

Psychiatric Morbidity in Patients with Leprosy in a Tertiary Care Centre: Case-Control Study

Dr. Abhijith Krishna¹, Dr. Joylin Jovita Mascarenhas², Dr. P .John Mathai³

¹Senior Registrar, Northwest Mental Health Services, Melbourne.

²Assistant Professor, Dept of Psychiatry, Father Muller Medical College, Mangalore.

³Professor, Dept of Psychiatry, Jubilee Mission Hospital, Thrissur

Corresponding Author: Dr. Joylin Jovita Mascarenhas

ABSTRACT

Background: Patients with leprosy have a relatively higher risk of psychiatric morbidity. Research reports indicate that they are due to the stigma & ignorance associated with the illness & social variables like emotional, social & health mal-adjustments. There are only limited number of studies investigating the frequency & nature of psychiatric morbidity in leprosy patients.

Objectives: To evaluate the frequency & nature of psychiatric disorders in patients suffering from leprosy & to study the relationship between psychiatric morbidity in patients with leprosy & the socio-demographic & clinical variables.

Methodology: One hundred & forty subjects, 100 leprosy & 40 controls with chronic dermatological disorders were evaluated. Tools used were ICD-10 AM symptom checklist to screen for & diagnose psychiatric disorders, Comprehensive Psychopathological Rating Scale (CPRS) to assess psychopathology & Socio-economic Status Schedule (SESS) to assess socio-demographic variables.

Results: Depressive disorders were the most common psychiatric morbidity in patients with leprosy, but there were no significant differences in the frequency & nature of psychiatric disorders in patients with leprosy when compared to the control group. The psychiatric morbidity in leprosy patients does not have significant statistical relationship with socio-demographic & clinical variables studied.

Keywords: Leprosy, Psychiatric morbidity, Socio-demographic & clinical variables.

INTRODUCTION

Leprosy is a chronic granulomatous disease caused by *Mycobacterium leprae* & transmitted by prolonged contact through skin & is highly disabling. The prevalence & annual new case detection of leprosy globally has shown a declining trend in most countries & a stabilizing trend has been noticed in India. The National prevalence rate was 57.6/10,000 in 1981 & has declined to 0.72/10,000 in 2009. (1-2)

In India, leprosy is known as “Kushtaroga” & attributed as punishment or curse from god & the social stigma connected to it is widespread making leprosy completely different from other diseases. The stigma associated with leprosy

is made up of four components: physical, psychological, social & moral. (3,4) The resultant social isolation along with the experience of leprosy itself (impaired sensory perception, muscle weakness, diminished work capacity etc) & anti-leprosy medications makes them vulnerable to psychiatric disorders. (5) Research evidences have shown a higher prevalence of psychiatric disorders, particularly depressive disorders in leprosy patients as well as dermatology out & inpatients compared to general population. (3) However, there are only few investigations that evaluated the prevalence & nature of psychiatric disorders in patients with leprosy & how they are different from those

in other chronic dermatological diseases. Hence this study was undertaken to evaluate the same & its association with the socio-demographic & clinical variables.

MATERIALS & METHODS

The investigation was conducted in the outpatient & inpatient wings of the Department of Dermatology of Father Muller Medical College, Mangalore. Patients attending the dermatology outpatient department & inpatients with a definite diagnosis of leprosy constituted the study population. The study was conducted between 1st September 2009 to 31st August 2011. 100 patients with leprosy (outpatients & inmates of St. Joseph's leprosy ward) selected randomly constituted the Case group & 40 patients with chronic dermatological diseases other than leprosy & without medical disorders constituted the Control group. Both males & females in the age group of 18-64 years were the additional inclusion criteria. The exclusion criteria included those with comorbid medical or surgical diseases, psychiatric disorders before the onset of leprosy patients with cognitive impairment & those with substance use other than caffeine & nicotine before the onset of leprosy.

The study was cleared by the Institutional ethical committee. Informed consent was obtained from all the patients. All the relevant socio-demographic & clinical data was gathered & recorded with the use of a specially designed proforma. The clinical variables of leprosy such as the age of onset, duration of illness, subcategories & treatment variables were obtained from each patient. The socio-economic status was assessed using the Socio-economic Status Schedule. ⁽⁶⁾ All the patient underwent a thorough clinical examination including the mental status. The psychiatric disorders were assessed using the ICD-10 AM checklist for mental disorders. ⁽⁷⁾ All the patients were initially examined using the screener of the checklist to identify those who require further psychiatric evaluation. Appropriate modules of ICD-10 SCL-AM

were administered for such patients. All the patients identified as cases by the screener were rated on the Comprehensive Psychopathological Rating Scale (CPRS). ⁽⁸⁾ Diagnosis of Psychiatric disorders was made according to DCR-10 (Diagnostic Criteria for Research).

