehassemi R.2005)**.

Bipolar disorder affects more than 30 million people worldwide and the WHO lists Bipolar disorders as the sixth leading cause of disability in the world. According to National Institute of mental health survey highest prevalence of bipolar disorder is among Americans and the total number of adults with bipolar illness is 5.2 million adult Americans and the average age of bipolar illness and it is found in all ages, races, ethnic groups and social classes. There is no single cause for bipolar disorder. Indeed, like all psychological disorders, bipolar disorder is a complex condition with multiple contributing factors, including genetic, biological and environmental factors. (**Cuijters P, 2000)**.

Nearly, 25% of individuals in both developed and developing countries develop one or more mental or behavioral disorders at some stage in their life. Although some nations have been successful in fighting stigma and increasing acceptance of the mentally ill, lack of awareness is very evident in India and other developing countries. Families need to be convinced that, in addition to clinical treatment, rehabilitation programmes bring the client into the mainstream of society. Family interventions have assumed greater importance as a result of the shift of clients from the hospital to the community. The process of care and rehabilitation often takes a long time and places heavy responsibilities and financial constraints on the family. Caregivers needs good knowledge about diseases, coping skills, social support and active engagement in the educational process. Knowledge will also help you understand your important place in your loved one's recovery plan. Education for the whole family can improve symptom management and medication compliance, help prevent relapses, and alleviate stress for everyone. (**Seby K; Chaudhary S, 2009)**.

While bipolar disorder is not curable or preventable, it is treatable. Starting treatment can prevent the condition from worsening. Often the mood swings can be controlled with medicines. The potential for suicide is higher among people with severe mood disturbances. Since caregivers are so involved in patient's lives, it may be important for the caretaker to better understand bipolar disorder so they understand treatment and know the signs of worsening mood in the patient. (**Berk.M, Conus P, 2007)**.

Lithium as a treatment for psychiatric disorder has been studied for more than 50 years. Over the past four decades' multiple studies have validated lithium as the gold standard treatment for bipolar affective disorder. However, there are few placebos controlled, double blind, clinical trials in elderly patient on which to base an assessment of its efficiency and tolerability in this population. Most studies have used naturalistic or retrospective designs. Our literature search identified only two randomized trials of the effectiveness of lithium in late life Mania, although there were more aberrational and retrospective studies. (**Welch V and Etal, 2016)**.

Lithium is currently the only medication approved by the FDA for children and adolescents with bipolar disorder. Monotherapy with the traditional mood stabilizer (e.g.. Lithium, divalproex, carbamazefine) or a typical antipsychotics was determined to the first line treatment in the event of inadequate response to initial Monotherapy, an alternate mono therapeutic agent is suggested. (**Mary Townsend, 2010)**.

Lithium is the classic mood stabilizer, the first to be approved by the US, FDA, and still popular in treatment. Therapeutic drug monitoring is required is required to ensure lithium levels remain in the therapeutic range: 0.6 or 0.8 to 1.2 MEq⎜c. The signs and symptoms of toxicity include nausea, vomiting, diarrhea, and ataxia. The most common side effects are lethargy and weight gain. The less common side effects of using lithium are blurred vision, a slighttremer in the hand, and a feeling of being mildly ill.

In general, these side effects occur in the first few weeks after commencing lithium treatment. These symptoms can often be improved by lowering the dose. (KozierBetal 2008). Many agents described as mood stabilizers are also categorized as anticonvulsants. The term anti convalsant mood stabilizers is sometimes used to describe these as a class. (**Ichikawa. J, Meltzer 1+4,2005)**.

Mood stabilizers are primarily antimanic agents; meaning that they are affective at treating mania and mood cycling and shifting, but are not effective at treating acute depression. The principal exceptions to that rule, because they treat both manic and depressive symptoms, are lamotrigine, lithium carbonate and quetiafine. The precise mechanism of action of lithium is still unknown, and it is suspected that it acts at various points of the neuron between the nucleus and the synapse. Lithium is known to inhibit the enzyme GSK-3B. This improves the functioning of the circadian clock – which is thought to be often malfunctioning in people with bipolar disorder and positively modulates gene transcription and positively modulates gene transcription of brain derived neuro trophic factor (BDNF). The resulting increase in neural plasticity may be central to lithium's therapeutic effects. Lithium may also increase the synthesis of Serotomin. (**Terence A Ketter, 2007)**.

Psycho education is considered as the best method of providing knowledge to client and family members about lithium therapy. Lithium therapy may also act as mood stabilizer by enhancing the levels and stability of serum lithium levels. The group psycho education may be associated with an increase in the quality of life, both in terms of general satisfaction and in relation to levels of physical functioning.

2. Need and Scope for the study

Mood disorders are mental health disorders characterized by mood swings consisting of long period of excessive sadness and excessive happiness or elation with intervening periods of normalcy. Depression and Mania represent the two extremes, or poles of mood disorders. Mood disorders sometimes called affective disorders. The United Nations Health agency predicted that by the year 2020. Depression would jump to be the second greatest cause of death and disability worldwide. This shows the magnitude of the problem related to mood disorders. (**Bromet, 2011)**.

Mood disorders are fairly common in psychiatric disorders affecting about one in ten thousand, during their lifetime. The World Bank has ranked depression fifth in the illness burden among women and seventh among men in developing countries. Suicide is an important cause of premature mortality is strongly associated with mood disorders. (**Ming T, Goodwin C. 1998)**.

Worldwide, the prevalence of bipolar disorder type I is estimated to be 0.6%, that of type II is 0.4%, and that of sub threshold bipolar disorder is 1.4%, yielding a total bipolar disorder spectrum prevalence of 2.4%. in general, high-income countries have the highest prevalence of bipolar disease and low-income countries have the lowest. The Unites States had the highest prevalence of overall (4.4%) disease, while India had the lowest (0.1% for both). Two exceptions to this rule were Japan, a high-income country with a very low overall (0.7%) and annual (0.2%) prevalence, and Colombia, a low-income country with a high overall prevalence (2.6%). (**Muller et al 2000)**.

Many studies of bipolar patients and their relatives have shown that bipolar disorder can run in families. The lifetime chance of an identical twin to also develop bipolar disorder is about 40% to 70%. A descriptive study at Stanford University exploring the genetic connection of bipolar disorder found that children with one biological parent with bipolar I or bipolar II disorder have an increased likelihood of getting bipolar disorder. In this study, researchers reported that 51% of the bipolar offspring had a psychiatric disorder, most commonly major depression, dysthymia, bipolar disorder, or attention deficit hyperactivity disorder (**ADHD). Joram AF, Kurter AE, Jacob AP, Christensen H, Henderson, 2000)**

Mental disorders are among the strongest predictors of suicide attempts. A household survey of 928 adults in United States in 2010 have examined the unique associations between individual disorders and subsequent suicidal behavior using data from the National Co-Morbidity Survey Replication and the revealed that approximately 80% of suicide attempters have prior mental disorder. Mood, anxiety, impulse-control, and substance disorders all significantly predicted subsequent suicide attempts. Between 25% to 50% of patients with bipolar disorder attempt suicide atleast once. Bipolar disorder results in 9.2 years' reduction in expected life span, and as many as one in five patients, nearly 20% with bipolar disorder commits suicide. (**Rihmer.Z, Akiskal HS, 2006)**

No matter where people lived, bipolar disorder caused serious problems and impairment. About three-quarters of people with depression and half of those with mania said their symptoms disrupted their work or social life and relationships. Most of the individuals with mental disorders live in their own homes and are cared by family members. Up to 90 of the people live with their relatives who provide them long term practical and emotional support. It affects the dynamics of a family and also caregiver's time and energy. (Wolkenstein L, Meyer TD,2012).

The consequences of stigma associated with mental illness have attracted the negative ratings among the public. The public express that the people with mental illness are unpredictable and dangerous. Thus the knowledge and attitude among adults towards mental illness bears profound impact on the person with psychiatric illness. (**Kabir, Illiyasu.Z,Abubakar IS,2012)**.

Stigmatization of mental illness probably exists everywhere, even though the form and nature of it may differ across cultures. Better knowledge is often reported to result in improved attitudes towards people with mental illness and a belief that mental illness is treatable can encourage early treatment seeking and promote better outcomes. General public's view about mental illness remains largely unfavorable. The topic of mental illness evokes a feeling of fear, embarrassment or even disgust fostering negative attitudes towards illness and mentally ill people. (**Cuijpers P, Stam H,2000)**.

A cross-sectional study was conducted to assess the knowledge and attitude of mental illness among general public of south India in All India Institute of Medical Sciences, New Delhi. 100 subjects were selected conveniently, 35% males and 67% females and most of them were in the age group above 30 yrs. The results of the study revealed that knowledge of mental illness among the general public was quite poor. The majority of the subjects had a negative attitude towards mental illness and non-acceptance of patients with mental illness and suggests the need for strong emphasis on educating public to increase mental health literacy among general public. (**Gholousm, Bener, 2012)**.

Poor mental health literacy in the community leads to delays in recognition and help seeking, hinders community acceptance of evidence based mental health care, and causes people with mental disorders to be denied effective self-help and appropriate support from others in the community. Community's mental health knowledge needs to be improved since the stigmatizing attitudes towards mental illness are reinforced by a lack of knowledge. (**Solomon DA, Keitner, GI, Ryar CE, Kelley J. 2008)**.

The research studies reveal that, family interventions are beneficial in promotion of social and family functioning of patients, improved coping ability of family care givers, and reduction of relapse. The family dynamics attitude held toward mentally ill, and skills in management of client's adjustment. Hence it is necessary to make families responsible caretakers by removing their biases and misconception about mental illness. Training programs for families of a mentally ill when supplemented with psychiatric medication can ensure better outcome for psychiatric illness. (**Ismail, Gopinath PS, 2005)**.

Most often patients get admitted to hospital with poor compliance to medications, unable to understand the abnormal behavior of patients by caretakers and most of the caretakers expressed difficulty in home care management of the patient. Based on the review of the literature, discussion with experts, the personal experience and the interest of the investigator, it was found that most of the caregivers of patients with bipolar affective disorder had inadequate knowledge about the course and long term management of disease and investigator is influenced to assess the knowledge and attitude of caregivers regarding BPAD. From this instinct, the investigator is motivated to develop an information leaflet to improve the knowledge and attitude of caregivers and can be made available to them since no provision of an information leaflet is currently available.

Mood disorder is one of the major mental illness affecting about 200 million people worldwide and the prevalence rate is 1.5% and it is uniform throughout the world. The life time risk of manic episode is about 0.8% - 1%. In India about 12 – 15 million people are affected by bipolar mood disorder. Who indicate bipolar affective disorder is the 6th leading cause of disability in the world.

Lithium has the narrow therapeutic index and many factors can upset the balance lithium concentrations that are well tolerated and produce side effects or toxicity. This is imperative that persons taking lithium can be educated about signs and symptoms of toxicity, factors that affect lithium levels how and when to obtain laboratory testing and the importance of regular communication with the prescribing physician (**Kaplan and sadock's)**

Psycho education strategies for Bipolar affective disorder that have contributed to positive outcomes have ranged from simple one site, education only interventions that improve lithium adherence and attitudes about medications to a more complex, multi-site, collaborative care system intervention that yielded shorter durations of affective episodes for patients improved functions and quality of life and treatment satisfaction (**Disease Management and Health outcomes 2007)**

To improve the drug compliance education of patient and

family members are necessary. The Health Care personnel will contact with patient for small time. Family members is taking care of client is almost all time in hospital setting and also in home setting. So the family members must have the knowledge regarding lithium therapy for good drug compliance. Psycho education can be used to improve knowledge of family members so the investigator developed an interest to assess the effectiveness of psycho education on knowledge of family regarding lithium therapy.

2.1 Statement of the problem

A Quasi experimental study to assess the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patients with lithium therapy at Sneka Mind Care Center, Thirunelveli.

2.2 Objectives

1) To assess the pretest knowledge of family members regarding lithium therapy in experimental and control group
2) To assess the posttest knowledge of family members regarding lithium therapy in experimental and control group
3) To find out the effectiveness of psycho education on lithium therapy of family members in experimental group
4) To compare the pretest and posttest knowledge of family members regarding lithium therapy between experimental and control group
5) To find out the relationship between pre – test knowledge of the family members regarding lithium and selected demographic variables.

2.3 Hypotheses

1) There will be a significant difference between knowledge of family members regarding lithium therapy before and after psycho education intervention programme.
2) There will be significant difference (improvement) in the knowledge gained by the family members through the psycho education delivered by nurses regarding lithium therapy
3) There will be significant association between knowledge of family members and selected demographic variables.

2.4 Operational definition Psycho education

In this study psycho education refers to the planned education about lithium therapy given to family members of clients receives lithium therapy.

Effectiveness:
In this refers to the difference in statistical measurement between pretest and posttest level of knowledge about lithium therapy among the family members of patients on lithium therapy after giving psycho education.

Lithium therapy:
In this study it refers to using lithium for treatment of patient with mood disorder.

Family members:
In this study it refers to person who lives in the same household of patient who spends time with patient who spends time with patient and directly and actively involved in patient care.

2.5 Assumption

1) The level of knowledge may differ from one individual to another.
2) Psycho education programme will improve the knowledge of family members.

2.6 Limitation

1) This study is limited to the family members of patients getting lithium therapy at Sneka mind care center, Thirunelveli,
2) Data collection is limited to family members who are willing to participate during data collection.
3) Data collection period is limited to 1Year.

2.7 Projected outcome

This study will help the family members to increase the knowledge regarding lithium therapy and able to prevent the side effects and complications.

3. Conceptual Frame Work

The conceptual framework of this study is based on J.W. Kenny's open system model.

All living system is open in that their continuous exchange of matters, energy and information. Open systems very in the degree of intention with the event the system receives input and give back output in the form of matter energy and information. The main concepts of the system theory are input, through put, output and feedback.

This model of J.W Kenny's open system is suited to determine the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patient with lithium therapy.

Input
Input refers to resources taken received from the external environment. In this study, input refers to psycho education on lithium therapy.

Through put
Through put refers to the process of conversion of resources within the system.

In this study, through put refers to the transformation of knowledge among family members of patient with lithium therapy after psycho-education.

Out put
Output is the whole of the expected outcome.

In this study, output refers to adequate knowledge about lithium therapy acquired by the family members.

Feedback
Feedback refers to the analysis of posttest.

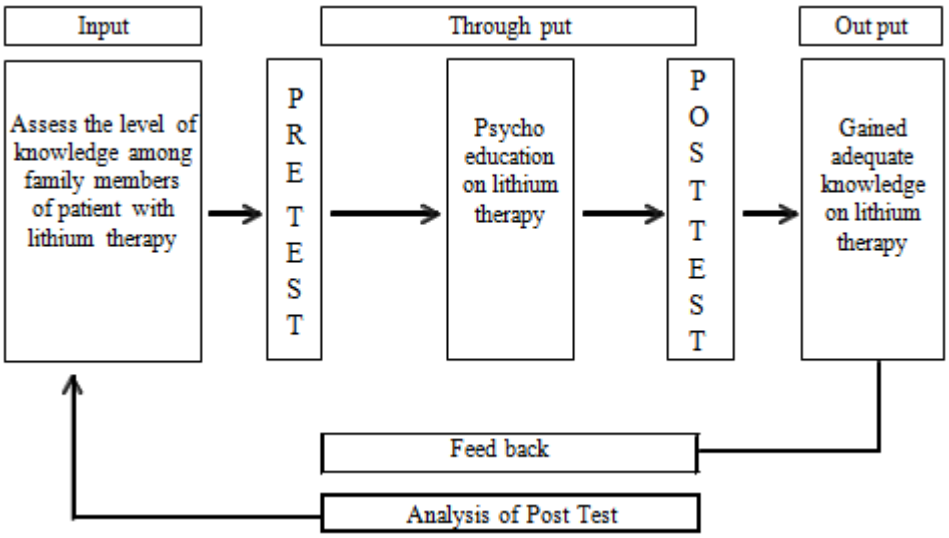

Figure 1.1: Shows the conceptual frame work of J.W. Kenney's open system

4. Review of Literature

Review of related literature is an integral component of the research project. Literature review gives an overall view on the different studies and their findings reported about the problem understudy.

The aim of the present study was to assess the knowledge and attitude regarding bipolar affective disorder among caretakers of patients with BPAD, Hence the articles related to the topic were reviewed.

The literature is organized and presented under the following headings.

- Studies related to prevalence of bipolar affective disorder.
- Studies related to knowledge and attitude of caregivers towards bipolar affective disorder.
- Studies related to caregivers' education on bipolar affective disorder.
- Studies related to psycho education and lithium therapy.

4.1 Studies Related To Prevalence of Bipolar Affective Disorder

A study was done in India to assess the psychiatric morbidity and its association with physical illness. A total of 202 elderly persons were enrolled. A door to door survey was undertaken where the participants were interviewed and physically examined. General Health Questionnaire-12, Mini Mental State Examination. CAGE Questionnaire and Geriatric Depression Scale were used. Psychiatric illnesses were detected in 26.7% and psychiatric diagnoses along with dementia, generalized anxiety disorder, alcohol dependence and depressive disorder. (**Reinares M, Vieta E, 2009)**

A study was conducted to examine the prevalence and socio demographic correlates of affective disorders based on a survey conducted in Addis Ababa. The data was collected from a random community sample of 1420 individuals aged 15 and above. The life time prevalence for specific affective disorders estimates were 0.3% bipolar disorders, 0.27% depressive episodes and 16% persistent mood disorders. The risk of affective disorders was 29% higher in women compared to men. Age, marital Status and ethnicity were not associated with risk of affective disorders. (**Kabede D, Alam1999)**

An epidemiological study was conducted to examine the prevalence of bipolar disorder in Australia and a 12-month prevalence data for DSM-IV bipolar disorder from the Australian National Survey of Mental health and Well-Being was used. 10642 people participated in the study. The 12-month prevalence of bipolar disorder I and II was determined. The identified subjects were compared with subjects having major depressive disorder. Results revealed a 12-Month prevalence of 0.5% for bipolar disorder. Compared with subjects with major depressive disorder, those with bipolar disorder were distinguished by a more equal gender ratio, a greater likelihood of being widowed, separated or divorced, higher rates of drug abuse or dependence, greater disability, increased rates of treatment and higher lifetime rates of suicide attempts. (**Mitchell PB et al, 2004)**.

