Indian Journal of Social Psychiatry (2011), 27(3-4), 153-159

Research Article...

COMPARATIVE ASSESSMENT OF DRUG COMPLIANCE BEHAVIOUR, SEVERITY OF ILLNESS AND QUALITY OF LIFE AMONG PSYCHIATRIC PATIENTS ATTENDING COMMUNITY MENTAL HEALTH CAMPS AND OUTPATIENT DEPARTMENT OF A TERTIARY PSYCHIATRIC HOSPITAL

P N Suresh Kumar[1], Roshan Bijlee[2], Roy Abraham Kallivayalil[3]

ABSTRACT

Background: Nearly 10% of the total population in India suffers from mental problems requiring professional help at any point of time. Despite the availability of effective psychiatric interventions, the scarcity of qualified professionals, lack of adequate infrastructure, monitory constraints and pooling of psychiatric treatment services in the urban areas left behind a vast number of people in the rural area from appropriate care. World Health Organization (WHO) has identified community mental health activities as the major area of focus to overcome these shortcomings in psychiatric care, as it is integrated with the primary care system. The aim of the current study was to compare selected psycho-socio-demographic variables, drug compliance behaviour, quality of life and the severity of illness of patients attending Community Mental Health Camps (CMHC) and OPDs of a tertiary psychiatric hospital. **Material and Method:** Sample comprised of 106 subjects, 55 from the OPD of a tertiary psychiatric hospital and 51 from the CMHC of Institute of Mental Health and Neurosciences (IMHANS) with age ranged from 15 years to 72 years of either gender. They were evaluated with general data sheet, Drug Compliance Check List, Clinical Global Impression Scale and WHO QOL – BREF. **Results:** This study concludes that patients attending CMHC were from rural areas, majority were manual labourers, distance travelled to the treatment facility was significantly less, expenditure incurred per visit being significantly less, spouse being the primary care giver, better QOL in the environment domain and less severe illness. Patients attending OPD were younger, had longer duration of treatment, significant family history of mental illnesses, parents being the main primary care givers and had better QOL when the drug compliance was good. **Conclusions:** Considering the scarcity of mental health professionals and lack of mental health facilities in rural areas, this study highlights the usefulness of community mental health activities in the treatment outcome. Similar and more elaborative studies need to be taken up by government and other authorities for planning of mental health programs.

Key Words: *Mental health, community mental health, camps, OPD*

INTRODUCTION

According to WHO (2009), there are nearly 54 million people around the world with severe mental disorders. Mental disorders are increasingly prevalent in developing countries, being a consequence to persistent poverty-driven conditions, demographic transition, conflicts in fragile states and natural disasters. At the same time, more than 50% of developing countries do not provide any care for persons with mental disorders in the community. As a result, more than 75% of people with major depressive disorder in developing countries are inadequately treated.

The condition in India is no different. Nearly 10% of the total population in India (100 million people) suffers from mental and neurological problems requiring professional help at any point of time (Gururaj & Issac, 2004). Despite the availability of effective psychiatric interventions, the scarcity of qualified professionals, lack of adequate infrastructure and resources, monitory constraints and pooling of psychiatric treatment services in the urban areas have eventually left behind a vast number of people who could not access or receive appropriate care. WHO has identified community mental health activities as the major area of focus to over come these shortcomings in psychiatric care, as it is integrated with the primary care system. This helps in rehabilitating long stay mental hospital patients in the community, and is very effective in countering the social stigma and in disseminating awareness activities (Saraceno, 2007).

Accepted on 30th Oct.'2011

In India, the community mental health activities are not effective except for some isolated initiatives, mainly by certain Non-Government Organizations (NGOs) scattered along the country and few other Governmental initiatives (Patel & Thara, 2003). Patients find it better to approach the mental health camps held at public health centers (PHCs), as there is no stigma associated with a mental hospital. As the medicines are supplied free of cost the compliance is high leading to good treatment response. Patients attending the camps are more socio-occupationally functional as they are treated within society without isolating them in mental institutions. The economically backward strata are benefited the most, and long travel is avoided. There is also a significant and favourable change regarding the attitude and awareness of mental illness among the caregivers.