Statistical Analysis:

The results obtained were analysed by the chi-square, Fisher's exact & t-test. Mann-Whitney test was used to analyse CPRS scores.

RESULTS

Socio-demographic & Clinical variables among the study population (Table 1):

There was a highly significant difference between leprosy patient & the control group with respect to religion & income with 62.9% Hindus & 23.6% of the study population with an income of Rs 1001-2000/- respectively. There was also a statistically significant difference between the leprosy patients & the control group with respect to age distribution, gender & education. However, there was no significant difference with respect to socio-demographic variables like marital status, education, occupation, domicile & socioeconomic status & clinical variables like family history & substance use. The study population had no subjects who had a higher professional degree or occupation & belonged to Category I socio-economic status.

Clinical Variables in patients with Leprosy

Among the various subcategories in the patient group, Borderline tuberculoid & Lepromatous leprosy were higher in the study group (Figure 1). Most of the patients were lepra positive & paucibacillary status was slightly higher than the multibacillary leprosy (Figure 2). Most of the patients had the onset of the illness between 19-30 yrs (35%) & the duration of illness was <1 yr (40%). Nearly half of the study group had completed the treatment & were currently off medications (Figure 3 & 4)

Table1: Socio-demographic & Clinical variables among the study population

Socio-demographic variables	Patients(n=100)	Controls(n=40)	Total(n=140)	P value
Age (yrs)				
18-30	27(27%)	10(25%)	37(26.4%)	0.048*
31-40	19(19%)	11(27.5%)	30(21.4%)	
41-50	18(18%)	13(32.5%)	31(22.1%)	
51-64	36(36%)	6(15%)	42(30%)	
Gender				
Male	77(77%)	22(55%)	99(70.7%)	0.01*
Female	23(23%)	18(45%)	41(29.3%)	
Marital status				
Single	32(32%)	14(35%)	46(32.9%)	0.733
Married	68(68%)	26(65%)	94(67.1%)	
Religion				
Hindu	65(65%)	23(57.5%)	88(62.9%)	0.008**
Muslim	25(25%)	5(12.5%)	30(21.4%)	
Christian	10(10%)	12(30%)	22(15.7%)	
Education				
MastersDegree(MA/MSc)	2(2%)	2(5%)	4(2.9%)	0.037*
Graduates(BSc/BA)	13(13%)	5(12.5%)	18(12.9%)	
Intermediate	8(8%)	7(17.5%)	15(10.7%)	
Higher school certificate	21(21%)	13(32.5%)	34(24.3%)	
Middle pass	16(16%)	8(20%)	24(17.1%)	
Primary school certificate	40(40%)	5(12.5%)	45(32.1%)	
Occupation				
Semi-professional	6(6%)	4(10%)	10(7.1%)	0.282
Clericalshop owner/farm owner	8(8%)	5(12.5%)	13(9.3%)	
Skilled worker	7(7%)	6(15%)	13(9.3%)	
Semiskilled	17(17%)	9(22.5%)	26(18.6%)	
Unskilled	40(40%)	11(27.5%)	51(36.4%)	
Unemployed	22(22%)	5(12.5%)	27(19.3%)	
Income (rupees)				
3000 or above	18(18%)	13(32.5%)	31(22.1%)	0.008**
2001-3000	10(10%)	7(17.5%)	17(12.1%)	
1001-2000	26(26%)	7(17.5%)	33(23.6%)	
701-1000	15(15%)	1(2.5%)	16(11.4%)	
501-700	7(7%)	4(10%)	11(7.9%)	
301-500	3(3%)	5(12.5%)	8(5.7%)	
Below 300	21(21%)	3(7.5%)	24(17.1%)	
Domicile				
Urban	15(15%)	11(27.5%)	26(18.6%)	0.133
Semi-urban	36(36%)	9(22.5%)	45(32.1%)	
Rural	49(49%)	20(50%)	69(49.3%)	
Socio-economic Status(SESS)				
Category II	12(12%)	7(17.5%)	19(13.6%)	0.096
Category III	32(32%)	20(50%)	52(37.1%)	
Category IV	51(51%)	12(30%)	63(45%)	
Category V	5(5%)	1(2.5%)	6(4.3%)	
Family history of psychiatric /medical disorders				
Present	39(39%)	15(37.5%)	54(38.6%)	0.869
Absent	61(61%)	25(62.5%)	86(61.4%)	
Substance use				
Smoking	35(35%)	10(25%)	45(32.1%)	0.252
Coffee/tea	65(65%)	30(75%)	95(67.9%)	

(* = significant, ** = highly significant)

