

EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING LITHIUM TOXICITY AMONG CAREGIVERS AT SELECTED PSYCHIATRIC SETTINGS, UDAIPUR

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Abstract

The patient having bipolar mood disorders was treated lithium. Lithium compounds, also known as lithium salts, are primarily used as a psychiatric medication. . The therapeutic dose is 300-2700 mg/dl with desired serum levels of 0.6-1.2 mEq/L. Lithium toxicity may occur on an acute basis, in persons taking excessive amounts either accidentally or intentionally, or on a chronic basis, in people who accumulate high levels during ongoing therapy. The family caregivers take care of the day-to-day needs of the patient, monitoring the mental state, identify the early signs of illness, relapse and deterioration, and help the patient in accessing services. In pre-test, 31(51.67%) of them had inadequate level of knowledge and 29(48.33%) of them had moderate level of knowledge and none of them had Adequate level of knowledge regarding lithium toxicity whereas in post-test, 60 caregivers, 33(55%) of them had adequate level of knowledge, 27(45%) of them had moderate level of knowledge and none of them had inadequate knowledge regarding lithium toxicity. It was observed that, the overall mean score was 16.45 ± 2.17 whereas the mean post-test score was 25.9 ± 2.48 . The enhancement mean score was 9.45 ± 0.31 . The obtained 't' value was 23.74, which was higher than the table value 2.6, it is highly significant at $P \leq 0.05$ level. This indicates that the STP was effective in improving the knowledge of caregivers regarding lithium toxicity. The obtained chi square value for educational status, length of caring patients and source of information of caregivers were higher values (28.10, 26.71 and 18.53 respectively) when compared to the table value at $P \leq 0.05$ level of significance. This indicates that there was an association between pre-test level of knowledge of caregivers and their selected socio-demographic variables. **CONCLUSION:** The findings of the study concluded that the STP was found to be effective in improving the knowledge of caregivers regarding lithium toxicity.

Keywords: Knowledge, Caregivers, Structured Teaching Programme, Lithium Toxicity, Socio-demographic variables.

INTRODUCTION

Mood disorders are emotional disturbances consisting of prolonged periods of excessive sadness, excessive joyousness, or both. Mood disorders are categorized as depressive or bipolar. Bipolar disorder, also known as manic-depressive illness, is a brain disorder that causes unusual shifts in mood, energy, activity levels, and the ability to carry out day-to-day tasks.¹

Lithium compounds, also known as lithium salts, are primarily used as a psychiatric medication. This includes in the treatment of major depressive disorder that does not improve following the use of other antidepressants and bipolar disorder. In these disorders, it reduces the risk of suicide.²

Lithium is minimally protein bound (< 10%) and has an apparent volume of distribution of 0.6-1 L/kg. The therapeutic dose is 300-2700 mg/dl with desired serum levels of 0.6-1.2 mEq/L.³

MATERIAL AND METHOD

This chapter deals with the methodology adapted for the present study such as research approach, research design, setting, variables, population, sample, sampling technique, sampling criteria, development of tool, content validity, reliability, pilot study, method of data collections, plan for data analysis . The present study is aimed to evaluate the effectiveness of structured teaching programme on knowledge regarding lithium toxicity among caregivers at selected psychiatric settings Udaipur.

RESEARCH APPROACH

The research approach explains the data collection that is, what to collect, how to collect, and how to analyze. It also suggests possible conclusions to be drawn from the available data.⁴⁶ the investigator used an experimental approach to conduct the study.

RESEARCH DESIGN

In the view of the nature of the problem and to accomplish the objectives of the study pre-experimental one group pre-test post-test design was used to evaluate the effectiveness of STP on knowledge regarding lithium toxicity among caregivers at selected psychiatric settings, Udaipur.

RESEARCH SETTING

Setting refers to the area where the study is conducted. It is the physical location and condition in which data collection takes place in a study.³⁸Based on the geographical proximity, feasibility and familiarity with the setting, the investigator selected Geetanjali Hospital, Udaipur.

The selection of the hospital was done on the basis of:

- Geographical proximity
- Feasibility of conducting study
- Availability of sample

VARIABLES OF THE STUDY

Variables are concepts at various levels of abstraction that are measured, manipulated or controlled in the study.⁴⁵ The variables mainly included in this study are independent variable, dependent variable and attribute variables.