In the foresaid context, there are not much studies probing the issue of drug compliance behaviour, the quality of life (QOL) and severity of illness of persons attending community mental health camps (CMHC) and OPDs of tertiary referral centers. Hence an attempt is made to compare these two groups in all aspects. It is hoped that the result of the study would throw light into the effectiveness of CMHC which in turn can help the policy makers and experts in this field to implement further such community mental health projects or otherwise, helps to reconsider the pit falls of the current projects and take corrective measure.

Objectives of the study

1. To compare certain selected psycho-socio-demographic variables between patients attending CMHC and OPDs
2. To compare the drug compliance behaviour of patients attending CMHC and OPDs
3. To compare the quality of life of CMHC and OPDs
4. To compare the severity of illness of patients attending CMHC and OPDs

MATERIAL AND METHOD

Sample

The sample of the present study consisted of 106 subjects in two groups, 55 subjects from patients attending the Outpatient Department of Government Mental Health Centre, Kuthiravattom, Kozhikode and 51 subjects attending the rural, CMHC of Institute of Mental Health and Neurosciences (IMHANS) conducted at Kozhikode and Malappuram districts, drawn by simple random sampling method. The age ranged from 15 years to 72 years of both male and female patients.

Tools

1. General Data Sheet
2. Drug Compliance Check List (Chakravarthy, 1997)
3. Clinical Global Impression Scale (Guy & Rockville, 1976)
4. WHO QOL-BREF (Saxena et al, 2001)

General Data Sheet

Data regarding patient's socio demographic variables, illness and treatment related variables were recorded in a proforma specially designed for the study after detailed interview with the patients and accompanying relatives.

Drug Compliance Check List (Chakravarty, 1997)

If the patient was found to be non-complaint for the last two weeks of treatment the reason was entered in a non-compliance reasons 13 item checklist after a semi-structured interview. Patients were considered non-compliant if the drug was completely stopped or dose was reduced for two weeks after starting treatment from OPD/ CMHC. This definition for non-compliance has been used in many studies done in the West (Blackwell, 1998). One point will be given to each response marked by the subject for noncompliance behaviour.

Clinical Global Impression scale (Gay & Rockville, 1976)

Clinical global impression scale (CGI) was used to measure overall illness severity. The CGI Scale includes three items 1. Severity of illness 2. Global improvement 3. Therapeutic response (Efficacy Index). Severity of illness is rated on a seven–point spectrum, from one to seven, from not ill to profoundly ill. For the need of Statistical analysis, scores from 1 to 3 was clubbed as mildly ill (1) 4 as moderate (2) and from 5 to 7 as severely ill (3). Global Improvement Scale ranges from 1. Very much improved to 7. Very much worse. Therapeutic response is rated as a combination of therapeutic effectiveness and adverse effects, ranging from 01 to 16.

WHO QOL-BREF (Saxena et al, 2001)

WHO QOL–BREF contains 26 items with four domains 1. Physical health and well being, 2. Psychological health and well being, 3. Social relations and 4. Environment. The scale has been shown to have good discriminate validity, sound content

validity and good test-retest reliability at several international WHO-QOL centres.

Data Collection

The data from all subjects was collected individually after obtaining informed consent by administering the above said tools. The diagnosis was made clinically by the treating psychiatrists using International Classification of Diseases and Related Health Problems (ICD–10) (WHO, 1992).

Statistical Analysis

The data was analyzed with the following statistical techniques. For qualitative assessment't' test was used. For quantitative assessment Chi-square test was used. For those variables where the frequencies were less, Mann–Whitney U test was used. General linear modeling was done to adjust the effect of significant co-variates.

RESULTS

Table-1 shows the socio-demographic characteristic of patients attending OPD versus CMHC. Patients attending OPD were younger, parents being the primary care givers, had to travel longer distance and need to spend more money for each treatment visit. Patients who availed the facility at CMHC were predominantly Hindus, hailed from rural area, manual labourers and spouses were the primary care givers.