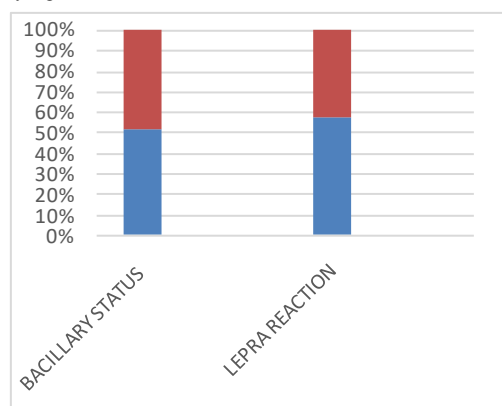
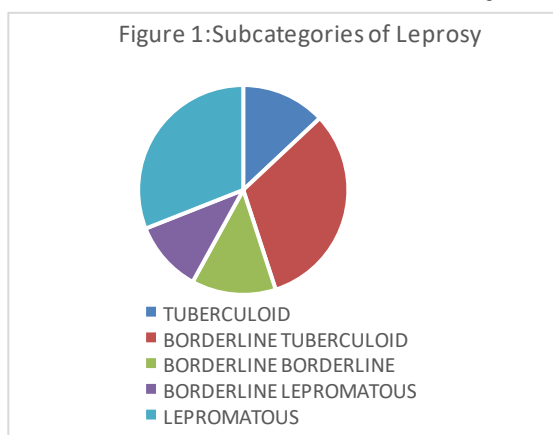
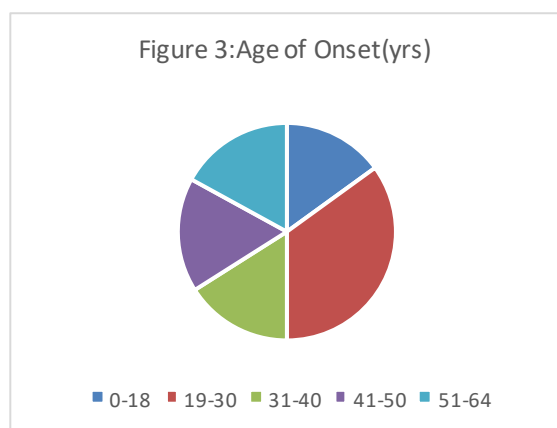


Figure2: Bacillary status & Leptra reaction



Frequency & Nature of Psychiatric disorders among the groups:

The prevalence of psychiatric disorders was found to be 43% (n=43) in patients with leprosy & 35%(n=14)among the control group & this difference was not statistically significant(p=0.384).The most common psychiatric disorder was depressive disorder(29% vs 27.5%). The

various psychiatric disorders among both the groups are depicted in Table 2. There was no statistically significant difference between the groups regarding the various psychiatric disorders.

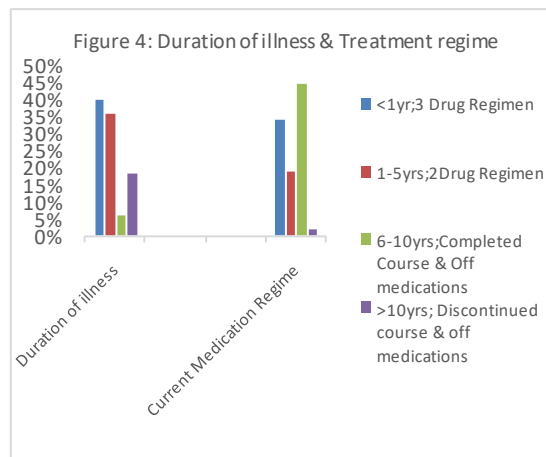


Table 2:Data regarding the various psychiatric disorders:

Psychiatric disorders	Leprosy patients(n=100)	Controls (n=40)	Total (n=140)	P value
Adjustment disorder	1(1%)	-	1(0.7%)	0.997
Delusional disorder	1(1%)	-	1(0.7%)	
Dysthymia	1(1%)	-	1(0.7%)	
Generalized anxiety disorder	5(5%)	2(5%)	7(5%)	
Mild depressive disorder	4(4%)	2(5%)	6(4.3%)	
Mixed & other anxiety disorder	2(2%)	-	2(1.4%)	
Moderate depressive disorder	12(12%)	3(7.5%)	15(10.7%)	
Obsessive compulsive disorder	1(1%)	-	1(0.7%)	
Panic disorder	2(2%)	-	2(1.4%)	
Recurrent depressive disorder-current episode moderate	1(1%)	-	1(0.7%)	
Recurrent depressive disorder-current episode severe without psychotic symptoms	1(1%)	-	1(0.71%)	
Schizophrenia	1(1%)	1(2.5%)	2(1.4%)	
Severe depressive episode with psychotic symptoms	2(2%)	1(2.5%)	3(2.1%)	
Severe depressive episode without psychotic symptoms	8(8%)	5(12.5%)	13(9.3%)	
Somatoform disorders-Hypochondriacal disorder	1(1%)	-	1(0.7%)	
Nil	67(57%)	26(65%)	83(59.3%)	

Comprehensive Psychopathological Rating Scale (Table 3):

There was no statistically significant difference in the domains of reported, observed & total CPRS scores among the two groups.