Independent variable

An independent variable is that which is believed to cause or influence the dependent variable, in experimental research by the manipulated (treatment) variable. ⁴⁶

In the present study the independent variable refers to structured teaching programme on lithium toxicity.

Dependent Variable

Dependent Variable is a response, behavior or outcome that the researcher wants to predict. Changes in the dependent variable are presumed to be caused by the independent variable. It is otherwise called as effect variable or a criterion measure.⁴⁶

In the present study dependent variable refers to knowledge of caregivers regarding lithium toxicity.

Attribute Variables

A fixed variable that cannot be changed or manipulated which greatly influences the result of the study is called as attributed variable.⁴⁶

The attribute variables in study were selected socio-demographic variables such as age, gender, religion, type of family, education, occupational status, family monthly Income, how long has been caring patients and source of information regarding lithium toxicity.

POPULATION

The population referred to as the target population, which represents the entire group or all the elements like individuals or objects that meet certain criteria for inclusion in the study.²⁰The target population of the present study comprises of caregivers. The accessible population represents caregivers at selected psychiatric settings, Udaipur.

SAMPLING TECHNIQUE

Sampling technique defines the process of selecting a group of people or other elements with which to conduct a study.⁴⁵ Purposive sampling technique was adapted to select the samples for the present study based on inclusion criteria.

SAMPLE AND SAMPLE SIZE

Sample refers to the subset of a population that is selected to participate in a particular study.⁴⁵ Sample size of the present study consists of 60 caregivers at selected psychiatric settings, Udaipur.

RESULT & DISCUSSION

The description of the result is the eternity of a research project which enables the researcher to reduce, summarize, organize, evaluate, interpret and communicate numerical information. In order to find a meaningful answer to the research problem, the data must be processed, analyzed in systemic and some orderly coherent fashion so that the pattern and relationship can be discerned.

HYPOTHESIS

H₁:- There will be significant difference between the mean pre-test and post-test knowledge scores of caregivers regarding lithium toxicity.

H₂:- There will be significant association between mean pre-test level of knowledge of caregivers regarding lithium toxicity with their selected socio-demographic variables.

PRESENTATION OF THE DATA

PART-I

Description of socio-demographic profile of the sample

This section deals with distribution of participants according to the socio demographic characteristics. The obtained data on socio-demographic profile are described under the following sub heading which are age, gender, religion, type of family, education, occupational status, family monthly income, how long been caring patients and source of information regarding lithium toxicity. The data was analyzed by using descriptive statistics and are summarized in terms of frequency and percentage distribution.

SOCIO-DEMOGRAPHIC PROFILE OF SAMPLES

Table-1: Classification of sample by socio-demographic characteristics. N=60

Characteristics	Category	Respondents	
		N	%
Age in Year	25-35 years	7	11.67
	36-45 Years	23	38.33
	46-55 years	19	31.67
	56 years or above	11	18.33
Gender	Male	17	28.33
	Female	43	71.67
Religion	Hindu	36	60
	Muslim	15	25
	Christian	9	15
	Others	0	0
Type of family	Nuclear	44	73.33
	Joint	16	26.67
	Extended	0	0
Educational status	Primary education	18	30
	Secondary education	11	18.33
	Undergraduate	21	35
	Postgraduate and above	10	16.67
Occupational status	Self Employee	4	6.67
	Private employee	20	33.33
	Government employee	6	10
	Dailey Wages	14	23.33
	Unemployed	16	26.67
Family monthly income	Less than Rs. 20000	12	20
	Rs. 20001-30000	21	35
	Rs. 30001-40000	16	26.67
	Rs. 40001 or above	11	18.33
How long been caring patients	Less than 1 year	16	26.67
	1-2 years	6	10
	3-5 years	9	15
	5 years or above	29	48.33
Sources of information	Nil	14	23.33
	Mass media	7	11.67

	Friends or relatives	4	6.67
	Health Personnel	35	58.33

Table-1 shows that, among 60 caregivers, 23(38.33%) of them were between 36- 45 years of age, 19(31.67%) of them were between 46-55 years of age, 11(18.33%) of them were 56 years or above age and 7(11.67%) of them were between 25-35 years of age.