Table 1: Socio-demographic characteristic of patients attending CMHC versus OPD

	Camp (N=51)	OPD (N=55)	χ^2/t	p
Age (Yrs)	43.45±13.72	36.47±10.03	2.97	<0.05
Gender				
Male	28 (54.9%)	35 (63.6)	0.84	>0.05
Female	23 (45.1)	20 (36.4)		
Uneducated	10 (19.6)	3 (5.5)		
Primary	24 (47.1)	23 (41.8)	6.92	>0.05
High school / plus two	16 (31.4)	28 (50.9)		
Diploma/ Degree	1 (2.0)	1 (1.8)		
Unmarried	12 (23.5)	16 (29.1)		
Married	30 (58.8)	31 (61.8)	1.82	>0.05
Widow/separated	9 (17.6)	5 (9.1)		
Hindu	28 (54.9)	25 (45.5)		
Christian	8 (15.7)	1 (1.8)	9.93	<0.05
Muslim	15 (29.4)	29 (52.7)		
Rural	50 (98.0)	43 (78.2)		
Urban	1 (2.0)	11 (20.0)	9.72	<0.05
Tribal	0(0)	1 (1.8)		
Unemployed	19 (37.3)	34 (61.8)	6.39	<0.05
Employed	32 (62.7)	21 (38.2)		
Monthly income				
Low(< Rs. 2000)	44 (86.3)	48 (87.3)		
Middle Rs.2001–5000	7 (13.7)	5 (9.1)	2.36	<0.05
High (> Rs. 5000)	0(0)	2 (3.6)		
Primary care giver				
Spouse	18 (35.3)	20 (36.4)		
Parents	11 (21.6)	22 (40)		
Children	13 (25.5)	2 (3.6)	14.9	<0.05
Sibling	3 (5.9)	8 (14.5)		
Others	6 (11.8)	3 (5.5)		
Distance(Kms)	22.41±26.05	44.24±38.12	-3.42	<0.05
Expenditure(Rupees)	40.25±49.24	104.09±98.31	-4.27	<0.05

p<0.05

Table 2: Illness details of patients attending CMHC versus OPD

	Camp (N=51)	OPD (N=55)	χ^2/t	p
Family H/O Psych. illness	8 (15.7)	28 (50.9)	14.64	<0.05
Physical illnesses	8 (15.7)	9 (16.4)	0.009	>0.05
Treatment for physical illnesses	6 (11.8)	5 (9.1)	0.20	>0.05
Duration of Psych. illness	166.71±118.33	143.82±108.49	1.04	>0.05
Duration of treatment (months)	33.00±33.27	52.06±47.90	-2.36	<0.05
No. of hospitalizations	3.25±4.47	3.15±4.10	1401.00	<0.05
Time since last hospitalization	41.02±59.19	32.05±47.47	0.87	>0.05
Psychiatric diagnosis				
Mood disorder	20 (39.2)	17 (30.9)		
Psychoses	29 (56.9)	30 (54.5)		
Neuroses	0(0)	3 (5.5)	4.40	>0.05
Others	2 (3.9)	5 (9.1)		

p<0.05

Table-2 shows the illness details of patients attending OPD versus CMHC. Family history of psychiatric illness and duration of treatment was significantly higher in patients attending OPD. Rest of the factors were not significant. Table-3 shows the medication details of patients attending OPD versus CMHC. None of the variables in this section was found to be significantly different between two groups.

Table 3: Medication details of patients attending CMHC versus OPD

	Camp (N=51)	OPD (N=55)	χ^2/t	p
Injection depot-Yes	4 (7.8)	9 (16.4)	1.785	>0.05
No. of medicines/day	2.12±0.82	2.33±1.19	1331.00	>0.05
No. of tablets/day	4.00±2.21	3.84±2.17	1316.50	>0.05
No. of times/day				
Once	8 (15.7)	5 (9.1)		
Twice	30 (58.8)	36 (65.5)	1.125	>0.05
Thrice	13 (25.5)	14 (25.5)		
Supervised drug intake-Yes	25 (49.0)	27 (49.1)	0.000	>0.05
Drug compliance-good	45 (88.2)	41 (74.5)	3.240	>0.05

p<0.05

Table-4 shows the reason for non-compliance in patients attending CMHC. 'Forgetting to take' medicines' was the most important reason for non-compliance followed by 'fed up with drug intake' 'no specific reasons', 'side effects with medicines' in that order.