A study was conducted on the significance of mood congruent psychotic features in mania as a predictor of disease outcome among 54 patients with bipolar disorder for four years after recovery from an episode of mania with psychotic features. Assessment of residual and occupational status, inter episode symptoms and episode recurrence were made at six and forty eighth months after recovery. Mood incongruent psychotic features during the index manic episode predicted a shorter time in remission at 4 years. Differentiation of mood congruent psychotic features in mania evidently had prognostic validity and therefore has utility as a nosological characteristics. (**Tohen M, Tsuang MT, 2002)**

A longitudinal study was conducted in India among 380 people who had recovered from depressive phase of bipolar disorder for a period of 15 years. One hundred and five subjects remained well for at least two years after recovery. Baseline demographic and clinical characteristics were examined as predictors of recurrence of an affective disorder. The results showed that 85%, experienced a recurrence, while about 58% remained well for at least five years. Female sex, a longer depressive episode before intake, more prior episodes, and not married were significant predictors of a recurrence. (**Tharoor H, Chauhan A, Sharma PS, 2008)**

A Meta-analysis was conducted in United States of Psychiatric and medical co- morbidities in bipolar disorder. The results revealed that Psychiatric co-morbidity was often associated with earlier onset of bipolar symptoms, more severe course, poorer treatment compliance, and worse outcomes related to suicide and other complications. Medical co-morbidity may be exacerbated or caused by pharmacotherapy of bipolar symptoms. the literature established a strong association between bipolar disorder and substance abuse and also association with anxiety disorders, ADHD and eating disorders, cyclothymia and other axis II personality disorders. The study suggested that to ensure prompt, appropriate intervention, the clinician must evaluate and monitor patients with bipolar disorder for the presence and the development of co-morbid psychiatric and medical conditions. (**Weber NS, Fisher JA, Cowan DN, Niebuhr DW, 2011)**

4.2 Knowledge and Attitude of Caregivers towards Bipolar Affective Disorder

A study was conducted in Australia to assess the attitudes towards people with a mental disorder. A house hold survey of 2031 members of Australian public and a postal survey of 872 general practitioners, 1128 psychiatrists and 454 clinical psychologists were done to collect the data. Survey participants were presented with a vignette describing a person with bipolar affective disorder or one with schizophrenia. Both the public and professionals rated outcomes as poorer and discriminations as more likely for the person with schizophrenia than for the one with bipolar affective disorder. The results of the study showed that compared to the public, health professionals rate long-term outcomes more negatively and discrimination as more likely. (**Reavley NJ, Jorm AF, 2011)**

A study was conducted in Germany to assess the attitude of young people towards depression and mania.387 subjects were selected randomly and asked their own attitudes or for the attitudes of public in general. Attitudes towards an individual with a current manic episode turned out to be significantly more negative than towards a person with current depression. Interestingly, the attitudes of the general public were reported to be more negative than the personal attitudes. This study looked at manic symptoms and found that negative attitude is even more for manic episodes indicating bipolar disorder than the depression. (**Wolkenstein L, Meyer TD, 2011)**

A study was conducted to investigate the attitudes about bipolar disorder and genetic testing. Three groups of subjects were surveyed including members of a bipolar disorder support group, medical students, and psychiatry residents. The questionnaire was intended to elicit impressions and attitudes about bipolar disorder (BP) from mental health consumers and health care providers with varying levels of personal and professional familiarity with the disorder. Attitudes towards prenatal testing and pregnancy termination were also assessed. Results revealed that nearly half of the total sample would terminate pregnancy if the focus were definitely to develop an unspecified from of bipolar disorder which was influenced by the likelihood of developing bipolar disorder a well as the severity of illness. (**Smith LB, Sapers B, 1999)**

A study was conducted to examine the public's understanding and attitudes towards bipolar disorder in Chicago. 1008 Americans were enrolled for the study on behalf of the National Alliance for the Mentally Ill and the National Depressive and Manic-Depressive Association in Chicago. Study revealed that only 33 percent of respondents knew that bipolar disorder is characterized by wide swings in emotion or mood and it confirmed that the social stigma continues to dictate an unfavourable attitude towards bipolar disorder. 44 percent believe that people with bipolar disorder are often violent, 25 percent think that those who have mood disorders are very different than others. (**Rappaport M, 1999)**

A study was conducted in France to explore the knowledge, attitude and behaviours towards three chronic mental disorders like bipolar disorders, autism and schizophrenia. 1000 adults were selected and surveyed. The 21-item questionnaire was used to explore the knowledge, attitudes and behaviours toward each disorder. Results revealed that labelling of conditions in a negative way was frequent (61%) when referring to mental disorders in general and 65% respondents would engage in social distancing from such an individual with 29% for bipolar disorders. This study also showed that attitudes towards bipolar disorders were less prejudicial and the most public attitudes and behaviours towards different disorders appear to be based on assumptions rather than knowledge. (**Zaleski D, Scott J, Roulline FA 2012)**

A study was conducted in Poland to make an analysis and comparison of patients' and psychiatrists' beliefs regarding the most important aspects of bipolar disorder treatment. A group of 100 psychiatrists and 100 remitted patients were enrolled for the study. Beliefs were investigated with a 41-item structured questionnaire for doctors and a 27-item self-evaluation inventory for patients. Results revealed that both groups considered depression as the most burdensome episode in the course of bipolar disorder, pharmacotherapy as the most crucial element of treatment and improvement in quality of life as the most important aspect of recovery. The results also revealed that patients are convinced that doctors consider improving their life quality much less important than alleviating symptom severity. The patients indicated the side effects of drugs as the main cause for non-compliance whereas doctors considered compliance a crucial problem. Discrepancies in beliefs were also observed regarding the perceived importance of different psycho education topics

like coping abilities and quality of life improvement. (**Maczka G, Simek M, Skalski M, 2010)**

A cross-sectional study conducted on knowledge and attitude of mental illness among general public of south India in All India Institute of Medical Sciences, New Delhi. Among the 100 subjects selected conveniently, 33% males and 67% females and most of them were in the age group above 30yrs. The results of the study revealed that knowledge of mental illness among the general public was quite poor and suggests the need for strong emphasis on educating public to increase mental health literacy among general public to increase awareness and positive attitude of people towards mental illness. (**Ganesh K, 2011)**

A cross-sectional study was conducted to assess the knowledge and attitude regarding mental illness among general public in a rural area of Hukkeri taluk in Karnataka. A total of 100 samples were recruited for the study. A structured interview schedule and attitude scale was used. The results revealed that the 74% of them had inadequate knowledge and 62% of them had unfavourable attitude. There was a positive correlation between knowledge and attitude of subjects regarding mental illness. (**Kademani PV, Sindhes, 2013)**

A comparative study was conducted in Ranchi to assess the knowledge and attitude towards mental illness among key informants and general public. 200 subjects (100 key informants and 100 from general population) were enrolled for the study using purposive sampling. Tools used were socio demographic datasheet and self-developed checklist for assessing the attitude. The results revealed that there was significant difference between the attitude of key informant of the patients and general population and the key informants were found to be more aware about the disease. The findings also suggested that there was growing awareness about mental illness even in general population and the people were being more receptive of the mentally ill people. (**Kumar D, Singh AR, Bhandari SS, 2012)**

A cross-sectional study conducted among 250 adults in a rural community in northern Nigeria to examine the knowledge, attitude and beliefs about causes, manifestations and treatment of mental illness using semi-structured questionnaire. The most common symptoms explained by respondents as manifestations of mental illness included aggression (22.0%). Loquaciousness (21.2%), eccentric behaviour (16.1%) and wandering (13.3%). Drug misuse including alcohol, cannabis etc, were identified in 34.3% of the responses as a major cause of mental illness, followed by divine wrath/ God's will (19%), and magic/spirit possession (18%). 46% of respondents preferred orthodox medical care for the mentally sick while 34% were more inclined to spiritual healing. Almost half of the respondents harboured negative feelings towards the mentally ill. (**Gureje. O, 2005)**

A descriptive study was conducted to assess the knowledge and attitudes of the kinondoni community towards mental illness in Tanzania among 300 subjects. The findings suggested that knowledge of mental illness was very poor in the Kinondoni community (61%) and the negative attitudes of participants (79.6%) towards people with mental illness was implied by their responses stating that mentally ill people should not have the right to find a job, have friends and be integrated into society. (**John FC, 2011).**

4.3 Literature related to caregivers education on bipolar affective disorder

A study was conducted on preventing recurrence of bipolar I mood episodes and hospitalizations among patients with bipolar disorder and living with relatives. The objective of the study was to compare the efficacy of three treatment conditions in preventing recurrence of bipolar I mood episodes and hospitalization for such episodes: Individual family therapy plus pharmacotherapy, multifamily group therapy plus pharmacotherapy, and pharmacotherapy alone. The conclusion of the study was for patients with bipolar I disorder; adjunctive multifamily group therapy may confer significant advantages in preventing hospitalization for a mood episode. (**Chad D, David J, Jeannetle A, 2007)**

A study was conducted on perceived benefits and difficulties of group meetings among caretakers of patients with bipolar mood disorders and schizophrenia in the Psychiatric rehabilitation unit of a medical college, Mangalore, 46 significant caretakers of bipolar mood disorders and schizophrenia with associated psychosocial problems and on maintenance medications were identified and group meetings were conducted for 45 minutes once a month. Results revealed that caregiver education led to effective monitoring for the functioning of patients, a reduction in the family burden and family distress, a better support system with adequate coping skills and good compliance with treatment programmes. (**Maria R etal, 2008)**

A Randomized Controlled Trail was conducted to examine the effects of Family Focused Therapy (FFT) in comparison to adjunctive individual therapy in three large hospitals in Los Angeles which covered 21 sessions of psycho education over nine months. Fifty-three Bipolar I patients were recruited shortly after a hospitalization for a manic episode. No differences in the treatment modalities were observed in the first year, but in a 1- 2-year post treatment follow-up, only 12% of the patients in FFT required re-hospitalization compared with 60% of patients in individual therapy. Post treatment rates of symptomatic recurrence were 28% in FFT and 60% in individual therapy groups. Results revealed that the Family focused therapy can reduce the number of hospitalization. (**Rea MM, Thompson M, 2003)**.

A randomized trial was conducted among care-givers of 113 patients with bipolar disorder. The caregivers were randomized to psycho education classes. The 12 classes were conducted which was 90 minutes long and the classes included information about bipolar disorder and coping skills. Patients' mood recurrence and number of hypomanic/manic recurrence were recorded over a 15-month period. Patients whose caregiver attended classes had reduced likelihood of any mood recurrence, longer periods of time without relapse, fewer hypomanic/manic recurrences and greater time to hypomanic/manic recurrence. A second analysis was performed after the trail was completed and found that the benefits of caretaker education were greatest

if the patient had bipolar disorder. (**Comes M, Benabarre A, 2003)**

An Experimental study was conducted in different psychiatric hospitals in Germany, Austria and Switzerland to investigate the relevance of psycho education to patients and caregivers regarding several psychiatric disorders. Results revealed that 289 of 500 (58%) institutions offer any type of psycho education. Psycho education is mainly offered for schizophrenia, bipolar disorder and depression. 25% offer diagnosis-unspecific psycho education. 'Pharmacotherapy', 'basic occupational therapy' and 'psycho education for patients' were the most used therapies. Psycho education for patients were considered relevant and offered frequently in those countries mostly for schizophrenia, bipolar disorder and depression and the psycho education to patients and caregivers has been shown to be an effective intervention to reduce relapse rates in several psychiatric disorders. (**Kluge C, Kluge M, Kissling W, 2013)**

An experimental study was conducted in hospital clinic at the University of Barcelona, Spain to assess the efficacy of group psycho education in the prophylaxis of recurrences among 120 bipolar I and II outpatients. The psycho education content was episode causes and triggers, early detection of episodes and stress management techniques.

The results showed that 36 subjects (60%) in the control group had recurrence compared with 23 (38%) in the psycho education group. The total number of episodes and the number of depressive episodes were significantly lower in psycho educated patients at any time point. Regarding hospitalization at the end of follow-up period, 21 patients (35%) in the control group had been hospitalized versus 14 (25%) in the treatment group. During the treatment phase and the first six months of follow-up there was no difference between groups regarding the mean number of hospitalization per patient but thereafter cumulative mean number of hospitalization per patient was significantly lower for psycho educated patients. At the 12 month follow up, psycho educated patients had 0.23 admissions versus 0.63 in the control group at the 18 month follow up 0.24vs 0.86 respectively and at 24 months 0.30 versus 0.78. (**Miklowitz DJ, 2008)**

A randomized controlled trail was performed in Iran among 100 family caregivers for patients with mental disorders. One hundred family caregivers of patients with schizophrenia and mood disorders were selected and assigned randomly to either a psycho-educational group intervention or routine care in each diagnosis category. Four sessions of psycho- education were given and the caregivers were followed for 3 months and the mean scores of the caregiver burden decreased significantly and knowledge was improved for the group that participated in the psycho-educational program. This group intervention program was effective to reduce the caregiver burden and improving knowledge among the family caregivers. This group intervention program may improve the quality of life of patients and caregivers by improving the standards of care giving. (**Nanidian A, 2012)**

An experimental study was conducted to assess the effectiveness of an educational family intervention on caretakers of stabilized bipolar patients. 45 participants randomized to experimental and control group were assessed by social behaviour assessment schedule. Results revealed that educated caretakers significantly improved their knowledge regarding bipolar disorder and reduced both the subjective burden and the caretaker's belief about the link between the objective burden and the patient. (**Colom F, Vieta E, Sanchez J, Paolmino R, Reinares M, Goikolea JM, 2009)**

An experimental study was conducted among 31 bipolar disorder patients in Iran regarding the effect of family education. The patients were divided into case group (n=17) and control group (n=14) where the case group were with 1-5-hour family education session for eight weeks. Results showed that there was statistically significant improvement on the sum scores of the knowledge questionnaire of mood disorder before and after the intervention between two groups ($P<0.001$). There was significant improvement in total score of family attitude questionnaire before and after the intervention between two groups ($p=0.01$). (**Ghadirian F, Nasiri M, Karami K, 2010)**

Family psycho education, because of its focus on the biological underpinnings of bipolar disorder and the critical role of medication in prophylaxis, would enhance patients' drug adherence. Regular participation of caregivers would increase the likelihood that instances of noncompliance would be identified early and derailed. Family interventions are complementary approaches that, if administered together with medications, lead to greater control over fluctuations of both poles of the disorder. (**Ghassemi R, Assadulahi A, 2005)**

Thus family psycho education alone or as a component of more complex interventions can improve the course of bipolar disorder by increasing the knowledge of both patients and families about the disorder and its treatment, decreasing the risk of relapse and hospitalization and improving adherence. As a complement to pharmacotherapy, individual and group psycho education is a first line psychologically intervention applicable to a majority of patients and families. (**Jablenskey et al 2000)**

Miklowitz DJ, George EL, Richards JA, Simoneau TL, Suddath RL. (2003) conducted a study on A randomized study of family-focused psycho education and pharmacotherapy in the outpatient management of bipolar disorder. This study was performed to determine whether combining family-focused therapy (FFT) with pharmacotherapy during a post-episode interval enhances patients' mood stability during maintenance treatment. A total of 101 bipolar patients were assigned to FFT and pharmacotherapy or a less intensive crisis management (CM) intervention and pharmacotherapy. Outcome assessments were conducted every 3 to 6 months for 2 years. Participants (mean +/- SD age, 35.6 +/- 10.2 years) were referred from inpatient or outpatient clinics after onset of a manic, mixed, or depressed episode. FFT consisted of 21 sessions of psycho education, communication training, and problem-solving skills training. Crisis management consisted of 2 sessions of family education plus crisis

intervention sessions as needed. Both protocols lasted 9 months. Patients received pharmacotherapy for 2 study years. Main outcome measures included time to relapse, depressive and manic symptoms, and medication adherence. The findings of the study showed that Rates of study completion did not differ across the FFT (22/31,71%) and CM groups (43/70,61%). Patients undergoing FFT had fewer relapses (11/31, 35%) and longer survival intervals (mean +/- SD, 73.5 +/-28.8 weeks) than patients undergoing CM (38/70, 54%; mean +/- SD, 53.2 +/- 39.6 weeks; hazard ratio, 0.38; 95% confidence interval, 0.20-0.75; P= 0.003; intent to treat). Patients undergoing FFT showed greater reductions in mood disorder symptoms and better medication adherence during the 2 years than patients undergoing CM.

Mikowitz DJ, Axelson DA, George EL, Taylor DO, Schneck CD, Sullivan AE, Dickinson LM, Birmaher B. (2009) carried out a study on expressed emotion moderates the effects of family-focused treatment for bipolar adolescents. This study examined the moderating effects of parental expressed emotion (EE) on the 2-year symptomatic outcomes of adolescent BD patients assigned to family-focused therapy for adolescents (FFT-A) or a brief psycho educational treatment (enhanced care [EC]). A referred sample of 58 adolescents (mean age 14.5 +/- 1.6 years, range 13-17 years) with BD I, II, or not otherwise specified was randomly allocated after a mood episode to FFT-A or EC, both with protocol pharmacotherapy. Levels of EE (criticism, hostility, or emotional over involvement) in parents were assessed through structured interview. Adolescents and parents in FFT-A underwent 21 sessions in 9 months of psycho education, communication training, and problem-solving skills training, whereas adolescents and parents in EC underwent 3 psycho education sessions. Independent "blind" evaluators assessed adolescents' depressive and manic symptoms every 3 to 6 months for 2 years. The finding suggested that parents rated high in EE described their families as lower in cohesion and adaptability than parents rated low in EE. Adolescents in high-EE families showed greater reductions in depressive and manic symptoms in FFT-A than in EC. Differential effects of FFT-A were not found among adolescents in low-EE families. The results could not be attributed to differences in medication regimens.

