MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2025.1.161.167

OPEN ACCESS

Key Words
Depression, anxiety, pulmonary tuberculosis, demographic variables

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Received: 25 September 2024
Accepted: 11 November 2024
Published: 16 December 2024

Citation: Md S. Shahid Basha, Inakollu Vamsi Krishna, M. Suresh Kumar, D. Ravi Kiran and Md S. Sajid Basha, 2025. Study of Association of Socio-Demographic Variables with Depression Anxiety and Alcohol Abuse in Patients with Pulmonary Tuberculosis on Anti-Tubercular Drugs. Res. J. Med. Sci., 19: 161-167, doi: 10.36478/makrjms.2025.1.161.167

Study of Association of Socio-Demographic Variables with Depression Anxiety and Alcohol Abuse in Patients with Pulmonary Tuberculosis on Anti-Tubercular Drugs

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ABSTRACT
This study was conducted to assess the relationship between depression, anxiety and alcohol abuse and socio-demographic variables like sex, religion, region, education, occupation and socioeconomic status. A study was conducted at Tuberculosis and chest diseases Out Patient Department for a period of one year with a sample size of 100 patients with diagnosed pulmonary tuberculosis who were on anti-tubercular drugs. The tools used were socio demographic data, Modified Kuppuswamy Classification, MINI-International Neuro Psychiatric Interview Scale, Hamilton depression rating scale (HAMD) and AUDIT (Alcohol use disorder identification test). Study shows 62% of depression, anxiety and alcohol abuse in pulmonary tuberculosis patients. No significant statistical association noted between socio demographic variables and depressive, anxiety and alcohol use disorders, except education, income and depression. Lower income and illiterates are more depressed. There is no significant statistical correlation between socio demographic variables and anxiety disorders. Alcohol abuse is more in Upper lower class patients. No significant statistical correlation is seen between socio demographic variables and alcohol use disorders, except sex, residence, occupation. There is no statistical significant difference between social demographic variables and depressive disorders except education and income. More attention has to be paid to the psychiatric manifestations in chronic illnesses like tuberculosis in order to alleviate the mental sufferings of these patients.

INTRODUCTION

The medical disorders may complicate the diagnosis and management of psychiatric disorders and hence the phrase "due to general medical condition" in DSM-IV TR is present to resolve misleading distinction between organic and functional disorders. In pulmonary tuberculosis (TB) there is high prevalence of psychiatric disorders and depression is the commonest. In chronic illnesses like Pulmonary TB more attention has to be paid to psychiatric manifestations to alleviate mental suffering of patients[1]. Slater and Roth[2] had mentioned in their book "Gross Slater and Roth Clinical Psychiatry", that generalized somatic disorders likely to be complicated by depression are infective hepatitis, infective mononucleosis, influenza, atypical pneumonia, tuberculosis, rheumatic fever, asthma, ulcerative colitis, rheumatoid arthritis, neuro dermatitis, endocrine diseases, etc. and there is emotional and cognitive dysfunction among these population[3]. The non-availability of sufficient resources, HIV associated TB, MDRTB, migration, poverty and political barriers have been blamed for the failure to control TB. Non adherence to treatment is the principal obstacle in eliminating TB. To ensure compliance DOTS, medication monitors and legal action have been adopted. Age, gender, alcohol and drug dependence, adverse drug reactions, absence of symptoms, quality of communication between health workers and patients, incentives, health culture, beliefs and absence of educational programmes are associated with non-compliance. There current study is to measure the association among socio-demographic variables and depression, anxiety and alcohol abuse in patients suffering from pulmonary tuberculosis on anti-tubercular drugs.