Table 4: Reason for non-compliance in patients attending CMHC

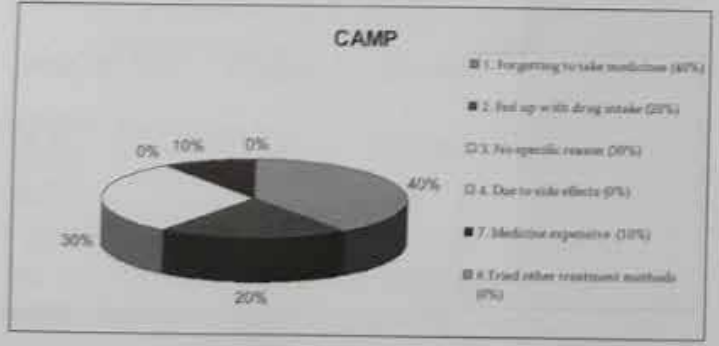

Table-5 shows the reason for non-compliance in patients attending OPD. 'Forgetting to take medicines' and 'fed up with drug intake' were equally the most important reasons for non-compliance followed by 'side effects with medicines' in that order. Table-6 shows the comparison of four domains of QOL in patients attending CMHC versus OPD. Out of the four domains only the domain IV (environment) was found to be significantly different between two groups.

Table 5: Reasons for non-compliance in patients attending OPD

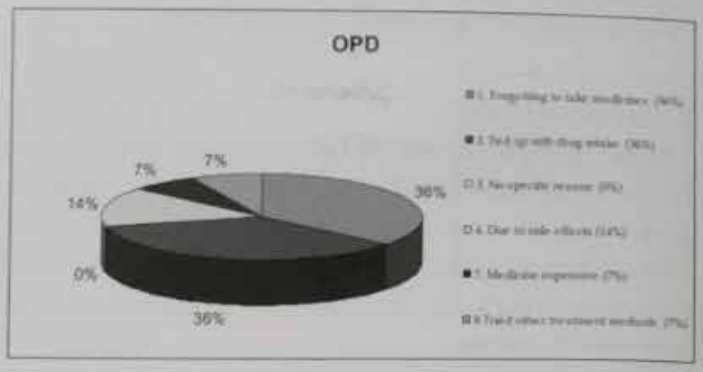

Table 6: Quality of life of patients attending CMHC and OPD

Quality of life	Ref.	Mean	SD	t	p
Physical health & well being	Camp	84.63	20.48	1.24	>0.05
	OPD	79.85	19.17		
Psychological Health & well being	Camp	74.59	16.89	1.86	>0.05
	OPD	68.73	15.49		
Social relationships	Camp	28.86	10.80	-0.82	>0.05
	OPD	30.55	10.28		
Environmental influences	Camp	103.29	21.15	2.42 *	<0.05
	OPD	94.40	16.56		

p<0.05

Even though the camp approach had statistically significant difference in domain IV of QOL, age and duration of treatment interacted with the result because these two variables were significantly different between the two study groups. Hence 'General Linear Modeling' was done, taking domain IV as the outcome variable, and camp approach and OPD approach as the fixed effect factor and age and duration of illness as co-variants. The general linear modeling indicates that the CMHC approach significantly influenced the QOL value in domain IV while age and duration of treatment had no effect when adjusted for the treatment approach.