Reinares M, Colom F, Martinex-Aran A. Benabarre A, Vieta E (2002) did a study on Therapeutic interventions focused on the family of bipolar patients. The main computerized databases (Medline, Psychological Abstracts, Current Contents) have been searched for the terms 'family intervention', 'family management', 'family therapy', 'psychotherapy', 'psycho education' and 'bipolar disorder some studies have associated high expressed emotion in relatives and poorer outcome in bipolar disorder. Studies on families of bipolar patients seen to support that family intervention as adjunctive therapy to pharmacological treatment may reduce the number of relapses and hospitalization, improving familial, occupational and social functioning. However, controlled studies are scarce and most of them have a great number of methodological pitfalls such as small sample size, uncontrolled pharmacological treatment, absence of long follow-up and biased populations, among others. The study concluded that both bipolar patients and their relatives could benefit from family intervention as adjunctive treatment to pharmacotherapy. Nevertheless, it would be necessary to design further investigations avoiding some of the limitations listed above, and controlling additionally for psychopathology in family members, and the influence of life events. It would be important to distinguish between causes and effects, studying which factors are involved in family attitudes and determining whether the interactive patterns are variable or stable according to the clinical state of the patient. Finally, it would be useful to design variable, effective and measurable interventions for the accurate delimitation of the role of family intervention in the treatment of bipolar disorder.

Miklowitz DJ. (2006) did a study on a review of evidence–based psychosocial interventions for bipolar disorder. Various forms of psychosocial intervention have been found efficacious as adjunctive treatments for bipolar disorder, including family-focused therapy, interpersonal and social rhythm therapy, cognitive-behavioral therapy, and individual or group psycho education. When used in conjunction with pharmacotheraphy, these interventions may prolong time to relapse, reduce symptom severity, and increase medication adherence. Family – focused therapy seeks to reduce the high levels of stress and conflict in the families of bipolar patients, thereby improving the patient's illness course. Interpersonal and social rhythm therapy focuses on stabilizing the daily and nightly routines of bipolar patients and resolving key interpersonal problems. Cognitive-behavioral therapy assists patients in modifying dysfunctional cognitions and behaviours that may aggravate the course of bipolar disorder. Group psycho education provides a supportive, interactive setting in which patients learn about their disorder and how to cope with it. This article discusses each of these interventions and summarizes the evidence for their efficacy in randomized trails. Recommendations for implementing psychosocial interventions in clinical practice are also given.

Neely J, Miklowitz D, Le Couteur A, Ryan V, Vale L, McGovern R, Sharma A. (2015) carried out a study on **A feasibility study of a Family Focused Treatment for Adolescents with Bipolar Disorder the FAB study.** The aim of this study is to examine the feasibility of a future definitive randomized controlled trial of family Focused Treatment for Adolescents UK (FFT-A UK) in the management of early-onset bipolar disorder (EOBD) (under 18 years). The FFT-A has been evaluated in the USA to augment the pharmacological treatment of adolescents with bipolar disorder (BD). The FFT-A UK has been condensed to 16 sessions over approximately 6 months to be utilized within the UK National Health Service. Research from the USA suggests that families experience high levels of distress, stress, burden and family disharmony when living with a young person who has BD. The FFT-A UK is a family-based approach designed to increase ability to problem-based approach designed to increase understanding of BD (psycho-education), improve communication and increase ability to problem-solve. The trial will examine the feasibility of a randomized, parallel group, non-blinded design and the procedures of a subsequent definitive trial. Thirty-three young people with BD and their families will

be recruited. Participants will complete measures at baseline, on completion of the 6-month treatment and again after a further 6 months. The self-report measures include the Warwick Edinburgh Mental Well-being Scale. The McMaster Family Assessment Device (FAD), Conflict Behavior Questionnaire aka 'Interaction Behavior Questionnair'. Euro Quol EQ-5D-3L and EQ-5D-Y. Primary outcomes will be rate of eligibility, recruitment and retention, estimates of the variability in the self-report measures and assessment of the intervention delivery in the study population. Participants' qualitative views on the measures and intervention will be sought to confirm the acceptability of intervention and study design. The health economics component will establish how cost-effectiveness will be assessed in a future definitive trial. The result showed that the study will produce a full trial protocol and amendments to the FFT-A UK to inform a well-designed multi-centre randomized controlled trial (RCT) as an adjunct to pharmacotherapy in the management of EOBD.

Rea MM, Tompson MC, Miklowitz DJ, Goldstein MJ, Hwang S, Mintz J. (2006) conducted a study on Family-focused treatment versus individual treatment for bipolar disorder: results of a randomized clinical trial. Recently hospitalized bipolar, manic patients (N=53) were randomly assigned to a 9-month, manual-based, family-focused psycho educational therapy (n=28) or to an individually focused patient treatment (n=25). All patients received concurrent treatment with mood-stabilizing medications. Structured follow- up assessments were conducted at 3-month intervals for a 1-year period of active treatment and a 1-year period of post-treatment follow-up. Compared with patients in individual therapy, those in family-focused treatment were less likely to be re-hospitalized during the 2-years study period. Patients in family treatment also experienced fewer mood disorder relapses over the 2 years, although they did not differ from patients in individual treatment in their likelihood of a first relapse. Results suggest that family psycho educational treatment is a useful adjunct to pharmacotherapy in decreasing the risk of relapse and hospitalization frequently associated with bipolar disorder.

Miklowitz DJ, Biuckians A, Richards JA. (2006) did a study on Early-onset bipolar disorder: a family treatment perspective. Mood disorder symptoms and their associated functional impairments are hypothesized to come about as the result of the conjoint, interactive influences of genetic, biological, and psychological vulnerabilities, family distress, and life stress at different points of development. We discuss a developmental psychopathology model that delineates pathways to high family conflict and mood exacerbation among early-onset bipolar patients. New data from a treatment development study indicate that adolescent bipolar patients in high expressed emotion families have more symptomatic courses of illness over 2 years than adolescents in low expressed emotion families. Chronic and episodic stressors are also correlated with lack of mood improvement while adolescents are in treatment. Family-focused treatment (FFT) given in conjunction with pharmacotherapy appears to ameliorate the course of bipolar disorder in adults. This treatment has recently been modified to address the developmental presentation of bipolar disorder among adolescents. We present data from an open trial of FFT and pharmacotherapy (N=20) indicating that bipolar adolescents stabilize in mania, depression, and parent-rated problem behaviours over 2 years. Future research should focus on clarifying the developmental pathways to early-onset bipolar disorder and the role of protective factors and preventative psychosocial interventions in delaying the first onset of the disorder.

David Et.al (2003) conducted a randomized control trial on "family focused psycho education and pharmacotherapy in the outpatient management of bipolar disorder" In this study participants were referred from in patient or out patent clinics after a manic or depressed episode. The family focused therapy consisted of 21 session of psycho education communication training and problem solving skill training. Patient undergoing FFT showed greater reduction in mood disorder symptoms and better medication adherence combining family psycho education with pharmacotherapy enhances the post episode symptomatic adjustment and drug adherence of bipolar patients.

Ghadirian. Et.al (2009) conducted a study "to evaluate the psycho educational intervention outcome in mood disorder patients and their relatives in Iran. Seventeen relatives of mood disorder patients attended at 8 sessions (each 90 min) of family psycho educational group therapy. Relatives' knowledge about mood disorder and their adaptation level were assessed using understanding mood disorder questionnaires (UNDQ) and family assessment device (FAD) before and after the group intervention in two groups. The relatives' knowledge about mood disorders was significantly improved. These findings showed that family psycho educational interventions in relatives of Iranian mood disorder patients, improve their knowledge about the illness and the adaptation level in family is increased.

Dogan (2003) carried out a study on "effect of education on medication compliance, symptom level and quality of life of outpatients who were being treated with lithium for bipolar disorder". The study was performed comparing a total of 26 patients (14 for study group and 12 were control group) who were under lithium therapy. In this study one group was given a short education program about the disorder and lithium therapy in three sessions. Data were collected from both groups using a medication knowledge form, Brief symptom Inventing and WHO Quality of life scale before and after the intervention. At the end of 3 months whereas there was no difference seen the scores of the control group, the study group had an increase in medication knowledge, a decrease in symptom level. an increase in quality of life, and a beginning of more regular medication use. Findings of the study showed that the psycho education will increase the adaptation to society of patients who have bipolar disorder.

Research Methodology Research approach:
To accomplish the objectives of the study the researcher chooses the quantitative approach.

Research design
The research design used in this study is experimental pretest – posttest design. Diagrammatic representation of the design is given below:

5. Research Methodology

Methodology is merely the study of a particular method for researching a desired end. It is the blue print of overall study.

This chapter deals with the description of research methodology included research approach, research design, setting, description of tool, pilot study, data collection procedure, plan for data analysis, interpretation of data and ethical consideration of the study.

Research approach
A quantitative approach was adopted to assess the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patients getting Lithium therapy.

Research Design:
Research design used in this study was quasi experimental Nonequivalent control group research design.

Group	Pre test	Intervention	Post test
Experimental group	0_1	X_1	0_2
Control group	0_1	X_1	0_2

Schematic representation of research design adopted for the study.
GI- Experimental group
GII- Control group

O_1 - Pre test level of knowledge among family members of patient getting Lithium therapy in Group I and GroupII
O_2 - Post test level of knowledge among family members of patients getting Lithium therapy
X_1 - Psycho education to Experimental group by the investigator
X_2- Psycho education to control group given by the ANM staff

Variables:
Qualities, properties, characteristics of persons, measured in research change or vary and are manipulated or the values are classified in to independent variables and dependent variable.

Independent Variable:
The independent variable of the study was psycho education on Lithium therapy to family members.

Dependent Variable:
It is the variable that is hypothesized to depend on or be caused by another variable. In this study the level of knowledge on Lithium therapy among the family members.

Demographic Variables:
The demographic variables used in the study were age, sex, relationship with patient, education, occupation, religion, marital status and types of residence.

Setting of the study
The physical location and condition in which data collection were takes place. The study was conducted in sneak a mind care Centre, Tirunelveli, Tamil Nadu. It is 80 bedded hospitals.

Among that 60 beds in general, special ward and 20 beds in palliative ward with 100% bed occupancy rate. It has the facilities including ECT, counseling recreational therapy etc.

Population
It is characterized by the entire set of individuals having some common characteristics. It encompasses target population and accessible population.

Target Population
It is the entire aggregate of cases for which the investigator would like to generalize the findings.

In this study target population was family members of patients receiving Lithium therapy.

Accessible population:
It is the aggregate of cases that confirm to the designated criteria and that are accessible as subject for the study. In this study accessible population was family members of patients receiving Lithium therapy more than 6 months in sneak a mind care centre, Tirunelveli.

Sample:
It is the subset of a population selected to participate in a study. In this study the sample consisted of family members of patient receiving Lithium therapy who met the inclusion criteria were selected as sample.

Sample Size:
The sample size was estimated by power analysis prior to the commencement of the study. The sample size was calculated by the following statistical knowledge scale. They were type - I error $\alpha = 0.05$, type II error $\beta = 0.20$, effect size = 1.0 and standard deviation = 4.0. The calculated required samples were 126 and by rounding the sample as 125. In this study required samples were 125 for each experimental and control group. The recommended sample to each group was 125. The power of the study will be 0.80 or 80.0% (1-0.20 = 0.80).

Sample Size:
The sample consisted of 250 family members of patient receiving Lithium therapy, who were selected based on the inclusion criteria framed for the study after taking oral consent from them.

Sampling Technique:
In this study, the researcher chosen sample by purposive sampling technique. Two hundred and fifty samples were selected for the study. For each group 125 samples were selected.

Criteria for sample selection Inclusion criteria
- Family members of patients receiving Lithium therapy
- Age group above 18years.
- Family members who could speak Tamil or English.
- Family members of both sexes.

Exclusion Criteria:

- Family members who are not willing to participate in the study.
- Family members who were not co-operative.
- Family members who were diagnosed with psychiatric diseases.

Development and description of the tool

The following tools were used to generate necessary data. The tool consists of three section (Section A, Section B and Section C)

Section A:

It was developed by the investigator to assess the following demographic variables of family members of patients receiving Lithium therapy which include.

- Age
- Sex
- Relation with patient
- Education
- Monthly Income
- Religion
- Occupation
- Marital Status
- Type of Residence

Section B:

Clinical variable proforma:

Clinical variable proforma includes

- Family history of mental illness
- substance abuse history
- Duration of taking Lithium
- Symptoms related to Lithiumin take
- Co-morbidity

Section C:

It consisted of Semi-structured knowledge questionnaire to assess the knowledge of family members regarding Lithium therapy in the form of multiple choice questions. The questionnaire consisted of 25items.

Scoring and Interpretation:

A score of 1 had been allotted for every correct answer and score zero was allotted for wrong answer. The total attainable score for the knowledge questionnaire was 25. The score was converted in to percentage and was ranged as follows.

Interpretation	Scoring
Adequate Knowledge	76 - 100
Moderately adequate knowledge	50 - 70
Inadequate knowledge	< 50

Reliability:

The reliability of the tool was tested by test - retest method. The reliability of the tool was tested for its internal consistency by cronback's alpha. The α of the tool was 0.782. Any tool's α was ≥ 0.7, that tool is reliable and valid tool. The α^2 was 0.611. The scale was reliable and it had internal consistency and stability as 61.1%.

Validity:

Tools were constructed by the investigator to assess the demographic variables, clinical variables and semi structured knowledge questionnaire to assess the knowledge of the family members were used in this study. The constructed tools were given to experts for content validity. The opinion and suggestions were obtained from the experts in the field of Nursing, Psychiatric Medicine, psychologist and Biostatisticians. They had given adequate suggestion for tool confirmation. Based on their suggestions necessary modification were made in consultation with guide. There was no major modification.

Data Collection Procedure:

A formal permission was obtained from the concern authorities of the Sneka Mind Care Center. After explaining the nature and purpose of the study, the investigator selected 250 samples from the Sneka Mind Care Center by using purposive sampling technique. The written consent should be obtained from the participants after explaining nature and the purpose of the study.

The data collection procedure should be done in three steps

Step I

- Investigator explained the nature and purpose of the study to the sample subjects.
- Using purposive sampling method 250 samples were selected and they were divided into two groups. The odd numbers were included in experimental group and even numbers were included in control group. Each group had 125samples.
- Consent was obtained from the sample subjects.
- Pretest was conducted for all the two groups by using demographic proforma, clinical proforma and knowledge questionnaire.

Step II

Psycho education has given for one hour to the selected family members of patient with Lithium therapy (the investigator) to the experimental group and control group psycho education was given by ANM staff.

Step III

Post test was conducted after 7 days using the same knowledge questionnaire.

Pilot Study:

Pilot study was conducted among 12 samples in each experimental and control group who met the inclusion criteria. The study was found feasible to conduct. The tools were found to be relevant and feasible to use. There was no confusion, duplication or ambiguity in any questions or tools. The overall study was found to be feasible. The sample size of the pilot study was 10% of estimated sample size. The data analysis of the pilot study was done to ensure achievement of objectives of the study.

Plan for data analysis:

The data analysis was planned according to the objectives of the study using descriptive and inferential statistics.

- Frequency and percentage distribution of samples by demographic and clinical variables.

- Chi-square to determine the association between demographic variables and knowledge questionnaire.
- The paired 't' test was used for effectiveness of psycho education between experimental and control group.

Protection of Human Rights

- Obtained permission from ethical committee.
- Formal permission was obtained from the institution authority.
- Informed consent was obtained from the sample subjects.
- Subjects were protected from harm.
- Confidentiality was maintained throughout the study.

6. Analysis and Interpretation

This chapter dealt with the analysis and interpretation of data collected for the present study. Data were entered and analyzed using SPSS – 20 packages. Appropriate statistics methods were used based on the objectives of the study. The descriptive and inferential statistics were used to analyzed the study data. The continuous variables of the family members were described in terms of averages and categorical variables were described in terms of percentage. The demographic variables of both groups of family members were tested for homogeneity. The knowledge of the family members within the group was interpreted by paired 't' test and between them by student independent 't' test. The lithium therapy sample subjects of both the group were described according to their clinical variables. The association between the demographic variables of family members of both groups with pretest knowledge were under taken by the x2 (chi-square) test. The above statistical procedure was performed with the help of the statistical package namely IBM SPSS statistics – 20. The P value less than or equal to 0.05 ($P \leq 0.05$) were considered as statistically significant.

6.1 Organization of study findings

The summary of the data analyzed is organized under the following sections.

Section I: Description of demographic variables among family members of patient with lithium therapy in experimental and control group.

Section II: Description of clinical variables among family members of patient with Lithium therapy in experimental and control group.

Section III: Pretest and posttest assessment of knowledge among family members of patient with lithium therapy in experimental and control group.

Section IV: Effectiveness of psycho education among family members of patient with lithium therapy in experimental and control group.

Section V: Comparison of level of knowledge among family members of patient with lithium therapy in experimental and control group.

Section VI: Association between demographic variable and pre – test level of knowledge among family members of patient with lithium therapy in experimental and control group.

Section VII: Association between clinical variable and pretest level of knowledge among family members of patient with lithium therapy in experimental and control group.

Section I: Description of demographic variables among family members of patient with lithium therapy in experimental and control group.

Table 4.1: Frequency, percentage and chi-square value of demographic variables of experimental and control group among family members of patient with lithium therapy

S. No	Demographic Variable	Component	Experimental Group		Control Group		x^2 Value	Significance
			No	%	No	%		
1	Age	20 - 29	45	36.0	28	22.4	x^2=9.726 df=3	P = 0.021
		30 - 39	34	27.2	30	24.0		
		40 - 49	29	23.2	34	27.2		
		50 - 59	17	13.6	33	26.4		
2	Sex	Male	63	50.4	83	66.4	x^2=6.586 df = 1	P = 0.010
		Female	62	49.6	42	33.6		
3	Relationship with	Father	18	14.4	16	12.8	x^2=2.199 df = 3	P = 0.532
		Mother	41	32.8	41	32.8		
		Spouse	51	40.8	59	47.2		
		Relatives	15	12.0	9	4.2		
		Primary	16	12.8	20	16.0		
4	Education	High School	29	23.2	39	31.2	x^2=3.259 df = 3	P = 0.353
		Higher Secondary School	47	37.6	39	31.2		
		Graduate	33	26.4	27	21.6		
5	Monthly Income	<5000	23	18.4	45	36.0	x^2=22.098 df = 2	P < 0.001
		5000-10,000	46	36.8	57	45.6		
		10,000-15,000	30	24.0	12	9.6		
		Above 15000	26	20.8	11	8.8		
6	Religion	Hindu	58	46.4	62	49.6	x^2=0.421 df = 2	P = 0.810
		Christian	51	40.8	46	36.8		
		Muslim	16	12.8	17	13.6		
7	Occupation	Coolie	36	28.8	16	12.8	x^2=19.269 df=3	P < 0.001
		Government Employee	12	9.6	16	12.8		
		Private	70	56.0	67	53.6		
		Unemployed	2	5.8	26	20.8		

8	Marital Status	Married	90	72.0	96	46.8	x^2=0.756 df = 1	P = 0.385
		Unmarried	35	28.0	29	23.2		
9	Type of Residence	Rural	103	82.4	102	81.6	x^2=0.027 df =1	
		Urban	22	17.6	23	18.4		

The data presented in table 4.1 showed that, 36% were between the age group of 20- 29 years, 27.2% were between the age group of 30-39 years, 23.2% were between the age group of 40-49 years and 13.6% were between the age group of 50-59 years in the experimental group.