With regard to the gender of caregivers, 43(71.67%) of them were females and 17(28.33%) of them were males.

In the area of religion, 36(60%) of caregivers were Hindus, 15(25%) of them were Muslims and 9(15%) of them were Christians.

In concern to type of family, among 60 caregivers, 44(73.33%) of them belonged to nuclear family and 16(26.67%) of them belonged to joint family.

Based on the educational status of caregivers, 21(35%) of them were undergraduate, 18(30%) of them had primary education, 11(18.33%) of them had secondary education and 10(16.67%) of them were postgraduates or above.

It was observed that, among 60 caregivers, 20(33.33%) of them were private employees, 16(26.67%) of them were unemployed, 14(23.33%) of them were daily wages, 6(10%) of them were Government employees and 4(6.67%) of them were self employees.

With regard to the family monthly income of caregivers, 21(35%) of them had Rs. 20001-30000 of family monthly income, 16(26.67%) of them had Rs. 30001-40000 of family monthly income, 12(20%) of them had less than Rs. 20000 of family monthly income and 11(18.33%) of them had Rs. 40001 or above family monthly income.

It was observed that, 29(48.33%) of caregivers were caring their beloved for 5 years or above, 16(26.67%) of them were caring for less than 1 year, 9(15%) of them were caring for 3-5 years and 6(10%) of them were caring for 1-2 years.

The socio demographic history of source of information showed that, among 60 caregivers, 35(58.33%) of them got information from health personnel, 7(11.67%) of them got information from mass media, 4(6.67%) of them got information from friends and relatives and 14(23.33%) of them did not get any information related to lithium toxicity.

PART-II (A)

Overall and aspectwise knowledge scores of caregivers regarding lithium toxicity

Table-2: Classification of pre-test knowledge scores of caregivers regarding lithium toxicity. N=60

Level of Knowledge	Score	No of Respondents (%)	
		No	%
Inadequate	< 50%	31	51.67
Moderate	50-75%	29	48.33
Adequate	>75%	0	0
Total		60	100

The above Table-2 shows the classification of caregivers on pre-test level of knowledge

regarding lithium toxicity. Among 60 caregivers, 31(51.67%) of them had inadequate level of knowledge and 29(48.33%) of them had moderate level of knowledge and none of them had adequate level of knowledge regarding lithium toxicity.

Table-3: Aspect wise pre-test mean knowledge scores of caregivers on lithium toxicity.

N=60

Aspects wise knowledge	Max Statement	Max Score	Range	Mean	SD
General information of lithium toxicity	5	5	0-3	2.03	0.84
Knowledge on lithium toxicity	16	16	5-11	8.32	1.42
Knowledge on management and prevention of lithium toxicity	13	13	4-9	6.1	1.56
Overall	34	34	12-21	16.45	2.17

The above table-3 shows, the aspectwise pre-test mean knowledge scores of caregivers regarding lithium toxicity. In general information of lithium toxicity, the mean knowledge score was 2.03 ± 0.84 . In the area of knowledge on lithium toxicity, the mean knowledge score was 8.32 ± 1.42 . In concern with management and prevention of lithium toxicity, the mean knowledge score was 6.1 ± 1.56 . The total mean score in pre-test was 16.45 ± 2.17 .

Table-4: Classification of post-test level of knowledge of caregivers regarding lithium toxicity.

N=60

Level of Knowledge	Score	No of Respondents (%)	
		No	%
Inadequate	< 50%	0	0
Moderate	50-75%	27	45
Adequate	>75%	33	55
Total		60	100

The above Table-4 shows, the classification of post-test level of knowledge of caregivers regarding lithium toxicity. Among 60 caregivers, 33(55%) of them had adequate level of knowledge, 27(45%) of them had moderate level of knowledge and none of them had inadequate knowledge regarding lithium toxicity.

Table-5: Aspect wise post-test mean knowledge scores of caregivers regarding lithium toxicity.