Table 7: General linear modeling of CMHC approach and OPD approach with age and duration of illness as co-variants

Source	Type III sum of squares	df	Mean square	F
Age	176.613	1	176.61	.487
Duration of treatment	6.020	1	6.02	0.02
Approach	1464.967	1	1464.97	4.04 *

*p<0.05

Table 8: Severity of illness of patients attending CMHC and OPD

		Camp	OPD	df	χ^2
		N (%)	N (%)		
Severity of illness	Mild	44 (86.3)	34 (61.8)	2	9.67*
	Moderate	7 (13.7)	16 (29.1)		
	Severe	-	23 (21.7)		

*p<0.05

Table-8 shows the comparison of severity of illness of patients attending CMHC versus OPD. A better outcome in the severity of illness was observed in the CMHC group. Table-9 shows the comparison of drug compliance and severity of illness in patients attending CMHC and OPD. The patients attending CMHC and OPD were first categorized as good and poor based on drug compliance and were further divided into three groups based on severity of illness as mild, moderate and severe. The result shows that irrespective of CMHC/OPD status good drug compliance was associated with a better treatment outcome (i.e., patients are having only mild severity of illness).

Table 9: Drug compliance and severity of illness in patients attending CMHC and OPD

	Drug compliance	CGI – Severity			df	χ^2
		Mild	Moderate	Severe		
Camp	Good	42 (93.3%)	3 (6.7%)	-	1	16.10*
	Poor	2 (33.3%)	4 (66.7%)	-		
OPD	Good	232 (78.0%)	8 (19.5%)	1 (2.4%)	2	19.78*
	Poor	2 (14.3%)	8 (57.1%)	4(28.6%)		

*p<0.05

Table-9 shows the comparison of drug compliance and quality of life of patients attending CMHC and OPD. Patients attending CMHC and OPDs were first categorized as good and poor based on drug compliance behaviour and comparison was made between these groups on four dimensions of QOL. Drug compliance behaviour of patients attending OPD had got a positive effect on their QOL. The better the drug compliance better was the QOL.

Table 10: Drug compliance and quality of life of patients attending CMHC and OPD

	Quality of life	Compliance	N	Mean	SD	df	t
Camp	Physical health	Good	45	85.87	20.78	49	1.19
		Poor	6	75.34	16.67		
	Psychological Health	Good	45	75.83	17.41	49	1.44
		Poor	6	65.34	8.26		
	Social relationships	Good	45	28.98	10.66	49	0.21
		Poor	6	28.00	12.90		
	Environmental influences	Good	45	104.36	22.00	49	.098
		Poor	6	95.33	11.71		
OPD	Physical health	Good	41	85.46	16.78	53	4.27*
		Poor	14	63.43	16.44		
	Psychological Health	Good	41	71.80	15.75	53	2.66*
		Poor	14	59.71	10.81		
	Social relationships	Good	41	32.39	9.95	53	2.37*
		Poor	14	25.14	9.60		
	Environmental influences	Good	41	98.73	16.09	53	3.69*
		Poor	14	81.71	10.50		

*p<0.05

DISCUSSION

One of the reasons for patients with early onset of symptoms and active symptomatology may be due to forced medical assistance being sought from a tertiary care centre. Similarly there was a significant difference in the family history of mental illnesses in patients attending OPD and CMHC. More patients attending OPD had mental illnesses in the family compared to patients attending CMHC. This can also be considered as a reason for the early age of presentation in OPD group. The relatives of patients with family history of mental illness may be more aware of the illness and hence can detect it earlier and seek treatment from an early age itself. The maximum numbers of patients who availed the facility at CMHC were Hindus but in the OPD set up it was Muslims. In both settings the percentage of Christians was less. This may be a reflection of the caste wise distribution of the society and in the OPD set up of this hospital, where there are large numbers of Muslims living nearby. In the CMHC group, 98% of the patients were from the rural settings. The proximity of treatment facility to their remote rural houses and availability of medicines free of cost and getting treatment from within their locality might have had a positive effect in the rural population in seeking psychiatric treatment from CMHC. This shows that CMHC are more suited for the rural population, which itself, is one of the aims of such mental health camps.

In camps, it was the working class who utilized the facility maximum. In OPD predominantly unemployed patients availed the services. This may be due to the fact that those patients who are working finds it more convenient to attend a camp set up nearby their working facility than availing treatment from a distant tertiary care OPD, which may involve more expenditure and time affecting their employment. This finding also suggests the usefulness of CMHC in rural settings which enables working class and manual labourers to avail the facility to the maximum. Thus it is evident that CMHC in rural set up are very useful for such population, as they need to travel only minimal distance to avail treatment. Similarly, there was significant difference in the expenditure incurred for patients to attend CMHC and OPDs. This also implies that CMHC are highly cost effective for the rural population especially for the lower economic strata. This finding further substantiates one of the basic objectives of community mental health programs in terms of cost effectiveness.