In control group 22.4% were between the age group of 20-29 years, 24% were between the age group of 30-39 years, 27.2% were between the age group of 40-49 years and 26.4% were between the age group of 50-59 years.

Regarding sex 63% were male and 63% were female in experimental group, where as in control group majority 83% were male and 42% were female.

Based on the relationship with the patient, In experimental group 14.4% of family members were father, 32.8% of family members were mother, 40.8% of family members were spouse and 12% of family members were relatives. In control group 12.8% of family members were father, 32.8% of family members were mother, 47.2% of family members were spouse and 7.2% of family members were relatives.

Regarding education, In experimental group 12.8% were had primary school education, 23.2% were had high school education, 37.6% were had higher secondary school education and 26.4% were graduates. In control group 16% were had primary school education, 31.2% were had high school education, 31.2% were had higher secondary school education had 21.6% were graduates.

With regard to monthly income 18.4% were have family monthly income below Rs. 5000/- 36.4% were have family monthly income between Rs. 5000/- to Rs, 10,000/- 24% were have the family monthly income between Rs. 10,000/- to Rs. 15,000/- and 2.8% were have the family monthly income above Rs. 15,000/- in experimental group. In the control group 36% were have the family monthly income below Rs. 5000/- 45.6% were have the family monthly income between Rs. 5000 to Rs.10,000/- 9.6% were have the family monthly income between Rs. 10,000/- to Rs. 15,000/- and 8.8% were have the family monthly income above Rs.15,000/-.

With regard to religion 46.4% were Hindu, 40.8% were Christian and 12.8% were Muslims in experimental group., where as in control group 62% were Hindu, 46% were Christian and 17% were Muslim.

Based on the occupation, In experimental group 28.8% were coolie workers, 9.6% were government employees, 56% were private employees and 2% were unemployed. In the control group 12.8% were coolie workers 12.8% were government employees, 53.6% were private employees and 20.8% were unemployed.

Regarding marital status, majority 42% were married and 28% were unmarried in the experimental group, whereas in the control group 46.8% were married, 23.2% unmarried.

Based on the type of residence, 82.4% majority were lived in rural area and 17.6% were lived in urban area, in the experimental group. In the control group 81.6% were lived in rural area and 18.4% were lived in urban area.

Section II: Description of clinical variable among family members of patient with lithium therapy in experimental and control group

S. No	Clinical Variable	Component	Experimental Group		Control Group		x^2Value	Significance
			NO	%	No	%		
1	Family History	Yes	51	40.8	50	40	x^2=0.897 df = 1	P = 0.897
		No	74	59.2	75	60		
2	Substance Abuse History	Yes	64	51.2	64	51.2	x^2=0.000 df = 1	P = 1.000
		No	61	48.8	61	48.8		
3	Duration of taking Lithium	<6 month	49	39.2	47	37.6	x^2=0.097 df = 1	P = 0.953
		6 months to 1 year	41	32.8	41	32.8		
		Above 1 year	35	28.0	37	29.6		
4	Symptoms	Hand tremors	53	42.4	58	16.4	x^2=0.760 df = 3	P = 0.859
		Nausea	32	25.6	33	26.4		
		Thrust and urination	29	23.2	24	19.2		
		Anorexia	11	8.8	10	8.0		
5	Comorbidity	Diabetes Mettitus	23	18.4	34	27.2	x^2=9.119 df = 3	P = 0.028
		Hyper tension	35	28.0	19	15.2		
		Coronary artery disease	19	15.2	13	10.4		
		Nil	48	38.4	59	47.2		

The above table 4.2 states that, the description of clinical variable among family members of patients with lithium therapy. Regarding family History of mental illness in the experimental group 40.8% were had the family history and 59.2% were had no family history. In the control group 40% had the family history of mental illness and 60% were have no family history of mental illness.

With regard to history of substance abuse. In the experimental group 51.2% had history of substance abuse and 48.8% were had no history of substance abuse. In control group 60% had history of substance abuse and 48.8% had no history of substance abuse.

Based on the duration of taking lithium. In the experimental group 39.2% were taking lithium less than months, 32.8% were taking lithium 6 months to 1 year and 28% were taking lithium more than 1 year. In control group 37.6% were taking lithium below 6 months, 32.8% were taking lithium up to 6 months to 1 year and 29.6% were taking lithium more than 1 year.

With regard to symptoms related to lithium therapy, In experimental group 42.4% were developed the symptoms of hand tremors, 25.6% were developed the symptoms of nausea, 23.2% were developed the symptoms of thrust and excess urination and 8.8% were developed the symptom of anorexia.

In control group 16.4% were developed the symptom of hand tremor, 26.4% were developed the symptoms of nausea, 19.2% were developed the symptoms of thrust and excess urination and 8% were developed the symptoms of anorexia.

Regarding co morbidity, In experimental group 18.4% were known case of ocabetes, 28% were known case of Hypertension, 15.2% were known case of coronary artery disease and 38.4% were no comorbidity. In control group 27.2% were known case of Diabetes, 15.2% were known case of Hyper tension, 10.4% were known case of coronary artery disease and 47.2% were no comorbidity. The difference between the two groups were statistically just significant at P <0.05.

Section III: Pre test, Post test assessment of knowledge among family members of patient with lithium therapy in experimental and control group.

Table 4:3: Frequency and percentage of pre test and post test knowledge among family members of patient with lithium in experimental group

Knowledge Category	Score	% of score	Experimental Group			
			Pre test		Post test	
			NO	%	No	%
Adequate	16.0 - 25	76 - 100	0	0	93	74.4
Moderately Adequate	10 - 15	50 - 75	4	3.2	30	24
Inadequate	<10	<50	121	96.8	2	1.6

Table 4.3 states the assessment of level of knowledge among family members of patients with lithium therapy in experimental group. In pre test 96.8% of family members of patient with lithium therapy had inadequate knowledge 3.2% had moderate knowledge and none of them had adequate knowledge. In post test 74.4% of family members had adequate knowledge, 24% had moderately adequate knowledge and 1.6% had inadequate knowledge.

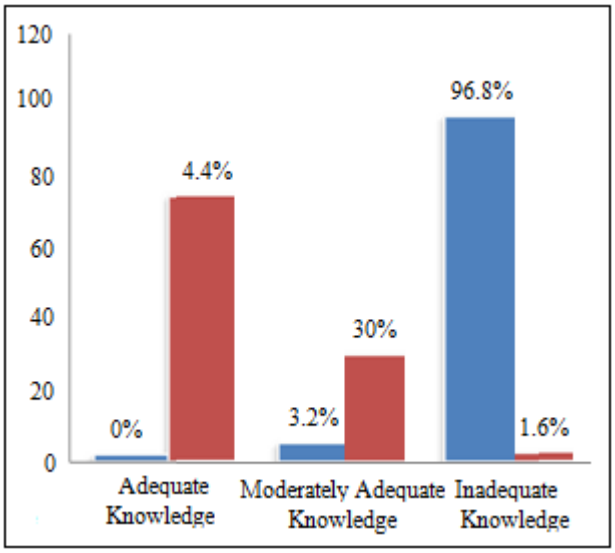

Figure 4.1: Shows that pre and posttest knowledge level in experimental group.

Table 4.4: Frequency and percentage of pretest, posttest knowledge of among family members of patient with lithium in control group

Knowledge Category	Score	% of score	Experimental Group			
			Pre test		Post test	
			No	%	No	%
Adequate	16 - 25	76 - 100	0	0	1	0.8
Moderately Adequate	10 - 15	50 - 75	10	8	51	40.8
Inadequate	< 10	< 50	115	92.0	73	58.4

It can be noted from the table 4.4., the assessment of knowledge among family members of patient with lithium therapy in control group. In pretest 92% of family members of patient with lithium therapy had inadequate knowledge, 8% had moderately adequate knowledge and none of them had inadequate knowledge. In the posttest 58.4% of family members of patient with lithium therapy had inadequate knowledge, 40.8% had moderately adequate knowledge and 0.8% had adequate knowledge.

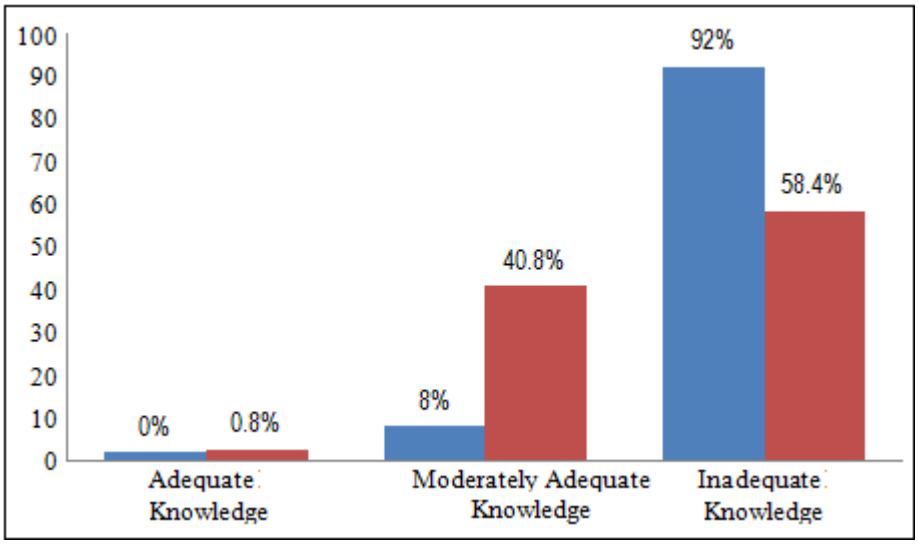

Figure 4.2: Show that pre and posttest level of knowledge in control group

Section IV: The effectiveness of psycho education on level of knowledge among family members of patients with lithium therapy in experimental and control group.

Table 4.5: Mean, standard deviation and 't' test value of effectiveness of psycho education among family members of patients with lithium therapy in experimental group

Variable	Pre test		Post test		Mean difference		't' value	df	sig
	Mean	SD	Mean	SD	Mean	SD			
Knowledge	6.2	2.4	18.2	2.9	12	3.1	42.784	124	P < 0.001

Table 4.5 states that, the pre and posttest knowledge score in experimental group. The pretest mean and standard deviation was 6.2 ± 2.4, posttest mean and standard deviation was 18.2 ± 2.9. The mean difference of pretest to post test score was 12.0 ± 3.1. The 't' test value was 42.784 mean difference was statistically very highly significant of p < 0.001. Hence the intervention psycho education is very effective for improving the knowledge of family members of patient with lithium therapy.

Table 4.6: Mean, standard deviation, 't' test value of effectiveness of psycho education among family members of patient with lithium therapy in control group

Variable	Pre test		Post test		Mean difference	't' value	df	sig
	Mean	SD	Mean	SD				
Knowledge	12.0	3.1	4.0	2.4	8.0	22.853	248	P < 0.001

Table 4.6 states the effectiveness of psycho education programme in control group. The pretest mean and standard deviation was 12.0 ± 3.1, posttest mean was 4.0 ± 2.4. The mean difference was 8.0. The 't' test score was 19.066. The difference between the mean from pretest to post test score was statistically highly significant at p < 0.001. Hence the intervention delivered by the ANM was not effective while comparing the experimental group.

Section V: The comparison of knowledge difference between experimental and control group among family members of patient with lithium therapy

Variable	Pre test		Post test		Mean difference	't' value	df	sig
	Mean	SD	Mean	SD				
Knowledge	12.0	3.1	4.0	2.4	8.0	22.853	248	P < 0.001

Table 4.7 states the comparison of knowledge score between the experimental and control group. The mean difference of experimental group was 12 ± 3.1 and control group was 4.0 ± 2.4. The difference between the mean score was 8.2. The 't' test value was 22.853. The difference between the mean was statistically very highly significant at p < 0.001.

Section VI: Association between the pretest level of knowledge and demographic variable age and knowledge level in experimental group.

Table 4.8: Frequency, percentage, chi-square value of demographic variable age in experimental group

Age in Year	< Median		Above Median		Total		x^2	df	sig
	f	%	f	%	f	%			
20 - 29	25	20	20	16	45	36	3.509	3	P=0.320
30 - 39	20	16	14	11.2	34	27.2			
40 - 49	20	16	9	7.2	29	23.2			
50 - 59	7	5.6	10	8	17	13.6			

Table 4.8 inferred that the association between pretest knowledge with demographic variable age of experimental group. There was no statistically significant association between pretest knowledge with age at p > 0.05.

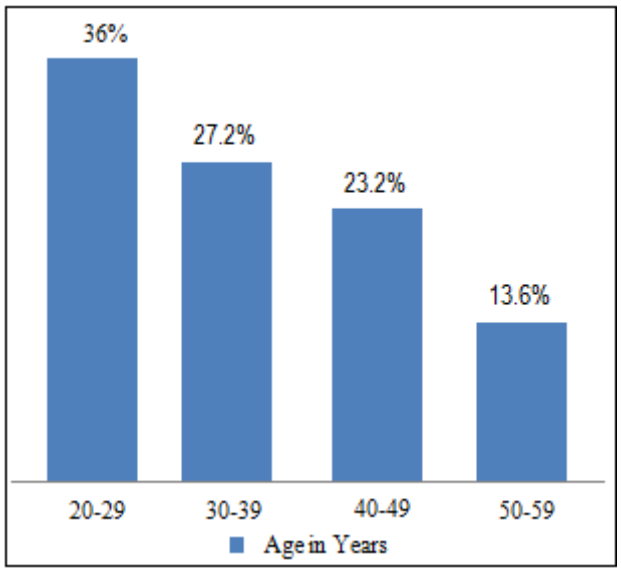

Figure 4.3 shows that pretest level of knowledge and demographic variable age in experimental group.

Table 4.9 states that the association between pretest level of knowledge with demographic variable sex in experimental group. There was no statistical significant association between pretest knowledge with sex at $p > 0.05$.

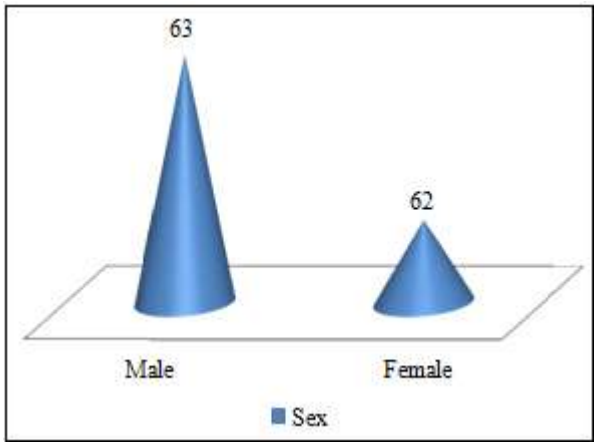

Figure 4.4: Shows that pretest level of knowledge and demographic variable sex in experimental group.

Table 4.9: Frequency, percentage and chi-square value of demographic variable sex and knowledge level of experimental group

Sex	Pre Test Knowledge						x^2	df	sig
	< Median		Above Median		Total				
	f	%	f	%	f	%			
Male	32	25.6	31	24.8	63	50.4	2.409	1	P=0.121
Female	40	3.0	22	17.6	62	49.6			

Table 4.10: Frequency, percentage and chi-square value of demographic variable, relationship with patient and knowledge level of experimental group

Relationship with patient	Pre Test Knowledge						x^2	df	Sig
	< Median		Above Median		Total				
	f	%	f	%	f	%			
Father	7	5.6	11	8.8	18	14.4	3.761	3	P=0.288
Mother	24	19.2	17	13.6	41	32.8			
Spouse	33	26.4	18	14.4	51	40.8			
Relation	8	6.4	7	5.6	15	12.0			

Table 4.10 shows that association between pretest level of knowledge and demographic variable relationship with patient. The result revealed that there was no statistically significant association between the pre test level of knowledge and relationship at $p > 0.05$

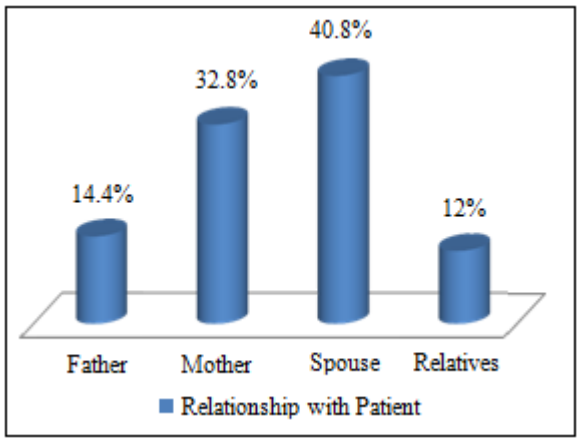

Figure 4.5: Shows the pre test level of knowledge and demographic variable (relationship with patient) in experimental group

Table 4.11: Frequency, percentage and chi-square value of demographic variable (education) and knowledge level of experimental group

Education	Pre Test Knowledge						X^2	df	sig
	< Median		Below Median		Total				
	f	%	f	%	f	%			
Primary School	10	8	6	4.8	16	12.8	0.270	3	P=0.966
High School	17	13.6	12	9.6	29	23.2			
Higher Secondary School	26	20.8	21	16.8	47	37.6			
Graduates	19	15.2	14	11.2	33	26.4			

It can be noted from the table 4.11 shows the association between the pre test level of knowledge and education. The result revealed that there was no statistical significant association between the knowledge with education of the family members at $p > 0.05$

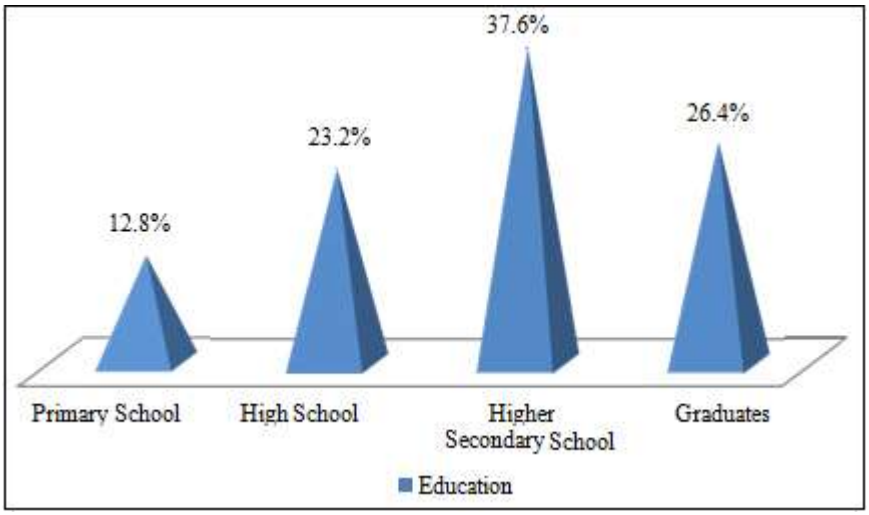

Figure 4.6: shows that pre test level of knowledge and demographic variable (education) in experimental group

Table 4.12: Frequency, percentage and chi-square value of pre test level of knowledge and demographic variable (income) of experimental group

Monthly Income	Pre test knowledge						X^2	df	sig
	<Median		Above Median		Total				
	f	%	f	%	f	%			
<Rs. 5000	13	10.4	10	8.0	23	18.4	1.279	3	P = 0.734
Rs. 5000 - Rs10000	29	23.2	17	13.6	46	36.8			
Rs. 10000 - Rs. 15,000	15	12.0	15	12.0	30	24.0			
Above Rs. 15,000	15	12.0	11	8.8	26	20.8			

The above table 4.12 shows that the association between pre test level of knowledge and demographic variable monthly income. The result revealed that there was no statistically significant association between the knowledge with income of the family members at $p > 0.05$.