N=60

Aspects wise knowledge	Max Statement	Max Score	Range	Mean	SD
General information of lithium toxicity	5	5	3-5	4.06	0.79
Knowledge on lithium toxicity	16	16	9-15	12.45	1.87
Knowledge on management and prevention of lithium toxicity	13	13	7-11	9.38	1.13
Overall	34	34	20-31	25.9	2.48

The above tabl-5 shows, the aspectwise post-test mean knowledge scores of caregivers regarding lithium toxicity. In general information of lithium toxicity, the mean knowledge score was 4.06 ± 0.79 . In the area of knowledge on lithium toxicity, the mean knowledge score was 12.45 ± 1.87 . In concern with management and prevention of lithium toxicity, the mean knowledge score was 9.38 ± 1.13 . The total mean score in post-test was 25.9 ± 2.48 .

PART-II (B)

Comparison of mean pre-test and post-test knowledge scores to evaluate the effectiveness of structured teaching programme.

Table-6: Overall mean pre-test and post-test knowledge score of caregivers regarding lithium toxicity

N=60

Aspect	Maximum Score	Knowledge of Respondents		Paired 't' test
		Mean	SD	
Pre-test	34	16.45	2.17	23.74**
Post-test	34	25.9	2.48	
Enhancement	34	9.45	0.31	

****Significant at $P < 0.05$ level, df 59, table-value 2.6**

Table-6 depicts that, the difference of pre-test and post-test knowledge scores of caregivers regarding lithium toxicity. In pre-test, the overall mean score was 16.45 ± 2.17 whereas the mean

post-test score was 25.9 ± 2.48 . The enhancement mean score was 9.45 ± 0.31 . The obtained 't' value was 23.74, which was higher than the table value 2.6, it is highly significant at $P \leq 0.05$ level.

Inference

The above table shows that, the obtained value 23.74 were significantly higher than the table value 2.6 at $P \leq 0.05$ level of significance. Hence the research hypothesis H_1 is accepted.

Table-7: Aspectwise mean pre-test and post-test knowledge scores on lithium toxicity among caregivers. N=60

Sl: No:	Aspect wise knowledge	Knowledge of respondents				Paired 't' test
		Pre-test		Post-test		
		Mean	SD	Mean	SD	
I	General information of lithium toxicity	2.03	0.84	4.06	0.79	14.90*
II	Knowledge on lithium toxicity	8.32	1.42	12.45	1.87	13.73*
III	Knowledge on management and prevention of lithium toxicity	6.1	1.56	9.38	1.13	13.35*
	Overall	16.45	2.17	25.9	2.48	23.74*

**Significant at $P < 0.05$ level, df 59, table-value 2.6

The above table-7 shows that, the aspectwise mean pre-test and post-test knowledge scores of lithium toxicity, among 60 caregivers. With regard to general information of lithium toxicity, the mean scores in pre-test and post test were 2.03 ± 0.84 and 4.06 ± 0.79 respectively, obtained 't' value was 14.90. In the area of knowledge on lithium toxicity, mean scores in pre-test was 8.32 ± 1.42 and post-test score was 12.45 ± 1.87 and the obtained 't' value was 13.73. In concern with management and prevention of lithium toxicity, the mean scores in pre-test and post test were 6.1 ± 1.56 and 9.38 ± 1.13 respectively, obtained 't' value was 13.35. The overall 't' value was 23.74 which was above the table value 2.6 at $P \leq 0.05$ level of significance.

PART-III (B)

Table-8: Association between pre-test level of knowledge of caregivers and their selected socio demographic variables. N=60

Characteristics	Category	N	Level of Knowledge		χ^2
			Inadequate	Moderate	
	25-35 years	7	5	2	4.36

Age in Year	36-45 Years	23	10	13	NS
	46-55 years	19	8	11	
	56 years or above	11	8	3	
Gender	Male	17	9	8	0.01
	Female	43	22	21	NS
Type of family	Nuclear	44	22	22	0.18
	Joint	16	9	7	NS
	Extended	0	0	0	
Educational status	Primary education	18	17	1	28.10 S*
	Secondary education	11	8	3	
	Undergraduate	21	4	17	
	Postgraduate and above	10	2	8	
Occupational status	Self Employee	4	2	2	5.34
	Private employee	20	11	9	NS
	Government employee	6	5	1	
	Dailey Wages	14	8	6	
	Unemployed	16	5	11	
How long been caring patients	Less than 1 year	16	16	0	26.71 S*
	1-2 years	6	4	2	
	3-5 years	9	5	4	
	5 years or above	29	6	23	
Source of information	Nil	14	11	3	18.53 S*
	Mass media	7	6	1	
	Friends or relatives	4	4	0	
	Health Personnel	35	10	25	