MATERIALS AND METHODS

Totally 100 patients diagnosed as pulmonary tuberculosis using ATT drugs after 2 months of completion. Study conducted at Department of TBCD (OPD), S.V.V.R.G.H, Tirupati during the period of one year. Data regarding socio demographic details were taken using semi-structured proforma. Then MINI scale was applied for screening, then the diagnosis Depression, Anxiety and alcohol abuse by DSM IV TR and evaluated by Hamilton depression rating scale. Patients above 18 years of age diagnosed with pulmonary tuberculosis after completion of 2 months using ATT were included in the study. Kuppuswamy's socio-economic status, Mini International Neuropsychiatric Interview (MINI) and HDRS scales were measured. Association measured between socio-demographic variables and depression, anxiety and alcohol abuse in patients with pulmonary tuberculosis on anti-tubercular drugs.

RESULTS AND DISCUSSIONS

In the present study prevalence of depression was more among who studied up to high school. In the study group there were 24 illiterates, among them 6 (25%) has mild depression. 20 have studied up to primary school, among them, 4 (20%) have moderate and 4 (20%) have severe depression. 14 have studied up to middle school, among them 6 (42.9%) have mild, 2(14.3%) have moderate depression. 26 have studied up to high school among them 6 (23.1%) have mild, 6 (23.1%) have moderate and 2 (7.7%) have severe depression, 10 have studied up to intermediate/ diploma among them 2(20%) have moderate depression and there are 6 graduates among them 2(33.3%) had mild depression. The p value of 0.011 in overall group statistics, is significant. The prevalence of Depression was more in unemployed and semi-skilled workers in the present study. There were 34 unemployed among them 6(17.6%) with mild depression, 2 (5.9%) with moderate, and 4(11.8%)with severe depression. There were 29 un-skilled workers out of them 6(20.7%) with mild depression and 4(13.8%) with moderate depression. There were 19 semi-skilled workers out of them there were 4(21.1%) with mild depression, 6(31.6%) moderate depression, and 2(10.5%) with severe depression. There were 10 skilled workers among them 2(20%) were in mild depression and, 2(20%) with moderate depression. Among 2 shop owners 1(50%) is with mild depression. In 3 semi-professionals no one is with depression. Among 3 professionals 1(33.3%) is with mild depression. The p value of 0.507 in overall group statistics, is not significant. In the present study depression is more in income group of Rs 15536-20714. There were 4 in the income group of Rs 2092-6213 and has no depression among them. There were 22 patients in group of Rs 6214-10356 of family income, among them 4 (18.2%) have mild depression and 6(27.3%) have moderate depression. There were 28 patients in family income group of Rs 10357-15535 among them, 2(7.1%) have mild and 4(14.3%) have moderate depression. There were 35 patients in total family income group of Rs 15536-20714, among them 11 (31.4%) have mild, 4 (11.4%) have moderate and 6(17.1%) have severe depressive disorder. There were 10 patients in Rs 20715-41429 of family income 2(20%) have mild depression and in family income of Rs >41430 has 1 (100%) has mild depression. In the present study prevalence of depression is more among patients belonging to upper lower class. There were 3 patients from upper class among them 1(33.3%) is with mild depression. There were 5 patients from upper middle socio economic status among them 1(20.0%) has mild depression. 39 patients with lower middle class with 10(25.6%) mild, 6 (15.4%) moderate and 2

Table 1: Association Between Education Status and Depression

			Depression				
			Nil	**Mild**	**Moderate**	**Severe**	**Total**
Education status	Illiterate	Count	18	6	0	0	24
		% within Education status	75.0%	25.0%	0.0%	0.0%	100.0%
	Primary School	Count	12	0	4	4	20
		% within Education status	60.0%	0.0%	20.0%	20.0%	100.0%
	Middle School	Count	6	6	2	0	14
		% within Education status	42.9%	42.9%	14.3%	0.0%	100.0%
	High School	Count	12	6	6	2	26
		% within Education status	46.2%	23.1%	23.1%	7.7%	100.0%
	Intermediate	Count	8	0	2	0	10
		% within Education status	80.0%	0.0%	20.0%	0.0%	100.0%
	Graduation/PG	Count	4	2	0	0	6
		% within Education status	66.7%	33.3%	0.0%	0.0%	100.0%
Total		Count	60	20	14	6	100
		% within Education status	60.0%	20.0%	14.0%	6.0%	100.0%