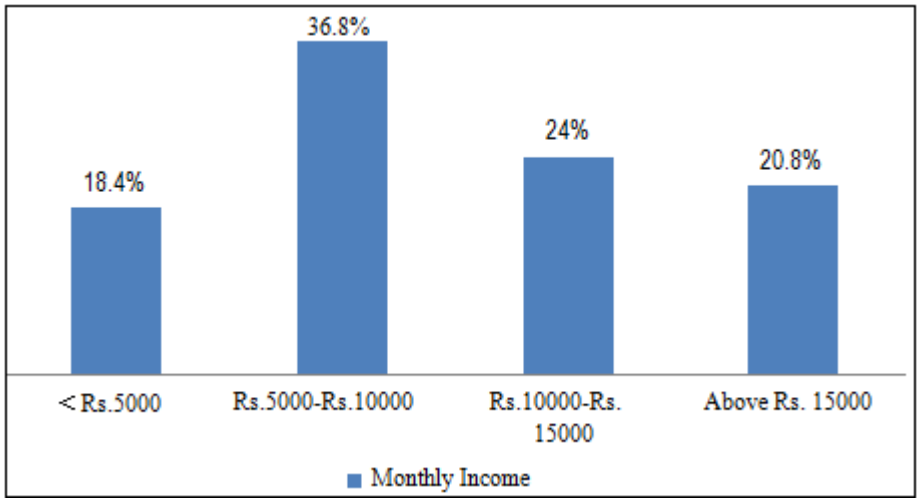

Figure 4.7: Shows that pre test level of knowledge and demographic variable (monthly income) in experimental group.

Table 4.13: Frequency, percentage and chi-square value of pretest level of knowledge and religion in experimental group

Religion	Pretest knowledge						X^2	df	sig
	< Median		Below Median		Total				
	f	%	f	%	f	%			
Hindu	25	20	33	26.4	58	40.4	9.815	3	P = 0.001
Christian	37	29.6	14	11.2	51	40.8			
Muslim	10	8	6	4.8	16	12.8			

Table 4.13 shows the association between the level of knowledge with religion. The result revealed that there was a statistically significant association between the knowledge and religion of the family members at $p < 0.05$.

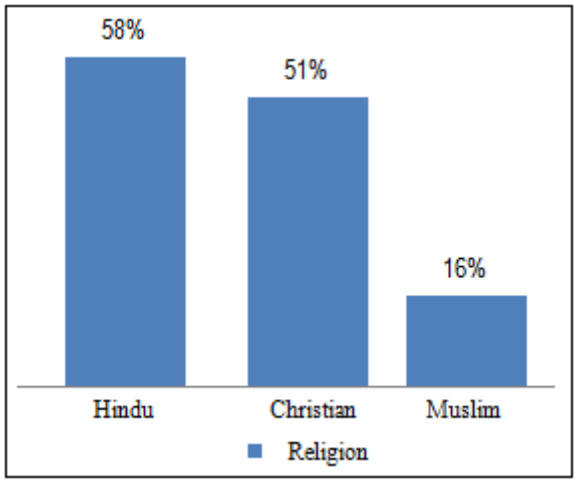

Fig 4.8 shows that pre test level of knowledge and demographic variable (Religion) in experimental group.

Table 4.14: Frequency, percentage and chi-square value of pretest knowledge and demographic variable occupation in experimental group

Occupation	Pretest knowledge						x2	df	sig
	< Median		Above Median		Total				
	f	%	f	%	f	%			
Coolie	21	18.8	15	12.0	36	28.8	2.591	3	P = 0.459
Government Employee	7	5.6	5	4.0	12	9.6			
Private Employee	38	30.4	32	25.6	70	56.0			
Unemployed	6	4.8	1	0.8	7	5.6			

Table 4.14 revealed that the association between pretest level of knowledge and occupation. There was no statistically significant association between the knowledge with occupation of the family members at $p > 0.05$.

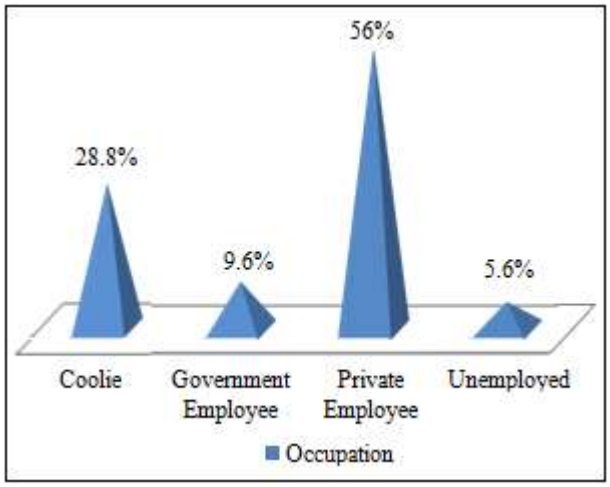

Fig 4.9 shows that pretest level of knowledge and demographic variable (occupation) in experimental group.

Table 4.15: Frequency, percentage and chi-square value of pretest knowledge and demographic variable (marital status) in experimental group

Marital Status	Pre test knowledge						X^2	df	sig
	< Median		Below Median		Total				
	f	%	f	%	f	%			
Married	53	42.4	37	29.6	90	72	0.219	1	P = 0.640
Unmarried	19	15.2	16	12.8	35	28			

Table 4.15 State that the association between knowledge with marital status of experimental group of family members. There was no statistically significant association between pre test knowledge with marital status at $p > 0.05$.

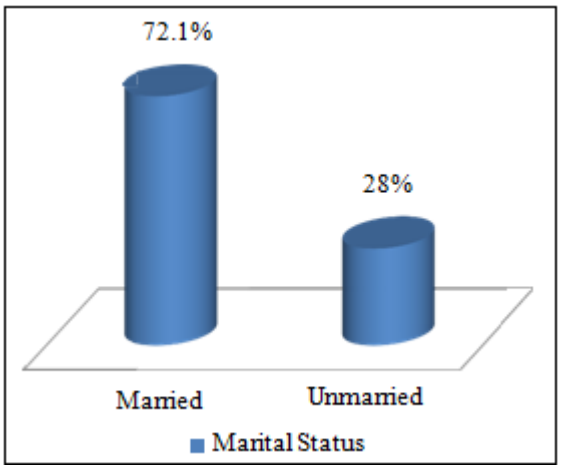

Fig 4.10 shows the pretest level of knowledge and demographic variable (marital status) in experimental group

Table 4.16: Frequency, percentage and chi-square value of Pretest knowledge and demographic variable (type of residence) in experimental group

Type of Residence	Pretest knowledge						x^2	df	sig
	< Median		Above Median		Total				
	f	%	f	%	f	%			
Rural	64	51.2	39	31.2	103	82.4	4.93	1	P = 0.026
Urban	8	6.4	14	11.2	22	17.6			

The table 4.16 states that the association between knowledge with residence of experimental group. There was statistically significant association between pre knowledge with residence at $p < 0.05$.

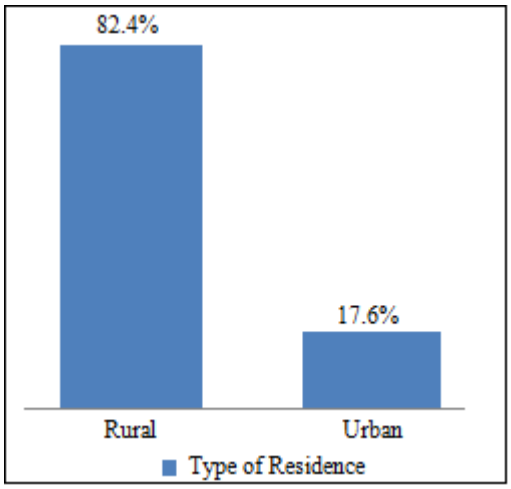

Figure 4.11: Shows the pretest level of knowledge and demographic variable (type of residence) in experimental group.

Table 4.17 Frequency, percentage and chi-square value of pre test knowledge score and demographic variables of control group

S. No	Demographic Variable	Pre test knowledge						X^2	df	sig
		< Median		Above Median		Total				
		f	%	f	%	f	%			
1	Age in years									
	20-29	15	12	13	10.4	28	22.4			
	30-39	16	12.8	14	11.2	30	24	0.352	2	P = 0.950
	40-49	16	12.8	18	14.4	34	27.2			
	50-59	17	13.6	16	12.8	33	26.4			
2	Sex									
	Male	47	37.6	36	28.8	83	66.4	2.911	1	P = 0.088
	Female	17	13.6	25	20	42	33.6			
3	Relationship with patient									
	Father	7	5.6	9	7.2	16	12.8			
	Mother	21	16.8	20	16.0	41	32.8	2.034	3	P = 0.565
	Spouse	33	26.4	26	20.8	59	47.2			
	Relatives	3	2.4	6	4.8	9	7.2			
4	Education									
	Primary School	9	7.2	11	8.8	20	16			
	High School	23	18.4	16	12.8	39	31.2	3.842	3	P = 0.279
	Higher Secondary School	22	17.6	17	13.6	39	31.2			
	Graduate	10	8	17	13.6	27	21.6			
5	Monthly Income									
	<Rs. 5000	27	21.6	18	14.4	45	36.0			
	Rs. 5000 - Rs1000	28	22.6	29	23.2	57	45.6	3.172	3	P = 0.366
	Rs. 1000 - Rs. 15,000	4	3.2	8	6.4	12	9.6			
	Above Rs. 15,000	5	4	6	4.8	11	8.8			
6	Religion									
	Hindu	34	27.2	28	22.4	62	49.6			
	Christian	21	16.8	25	20	46	36.8	0.916	2	P = 0.633
	Muslim	9	7.2	8	6.4	17	13.6			
7	Occupation									
	Coolie	11	8.8	5	4.0	16	12.8			
	Government Employee	7	5.6	9	7.2	16	12.8	3.418	3	P = 0.331
	Private Employee	31	24.8	36	28.8	67	53.6			

	Unemployee	15	12	11	8.8	26	20.8			
8	Marital Status									
	Married	50	40	46	36.8	96	78.8			
	Unmarried	14	11.2	15	12	29	23.2	0.129	1	P = 0.719
9	Type of Residence									
	Rural	55	44	47	37.6	102	81.6			
	Urban	9	7.2	14	11.2	23	18.4	1.643	1	P = 0.200

The above table 4.17 showed that there was no significant association between pretest level of knowledge and demographic variables among family members of patient with lithium therapy such as age (x^2= 0.352), sex (x^2= 2.911), relationship with patient (x^2= 2.034), education (x^2= 3.842), monthly income (x^2= 3.172), religion (x^2= 0.916) occupation (x^2= 3.418), marital status (x^2= 0.129) and type of residence (x^2= 1.643) at p> 0.05 level of significant in control group.

7. Discussion

The present study has been done to assess the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patients with lithium therapy in experimental and control group. The findings are discussed according to the objectives and hypotheses which is presented below.

7.1 Description of demographic variables

The data presented in table 4.1 showed that, 36% were between the age group of 20- 29 years, 27.2% were between the age group of 30-39 years, 23.2% were between the age group of 40-49 years and 13.6% were between the age group of 50-59 years in the experimental group.

In control group 22.4% were between the age group of 20-29 years, 24% were between the age group of 30-39 years, 27.2% were between the age group of 40-49 years and 26.4% were between the age group of 50-59 years.

Regarding sex 63% were male and 63% were female in experimental group, where as in control group majority 83% were male and 42% were female.

Based on the relationship with the patient, In experimental group 14.4% of family members were father, 32.8% of family members were mother, 40.8% of family members were spouse and 12% of family members were relatives. In control group 12.8% of family members were father, 32.8% of family members were mother, 47.2% of family members were spouse and 7.2% of family members were relatives.

Regarding education, In experimental group 12.8% were had primary school education, 23.2% were had high school education, 37.6% were had higher secondary school education and 26.4% were graduates. In control group 16% were had primary school education, 31.2% were had high school education, 31.2% were had higher secondary school education had 21.6% were graduates.

With regard to monthly income 18.4% were have family monthly income below Rs. 5000/- 36.4% were have family monthly income between Rs. 5000/- to Rs, 10,000/- 24% werehavethefamilymonthlyincomebetweenRs.10,000/-toRs.15,000/-and2.8%were have the family monthly income above Rs. 15,000/- in experimental group. In the control group 36% were have the family monthly income below Rs. 5000/- 45.6% were have the family monthly income between Rs. 5000 to Rs.10,000/- 9.6% were have the family monthly income between Rs. 10,000/- to Rs. 15,000/- and 8.8% were have the family monthly income above Rs. 15,000/-.

With regard to religion 46.4% were Hindu, 40.8% were Christian and 12.8% were Muslims in experimental group., where as in control group 62% were Hindu, 46% were Christian and 17% were Muslim.

Based on the occupation, in experimental group 28.8% were coolie workers, 9.6% were government employees, 56% were private employees and 2% were unemployed. In the control group 12.8% were coolie workers 12.8% were government employees, 53.6% were private employees and 20.8% were unemployed.

Regarding marital status, majority 42% were married and 28% were unmarried in the experimental group, whereas in the control group 46.8% were married, 23.2% unmarried.

Based on the type of residence, 82.4% majority were lived in rural area and 17.6% were lived in urban area, in the experimental group. In the control group 81.6% were lived in rural area and 18.4% were lived in urban area.

7.2 Description of clinical variables

The description of clinical variable among family members of patients with lithium therapy. Regarding family History of mental illness in the experimental group 40.8% were had the family history and 59.2% were had no family history. In the control group 40% had the family history of mental illness and 60% were have no family history of mental illness.

With regard to history of substance abuse. In the experimental group 51.2% had history of substance abuse and 48.8% were had no history of substance abuse. In control group 60% had history of substance abuse and 48.8% had no history of substance abuse.

Based on the duration of taking lithium. In the experimental group 39.2% were taking lithium less than months, 32.8% were taking lithium 6 months to 1 year and 28% were taking lithium more than 1 year. In control group 37.6% were taking lithium below 6 months, 32.8% were taking lithium up to 6 months to 1 year and 29.6% were taking lithium more than 1 year.

With regard to symptoms related to lithium therapy, In

experimental group 42.4% were developed the symptoms of hand tremors, 25.6% were developed the symptoms of nausea, 23.2% were developed the symptoms of thrust and excess urination and 8.8% were developed the symptom of anorexia.

In control group 16.4% were developed the symptom of hand tremor, 26.4% were developed the symptoms of nausea, 19.2% were developed the symptoms of thrust and excess urination and 8% were developed the symptoms of anorexia.

Regarding co morbidity, In experimental group 18.4% were known case of ocabetes, 28% were known case of Hypertension, 15.2% were known case of coronary artery disease and 38.4% were no comorbidity. In control group 27.2% were known case of Diabetes, 15.2% were known case of Hyper tension, 10.4% were known case of coronary artery disease and 47.2% were no comorbidity. The difference between the two groups were statistically just significant at P <0.05.

Section III: Pre test, Post test assessment of knowledge among family members of patient with lithium therapy in experimental and control group.

The first objective is to assess the pre test knowledge of family members regarding lithium therapy in experimental and control group. Data presented in table 4.3, 4.4 shows that, the pre test assessment of knowledge on family members of patient with lithium therapy. In the pre test (3.2%) had moderately adequate knowledge and (96.8%) had inadequate knowledge in the experimental group; whereas in the control group majority (92%) had inadequate knowledge and (8%) had moderately adequate knowledge and none of them had adequate knowledge.

The above findings are supported by a study conducted by Ahadirianetal (2009) on "to evaluate the psycho educational interventional outcome in mood disorder patient and their relatives in Iran. Seventeen relatives of mood disorder patient attended at 8 sessions (each 90 min) of family psycho educational group therapy. Relatives knowledge about mood disorder and their adaptation level were assessed using understanding mood disorder questionnaire and family assessment device before and after the group intervention in two groups. The relatives knowledge about mood disorders was significantly improved. These finding showed that family psycho educational intervention in relatives of Iranian mood disorder patients, improve their knowledge about the illness and the adaptation level in family is increased.