Table 3: Comprehensive Psychopathological Rating Scale (CPRS)

CPRS	Group	N	Minimum	Maximum	Mean	Standard Deviation	Median	Mann-Whitney Test Z value	P value
Reported score	Patients	100	0	29	7.70	8.135	4.00	1.037	0.3
	Controls	40	0	24	6.58	8.212	2.00		
	Total	140	0	29	7.38	8.143	3.00		
Observed score	Patients	100	0	12	1.82	2.649	1.00	0.985	0.325
	Controls	40	0	8	1.73	2.679	.00		
	Total	140	0	12	1.79	2.648	.00		
Total score	Patients	100	0	39	9.52	10.513	5.00	0.997	0.319
	Controls	40	0	32	8.30	10.675	2.00		
	Total	140	0	39	9.17	10.535	3.00		

Socio-demographic & Clinical variables among the leprosy patients(Table 4):

Psychiatric disorders were more common among males, married, unskilled workers & those belonging to Category IV socioeconomic status. Among the clinical variables, leprosy patients who had a family history of medical/psychiatric disorders, caffeine use, lepromatous subtype & completed course of treatment, had higher frequency of psychiatric disorders. However, there was no statistically significant difference between the leprosy patients with psychiatric disorders & those without the same with regard to all the socio-demographic & clinical variables.

Table 4: Socio-demographic & Clinical variables among the leprosy patients.

Socio-demographic & Clinical Variables	Leprosy Patients with psychiatric disorders (n=43)	Leprosy patients without psychiatric disorders	Total (n=100)	P value
Age (yrs)				
18-30	11(11%)	16(16%)	27(27%)	0.368
31-40	12(12%)	7(7%)	19(19%)	
41-50	6(6%)	12(12%)	18(18%)	
51-64	14(14%)	22(22%)	36(36%)	
Gender				
Male	30(30%)	47(47%)	77(77%)	0.763
Female	13(13%)	10(10%)	23(23%)	
Marital status				
Single	14(14%)	18(18%)	32(32%)	0.641
Married	29(29%)	39(39%)	68(68%)	
Religion				
Hindu	21(21%)	44(44%)	65(65%)	0.745
Muslim	17(17%)	8(8%)	25(25%)	
Christian	5(5%)	5(5%)	10(10%)	
Education				
Masters Degree (MA/MSc)	0(0%)	2(2%)	2(2%)	0.577
Graduates (BSc/BA)	6(6%)	7(7%)	13(13%)	
Intermediate	3(3%)	5(5%)	8(8%)	
Higher school certificate	13(13%)	8(8%)	21(21%)	
Middle pass	3(3%)	13(13%)	16(16%)	
Primary school certificate	18(18%)	22(22%)	40(40%)	
Occupation				
Semi-professional	1(1%)	5(5%)	6(6%)	0.552
Clerical/shop owner/farm owner	3(3%)	5(5%)	8(8%)	
Skilled worker	2(2%)	5(5%)	7(7%)	
Semiskilled	7(7%)	10(10%)	17(17%)	
Unskilled	20(20%)	20(20%)	40(40%)	
Unemployed	10(10%)	12(12%)	22(22%)	
Income (rupees)				
3000 or above	6(6%)	12(12%)	18(18%)	0.409
2001-3000	4(4%)	6(6%)	10(10%)	
1001-2000	11(11%)	15(15%)	26(26%)	
701-1000	8(8%)	7(7%)	15(15%)	
501-700	3(3%)	4(4%)	7(7%)	
301-500	3(3%)	0	3(3%)	
Below 300	8(8%)	13(13%)	21(21%)	
Domicile				
Urban	2(2%)	13(13%)	15(15%)	0.560
Semi-urban	17(17%)	19(19%)	36(36%)	
Rural	24(24%)	25(25%)	49(49%)	
Socio-economic Status (SESS)				
Category I	0	0	0	0.689
Category II	3(3%)	9(9%)	12(12%)	
Category III	14(14%)	18(18%)	32(32%)	
Category IV	26(26%)	25(25%)	51(51%)	
Category V	0	5(5%)	5(5%)	
Family history of psychiatric /medical disorders				
Present	30(30%)	9(9%)	39(39%)	0.773
Absent	13(13%)	48(48%)	61(61%)	
Substance use				
Smoking	16(16%)	19(19%)	35(35%)	0.589
Coffee/tea	27(27%)	38(38%)	65(65%)	
Age of onset (yrs)				
0-18	4(4%)	11(11%)	15(15%)	0.378
19-30	17(17%)	18(18%)	35(35%)	
31-40	10(10%)	6(6%)	16(16%)	
41-50	6(6%)	11(11%)	17(17%)	
51-64	6(6%)	11(11%)	17(17%)	

Table 4 to be continued...