***Significant at $P \leq 0.05$ level, S: Significant, NS; Non significant*

The above table-8 depicts that, association of pre-test level of knowledge of caregivers with their selected socio-demographic variables. The obtained chi square value for educational status, length of caring patients and source of information of caregivers were higher values (28.10, 26.71 and 18.53 respectively) when compared to the table value at $P \leq 0.05$ level of significance. There was no significant association between socio demographic variables of caregivers such as age, gender, type of family and occupational status (4.36, 0.01, 0.18 and 5.34 respectively) with prët-test level of knowledge regarding lithium toxicity.

Inference

In this study the obtained chi square value for educational status, length of caring patients and source of information of caregivers were higher when compared to the table value at $P \leq 0.05$ level of significance hence the research hypothesis H_2 is accepted.

There was no significant association between demographic variables of caregivers such as age, gender, type of family and occupational status. Hence the research hypothesis H₂ is rejected in these selected variables.

DISCUSSION

Mood disorders are emotional disturbances consisting of prolonged periods of excessive sadness, excessive joyousness, or both. Lithium compounds are the treatment of major depressive disorder. The therapeutic dose is 300-2700 mg/dl with desired serum levels of 0.6-1.2 mEq/L. Lithium toxicity may occur on an acute basis, in persons taking excessive amounts either accidentally or intentionally, or on a chronic basis, in people who accumulate high levels during ongoing therapy. Socio-demographic characteristics of samples.

The study findings demonstrated that, among 60 caregivers, 23(38.33%) of them were between 36-45 years of age, 19(31.67%) of them were between 46-55 years of age, 11(18.33%) of them were 56 years or above age and 7(11.67%) of them were between 25-35 years of age.

With regard to the gender of caregivers, 43(71.67%) of them were females and 17(28.33%) of them were males.

In the area of religion, 36(60%) of caregivers were Hindus, 15(25%) of them were Muslims and 9(15%) of them were Christians.

In concern to type of family, among 60 caregivers, 44(73.33%) of them belonged to nuclear family and 16(26.67%) of them belonged to joint family.

Based on the educational status of caregivers, 21(35%) of them were undergraduate, 18(30%) of them had primary education, 11(18.33%) of them had secondary education and 10(16.67%) of them were postgraduates or above.

It was observed that, among 60 caregivers, 20(33.33%) of them were private employees, 16(26.67%) of them were unemployees, 14(23.33%) of them were daily wages, 6(10%) of them were Government employees and 4(6.67%) of them were self employees.

With regard to the family monthly income of caregivers, 21(35%) of them had Rs. 20001-30000 of family monthly income, 16(26.67%) of them had Rs. 30001-40000 of family monthly income, 12(20%) of them had less than Rs. 20000 of family monthly income and 11(18.33%) of them

had Rs. 40001 or above family monthly income. It was observed that, 29(48.33%) of caregivers were caring their beloved for 5 years or above, 16(26.67%) of them were caring for less than 1 year, 9(15%) of them were caring for 3-5 years and 6(10%) of them were caring for 1-2 years.

The socio demographic history of source of information showed that, among 60 caregivers, 35(58.33%) of them got information from health personnel, 7(11.67%) of them got information from mass media, 4(6.67%) of them got information from friends and relatives and 14(23.33%) of them did not get any information related to lithium toxicity.

Overall and aspects wise knowledge scores of e caregivers regarding lithium toxicity

With regard to overall pre-test knowledge scores of caregivers regarding lithium toxicity, 31(51.67%) of them had inadequate level of knowledge and 29(48.33%) of them had moderate level of knowledge and none of them had adequate level of knowledge regarding lithium toxicity whereas in post-test, 33(55%) of them had adequate level of knowledge, 27(45%) of them had moderate level of knowledge and none of them had inadequate knowledge regarding lithium toxicity.

Above finding of the present study was supported by a study conducted to assess the knowledge of caregivers regarding lithium toxicity. A descriptive study design was used for this study.