The second objective is to assess the post-test knowledge of family member regarding lithium therapy in experimental and control group. It can be inferred from the table 4.3 and 4.4 showed that, In the experimental group the post test knowledge score was 74.4% had adequate knowledge, 24% had moderately adequate knowledge, 1.6% had inadequate knowledge, where in control group 1% had adequate knowledge. 40.8% had moderately adequate knowledge and 58.4% had adequate knowledge.

The above findings were supported by a study conducted by David etal (2003) on "family focused psycho education and pharmacotherapy in the outpatient management of bipolar disorder. In this study participant were referred from in patient or outpatient clinical after a manic or depressed episode.

The family focused therapy consisted of 21 session of psycho education communication training and problem solving skill training. Patient undergoing FFT showed greater reduction in mood disorder symptoms and better medication adherence combining family psych education with pharmacotherapy enhances the post episode symptomatic adjustment and drug adherence of bipolar patients.

Rea MM, Tompson MC, Miklowitz DJ, Goldstein MJ, Hwang S, Mintz J. (2006) conducted a study on Family-focused treatment versus individual treatment for bipolar disorder. The recently hospitalized bipolar, manic patients (N=53) were randomly assigned to a 9 months, manual based, family focused psycho-educational therapy (n=28) or to an individually focused patient treatment (n=25). All patients received concurrent treatment with mood stabilizing medications, structured follow up assessment were conducted at 3-month interval for a 1 year period of active treatment and a 1year period of post treatment were less likely to be re-hospitalized during the 2 year study period. Patient in family treatment also experienced fewer mood relapses over the 2 years, although they did not differ from patient in individual treatment in their likelihood of a first relapse. The result suggested that family psycho education treatment is a useful adjunct to pharmacotherapy in decreasing the risk and hospitalization frequently associated with bipolar disorder. The third objective was to find out the effectiveness of psycho- education on Lithium therapy of family members in experimental group.

This was represented by the research Hypothesis (H_1) there will be a significant difference between knowledge of family members regarding lithium therapy before and after psycho education intervention programme.

The table 4.5 and 4.6 shows that effectiveness of psycho education on level of knowledge among the family members of patient with lithium therapy in experimental group. In experimental group the psycho education was delivered by the investigator. The pre test knowledge score of mean and deviation was 6.2 ± 2.4, the same score was after administration of psycho education was 18.2 ± 2.9. The mean difference between pre test and post test knowledge score was 12.0 ± 3.1. The 't' test value was 42.784, and this shows that difference between the mean of the experimental group was very highly significant at p<0.001. Therefore it was noted from the above findings the psycho education delivered by the investigator had significant effect on improving the knowledge of the family members of patient with lithium therapy.

It can be depicted from the table 4.6 showed that effectiveness of psycho education of level of knowledge among family members of patient with lithium therapy in control group.

In control group the psycho education is delivered by ANM staff. The pre test knowledge score of mean and standard deviation was 6.6 ± 2.5 and the same was after administration of psycho education was 10.6 ± 2.2. The mean difference between the pre test and post test score was 4.0 ± 2.4. The 't' test value was 19.066 and this shows the difference between the mean of the two group were very highly significant at P<0.001.

Hence the statistical analysis proved that the psycho education has improved the family members knowledge level in experimental group than the control group at p <0.001 level. Thus the research Hypothesis (H_1) there will be a significant difference between knowledge of family members regarding lithium therapy before and after psycho education intervention programme was accepted.

The fourth objective was to compare the pre test and post test score between the experimental and control group.

This was represented by the research hypothesis (H_2) there will be a significant difference in the knowledge gained by the family member through the psycho education delivered by the different health professionals regarding lithium therapy.

It was noted from the table 4.7 showed that comparison of knowledge scores of family members between the experimental and control group. In the experimental group the mean difference and standard deviation was 12 ± 3.1 and in the control group 4.0 ± 2.4. The difference between the mean of two group is 8.0. The 't' value is 22.853 the mean difference in experimental group was very highly significant than control group. Thus it infers from the table the psycho-education delivered by the investigator is better than the ANM staff.

Hence the statistical analysis proved that the psycho education is very effective in improving the knowledge of the family members. Thus the research Hypothesis (H_2) there will be a significant difference in the knowledge gained by the family members through the psycho education delivered different health professionals regarding lithium therapy was accepted.

The above findings were supported by a study conducted by Dogan (2003) on "effect of education on medication compliance, symptom level and quality of life of outpatient who were being treated with lithium for bipolar disorder". The study was performed comparing a total of 26 patients (14 for study group and 12 were control group) who were under lithium therapy. In this study one group was given a short education programme about the disorders of lithium therapy in three sessions. Data were collected from both groups using a medication knowledge form, brief symptom and WHO quality of life scale before and after intervention. At the end of the 3 months whereas there was no difference seen the scores of the control group. The study group (experimental group) had an increase in medication knowledge, a decrease in symptom level and increase in quality of life. Findings of the study showed that the psycho education will increase the adaptation to society of patients who have bipolar disorder. The fifth objective was to find out the association between pretest knowledge of family members regarding lithium therapy and selected demographic variables.

This was represented by research hypothesis (H_3) there will be a significant association between knowledge of family member and selected demographic variables. (Table 4.8 to 4.16) shared that there was no significant association between pre test level of knowledge and demographic variables age (x^2= 3.509), sex (x^2= 2.409), relationship with patient (x^2= 3.761), education (x^2= 0.270), monthly income (x^2= 1.279), occupation (x^2= 2.591), marital status (x^2= 0.219) except religion (x^2=9.815) and type of residence (x^2= 4.930) in experimental group at p <0.05.

Table 4.17 showed that there was no significant association between the pre test knowledge of family members and selected demographic variables. Such as age (x^2= 0.352), sex (x^2= 2.911), relationship with patient (x^2= 2.034), education (x^2= 3.842), monthly income (x^2= 3.172), religion (x^2= 0.916), occupation (x^2= 3.418), marital status (x^2= 0.129) and type of residence (x^2= 1.643) in control group at p < 0.05.

Hence the above stated hypothesis (H_3) there will be a significant association between the knowledge of family members and selected demographic variables is partially accepted.

8. Summary, Conclusion, Implication, Recommendation and Limitation

This chapter present a brief summary of the study, major findings, recommendations and conclusion drawn. It also gives the implications for nursing practice, nursing education, nursing administration and nursing research. The present study was aimed to assess the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patients getting lithium therapy at sneka mind care centre.

8.1 Summary

A sound mind in a sound body has been recognized as a social ideal for many centuries. Mental health is a state of balance between the individual and the surrounding world, state of hormony between oneself and others as co-existence between the realities of the self and that of other people and the environment. Mental illness is oral adjustment in living. It produces a disharmony in the person's ability to meet human needs comfortably or effectively and function within a culture. Bipdar disorder is a severe mood disorder characterized by recurrent mania or hypomania and depressive episodes. The prevalence of mania among > 65 years olds ranges from 0.1% to 0.4% and its treatment is a particular challenge for clinicians. Although lithium is the treatment of choice for bipolar disorder. (Fazio, Gaetano, Caoleo, Pavia, Sarro, Fagiolini, Garcia, 2017).

Psycho education is considered as the best method of providing knowledge to client and family members about lithium therapy. Lithium out as mood stabilizer by enhancing the level of stability of serum lithium levels. Data

also suggests that group psycho education may be associated with an increase in the quality of life, both in terms of general satisfaction and in relation to levels of physical functioning.

Proposed Topic of Research

A Quasi experimental study to assess the effectiveness of psycho education delivered by different health professionals on knowledge among family members of patients with lithium therapy at sneak a mind care centre, Thirunelveli

Objectives

1) To assess the pre test knowledge of family members regarding lithium therapy in experimental and control group.
2) To assess the post test knowledge of family members regarding lithium therapy in experimental and control group.
3) To find out the effectiveness of psycho education on lithium therapy of family members in experimental group.
4) To compare the pre test and post test knowledge of family members regarding lithium therapy between experimental and control group.
5) To find out the relationship between pre test knowledge of family members regarding lithium and selected demographic variables.

Research Hypotheses

1) There will be a significant difference between knowledge of family members regarding lithium therapy before and after psycho education intervention programme.
2) There will be a significant difference in the knowledge gained by the family members through the psycho education delivered by different health professionals regarding lithium therapy.
3) There will be a significant association between knowledge of family members and selected demographic variables.

The conceptual frame work for the present study was based on J.W. Kemy's open system model, which guided the investigator to help the family members to gain adequate knowledge about lithium therapy. A quasi experimental design was adopted for the study the independent variable was psycho education on lithium therapy and the dependent variables was level of knowledge. The study was conducted for a period of one year. Two hundred and fifty family members of patients with lithium therapy, who fulfilled the inclusion criteria, were selected for the study knowledge was assessed by structured knowledge questionnaire regarding lithium therapy. The tool was validated by experts in various field of Nursing, Medicine and Statistician.

Purposive sampling technique was used to select the sample subjects. The sample size was estimated by power analysis. The sample size was 125 for each group (experimental and control group). The psycho education was delivered by the investigator to experimental group and for control group psycho education was delivered by ANM for 30 minutes. The investigator adhered to human right beneficence and non malfeasance, dignity, confidentiality and justice.

Mean, percentage and standard deviation were used to explain the demographic variables, chi-square test was used to measure the association of demographic variables in the experimental and control group. Mean, Standard deviation and paired 't' test, independent 't' test were used to assess and compare the effectiveness of psycho education among family members of patient with lithium therapy with and between experimental and control group. The reliability of the tool was tested by test retest method. The r value was more than 0.8, so that the tool is reliable.

The major finding of the study

- In the assessment of level of knowledge among family members of patient with lithium therapy in experimental group it was found that, in the pre test 96.8% family members had inadequate knowledge, 3.2% family members had moderately adequate knowledge and none of family members had adequate knowledge. In the post test 74.4% family members had adequate knowledge and 24% family members had moderately adequate knowledge and 1.6% family members had inadequate knowledge in the experimental group.
- While assessing the level of knowledge among family members of patient with lithium therapy in control group. In the pre test 92% of family members had inadequate knowledge and 8.0% of family members had moderately adequate knowledge and none of them had adequate knowledge. In the post test 58.4% of family members had inadequate knowledge, 40.8% of family members had moderately adequate knowledge and 0.8% had adequate knowledge.
- It is evident from the findings of the study that the mean score and standard deviation of pre test knowledge score was 6.2 ± 2.4 and after administration of psycho education the knowledge score was 18.2 ± 2.9. The mean difference was 12 ± 3.1 and the 't' test value was t = 42.784 and this is greater than the table value at $p < 0.001$. This reveals that there is a significance difference in pre test and post test score in experimental group.
- The findings of the study reveals that the pre test mean and standard deviation knowledge score of family members of patient with lithium therapy in control group was6.6±2.5,the same after administration of psycho education post test score was 10.6 ± 2.2. The mean difference was 4 ± 2.4 and the 't' test value was 19.066 and this is greater than the table value at $p < 0.001$. This reveals that there is a significance difference in pre test and post test.
- The findings of the study shows that while comparing the knowledge among family members of patients with lithium therapy in experimental group and control group. The mean and standard deviation of experimental group was 12 ± 3.1 and control group was 4 ± 2.4. The mean difference was 8 and 't' test value was t = 22.853. The mean reduction of experimental group was highly significant than the control group.
- There is no significant association between pre test level of knowledge among family members of patient with lithium therapy and selected demographic variables such as age, sex, type of relationship, education, monthly income, occupation and marital

status except religion and type of family in experimental group.
- There is no significant association between pre test level of knowledge among family members of patient with lithium therapy and selected demographic variable such as age, sex, type of relationship with patient, education, monthly income, occupation, marital status, religion and type of family in control group.

Nursing Implication
- Nurse can provide health education in addition to other nursing intervention.
- Health education is a cost effective and easy to administer.
- Nurses those who were working community area should be equipped with knowledge to take care of patient with lithium therapy.
- Nurse can educate the family members regarding lithium therapy and its side effects and how to take care of patients while on lithium toxicity.

Nursing Education:
- Nurse educator can formulate health educative materials on lithium therapy to educate the nurses.
- The update nursing curriculum should emphasize more on lithium therapy and there advantages.
- In service education, continuing nursing education may be organized periodically for nurses to update the knowledge and skills in various type of lithium therapy and its toxicity.
- Community health nurse can conduct mass health education programme on lithium therapy in community settings.
- Organize periodical short session to educate and train how to handle the patient is on lithiumtoxicity.

Nursing Administration
- Nurse administrator need to facilitate the utilization of research based nursing intervention in lithium therapy and formulate policies and necessary changes in the institution.
- Seminars, workshops, conference and symposium can be arranged on lithium therapy to make nursing professionals competent enough to meet the ever changing needs of the society and how to take care of patient in lithium toxicity.
- Provide health education regarding lithium therapy to other setting such as psychiatric rehabilitation centres.

Nursing Research
- A similar study can be conducted in various setting.
- Similar study can be done with large sample size which help to generalize the findings.
- A study can be conducted to assess the association between quality of life and psycho education on lithium therapy.
- A longitudinal study can be conducted to assess the effectiveness of psycho education on level of knowledge among family members of patient with lithium therapy.

Nursing Recommendation
- A similar study can be replicated on large sample using probability sampling technique.
- A study can be conducted to find out the knowledge of nurses regarding importance of psycho education on lithium therapy.
- Nursing research can be conducted on effectiveness of psycho education on other psycho pharmacological drugs among family members.

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Appendix - VIII
Section A

Demographic Data

1) Age

a) 20 -30 ☐
b) 21 -40 ☐
c) 41 -50 ☐
d) 51 -60 ☐

2) Sex

a) Male ☐
b) Female ☐

3) Relationship with Patient

a) Father ☐
b) Mother ☐
c) Wife ☐
d) Relatives ☐

4) Education

a) Primary ☐
b) High School ☐
c) Higher Secondary ☐
d) Graduate ☐

5) Education

a) Below Rs.5,000 ☐
b) Rs. 5001 - 10,000 ☐
c) Rs. 10,001 - 15,000 ☐
d) Above Rs. 15,000 ☐

6) Religion

a) Hindu ☐
b) Christian ☐
c) Muslim ☐

7) Occupation

a) Coolie ☐
b) Government Employee ☐
c) Private Employee ☐
d) Unemployed ☐

8) Marital Status

a) Married ☐
b) Unmarried ☐

9) Residence

a) Rural ☐
b) Urban ☐

Clinical Variables

1) Family History of Mental illness

a) Yes ☐
b) No ☐

2) History of substance abuse

a) Yes ☐
b) No ☐

3) Duration of taking Lithium

a) Below 6months ☐
b) 6 months to 1year ☐
c) Above 1year ☐

4) Symptoms related to Lithium drug

a) Hand tremors ☐
b) Nausea ☐
c) Increased thirst and urination ☐
d) Anorexia ☐

5) Co-Morbid Disease

a) DM ☐
b) HT ☐
c) CAD ☐
d) No Disease ☐

Questionnaire to Assess Knowledge regarding Lithium Therapy

Choose the correct Answer and put (✓) mark in the box
Answer all the Questions

1) Lithium is used to treat

a) Cardiac disorder ☐
b) Mood disorder ☐
c) Respiratory disorder ☐
d) Renal disorder ☐

2) To prevent Lithium Toxicity Lithium must be taken at

a) Same time daily ☐
b) Only one-time daily ☐
c) More time daily ☐
d) Different time daily ☐

3) Avoid Lithium use with

a) Pregnancy ☐
b) Sodium restricted diet ☐
c) Dehydration ☐
d) All the above ☐

4) The following are the signs and symptoms lithium toxicity except

a) Tremors ☐
b) Convulsions ☐
c) Cough ☐
d) Nephrotoxicity ☐

5) Depletion of sodium during lithium therapy leads to

a) Diabetes mellitus ☐
b) Lithiumtoxicity ☐
c) Anemia ☐
d) Asthma ☐

6) When the client is having the signs and symptoms of lithium toxicity the management is

a) Discontinue the drug immediately ☐
b) Continue the drug for 2days ☐
c) Add less amount of salt ☐
d) Decrease intake of fluids ☐

7) Lithium is absorbed through

a) Kidney ☐
b) Pancreas ☐
c) Gastro intestinal system ☐
d) Liver ☐

8) Prerequisite for Lithium therapy is

a) X-ray and scan ☐
b) Sputum and stool examination ☐
c) Renal and thyroid function test ☐
d) Liver function test ☐

9) One of the side effects of Lithium therapy is

a) Brain tumour ☐
b) Hypothyroidism ☐
c) Fracture ☐
d) Cancer ☐

10) During lithium therapy fluid intake per day is about

a) 1000ml -1500ml ☐
b) 1500ml -2000ml ☐
c) 2000ml -2500ml ☐
d) 2500ml -3000ml ☐

11) Precautions taken by client during Lithium therapy is

a) Not to drive vehicles ☐
b) Not to operate machines ☐
c) Avoid alcohol ☐
d) All the above ☐

12) Lithium should not be continued for more than

a) 2years ☐
b) 3year ☐
c) 4 months ☐
d) 5years ☐

13) Lithium therapy is contraindicated to

a) Constipation ☐
b) Renal Failure ☐
c) Pneumonia ☐
d) Stomatitis ☐

14) To prevent GI disturbances, administer lithium along with

a) Salt ☐
b) Ginger ☐
c) Sugar ☐
d) Foods ☐

15) The blood sample for estimation of Lithium is taken how much hours after last Lithium dose

a) 2hours ☐
b) 4hours ☐
c) 12 hours ☐
d) 24 hours ☐

16) During Lithium therapy blood Lithium estimation should be carried out for

a) Every 4weeks ☐
b) Every 6weeks ☐
c) Every 8weeks ☐
d) Every 10weeks ☐

17) Elimination of Lithium is through

a) Skin ☐
b) Lungs ☐
c) Bowels ☐
d) Kidneys ☐

18) During Lithium Therapy avoid excessive intake of

a) Coffee, tea and colas ☐
b) Water and Juices ☐
c) Fruits and Vegetables ☐
d) Wheat and nuts ☐

19) During lithium therapy decrease the intake of calories to prevent

a) Weight gain ☐
b) Vomiting ☐
c) Diarrhea ☐
d) Fatigue ☐

20) If the clients have dry mouth and thirst provide

a) High calorie diet ☐
b) More coffee or tea ☐
c) Frequent sips of water ☐
d) Low protein diet ☐