Duration of illness				
<1year	15(15%)	25(25%)	40(40%)	0.573
1-5yrs	19(19%)	17(17%)	36(36%)	
6-10yrs	1(1%)	5(5%)	6(6%)	
>10yrs	8(8%)	10(10%)	18(18%)	
Subcategories				0.488
Tuberculoid	3(3%)	10(10%)	13(13%)	
Borderline Tuberculoid	12(12%)	20(20%)	32(32%)	
Borderline Borderline	6(6%)	7(7%)	13(13%)	
Borderline Lepromatous	3(3%)	8(8%)	11(11%)	
Lepromatous	19(19%)	12(12%)	31(31%)	
Bacillary status				0.461
Paucibacillary	19(19%)	32(32%)	51(51%)	
Multibacillary	24(24%)	25(25%)	49(49%)	
Lepra reaction				0.502
Positive	20(20%)	37(37%)	57(57%)	
Negative	23(23%)	20(20%)	43(43%)	
Current medication regime				0.622
3 drug regime(RDC)*	15(15%)	19(19%)	34(34%)	
2 drug regime(RD)*	9(9%)	10(10%)	19(19%)	
Completed course& currently off medications	18(18%)	27(27%)	45(45%)	
Discontinued course & currently off medications	1(1%)	1(1%)	2(2%)	

(*R=Rifampicin, D=Dapson, C=Clofazimine).

DISCUSSION

The present study was carried out on 100 consecutive leprosy patients & 40 patients with chronic dermatological disorders who attended the outpatient department of dermatology of Father Muller Medical College Hospital, Kankanady, Mangalore. This institute is a multi-speciality, general, private sector, teaching hospital, catering to the needs of South Kanara, Udupi and Northern districts of Kerala. The In-patient, bed strength is 60 & an average number of 60-100 patients attend the dermatology outpatient department per day. The present clinical study was conducted from September 2009 and data collection was completed by 31st August 2011.

Socio-demographic Variables:

The sample of patients with leprosy and the control group do not significantly differ in terms of marital status, occupation and domicile. Statistically significant difference between the two groups was seen in age, gender, religion, educational status and income. The difference in age (mean) between the groups was seen mainly because the majority of patients were elderly in the age group of 51-64 years who come for follow-ups and were diagnosed as having leprosy many years back. There was a significant difference in the distribution of

gender and religion between the experimental and the control group. This could be because of the preponderance of female patients and Christians in the control group, which was probably the consequence of the methodology of the present study. The present study does not control for gender and religion and samples were selected consecutively from patients attending the outpatient department. The prevalence of leprosy was reported to be more common in males. There was a statistically significant difference in the education level of the experimental group and control group with the experimental group having majority of the patients (40%) with primary school certificate, and the control group, higher school certificate (32.5%). Overall leprosy patients had lower education levels in comparison to the control group. Earlier studies report that the majority of leprosy patients are either uneducated or are illiterate. (9-12) In the present study, majority of the leprosy patients had lower income in comparison to the control group. An earlier study has found 93.3% of leprosy patients to be having either no income or an income of less than Rs. 500/- per month. (13)

Psychiatric Morbidity:

The frequency of psychiatric morbidity was higher in the patients with

leprosy (43%) compared to controls with chronic dermatological disorders (35%), which was not statistically significant. The findings of our study are consistent with earlier studies. These case-control studies have used GHQ as a screening tool & clinical examination for diagnosis based on DSM IIR/ICD-10 criteria as opposed to the ICD-10AM SCL we used to diagnose psychiatric disorders. (13-16) However, there are few reports that are discordant with our results & also few which have shown quite high frequency of psychiatric morbidity. (9,12,17) The differences can be explained by the tools used for assessment (self-reporting questionnaire), absence of control group & limited clinic based data in these studies.

Among the psychiatric morbidity in our study, depressive disorder (29%) was the commonest followed by anxiety disorders (12%). Though other studies have used different tools for assessment of psychopathology, there is striking similarity in the finding that, the commonest diagnosis made in Leprosy patients is one of depressive disorder, the percentage of which ranged from 50 to 96.6%. (9,13,15,17-20)

The present investigation was intended to study inpatients and institutionalized patients along with patients attending the outpatient department. However as inpatients and institutionalized patients were few and either did not meet the inclusion criteria or fulfill the exclusion criteria, they were not included in the present investigation. Earlier studies have shown no significant difference between outpatient, inpatient and institutionalized patient groups. (13)

The results of the present investigation suggest that the leprosy patients do not have any special vulnerability for developing psychiatric morbidity. This is contrary to the existing knowledge.