The spouse was the primary care giver in the majority of patients attending CMHC whereas in OPD, parents were the primary care giver in 40% of the patients. Considering the earlier age of seeking treatment and family loading of mental illness, it can be suggested that signs and symptoms of mental illness were picked up early by the parents and were brought to the OPD at an earlier age itself. This may be due to increased awareness due to similar experiences in the family. Substantial number of children had brought their parents in CMHC. This can be considered as an indicator that provided they are supplied with adequate facilities at their primary living place children are ready to look after their parents with psychiatric illnesses.

Patients attending OPD had longer duration of treatment compared to the CMHC patients. It is natural that those patients with florid symptoms and early onset and more severity of the illness may be forced to seek treatment earlier. There was no significant difference in drug intake supervision status of patients attending CMHC versus OPD. When looked in the reasons for non-compliance, both in CMHC and OPD group, 'forgetting to take medicines' was the most important reason. 'Fed up with drug intake' was the next major cause for poor drug compliance in the OPD group, where as it was less frequent in the CMHC group. This is in accordance with the findings of longer duration of treatment and starting medications at a younger age in OPD patients. Probably these two factors might have contributed to the reason of 'fed up with drug intake' attitude in the OPD group.

It is noteworthy that small proportion of the patients with poor drug compliance in the OPD group reported 'side effects with medicines', where as none of the patients in the CMHC reported this. This may be due to better psychoeducation and availability of new generation medications in the CMHC. Moreover, none in the CMHC reported that they tried other systems of medicine. This can also be taken as an efficacy of CMHC approach in ensuring treatment compliance. The findings of this study are in contradiction to a previous study (Kumar & Andrade, 2002) conducted in India in OPD setting where side effects with medication were the major reasons for non-compliance. This suggests that over a period of time more and more drugs with better side effect profiles are being available for treatment in our part of the world.

When QOL was compared between patients attending OPD and CMHC, patients in the CMHC group had higher QOL in the environment domain. The reason could be that all the facets in this domain i.e., financial resources, freedom, physical safety and security, health and social care, accessibility and quality, transportation, home environment, opportunities for recreations, leisure activities, acquiring new information and skill, physical environment like absence of pollution, noise etc., are better provided in CMHC than in an institutional OPD. This finding also reiterates the concept of de-institutionalization and treatment within the community for a better outcome in psychiatric patients. A collaborative study on severe mental morbidities on community basis showed overall changes in the attitude in a positive direction (Shah et al, 2005). Even though we found that camp approach had statistically significant difference in the environmental influences of CMHC, the variables like age and duration of treatment interacted with the result because these two variables were significantly different between the two groups. A person's age alone can interact with his perception of quality of life. Similarly, longer duration of treatment also can affect one's quality of life. Hence 'General Linear Modeling' was done, taking domain IV (Environment) as the outcome variable, camp approach and OPD approach as the fixed effect factor and age and duration of illness as co-variants. The result indicated that the camp approach significantly influenced the QOL in the domain of environment. This again can be considered as a positive indicator for the usefulness of CMHC.

When comparison was made between the four domains of QOL among patients with good and poor drug compliance attending the CMHC and OPD, good drug compliant OPD patients had a positive effect on their QOL. The better the drug compliance better was their QOL. This finding is in accordance with a previous report of positive relationship between social environment and drug compliance (Mantonakis et al, 1985). However similar findings could not be established for the CMHC group.

When patients attending CMHC and OPD were categorized as good and poor drug compliance and comparison was made,

good drug compliance was associated with a better treatment outcome in the OPD group but not in the CMHC group. The possibility for such a disparity may be due to the fact that majority attending CMHC were already compliant to drugs. This makes these two groups highly asymmetrical.