21) If the client is having side effects during lithium therapy

a) Consult the physician ☐
b) Decrease the dose of drug ☐
c) Decrease fluid intake ☐
d) Provide adequate rest ☐

22) White stopping lithium therapy

a) Stop lithium suddenly ☐
b) Increase the dose ☐
c) Stop lithium gradually ☐
d) Start other medications ☐

23) Signs and symptom of lithium toxicity includes

a) Constipation, dry mouth, drowsiness ☐
b) Dizziness, thirst, dysuria, arrhythmias ☐
c) Ataxia, tinnitus, blunned vision, diarrhea ☐
d) Ataxia, Muscle weakness, nausea and vomiting ☐

24) Contra indication of lithium are

e) Renal diseases ☐
f) Thyroid diseases ☐
g) Pregnancy ☐
h) All the above ☐

25) ____indicates lithium toxicity

i) 0.8 to 1.2 mEq/L ☐
j) 0.8 to 1.5 mEq/L ☐
k) 0.6 to 1.0 mEq/L ☐
l) More than 2.0mEq/L ☐

Scoring

A score of 'one' will be allotted for every correct answer and score 'zero' was allotted for every wrong answers. The total attainable score for the knowledge items was 22. The score was converted into percentage and was ranged as follows

Adequate Knowledge - 76 - 100
Moderate Knowledge - 50 - 70
Inadequate Knowledge - < 50

Clinical Variables for Control Group

Sample No	Family History of Mentalillness	History of Substance abuse	Duration of taking Lithium	Symptoms related to LithiumDry	Co-Morbid Disease
1	2	2	3	1	1
2	1	1	3	1	1
3	2	2	2	2	4
4	1	1	1	3	4
5	1	1	1	1	4
6	1	2	3	1	3
7	2	1	2	4	4
8	1	1	3	1	1
9	2	2	3	2	3
10	1	1	1	2	4
11	2	2	3	3	4
12	2	2	1	1	1
13	1	1	2	1	1
14	2	1	3	14	1
15	1	2	1	3	2
16	2	1	2	3	4
17	1	1	1	3	4
18	2	1	3	2	2
19	2	2	3	2	3
20	2	2	2	1	4
21	1	1	1	1	4
22	1	2	1	1	4
23	1	2	3	2	4
24	2	1	2	1	1
25	1	1	1	2	1
26	2	2	2	2	1
27	1	1	3	1	2
28	2	2	1	2	4
29	1	1	2	2	4
30	1	1	3	1	4
31	2	2	1	3	1
32	2	2	2	1	2
33	2	2	3	2	4
34	1	1	2	3	4
35	2	1	3	3	3
36	2	1	3	2	4
37	2	1	1	2	1
38	1	2	2	1	1
39	2	2	3	1	2
40	1	2	1	2	4
41	1	2	1	1	4
42	2	1	3	4	4
43	1	2	2	3	4
44	2	2	1	1	3
45	2	1	3	1	1
46	2	1	2	2	1
47	2	2	1	1	2
48	2	2	1	2	1
49	2	2	1	3	1
50	1	1	3	1	2
51	1	2	2	4	4
52	2	1	3	3	3
53	2	1	2	1	4
54	2	1	1	1	4
55	2	2	2	4	4
56	1	2	2	3	4
57	1	1	3	2	1
58	2	2	1	2	1
59	2	2	2	1	3
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62	2	2	1	2	4
63	2	2	3	1	3
64	1	1	2	1	2
65	1	2	1	2	1
66	2	1	2	2	1
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68	2	2	2	1	4
69	2	2	3	2	2
70	1	1	2	1	4
71	1	1	2	1	1
72	1	1	1	3	1
73	2	2	3	1	4
74	2	1	2	1	4
75	2	1	1	2	4
76	2	2	1	3	3
77	1	1	3	2	2
78	2	1	3	4	1
79	2	1	2	3	1
80	2	2	1	1	4
81	2	1	2	1	4
82	2	2	3	1	2
83	1	2	2	2	1
84	1	1	1	3	1
85	2	2	2	3	1

86	1	1	1	1	3
87	1	1	3	1	2
88	2	2	1	3	1
89	2	2	2	2	2
90	2	1	2	1	4
91	1	2	1	4	4
92	1	1	3	1	4
93	2	2	2	1	1
94	2	1	1	2	4
95	2	2	2	3	4
96	2	2	1	1	2
97	2	1	1	1	1
98	2	1	1	1	2
99	2	1	2	1	3
100	2	2	3	2	3
101	1	2	1	3	4
102	1	1	2	1	4
103	1	1	1	1	4
104	2	1	1	4	2
105	2	2	3	1	2
106	2	2	3	1	1
107	1	1	1	2	4
108	2	1	2	4	4
109	1	2	1	3	4
110	2	1	1	1	4
111	2	2	3	2	4
112	2	2	1	1	4
113	2	1	2	1	2
114	1	2	2	1	4
115	1	2	1	3	4
116	2	1	1	4	4
117	2	2	2	2	4
118	2	1	1	1	1
119	1	1	3	1	4
120	1	1	1	1	4
121	1	2	3	2	3
122	1	2	2	1	1
123	2	1	3	1	4
124	1	2	1	3	2
125	1	2	2	3	1

Clinical Variables of Experimental

Sample No	Family History of Mental illness	History of Substance abuse	Duration of taking Lithium	Symptoms related to lithium dry	Co-Morbid Disease
1	2	2	1	1	1
2	1	2	1	1	2
3	1	2	2	3	2
4	2	1	1	2	4
5	2	1	3	1	1
6	2	2	1	1	2
7	1	2	1	3	2
8	1	2	1	2	4
9	2	2	2	1	4
10	1	1	2	1	4
11	2	1	3	3	4
12	2	2	1	2	4
13	2	1	2	1	1
14	1	2	3	1	2
15	2	1	2	3	4
16	2	1	3	1	1
17	2	1	3	3	1
18	1	2	2	3	1
19	1	1	1	2	4
20	2	1	1	1	4
21	1	2	1	1	4
22	2	1	2	2	3
23	2	1	1	1	2
24	1	2	3	2	2
25	1	2	3	2	1
26	1	1	1	3	1
27	2	2	2	1	1
28	1	2	3	3	4
29	2	1	2	3	4
30	1	1	2	2	4
31	2	1	1	2	3
32	2	2	3	1	2
33	2	1	2	1	2
34	2	1	1	1	4
35	1	2	2	3	3
36	2	2	1	1	1
37	2	1	1	3	1
38	2	1	1	2	2
39	1	1	2	2	4
40	2	2	3	1	4
41	2	2	3	3	3
42	2	1	1	2	2
43	1	1	3	1	4
44	2	1	2	3	4
45	2	2	3	3	2
46	2	2	2	1	4
47	2	1	2	3	3
48	1	1	1	3	2
49	1	1	3	1	2
50	2	2	3	4	4
51	2	1	2	1	4
52	2	2	1	4	3
53	2	2	2	1	4
54	2	1	1	4	4
55	1	1	3	2	3
56	2	2	3	4	2
57	2	2	2	3	1
58	1	2	2	3	4
59	1	2	1	3	4
60	2	2	1	2	3
61	2	1	1	2	1
62	2	1	1	1	1
63	1	2	2	1	2
64	2	1	1	1	3
65	2	2	1	1	4
66	2	2	3	2	4
67	2	1	3	1	4
68	2	1	2	1	3
69	1	2	1	1	2
70	1	2	2	4	1
71	1	2	2	3	2
72	2	1	1	2	2
73	1	1	3	1	4
74	1	2	1	1	4
75	2	1	1	2	3
76	1	2	3	3	2
77	1	2	2	4	2
78	1	1	1	2	1
79	2	1	3	1	2
80	1	2	3	1	2

81	2	2	1	2	3
82	2	2	2	2	4
83	1	1	3	1	4
84	2	1	1	3	4
85	1	1	1	4	4
86	2	1	2	1	4
87	2	2	1	3	4
88	1	2	1	4	3
89	1	2	2	2	2
90	1	1	3	2	1
91	2	2	3	1	2
92	2	2	2	1	2
93	1	1	3	1	2
94	1	1	1	2	3
95	1	1	1	3	4
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99	2	1	1	1	1
100	1	1	2	4	2
101	2	2	2	3	2
102	1	2	1	2	4
103	2	2	1	1	1
104	1	2	2	3	4
105	2	1	3	4	4
106	2	1	3	2	3
107	2	1	2	2	4
108	1	1	2	1	4
109	1	2	1	1	2
110	2	1	2	3	2
111	2	1	1	1	1
112	1	2	1	1	4
113	2	2	2	4	3
114	2	1	3	2	4
115	2	2	3	2	2
116	2	2	2	1	3
117	1	1	1	1	1
118	2	1	3	1	1
119	2	1	1	1	4
120	2	1	2	1	4
121	2	2	3	1	4
122	1	2	3	2	2
123	1	2	2	3	2
124	2	1	2	2	1
125	2	1	1	1	3

Knowledge Questionnaire Score For Control Group (ANM)

Sample No	Pre Test	Post test
1	6	9
2	4	10
3	3	12
4	2	8
5	9	15
6	7	9
7	6	10
8	4	11
9	3	13
10	2	8
11	8	14
12	7	11
13	6	13

14	4	10
15	3	15
16	5	13
17	7	14
18	6	9
19	3	11
20	10	15
21	4	9
22	7	11
23	9	10
24	10	13
25	8	8
26	7	10
27	6	8
28	3	9
29	6	10
30	5	12
31	4	9
32	4	8
33	4	7
34	3	9
35	6	11
36	6	12
37	7	10
38	9	11
39	11	13
40	8	9
41	7	8
42	8	9
43	8	9
44	6	11
45	4	8
46	5	9
47	7	10
48	8	12
49	10	10
50	4	8
51	7	9
52	6	10
53	8	9
54	5	10
55	5	9
56	4	8
57	3	7
58	9	13
59	9	12
60	10	11
61	11	13
62	6	10
63	7	8
64	6	9
65	5	8
66	4	10
67	3	9
68	9	15
69	11	14
70	6	10
71	7	11
72	8	10
73	10	13
74	11	14
75	8	10
76	9	11
77	7	12

78	6	10
79	11	11
80	8	12
81	9	13
82	7	14
83	6	10
84	4	10
85	3	9
86	5	13
87	4	10
88	11	19
89	10	10
90	8	9
91	7	11
92	6	8
93	7	7
94	5	8
95	8	10
96	9	12
97	14	14
98	11	14
99	3	6
100	4	9
101	8	10
102	4	10
103	10	12
104	8	13

105	4	9
106	5	12
107	7	10
108	6	13
109	3	10
110	11	11
111	8	13
112	5	15
113	4	10
114	2	8
115	6	6
116	9	11
117	11	14
118	6	10
119	8	10
120	9	12
121	7	10
122	6	7
123	4	10
124	5	8
125	4	9
126		10

Demographic Variables of Experimental Group

Sample No	Age	Sex	Relationship with patient	Education	Income	Religion	Occupation	Marital Status	Residence
1	48	2	3	3	5000	2	1	1	1
2	39	2	4	2	6000	1	1	1	1
3	42	2	3	1	10000	1	3	1	2
4	28	1	2	4	10000	1	3	2	2
5	52	1	3	3	6000	2	4	1	1
6	29	2	2	3	10000	2	4	1	1
7	33	2	1	2	15000	3	3	1	1
8	55	1	3	2	5000	2	3	1	1
9	33	2	1	4	20000	1	2	1	2
10	36	1	2	4	15000	1	1	1	1
11	43	2	4	3	3000	2	1	1	1
12	46	2	4	4	16000	2	4	2	1
13	49	2	3	2	5000	1	2	1	2
14	52	1	2	1	16000	3	3	1	1
15	26	2	1	4	18000	2	2	2	1
16	46	1	3	3	11000	2	3	1	1
17	53	1	3	2	6000	2	1	1	1
18	55	2	3	3	7000	3	1	1	1
19	28	1	1	3	5000	2	1	2	1
20	33	1	2	3	2500	1	1	1	2
21	48	2	4	2	10000	1	3	1	1
22	26	1	2	4	18000	2	3	2	1
23	23	1	2	3	4000	1	1	2	1
24	19	2	1	3	6000	1	1	1	2
25	56	2	3	2	2000	2	1	1	1
26	58	1	3	4	20000	2	2	1	1
27	48	2	3	2	6000	2	1	1	1
28	36	2	4	4	20000	3	1	1	1
29	36	1	2	3	10000	2	3	1	1
30	35	1	1	4	15000	1	2	1	1
31	34	1	1	3	3500	2	1	1	1
32	29	2	2	3	4000	2	1	1	2
33	28	1	1	4	12000	1	1	2	1

34	40	1	4	3	6000	2	1	1	1
35	21	2	2	3	10000	2	3	1	1
36	38	2	3	2	15000	1	3	1	1
37	52	1	3	3	8000	1	3	1	1
38	49	1	3	3	6000	2	1	1	1
39	46	1	3	2	5000	1	1	1	1
40	51	2	4	3	8000	1	1	1	1
41	57	2	4	3	6000	1	3	1	1
42	56	1	4	4	40000	1	1	2	2
43	27	1	2	3	18000	2	3	2	1
44	25	1	2	4	11000	2	3	2	1
45	31	2	3	4	20000	1	3	1	1
46	48	2	4	3	8000	3	3	1	1
47	37	1	3	3	7000	1	1	1	1
48	29	1	1	3	6000	1	3	1	1
49	21	1	1	2	4000	1	4	2	1
50	47	2	3	2	4000	2	1	1	1
51	38	1	2	1	5000	2	3	1	1
52	29	2	2	3	6000	3	3	2	1
53	39	2	2	2	8000	1	3	1	1
54	43	1	3	1	2000	1	1	1	1
55	41	1	3	3	11000	1	3	1	1
56	28	2	1	4	10000	2	3	2	1
57	25	2	2	4	5000	2	3	2	1
58	46	2	3	1	2000	2	1	1	1
59	49	2	3	2	6000	3	1	1	1
60	52	2	4	3	4000	3	1	1	2
61	38	1	3	2	10000	2	3	1	1
62	37	1	3	1	6000	1	3	1	1
63	21	2	2	4	11000	1	3	2	1
64	28	1	1	4	28000	1	3	1	1
65	24	2	2	3	8000	2	3	2	1
66	23	2	1	2	1000	2	3	2	1
67	26	1	2	4	5000	2	1	2	1
68	28	1	2	4	10000	1	1	2	1
69	36	2	3	3	15000	1	3	1	2
70	43	2	3	2	8000	2	1	1	1
71	21	2	2	2	6000	2	3	2	1
72	28	1	1	4	10000	1	3	1	1
73	48	1	2	3	15000	3	3	1	1
74	47	2	2	1	5000	3	3	1	1
75	56	1	4	1	6000	2	3	1	1
76	59	2	3	2	8000	2	1	1	1
77	36	2	3	3	6000	1	1	1	2
78	23	1	1	4	10000	1	3	2	1
79	24	1	2	3	13000	1	3	1	1
80	36	2	3	4	40000	3	2	1	2
81	21	2	2	2	10000	1	3	2	1
82	43	2	3	1	2000	1	4	1	1
83	28	1	2	3	11000	1	3	2	1
84	27	1	1	3	8000	2	3	2	2
85	29	1	3	3	10000	1	3	1	1
86	43	1	3	1	2000	1	4	1	1
87	47	2	3	4	30000	2	3	1	1
88	33	2	3	4	15000	3	2	1	1
89	31	2	3	4	10000	2	3	1	1
90	28	1	2	3	15000	2	2	1	2
91	32	2	2	2	8000	3	3	1	1
92	46	2	2	3	6000	2	3	1	1
93	21	1	2	1	5000	1	3	2	1
94	53	1	4	2	6000	1	3	1	1
95	20	1	2	3	10000	1	3	2	1
96	50	2	2	4	40000	3	2	1	2

97	33	1	3	2	10000	2	3	1	1
98	37	2	3	3	10000	2	3	1	1
99	40	1	3	1	2000	2	1	1	1
100	43	1	3	2	6000	1	3	1	1
101	21	2	1	4	3000	1	3	2	1
102	38	2	3	3	6000	3	3	1	1
103	20	2	2	3	8000	1	3	1	1
104	21	2	2	3	10000	1	3	2	2
105	39	1	3	1	4000	1	3	1	1
106	40	1	3	1	2000	2	1	1	1
107	53	1	3	4	25000	1	2	1	2
108	24	1	2	3	10000	2	3	2	2
109	29	2	2	4	25000	2	2	1	1
110	49	1	4	1	5000	1	3	1	1
111	45	1	4	1	1000	1	4	1	1
112	35	2	3	3	8000	1	3	1	1
113	33	2	3	2	3000	2	1	1	2
114	41	1	3	4	25000	2	2	1	2
115	21	2	1	3	10000	1	3	2	1
116	23	2	2	2	15000	1	3	2	1
117	23	1	2	3	10000	1	3	2	1
118	21	1	2	4	8000	1	3	2	1
119	43	1	3	3	6000	1	3	1	1
120	56	1	3	2	3000	2	1	1	1
121	33	2	3	4	10000	2	3	1	2
122	26	2	2	4	11000	1	3	2	1
123	27	2	2	3	3000	3	3	2	1
124	32	1	3	2	5000	1	3	1	1
125	31	1	3	2	3000	2	3	1	2

Demographic Variables For Control Group

Sample No	Age	Sex	Relationship With patient	Education	Income	Religion	Occupation	Marital Status	Residence
1	58	2	3	1	Rs.6000	1	1	1	1
2	60	1	3	2	Rs.5000	2	1	1	1
3	31	1	1	4	Rs.9000	1	3	2	1
4	24	2	2	3	Rs.10000	1	4	2	1
5	20	2	2	3	Rs.5000	2	4	2	2
6	43	1	3	1	Rs.6000	1	1	1	1
7	33	1	3	3	Rs.8000	2	3	1	2
8	54	1	3	2	Rs.5000	1	3	1	1
9	48	2	3	2	Rs.2000	1	1	1	1
10	22	1	1	3	Rs.3500	3	4	2	1
11	38	2	2	3	Rs.4000	2	4	1	1
12	45	2	2	2	Rs.6000	2	3	1	1
13	49	1	3	4	Rs.15000	1	2	1	2
14	53	1	3	3	Rs.5000	1	3	1	1
15	39	2	2	2	Rs.3000	3	1	1	1
16	28	1	1	4	Rs.10000	2	3	2	1
17	48	1	3	1	Rs.2000	1	1	1	1
18	42	1	3	2	Rs.5000	1	3	1	1
19	38	1	1	3	Rs.7000	2	3	1	1
20	20	1	1	4	Rs.16000	1	3	2	2
21	29	1	2	3	Rs.4000	1	3	2	1
22	34	2	2	4	Rs.20000	3	2	1	1
23	60	2	2	2	Rs.7000	2	3	1	2
24	58	1	3	2	Rs.5000	1	4	1	1
25	53	1	3	1	Rs.2000	2	2	1	1
26	49	2	2	4	Rs.8000	2	3	1	1
27	32	2	2	3	Rs.6000	1	2	2	1
28	33	2	3	3	Rs.4000	1	4	1	1
29	28	1	4	3	Rs.3000	1	1	1	1
30	50	1	3	1	Rs.2000	2	3	1	1
31	54	1	3	2	Rs.3500	3	3	1	1