Psychiatric Morbidity & Socio-demographic variables:

Age: The results of the present investigation indicates that psychiatric disorders in leprosy patients is more common in older

age group (51-65 yrs) when compared to the younger age group but there was no statistically significant difference between those with psychiatric disorders and those without. This finding is consistent with that of earlier studies. (13)

Gender & Marital status: Psychiatric disorders were found to be less in females as compared to males, but it was not statistically significant. This finding is consistent with that of earlier studies. (13,21)

The possible reasons for this finding could be attributed to the fact that the majority of the sample populations were males. In India males are the breadwinners of the family, so when they are affected, the resultant poverty, poor living conditions and availability of treatment may lead to progression of the illness at a faster rate and the resultant disability and stigma. There could also be poor adjustment in the family and conflict with spouse due to the illness and its complications. Psychiatric disorders were less in single persons compared to the control group, but the difference was not statistically significant. This finding is consistent with some of the earlier studies and inconsistent with other studies. (17,22,23)

The reasons could be that majority of the sample population consisted of married people. Marriage comes with extra responsibility of the family which could be a stressor, decline in physical strength which can cause poor working ability, impotence resulting out of the illness or with treatment, uncertainty about the true feelings of the sexual partner, embarrassment by ulcers, fear of possible transmission of the disease, and marriage partner fearful of contracting the disease. In patients who had remained unmarried, it could be due to the presence of the illness and the associated stigma.

Religion: Present study reveals that the frequency of psychiatric disorders was higher in Hindu population, but the difference was not statistically significant. We fail to find earlier studies that are consistent with this finding. The reasons for our finding could be attributed to the fact

that majority of the patients in the present study were Hindus. Among the Indian community, most of whom are Hindus, leprosy is still considered as a punishment for their sins and suicide with regard to this is acceptable. This could also explain the higher frequency of depressive symptoms found in patients in this study.

Education: The frequency of psychiatric disorders was higher in less educated persons, but the difference was not statistically significant. The results of the present study are consistent with that of previous studies. ^(13,21) The reasons could be that the majority of the sample population had low education. The lower level of education results in poor knowledge about the illness and its treatment. Also, these patients may not complete the full course of treatment due to their poor understanding of the illness, resulting in poor response to further treatment. They may consider leprosy as a curse and approach religious and other alternative therapies at first, resulting in a more rapid progression of illness, not amenable to usual mode of treatment. These can lead to disabling deformities and worsening of stigma.

Occupation & Income: The present investigation finds that unemployed and unskilled laborers had more psychiatric disorders but the difference was not statistically significant. The results of the present study are consistent with that of previous studies. ^(13,17,23) The reasons for the higher frequency could be because of the illness itself and the deformities in particular could cause difficulty in performing their job adequately leading to unemployment. These patients may be lesser educated and would be having poor social skills and hence unable to get a better job. The present investigation also reveals that patients with lower per capita income have more psychiatric disorders, but this difference was not statistically significant. This is consistent with previous studies. ^(13,21) The reasons could be the existing poor quality of life, access to treatment and poor living conditions, which favors progression of the

illness, resulting in disabling illness, which increases the frequency of psychopathology.

Domicile: Psychiatric morbidity was more common in patients from rural domicile but it was not statistically significant. This study is consistent with earlier studies. ⁽¹³⁾ The reasons for higher frequency could be that people with lower education and poor social skills might have not immigrated to urban areas. The social isolation may be more in rural areas. This along with restricted treatment facilities may worsen the illness.

SESS: Psychiatric disorders were more common in patients of SESS category IV. We fail to find earlier studies which report relation of SESS category with psychiatric morbidity. The reason for the increased frequency in this group could be because majority of patients (51%) in the leprosy group belonged to this category. Also, low socio-economic status and poor access to medical care in this group could have contributed to increased disabilities and difficult life situations leading to stressful environments all contributing to poor mental health.

The results of the present investigation reveal that none of the socio demographic factors investigated had statistically significant relation to the psychiatric morbidity in patients with leprosy.

Psychiatric Morbidity & Clinical Variables:

Onset of illness: The present investigation shows that psychiatric disorders are more common in patients with onset of illness in early adulthood but was not significantly related to psychiatric morbidity. The results of the present study are consistent with that of previous studies. ⁽¹³⁾ The reason for the increased frequency could be the increased stigma and poor social and adaptive skills in young age. Also onset in young age could deprive the patient off his friends leading to poor social support.