Pearson Chi-Square=30.141., p=0.011

Table 2: Association Between Occupation and Depression

			Depression				
			Nil	**Mild**	**Moderate**	**Severe**	**Total**
Occupation	Unemployed	Count	22	6	2	4	34
		% within Occupation	64.7%	17.6%	5.9%	11.8%	100.0%
	Unskilled Worker	Count	19	6	4	0	29
		% within Occupation	65.5%	20.7%	13.8%	0.0%	100.0%
	Semi-Skilled Worker	Count	7	4	6	2	19
		% within Occupation	36.8%	21.1%	31.6%	10.5%	100.0%
	Skilled Worker	Count	6	2	2	0	10
		% within Occupation	60.0%	20.0%	20.0%	0.0%	100.0%
	Clerical, Shop-owner	Count	1	1	0	0	2
		% within Occupation	50.0%	50.0%	0.0%	0.0%	100.0%
	Semi-Profession	Count	3	0	0	0	3
		% within occupation	100.0%	0.0%	0.0%	0.0%	100.0%
	Profession	Count	2	1	0	0	3
		% within Occupation	66.7%	33.3%	0.0%	0.0%	100.0%
Total		Count	60	20	14	6	100
		% within Occupation	60.0%	20.0%	14.0%	6.0%	100.0%

Pearson Chi-Square=17.229, p=0.507

Table 3: Association Between Income and Depression

			Depression				
			Nil	**Mild**	**Moderate**	**Severe**	**Total**
Income(in Rs)	2092-6213	Count	4	0	0	0	4
		% within income	100.0%	0.0%	0.0%	0.0%	100.0%
	6214-10356	Count	12	4	6	0	22
		% within Income	54.5%	18.2%	27.3%	0.0%	100.0%
	10357-15535	Count	22	2	4	0	28
		% within Income	78.6%	7.1%	14.3%	0.0%	100.0%
	15536-20714	Count	14	11	4	6	35
		% within income	40.0%	31.4%	11.4%	17.1%	100.0%
	20715-41429	Count	8	2	0	0	10
		% within Income	80.0%	20.0%	0.0%	0.0%	100.0%
	> 41430	Count	0	1	0	0	1
		% within Income	0.0%	100.0%	0.0%	0.0%	100.0%
Total		Count	60	20	14	6	100
		% within INCOME	60.0%	20.0%	14.0%	6.0%	100.0%

Pearson Chi-Square=31.200., p=0.008

Table 4 : Association Between Socioeconomic Status and Depression

			Depression				
			Nil	**Mild**	**Moderate**	**Severe**	**Total**
SES	Lower	Count	8	2	0	0	10
		% within SES group	80.0%	20.0%	0.0%	0.0%	100.0%
	Upper Lower	Count	25	6	8	4	43
		% within SES group	58.1%	14.0%	18.6%	9.3%	100.0%
	Lower Middle	Count	21	10	6	2	39
		% within SES group	53.8%	25.6%	15.4%	5.1%	100.0%
	Upper Middle	Count	4	1	0	0	5
		% within SES group	80.0%	20.0%	0.0%	0.0%	100.0%
	Upper	Count	2	1	0	0	3
		% within SES group	66.7%	33.3%	0.0%	0.0%	100.0%
Total		Count	60	20	14	6	100
		% within SES group	60.0%	20.0%	14.0%	6.0%	100.0%

Table 5: Association Between Sex and Anxiety Disorder

			Anxiety Disorder			
			Nil	Panic Disorder	Generalised Anxiety disorder (GAD)	Total
SEX	Male	Count	52	5	1	58
		% within Sex	89.7%	8.6%	1.7%	100.0%
	Female	Count	34	3	5	42
		% within Sex	81.0%	7.1%	11.9%	100.0%
Total		Count	86	8	6	100
		% within Sex	86.0%	8.0%	6.0%	100.0%