Structured questionnaire was used to collect the information from the caregivers. Around 180 caregivers were enrolled for the study. Result showed that, majority 126(70%) of caregivers had poor knowledge regarding lithium toxicity with a mean score of 12.6 ± 4.5 . Thus the study concluded that, caregivers had poor knowledge about lithium toxicity so there is a need for education of this group to get proper information to lithium toxicity.

Comparison of pre-test and post-test mean knowledge score of caregivers in order to evaluate the effectiveness of STP on lithium toxicity.

In this study a comparison was done between the pre-test mean scores and post- test mean scores in order to evaluate the effectiveness of STP regarding lithium toxicity among caregivers. It was observed that, with regard to general information of lithium toxicity, the mean scores in pre-test and post test were 2.03 ± 0.84 and 4.06 ± 0.79 respectively. The obtained 't' value was 14.90. In the area of knowledge on lithium toxicity, mean scores in pre-test was 8.32 ± 1.42 and post-test score was 12.45 ± 1.87 and the obtained 't' value was 13.73. In concern with management and prevention of lithium toxicity, the mean scores in pre-test and post test were 6.1 ± 1.56 and 9.38 ± 1.13 respectively. The obtained 't' value was 13.35. The overall 't' value was 23.74 which was above the table value 2.6 at $P \leq 0.05$ level of significance. Hence the research hypothesis H_1 is accepted

Above finding of the present study was supported by a study done to evaluate the effectiveness of structured teaching programme (STP) on prevention of lithium toxicity among 50 caregivers. One group pretest-posttest design was adopted for the study. Result revealed that the overall mean pretest knowledge score was 31.64 ± 4.09 and the posttest knowledge score was 49.51 ± 3.89 . Overall enhancement of pre-test and posttest knowledge score was 17.87 ± 1.21 with mean percentage of 17.4%. Thus the study concluded that STP was an effective means of education method for improving the knowledge of caregivers.

Association between pre-test level of knowledge of caregivers with their selected socio demographic variables.

The association between pre-test level of knowledge of caregivers with their selected socio

demographic variables were analyzed by chi square test. In this study, the obtained chi square value for educational status, length of caring patients and source of information of caregivers were higher values (28.10, 26.71 and 18.53 respectively) when compared to the table value at $P \leq 0.05$ level of significance. Hence the research hypothesis H_2 is accepted.

Above finding of the present study was supported by a study to examine knowledge of caregivers regarding prevention of lithium toxicity. Knowledge of 82 caregivers were assessed by a questionnaire. The tool had items on knowledge on of prevention of lithium toxicity. Results revealed that, about 83% caregivers were not aware of prevention of lithium toxicity but only 17% of them had average knowledge of prevention of lithium toxicity, also the knowledge of caregivers has positive association with their education (15.94), age (21.50) and socio economic status (11.3). Thus, the study concluded that there is a need for education of caregivers to improve their knowledge.

CONCLUSION

1. In this study, among 60 caregivers, 23(38.33%) of them were between 36-45 years of age, 43(71.67%) of them were females, 36(60%) of caregivers were Hindus, 44(73.33%) of them belonged to nuclear family, 21(35%) of them were undergraduate, 20(33.33%) of them were

- private employees, 29(48.33%) of caregivers were caring their beloved for 5 years or above and, 35(58.33%) of them got information from health personnel.
2. With regard to overall pre-test knowledge scores of caregivers regarding lithium toxicity, 31(51.67%) of them had inadequate level of knowledge and 29(48.33%) of them had moderate level of knowledge and none of them had adequate level of knowledge regarding lithium toxicity whereas in post-test, 33(55%) of them had adequate level of knowledge, 27(45%) of them had moderate level of knowledge and none of them had inadequate knowledge regarding lithium toxicity.
 3. In pre-test, the overall mean score was 16.45 ± 2.17 whereas the mean post-test score was 25.9 ± 2.48 . The enhancement mean score was 9.45 ± 0.31 . The obtained 't' value was 23.74, which was higher than the table value 2.6, it is highly significant at $P \leq 0.05$ level. Hence H_1 is accepted.
 4. The obtained chi square value for educational status, length of caring patients and source of information of caregivers were higher values (28.10, 26.71 and 18.53 respectively) when compared to the table value at $P \leq 0.05$ level of significance. Hence the research hypothesis H_2 was accepted.

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