Duration of illness: The present investigation shows that psychiatric disorders are more common in patients with duration of illness less than 5 years. However, duration of illness is not

significantly related to psychiatric morbidity. Earlier studies also report similar findings. ^(13,16) The reason for this increased frequency could be the sudden loss of job and loss of social position incriminating early in the disease process.

Subcategory: The present investigation shows that psychiatric disorders are more in patients with lepromatous category. However, categories of leprosy are not significantly related to psychiatric morbidity. The results of the present study are consistent with that of previous studies. ⁽¹³⁾ The reasons for increased frequency of psychiatric morbidity could be because of demoralization, more deformity, longer duration of treatment, medications like dapsone which can cause psychosis. ^(24,25)

Bacillary status: Patients with multibacillary status were found to have more psychiatric disorders. However, bacillary status was not significantly related to psychiatric morbidity. Earlier studies also report similar findings. ^(13,26) The reason for this increased frequency could be the higher disability and increased physical complications associated with multibacillary status that could increase the stress levels of the patient and limit his socio-occupational functioning.

Lepra reaction: The present investigation finds that psychiatric disorders were more common in those with negative lepra reaction. However, lepra reaction is not significantly related to psychiatric morbidity. The results of the present study are consistent with previous studies. ⁽¹³⁾ The reason for the increased frequency could be the increased medical complications associated with poor immune status which could predispose to psychiatric illness.

Current medication regimen: Current investigation reveals that psychiatric disorders were more common in patients who have completed the medication course and are currently off medications (18%). However, medication regimen is not significantly related to psychiatric morbidity. We fail to find earlier studies which report the relation of psychiatric

disorders with the medication regimen. The reason for the increased morbidity in this group could be due to relatively more number of patients from this group (45%) and also the medications especially dapsone can be implicated in causing psychiatric illness. ^(24,25)

Family History: Psychiatric disorders were found to be more common in patients with a family history of psychiatric disorder. However, family history is not significantly related to psychiatric morbidity. The results of the present study are consistent with that of previous studies. ⁽¹³⁾ The reason for a higher frequency of psychiatric illness in patients with family history of psychiatric illness could be because of the additional stress of the illness on a patient genetically predisposed, as explained by the stress diathesis model.

Substance use: Psychiatric disorders were more common in patients using coffee/tea. However, duration of illness is not significantly related to psychiatric morbidity. Earlier studies also report similar findings. ⁽¹³⁾ Patients with psychiatric co morbidity may be using it for the stimulant effect, using it to alleviate psychotic symptoms, resultant sleep disturbances and relieving themselves off boredom.

The results of the present investigation reveal that the psychiatric morbidity in leprosy patients had no statistically significant relationship with any of the clinical variables studied.

Strengths & Limitations:

The present study was carried out in a private sector general hospital of a medical college in Mangalore in a limited period of time during 2009 to 2011. It has several limitations and certain relative merits. Some of the limitations are due to natural constraints of an investigation which was timebound & some others could be attributed to the innate research problems in the area of psychiatric morbidity in leprosy patients.

The sample as well as the control group was probably not representative of the general population because they were selected from

patients who attend a private sector medical college. Recruitment of consecutive patients ensured that there was no sample bias. The inclusion and exclusion criteria were specific. Hence the sample consisted of homogenous group of leprosy patients who are otherwise not compromised. The size of the sample and controls were sufficient to calculate the prevalence and nature of psychiatric morbidity, but a larger sample size would be required to enhance the reliability and validity of the results. A large sample size would be required to calculate the exact relationship of psychiatric morbidity with socio-demographic and clinical variables.

The present investigation was a descriptive cross-sectional case-control clinical study examining the psychiatric morbidity in leprosy patients and control group. The subjects were assessed on one occasion only. The tools used have adequate established reliability and validity, are rater friendly & easy to administer, less time consuming thereby causing no discomfort to the patients. The assessment was not blind due to constraints of the study, therefore rater bias is possible. We used a semi structured clinical interview schedule to assess psychiatric disorders and to make a psychiatric diagnosis.

Absence of sample selection bias, homogenous uncompromised sample of leprosy patients and control group which includes patients with chronic dermatological disorders, are conspicuous merits of this study. This is one of the few studies which compared leprosy patients with patients with chronic dermatological disorders in terms of psychiatric morbidity. This is the only reported study that used the semi structured clinical interview schedule ICD-10 AM SCL to assess psychiatric morbidity in leprosy patients. Despite its limitations the present study indicates that there was no significant psychiatric morbidity in patients with leprosy when compared to patients with chronic dermatological disorders. Further research is required to draw definite conclusions.