Pearson Chi-Square=4.489., p=0.106

Table 6: Association Between Residence and Anxiety Disorder

			Anxiety Disorder			
Disorder			Nil	Panic Disorder	Generalised Anxiety disorder (GAD)	Total
Residence	Urban	Count	30	2	4	36
		% within Residence	83.3%	5.6%	11.1%	100.0%
	Semiurban	Count	28	1	1	30
		% within Residence	93.3%	3.3%	3.3%	100.0%
	Rural	Count	28	5	1	34
		% within Residence	82.4%	14.7%	2.9%	100.0%
Total		Count	86	8	6	100
		% within Residence	86.0%	8.0%	6.0%	100.0%

Pearson Chi-Square=5.720., p=0.22

Table 7. Association Between Education Status and Anxiety Disorder

			Anxiety Disorder			
Disorder			Nil	Panic Disorder	Generalised Anxiety disorder (GAD)	Total
Education status	Illiterate	Count	22 0	2	24	
		% within Education status	91.7%	0.0%	8.3%	100.0%
	Primary School	Count	16 4	0	20	
		% within Education status	80.0%	20.0%	0.0%	100.0%
	Middle School	Count	12 0	2	14	
		% within Education status	85.7%	0.0%	14.3%	100.0%
	High School	Count	22 3	1	26	
		% within Education status	84.6%	11.5%	3.8%	100.0%
	Intermediate	Count	10 0	0	10	
		% within Education status	100.0%	0.0%	0.0%	100.0%
	Graduation/PG	Count	4 1	1	6	
		% within education status	66.7%	16.7%	16.7%	100.0%
Total		Count	86 8	6	100	
		% within Education status	86.0%	8.0%	6.0%	100.0%

Pearson Chi-Square=14.037., p=0.171

Table 8. Association Between Occupation and Anxiety Disorder

			Anxiety disorder			
			Nil	Panic Disorder	GAD	Total
Occupation	Unemployed	Count	30	2	2	34
		% within occupation	88.2%	5.9%	5.9%	100.0%
	Unskilled Worker	Count	25	2	2	29
		% within Occupation	86.2%	6.9%	6.9%	100.0%
	Semi-Skilled Worker	Count	15	3	1	19
		% within Occupation	78.9%	15.8%	5.3%	100.0%
	Skilled Worker	Count	10	0	0	10
		% within Occupation	100.0%	0.0%	0.0%	100.0%
	Clerical, Shop-owner	Count	2	0	0	2
		% within Occupation	100.0%	0.0%	0.0%	100.0%
	Semi-Profession	Count	2	0	1	3
		% within occupation	66.7%	0.0%	33.3%	100.0%
	Profession	Count	2		1	03
		% within Occupation	66.7%	33.3%	0.0%	100.0%
Total		Count	86	8	6	100
	`	% within Occupation	86.0%	8.0%	6.0%	100.0%

Pearson Chi-Square=10.639., p=0.560

Table 9: Association Between Socioeconomic Group and Anxiety Disorder

			Anxiety Disorder			
			Nil	Panic Disorder	GAD	Total
SES GROUP	Lower	Count	10	0	0	10
		% within SES group	100.0%	0.0%	0.0%	100.0%
	Upper Lower	Count	33	6	4	43
		% within SES group	76.7%	14.0%	9.3%	100.0%
	Lower Middle	Count	37	1	1	39
		% within SES group	94.9%	2.6%	2.6%	100.0%
	Upper Middle	Count	4	0	1	5
		% within SES group	80.0%	0.0%	20.0%	100.0%
	Upper	Count	2		1	03
		% within SES group	66.7%	33.3%	0.0%	100.0%
Total		Count	86	8	6	100
		% within SES group	86.0%	8.0%	6.0%	100.0%