32	22	1	4	3	Rs.2000	1	3	1	1
33	29	2	2	4	Rs.8000	1	4	2	1
34	34	1	3	2	Rs.6000	2	3	1	1
35	46	1	3	4	Rs.23000	2	2	1	2
36	49	1	1	3	Rs.8000	3	3	1	1
37	60	1	3	4	Rs.16000	1	3	1	1
38	58	2	3	2	Rs.4000	2	3	1	1
39	43	1	3	3	Rs.6000	2	3	1	1
40	39	2	3	3	Rs.5000	1	3	1	1
41	21	2	2	4	Rs.9000	1	3	2	2
42	30	1	1	3	Rs.2000	2	4	1	1
43	28	1	2	4	Rs.6000	1	3	1	1
44	43	2	3	2	Rs.4000	3	3	1	1
45	55	1	3	3	Rs.2000	1	3	1	1
46	53	1	3	2	Rs.1000	1	3	1	1
47	47	1	3	2	Rs.3000	3	3	2	1
48	24	1	1	4	Rs.8000	1	3	1	2
49	43	2	3	3	Rs.6000	2	3	1	1
50	29	1	2	2	Rs.3000	2	4	2	2
51	58	2	3	1	Rs.2000	1	1	1	1
52	46	1	3	2	Rs.3000	1	1	1	1
53	34	1	1	2	Rs.5000	2	3	1	1
54	23	1	2	3	Rs.6000	1	4	1	1
55	21	1	2	3	Rs.7000	1	4	2	1
56	38	2	3	2	Rs.4000	1	3	1	1
57	58	1	3	1	Rs.2000	2	1	1	1
58	60	2	3	2	Rs.10000	1	3	1	1
59	45	2	3	3	Rs.6000	1	3	1	1
60	28	1	1	4	Rs.14000	2	2	2	2
61	20	1	2	3	Rs.8000	2	4	2	1
62	34	2	2	2	Rs.4000	2	3	1	1
63	46	1	2	1	Rs.3500	1	3	1	1
64	43	1	2	2	Rs.2000	1	4	1	2
65	59	2	3	2	Rs.4000	1	3	1	1
66	60	1	3	1	Rs.4000	2	3	1	1
67	22	1	2	3	Rs.6000	3	4	2	1
68	36	2	3	4	Rs.10000	1	3	1	2
69	48	2	4	1	Rs.4000	1	3	1	1
70	33	1	2	4	Rs.15000	2	2	1	1
71	55	1	3	2	Rs.8000	3	3	1	1
72	60	2	3	2	Rs.6000	2	3	1	1
73	43	1	3	1	Rs.5000	1	3	1	1
74	20	1	2	3	Rs.4000	1	3	2	1
75	31	1	2	4	Rs.13000	2	3	2	2
76	43	2	4	3	Rs.4000	2	2	1	1
77	60	2	3	1	Rs.2000	3	4	1	1
78	58	1	3	2	Rs.4000	2	3	1	1
79	49	1	2	1	Rs.5000	1	3	1	1
80	34	2	4	2	Rs.8000	3	3	2	1
81	37	1	2	4	Rs.19000	2	2	1	2
82	60	1	4	2	Rs.2000	2	4	1	1
83	53	2	4	2	Rs.6000	2	3	1	1
84	56	2	3	1	Rs.7000	2	4	1	2
85	36	1	3	2	Rs.8000	1	3	1	1
86	43	1	3	1	Rs.4000	1	1	1	1
87	58	1	3	3	Rs.6000	2	3	1	1
88	60	1	4	1	Rs.4000	3	1	1	1
89	21	1	1	4	Rs.10000	1	2	2	1
90	25	1	2	4	Rs.15000	2	2	2	2
91	42	2	3	2	Rs.6000	2	3	1	2
92	38	1	1	4	Rs.15000	1	2	1	1
93	60	2	3	1	Rs.4000	2	1	1	1
94	21	1	2	2	Rs.6000	3	4	2	1
95	33	1	2	2	Rs.4000	2	4	2	1
96	41	2	3	3	Rs.8000	3	3	1	1

97	58	1	3	4	Rs.16000	2	2	1	2
98	59	1	4	3	Rs.8000	2	3	1	1
99	43	1	3	3	Rs.7000	1	3	1	1
100	48	1	3	4	Rs.13000	1	2	1	1
101	36	2	3	2	Rs.8000	3	3	1	2
102	26	1	2	3	Rs.6000	1	4	2	1
103	38	1	2	3	Rs.7000	1	3	1	1
104	47	1	3	3	Rs.6000	1	3	1	1
105	45	2	3	2	Rs.2000	2	1	1	1
106	58	1	3	1	Rs.3000	1	3	1	1
107	28	1	1	4	Rs.11000	1	3	2	2
108	27	1	2	4	Rs.10000	3	3	2	1
109	37	2	3	2	Rs.3000	2	1	1	1
110	48	1	1	2	Rs.6000	1	4	1	1
111	42	1	1	3	Rs.7000	1	3	1	1
112	37	1	2	3	Rs.5000	1	4	1	2
113	43	1	2	2	Rs.4000	1	3	1	1
114	20	1	2	3	Rs.6000	2	4	2	2
115	32	2	1	4	Rs.17000	3	2	1	1
116	29	1	2	4	Rs.10000	1	3	2	1
117	32	2	3	3	Rs.8000	1	3	1	1
118	49	1	2	2	Rs.7000	2	4	1	1
119	58	1	3	2	Rs.4000	1	4	1	1
120	20	1	2	3	Rs.2000	1	4	2	1
121	34	2	2	4	Rs.10000	2	2	1	1
122	43	1	3	3	Rs.8000	1	3	1	2
123	37	1	3	3	Rs.6000	1	3	1	1
124	48	2	2	1	Rs.5000	2	3	1	1
125	60	1	2	1	Rs.3000	1	1	1	1

Knowledge Questionnaire regarding Lithium Therapy on Experimental Group

Sample No	Pretest Score	Post test score
1	3	16
2	6	14
3	3	13
4	7	15
5	6	9
6	4	18
7	9	17
8	4	15
9	8	16
10	5	13
11	6	14
12	4	12
13	7	18
14	8	14
15	2	9
16	6	13
17	6	15
18	7	12
19	6	17
20	8	19
21	9	16
22	4	12
23	5	18
24	8	18
25	6	21
26	4	19
27	7	24
28	4	18
29	6	17
30	9	19
31	5	21
32	8	23
33	9	19
34	11	18
35	5	19
36	7	19
37	7	21
38	6	20
39	3	18
40	8	23
41	10	21
42	8	20
43	7	18
44	6	17
45	4	17
46	5	18
47	5	19
48	4	16
49	8	18
50	8	17
51	6	18
52	4	19
53	9	20
54	8	23
55	7	16
56	7	17
57	6	19
58	4	17
59	3	16
60	8	15
61	10	24
62	9	20
63	9	18
64	7	19
65	6	17

66	3	16
67	4	16
68	4	15
69	5	18
70	3	19
71	3	17
72	8	16
73	7	17
74	6	19
75	4	21
76	6	20
77	6	18
78	7	22
79	4	16
80	3	18
81	3	21
82	6	25
83	7	20
84	8	16
85	2	18
86	6	19
87	6	24
88	7	22
89	3	20
90	5	23
91	6	19
92	7	18
93	7	24
94	9	23
95	10	20
96	6	15
97	6	16
98	5	17
99	5	16
100	4	24
101	3	20
102	2	23
103	8	18
104	7	24
105	7	19
106	16	25
107	8	21
108	7	19
109	4	22
110	3	17
111	6	16
112	5	18
113	9	20
114	4	17
115	3	18
116	2	16
117	10	24
118	11	25
119	12	20
120	9	18
121	10	23
122	6	20
123	6	18
124	4	22
125	3	24

Knowledge Questionnaire regarding Lithium Therapy on Experimental Group

Sample No	Pretest Score	Post test score
1	3	16
2	6	14
3	3	13
4	7	15
5	6	9
6	4	18
7	9	17
8	4	15
9	8	16
10	5	13
11	6	14
12	4	12
13	7	18
14	8	14
15	2	9
16	6	13
17	6	15
18	7	12
19	6	17
20	8	19
21	9	16
22	4	12
23	5	18
24	8	18
25	6	21
26	4	19
27	7	24
28	4	18
29	6	17
30	9	19
31	5	21
32	8	23
33	9	19
34	11	18
35	5	19
36	7	19
37	7	21
38	6	20
39	3	18
40	8	23
41	10	21
42	8	20
43	7	18
44	6	17
45	4	17
46	5	18
47	5	19
48	4	16
49	8	18
50	8	17
51	6	18
52	4	19
53	9	20
54	8	23
55	7	16
56	7	17
57	6	19
58	4	17
59	3	16
60	8	15

61	10	24
62	9	20
63	9	18
64	7	19
65	6	17
66	3	16
67	4	16
68	4	15
69	5	18
70	3	19
71	3	17
72	8	16
73	7	17
74	6	19
75	4	21
76	6	20
77	6	18
78	7	22
79	4	16
80	3	18
81	3	21
82	6	25
83	7	20
84	8	16
85	2	18
86	6	19
87	6	24
88	7	22
89	3	20
90	5	23
91	6	19
92	7	18
93	7	24
94	9	23
95	10	20
96	6	15
97	6	16
98	5	17
99	5	16
100	4	24
101	3	20
102	2	23
103	8	18
104	7	24
105	7	19
106	16	25
107	8	21
108	7	19
109	4	22
110	3	17
111	6	16
112	5	18
113	9	20
114	4	17
115	3	18
116	2	16
117	10	24
118	11	25
119	12	20
120	9	18
121	10	23
122	6	20
123	6	18
124	4	22
125	3	24

Knowledge Questionnaire regarding Lithium Therapy on Experimental Group

Sample No	Pretest Score	Post test score
1	3	16
2	6	14
3	3	13
4	7	15
5	6	9
6	4	18
7	9	17
8	4	15
9	8	16
10	5	13
11	6	14
12	4	12
13	7	18
14	8	14
15	2	9
16	6	13
17	6	15
18	7	12
19	6	17
20	8	19
21	9	16
22	4	12
23	5	18
24	8	18
25	6	21
26	4	19
27	7	24
28	4	18
29	6	17
30	9	19
31	5	21
32	8	23
33	9	19
34	11	18
35	5	19
36	7	19
37	7	21
38	6	20
39	3	18
40	8	23
41	10	21
42	8	20
43	7	18
44	6	17
45	4	17
46	5	18
47	5	19
48	4	16
49	8	18
50	8	17
51	6	18
52	4	19
53	9	20
54	8	23
55	7	16

56	7	17
57	6	19
58	4	17
59	3	16
60	8	15
61	10	24
62	9	20
63	9	18
64	7	19
65	6	17
66	3	16
67	4	16
68	4	15
69	5	18
70	3	19
71	3	17
72	8	16
73	7	17
74	6	19
75	4	21
76	6	20
77	6	18
78	7	22
79	4	16
80	3	18
81	3	21
82	6	25
83	7	20
84	8	16
85	2	18
86	6	19
87	6	24
88	7	22
89	3	20
90	5	23
91	6	19
92	7	18
93	7	24
94	9	23
95	10	20
96	6	15
97	6	16
98	5	17
99	5	16
100	4	24
101	3	20
102	2	23
103	8	18
104	7	24
105	7	19
106	16	25
107	8	21
108	7	19
109	4	22
110	3	17
111	6	16
112	5	18
113	9	20
114	4	17
115	3	18
116	2	16
117	10	24
118	11	25
119	12	20
120	9	18
121	10	23
122	6	20
123	6	18
124	4	22
125	3	24

Knowledge Questionnaire regarding Lithium Therapy on Experimental Group

Sample No	Pretest Score	Post test score
1	3	16
2	6	14
3	3	13
4	7	15
5	6	9
6	4	18
7	9	17
8	4	15
9	8	16
10	5	13
11	6	14
12	4	12
13	7	18
14	8	14
15	2	9
16	6	13
17	6	15
18	7	12
19	6	17
20	8	19
21	9	16
22	4	12
23	5	18
24	8	18
25	6	21
26	4	19
27	7	24
28	4	18
29	6	17
30	9	19
31	5	21
32	8	23
33	9	19
34	11	18
35	5	19
36	7	19
37	7	21
38	6	20
39	3	18
40	8	23
41	10	21
42	8	20
43	7	18
44	6	17
45	4	17
46	5	18
47	5	19
48	4	16
49	8	18
50	8	17

51	6	18
52	4	19
53	9	20
54	8	23
55	7	16
56	7	17
57	6	19
58	4	17
59	3	16
60	8	15
61	10	24
62	9	20
63	9	18
64	7	19
65	6	17
66	3	16
67	4	16
68	4	15
69	5	18
70	3	19
1	3	17
72	8	16
73	7	17
74	6	19
75	4	21
76	6	20
77	6	18
78	7	22
79	4	16
80	3	18
81	3	21
82	6	25
83	7	20
84	8	16
85	2	18
86	6	19
87	6	24
88	7	22
89	3	20
90	5	23
91	6	19
92	7	18
93	7	24
94	9	23
95	10	20
96	6	15
97	6	16
98	5	17
99	5	16
100	4	24
101	3	20
102	2	23
103	8	18
104	7	24
105	7	19
106	16	25
107	8	21
108	7	19
109	4	22
110	3	17
111	6	16
112	5	18
113	9	20
114	4	17
115	3	18
116	2	16
117	10	24
118	11	25
119	12	20
120	9	18
121	10	23
122	6	20
123	6	18
124	4	22
125	3	24

Knowledge Questionnaire regarding Lithium Therapy on Experimental Group

Sample No	Pretest Score	Post test score
1	3	16
2	6	14
3	3	13
4	7	15
5	6	9
6	4	18
7	9	17
8	4	15
9	8	16
10	5	13
11	6	14
12	4	12
13	7	18
14	8	14
15	2	9
16	6	13
17	6	15
18	7	12
19	6	17
20	8	19
21	9	16
22	4	12
23	5	18
24	8	18
25	6	21
26	4	19
27	7	24
28	4	18
29	6	17
30	9	19
31	5	21
32	8	23
33	9	19
34	11	18
35	5	19
36	7	19
37	7	21
38	6	20
39	3	18
40	8	23
41	10	21
42	8	20
43	7	18
44	6	17
45	4	17

46	5	18
47	5	19
48	4	16
49	8	18
50	8	17
51	6	18
52	4	19
53	9	20
54	8	23
55	7	16
56	7	17
57	6	19
58	4	17
59	3	16
60	8	15
61	10	24
62	9	20
63	9	18
64	7	19
65	6	17
66	3	16
67	4	16
68	4	15
69	5	18
70	3	19
71	3	17
72	8	16
73	7	17
74	6	19
75	4	21
76	6	20
77	6	18
78	7	22
79	4	16
80	3	18
81	3	21
82	6	25
83	7	20
84	8	16
85	2	18
86	6	19
87	6	24
88	7	22
89	3	20
90	5	23
91	6	19
92	7	18
93	7	24
94	9	23
95	10	20
96	6	15
97	6	16
98	5	17
99	5	16
100	4	24
101	3	20
102	2	23
103	8	18
104	7	24
105	7	19
106	16	25
107	8	21
108	7	19
109	4	22
110	3	17
111	6	16
112	5	18
113	9	20
114	4	17
115	3	18
116	2	16
117	10	24
118	11	25
119	12	20
120	9	18
121	10	23
122	6	20
123	6	18
124	4	22
125	3	24

Knowledge Questionnaire regarding Lithium Therapy on Experimental Group

Sample No	Pretest Score	Post test score
1	3	16
2	6	14
3	3	13
4	7	15
5	6	9
6	4	18
7	9	17
8	4	15
9	8	16
10	5	13
11	6	14
12	4	12
13	7	18
14	8	14
15	2	9
16	6	13
17	6	15
18	7	12
19	6	17
20	8	19
21	9	16
22	4	12
23	5	18
24	8	18
25	6	21
26	4	19
27	7	24
28	4	18
29	6	17
30	9	19
31	5	21
32	8	23
33	9	19
34	11	18
35	5	19
36	7	19
37	7	21
38	6	20
39	3	18
40	8	23

41	10	21
42	8	20
43	7	18
44	6	17
45	4	17
46	5	18
47	5	19
48	4	16
49	8	18
50	8	17
51	6	18
52	4	19
53	9	20
54	8	23
55	7	16
56	7	17
57	6	19
58	4	17
59	3	16
60	8	15
61	10	24
62	9	20
63	9	18
64	7	19
65	6	17
66	3	16
67	4	16
68	4	15
69	5	18
70	3	19
71	3	17
72	8	16
73	7	17
74	6	19
75	4	21
76	6	20
77	6	18
78	7	22
79	4	16
80	3	18
81	3	21
82	6	25
83	7	20
84	8	16
85	2	18
86	6	19
87	6	24
88	7	22
89	3	20
90	5	23
91	6	19
92	7	18
93	7	24
94	9	23
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96	6	15
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98	5	17
99	5	16
100	4	24
101	3	20
102	2	23
103	8	18
104	7	24
105	7	19
106	16	25
107	8	21
108	7	19
109	4	22
110	3	17
111	6	16
112	5	18
113	9	20
114	4	17
115	3	18
116	2	16
117	10	24
118	11	25
119	12	20
120	9	18
121	10	23
122	6	20
123	6	18
124	4	22
125	3	24