CONCLUSION

The present study concludes the following:

1. The psychiatric morbidity is not significantly different in patients with leprosy and other dermatological disorders
2. Depressive disorders are the commonest psychiatric morbidity in leprosy patients
3. The psychiatric morbidity in patients with leprosy does not have significant statistical relationship with the socio demographic variables such as age, gender, marital status, religion, education, occupation, income and domicile.
4. The psychiatric morbidity in patients with leprosy does not have significant statistical relationship with the clinical variables such as subcategories of leprosy, bacillary status, lepra reaction, age of onset, duration of illness, medication regimen, family history and substance use habits.

Further research with larger sample and more refined methodology is necessary to draw definite conclusions.

REFERENCES

1. World Health Organization - Global leprosy situation 2009: Weekly epidemiological record. 2009; 84(33):333-340.
2. Hemanta Kumar Kar, Bhushan Kumar: IAL Textbook of Leprosy. 1st edition; Jaypee Brothers medical publishers, New Delhi. 2010; 32-43.
3. Sentürk V, Sağduyu A: Psychiatric disorders and disability among leprosy patients; a review: Turk PsikiyatriDerg. 2007;15(3):236-43.
4. Gonzales: Stigma and leprosy: International Leprosy Congress series. 1978; 466.
5. Davey T F: The leprosy patient and his illness: International Leprosy Congress, International Journal of Leprosy: abstract. 1968
6. Sodhi and Sharma: Socioeconomic Status Schedule: National Psychological Corporation. Agra. India. 1986
7. NCCH: ICD-10 AM Symptom Checklist for Mental Disorders: ICD-10 AM Mental Health Manual Appendices; Appendix-two.

- Edition-I. 2002; University of Sydney. NSW. Australia.
8. Asberg M, Montgomery S A, Perris C, Schalling D, Sedvall G: A comprehensive psychopathological rating scale: *Acta psychiatrica Scandinavica suppl.* 1978; 271: 5-27.
 9. Srikalabharath: Psychiatric morbidity-comparison between Hansen's patient and psoriasis patient. Unpublished, M D thesis.1986.
 10. Vasuraj, Garg B R, Sardarilal: Knowledge about leprosy among leprosy patients: *Leprosy India.*1981;53:226-230.
 11. Seshpal, Giridhar B K: Knowledge and attitudes among leprosy patients: *Indian Journal of Leprosy.*1985;57(3)620-623.
 12. Bharath S, Shamasundar C, Raghuram R, Subbakrishna DK: Psychiatric morbidity in leprosy and psoriasis--a comparative study: *Indian Journal of Leprosy.* 1997; 69(4):341-6.
 13. Gupta. R. A, Mathai J.P et al: Assessment of psychiatric morbidity among Hansen's and various other dermatological diseases: *Indian Journal of Psychological Medicine.* 2001; 24.7:39-45.
 14. Thomas M J: Psychiatric symptomatology and personality profiles of certain specific skin disorders. Unpublished. M D Dissertation.1983.
 15. Mitchell G Weiss et al: The explanatory model interview catalogue (EMIC): *British Journal of Psychiatry.*1992;160:819-830.
 16. Bhatia M S, et al: Psychiatric morbidity and pattern of dysfunctions in patients with leprosy: *Indian Journal of Dermatology* 2006; 51(1):23-25.
 17. Verma K K, Shiva Gautam: Effects of rehabilitation on the prevalence of psychiatric morbidity among leprosy patients: *Indian Journal of Psychiatry.* 1994;36(4)183-186.
 18. Ranjit Kumar J H, Verghese A: Psychiatric disturbances among leprosy patients- an epidemiological study: *International Journal of Leprosy.*1980;48:431-434.
 19. Behere. PB: Psychological Reactions to Leprosy: *Leprosy India.* 1981; 53 (2) 266-272.
 20. Mahaswade: Leprosy- a case for mental health care: *Leprosy India.*1983;55:310-313.
 21. Farrokh Rad et al: The study of disability status of live leprosy patients in Kurdistan province of Iran: *Pak J Med Sci.* 2007; 23(6)857-861.
 22. Scott. J: Psychosocial needs of leprosy patients: *Leprosy Review.* 2000; 71(4) 486-491.
 23. Gautam S, Verma KK: Psychiatric morbidity in displaced leprosy patients: *Indian Journal of Leprosy.* 1994; 66(3)339-43.
 24. Moleworth, Naryanaswamy: Dapsone in leprosy: *Lancet.* 1952; 1:562-63.
 25. Bhatia MS: Dapsone Induced Psychosis: *Journal of Indian Medical Association.* 1989; 87(5)120-121.
 26. Farrokh Rad et al: The study of disability status of live leprosy patients in Kurdistan province of Iran: *Pak J Med Sci.* 2007; 23(6)857-861.

How to cite this article: Krishna A, Mascarenhas JJ, Mathai PJ. Psychiatric morbidity in patients with leprosy in a tertiary care centre: case-control study. *International Journal of Research and Review.* 2019; 6(7):127-137.