Pearson Chi-Square=12.079., p=0.148

Table 10: Association Between Residence and Alcohol Abuse

			Alcohol Abuse				
			Nil	**Mild**	**Moderate**	**Severe**	**Total**
Residence	Urban	Count	27	5	4	0	36
		% within Residence	75.0%	13.9%	11.1%	0.0%	100.0%
	Semi urban	Count	21	2	1	6	30
		% within Residence	70.0%	6.7%	3.3%	20.0%	100.0%
	Rural	Count	24	5	4	1	34
		% within Residence	70.6%	14.7%	11.8%	2.9%	100.0%
Total		Count	72	12	9	7	100
		% within Residence	72.0%	12.0%	9.0%	7.0%	100.0%

Pearson Chi-Square=13.197., p=0.040

Table 11: Association Between Socio-Economic Status and Alcohol Abuse

			Alcohol abuse				
			Nil	**Mild**	**Moderate**	**Severe**	**Total**
SES group	Lower	Count	10	0	0	0	10
		% within SES group	100.0%	0.0%	0.0%	0.0%	100.0%
	Upper Lower	Count	29	6	3	5	43
		% within SES group	67.4%	14.0%	7.0%	11.6%	100.0%
	Lower Middle	Count	27	6	4	2	39
		% within SES group	69.2%	15.4%	10.3%	5.1%	100.0%
	Upper Middle	Count	4	0	1	0	5
		% within SES group	80.0%	0.0%	20.0%	0.0%	100.0%
	Upper	Count	2	0	1	0	3
		% within SES group	66.7%	0.0%	33.3%	0.0%	100.0%
Total		Count	72	12	9	7	100
		% within SES group	72.0%	12.0%	9.0%	7.0%	100.0%

Pearson Chi-Square= 10.561., p=0.56

(5.1%) severe depression. Among 43 patients with upper lower socio economic status 6(14%) have mild, 8(18.6%) moderate and 4 (9.3%) severe depression. p value is 0.777., indicating that there is a no statistically significant relation between depression and socio economic status. In the present study prevalence of anxiety disorders is more among females. There were 58 males among them 5 (8.6%%) have panic disorder, 1(1.7%) have GAD. Among the 42 females, 3 (7.1%) have panic disorder and 5 (11.9%) has GAD. The p value of 0.106 in the overall group statistics is not significant. In the present study prevalence of anxiety disorders is more among patients belonging to urban and rural background. There were 36 patients from urban background, among them 2 (5.6%) have panic disorder and 4 (11.1%) have GAD. 30 patients were from semi urban background among them 1 (3.3%) has panic disorder and 1 (3.3%) has GAD. 34 patients were from rural background, 5(14.7%) have panic disorder and 1 (2.9%) has GAD. The p value of 0.221 in the overall group statistics is not significant. There were 24 patients who are illiterate, among them 2 (8.3%) have GAD. Another 20 patients studied up to primary school among them 4 (20%) have panic disorder. 14 patients studied up to middle school, among them 2 (5.3%) have panic disorder. 26 patients studied up to high school, among them 3 (11.5%) have panic disorder and 1(3.8%) has GAD. 10 studied up to intermediate/ diploma no anxiety disorder was seen. There are 6 graduates 1(16.7%) with panic disorder and 1(16.7%) with GAD. The p value of 0.171 in the overall group statistics is not significant. There were 34 unemployed patients, 2(5.9%) with panic disorder and 2(5.9%) with GAD. There were 29 skilled workers among them 2(6.9%) have panic disorder and 2(6.9%) have GAD disorder. Among 19 semi-skilled workers 3(15.9%) have panic disorder and 1 (5.3%) has GAD. Among 10 skilled workers no anxiety disorders was present. Among 3 semi-professionals 1(33.3%) has GAD and among 3 professionals 1(33.3%) has panic disorder. The p value of 0.560 in the overall group statistics is not significant. In the present study prevalence of anxiety disorders is more among patients belonging to class IV. Among 10 patients from lower socio economic status there was no anxiety disorder. There were 43 patients, who belongs to upper lower socio economic status among them 6 (14%) have panic disorder and 4 (9.3%) have GAD. In 39 lower middle Class patients among them 1 (2.6%) has panic disorder, 1 (2.6%) has GAD. In 5 upper middle Class patients among them 1 (20%) has GAD. The p value of 0.148 in the overall group statistics is not significant. In the present study rural population have more prevalence for alcohol abuse. In Urban patients 5(13.9%) have mild and 4(11.1%) have moderate alcohol abuse. In semi-urban group 2(6.7%) with mild, 1(3.3%) with moderate and 6(20%) with severe alcohol abuse is seen. Among rural people 5(14.7%) have mild, 4(11.8%) have moderate and 1(2.9%) has severe alcohol abuse. P value in overall group statistics is 0.040 which is significant. In the present study upper lower class has more prevalence for alcohol abuse. In lower socio economic status class patients no alcohol abuse is seen. In upper lower class 6(14%) have mild, 3(7%) have moderate and 5 (11.6%) have severe alcohol abuse. In lower middle class 6(15.4%) have mild, 4(10.3%) have moderate and 2(5.1%) have severe alcohol abuse. In upper middle 1(20%) has moderate alcohol abuse and in upper class