A better outcome in the severity of illness was observed in the CMHC group than OPD group. This finding suggests that the community based treatment of mental illness integrated to the primary health care system helps in significantly reducing the severity of illness. This may be due to the better involvement of family members and society since the patient is being treated from within the community itself and is not isolated.

CONCLUSION

This study concludes that patients attending CMHC were from rural areas, majority were manual labourer, distance travelled to the treatment facility was significantly less, expenditure incurred per visit was significantly less, spouse was the primary care givers, had better quality of life in the domain environment and severity of illness was significantly less. Patients attending OPD were younger, had longer duration of treatment, more family history of mental illnesses, parents were the main primary care givers and had better QOL when the drug compliance was good. Considering the scarcity of mental health professionals and lack of mental health facilities in rural areas in the background of an alarming number of mentally ill patients, this study highlights the usefulness of community mental health activities in the treatment outcome including certain domains in the quality of life. Similar and more elaborative studies need to be taken up by government and other authorities for planning of mental health programs.

LIMITATIONS

This study had certain limitations. Sample size was small and it was collected from only two districts of Kerala. A larger sample size selected from all districts and all OPD patients could have been more representative and might have given scope for generalization of the findings. Non-compliance was measured only by indirect method. Accurate assessment of non-compliance also needs direct measuring like biochemical assay, which was not done due to practical difficulties. The psychometric properties of the compliance check list have not been estimated. Also an important aspect namely physician related variables were not addressed in this study. A major aspect of psychiatric illness management is rehabilitation and its outcome which was not included in the present study.

REFERENCES

Blackwell, B. (1998) Compliance. Psychotherapeutics and Psychosomatic Medicine, 58, 161.

Chakravarthy, A.C. (1997) Non-compliance - Indian Experience. Epilepsy India, News Letter of Indian Epilepsy Association, July, September 30.

Gay, W. & Rockville, F. (1976) Clinical Global Impression ECDEU, Assessment Manual for Psychopharmacology. US Department of Mental Health, Education and Welfare. DHEW Publication (ADM), 76 – 338.

Gururaj, G. & Issac, M.K. (2004) Psychiatric Epidemiology in India: Moving beyond Numbers. Cited in Mental Health: An Indian Perspective. S.P. Agarwal (Ed.), Directorate General of Health Services, Ministry of Health & Family Welfare, India.

Kumar, P.N.S. & Andrade, C. (2002) Factors Associated with Non-compliance in Psychiatric Patients. An Indian Experience. Indian Journal of Psychological Medicine, 25, 33-40.

Mantonakis, J. Markidis, M. Kontaxakis, A., et al (1985) A scale for detection of negative attitudes towards indication among relatives of schizophrenia patients. Acta Psychiatrica Scandanavica, 71, 186–189.

Patel, V & Thara, R. (2003) Meeting the Mental Health Needs of Developing Countries: NGO Innovations in India. SAGE Publications, 1-8.

Saraceno, B. (2007) Director, WHO Mental Health Department, speech at Global Forum for Community Mental Health Geneva, 30 May, 2007.

Saxena, S., Carlson, D., Brillington, R., et al (2001) The WHO quality of life assessment instrument (WHOQOL- BREF): The importance of its items for cross- cultural research. Quality of Life Research, 10, 711-721.

Shah, B., Parhee, R., Kumar, N., et al (2005) Mental Health Research in India. ICMR, 5–7.

World Health Organization (2009) Department of Mental Health World Health Organization. Accessed from: www.who.int/topics/mental_health/en.

World Health Organization (1992) International classification of diseases, Diagnostic Criteria for Research. Geneva: WHO.

1. **Dr. P. N Suresh Kumar**, MD, DPM, DNB, PhD, (Corresponding Author) Associate Professor of Psychiatry, KMCT Medical College, Calicut, Kerala. E-mail-drpnsuresh@satyam.net.in
2. **Dr. Roshan Bijlee**, MBBS, DGM, MPhil, Insurance Medical Officer, Calicut, Kerala.
3. **Dr. Roy Abraham Kallivayalil**, MD, Professor & Head, Department of Psychiatry, Pushpagiri Institute of Medical Sciences, Tiruvalla, Kerala- 689 101