1(33.3%) has moderate alcohol abuse. The p value is 0.567 among overall group statistics which is not significant.

This study shows the relationship between socio demographic variable like age, sex, region, religion, education, income, occupation, socio economic status associated with pulmonary tuberculosis and depression, anxiety and alcohol abuse. In this study depressive disorders in patients with different educational levels are studied and the statistical value is significant. It is comparable with Indian studies done by Purohit[4], Manoharam[5] where more illiterates are depressed as they did not believe in the infectious nature of the disease and feared incapacitation and death and not comparable with the studies done by Yadav[6] and John Mathai[7]. In this study depressive disorders in different occupations are studied and it is not significant. It is comparable to Indian studies by Gupta[8] and it differs from the study by Purohit *et al* and Yadav *et al* where farmers were more depressed maybe because of debts and losses. In this study depressive disorders in different income groups are studied and it is significant. More depressive disorders in pulmonary tuberculosis was seen in lower income patients. It may be because of financial burden acting as a psychological stress. As such pulmonary tuberculosis can cause physical strain and patients cannot perform their occupation effectively leading to economic crisis. It is comparable with the Indian studies done by Purohit *et al.* In this study the prevalence of anxiety disorders in patients suffering from pulmonary tuberculosis is not statistically significant with religion and it is comparable with the studies done by Yadav *et al,* John Mathai *et al*, Gupta, *et al,* Fulop[9], Silverstone[10] and differs from study by Manoharam[11] wherein Hindus had more anxiety disorders. In this study the prevalence of anxiety disorders in patients suffering from pulmonary tuberculosis using anti tubercular drugs is not statistically significant with the residence they are living in and this finding is on par with the studies done by John Mathai *et al*, Gupta *et al,* Bhatia[12], Immerman[13], Fulop *et al,* Silverstone *et al.* and Manoharam *et al.* In this study the prevalence of anxiety disorders in patients suffering from pulmonary tuberculosis is not statistically significant with the educational status and it is comparable with studies done by Yadav *et al,* John Mathai *et al,* Gupta *et al,* Immerman *et al* and Fulop *et al.* Anxiety disorders are more in illiterates and in the primary educated group. The probable reason being the lesser educated people might still be having stigma about tuberculosis and perceiving tuberculosis as curse by God, feeling of being separated from the family members and fear of spreading the illness to others. In this study the prevalence of anxiety disorders in patients suffering from pulmonary tuberculosis is not statistically significant with occupational status and It is comparable with earlier studies done by John Mathai *et al,* Gupta *et al,* Bhatia *et al,* Immerman *et al*, Fulop *et al*, Silver stone and it is different from the study done by Yadav *et al.* In this study anxiety disorders in different income and socio economic groups are studied and statistically it is not significant. It is comparable with Yadav et al and John Mathai *et al* and differs from study by. Manoharam *et al* that lower socio economic group has more anxiety disorders. In this study the prevalence of alcohol abuse disorder in patients suffering from pulmonary tuberculosis is statistically significant with the sex and it is comparable with earlier studies done by Silver stone that Males have more alcohol abuse or dependence and not comparable with studies by Bereket Duko *et al* in Ethopia. The depressive disorder is computed against socio demographic variables like sex, religion, region, education, occupation, income and socio economic status. There is significant difference in socio demographic variables like income and education status. There are no significant difference in anxiety disorders in different sex, religion, region, occupation and socio economic status. The anxiety disorders are computed against socio demographic variables like sex, religion, region, education, occupation, income and socio economic status. There are no significant difference in anxiety disorders in different sex, religion, region, occupation, income, education, socio economic status. The alcohol abuse is computed against socio demographic variables like sex, religion, region, education, occupation, income and socio economic status. There is significant difference in socio demographic variables like sex, residence and occupation. There are no significant difference in anxiety disorders in different religion, region, education, total family income and socio economic status.

CONCLUSION

There is no relationship between anxiety disorders and sociodemographic variables. The prevalence of these psychiatric disorders in patients with pulmonary tuberculosis is significantly high. Depression is the commonest among them. More attention has to be paid to the psychiatric manifestations in chronic illnesses like tuberculosis in order to alleviate the mental sufferings of these patients.

REFERENCES

1. Mathai, P.J., P. Ravindran, P. Joshi and P. Sundaram., 1981. Psychiatric morbidity in pulmonary tuberculosis-a clinical study. Indian J Psychiatry., 23: 66-68.

2. Slater, E. and M. Roth., 1696. Mayer-Gross Slater and Roth Clinical Psychiatry, 3rd edition, 3rd ed Edn., Love and Brydone Ltd, London,.
3. Cavanaugh. S. V., 1983. "The prevalence of emotional and cognitive dysfunction in a general medical population: using the MMSE, GHQ, and BDI. General Hospital Psychiatry., 5:15-21.
4. Purohit, D.R. S.D. Purohit and M.L. Dhariwal., 1978. Incidence of depression in Hospitalized T.B.Patients. Ind J Tub., Vol. 25.
5. Manoharam, E., K.R. John, A. Joseph and K.S. Jacob., 2001. Psychiatric Morbidity, Patient's perspectives of Illness and factors associated with poor medication compliance among the tuberculosis in vellore, South india. Ind J tub., Vol. 48 .
6. Yadav, B.S. S.C. Jain, G. Sharma, M.M. Lehrotra 1980. Aditya Kumar Psychiatric Morbidity in Pulmonary Tuberculosis. Ind J Tub., 27: 147-151.
7. John, M.P., P. Ravindran, P. Joshi and P. Sundaram,. 1981. Psychiatric Morbidity in pulmonary Tuberculosis A Clinical study. Ind J of Psychiat., 23: 66-68.
8. Gupta, L.N., L. Bhatia, C. Godara, N. Vyas and S. Inghal., 1981. Life Events, Physical illness and Psychiatric Morbidity. Ind J Psychiat., 25: 317-321.
9. Fulop, G., 1990. Anxiety disorders in the general hospital setting. Psychiatr Med., 8: 187-195.
10. SILVERSTONE, P.H., 1996. Prevalence of Psychiatric Disorders in Medical Inpatients. The J. Nervous and amp Mental Dis., 184: 43-51.
11. Bhatia, M.S., K.K. Dubey, S.K. Bhasin and S. Narender., 2000. Psychiatric morbidity in Tuberculosis patients. Ind. Med. Gezette., 134: 5-6.
12. Immerman, K.L and L.E. Pankratova., 1988. Characteristics of the nature and dynamics of neuropsychic disorders in patients with newly detected pulmonary tuberculosis undergoing intensive chemotherapy. Zh Nevropatol Psikhiatr Im S.S. Korsakova., 88: 109-1130.