Schizophrenia Research: Indian Scene in Last Decade

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ABSTRACT

Schizophrenia is a major psychiatric disorder that not only carries significant morbidity and disability for the sufferer but also a major burden to the society in terms of cost of care. Since its recognition, big strides have been made worldwide in order to understand and treat this disorder. In a developing country such as India, research into the various aspects of this disorder is still not a priority. Despite this scenario, large number of centres across the country have been conducting research in the last four decades. During this time, scope, emphasis and quality of research seem to have undergone a lot of change. In order to examine whether such a change actually exists and the emphasis of research in last decade, a review of research published in Indian Journal of Psychiatry was undertaken. Various studies published on schizophrenia in the last decade (1990-2000) were reviewed. Important landmarks have been highlighted and limitations pointed out.

Key words: Schizophrenia, Research, India, Last decade

I. Introduction

Schizophrenia is a disease of the brain, which manifests with multiple signs and symptoms involving thought, perception, emotions, movements and behaviour. It is a major health problem, which affects a sizeable population the world over (Kulhara, 1997). It is a devastating illness causing enormous suffering not only to the individual patient but also to those around him/her (Wig, 1997). Caring for schizophrenia carries significant cost in terms of loss of productivity and continued medical care and social maintenance (Kulhara, 1997).

Ever since its designation as a specific illness by E. Kraepelin over a hundred years ago, researchers all over the world have been constantly trying to find answers to epidemiology, clinical features, etiology and management of this disorder. Research on schizophrenia in India has largely followed the trends in the West. In the last decade, mental health care facilities and research facilities have improved, with larger focus on mentally ill than ever. But it still remains to be seen if this increased awareness is translated to better qualitatative and quantitative research in mental health. To achieve this aim, in the present article, various aspects of schizophrenia, which have been researched in the last one decade (1990-2000), have been reviewed and certain important findings/observations have been elaborated upon. While preparing this paper, the Indian Journal of Psychiatry (from January 1990 to December, 2000) and Schizophrenia: the Indian scene (publication based on papers presented at National Symposium “Schizophrenia: the Indian Scene” held at Chandigarh in March, 1996) served as the main referring sources with cross-references in other journals.

II. Epidemiology

From 1960-1990, epidemiological studies have largely focused on prevalence and incidence aspects of schizophrenia. These studies moved from clinician assessment for screening and diagnosis to use of standardized instruments and computer analysis of data. In the last decade, epidemiological studies have been few in number.

A. Prevalence studies

Shahji et al., (1995) conducted an epidemiological study in villages in two wards of a panchayat in the rural area of Kerala and found the prevalence rate of 3.6 per thousand populations. Case summaries were prepared in the field and independently evaluated by another psychiatrist and both the clinicians made diagnosis independently. Nandi et al., (1992) estimated a prevalence rate of 0.7 per thousand in their epidemiological study in a sample of families of a tribal community migrated to an urban area and a sample of families of the same community living in a cluster of villages in West Bengal. Premarajan & Danabadan (1993) in an epidemiological study on various psychiatric disorders in randomly selected families from urban health centres in Pondichery found a prevalence rate of 1.9 for schizophrenia.
They used Case Identification Schedule as an assessment tool in the study. Venkataswamy Reddy and Chandrashekar (1998) conducted a meta-analysis of 13 psychiatric epidemiological studies consisting of 33572 persons in 6550 families which yielded an estimate prevalence rate of 58.2 per thousand populations. A prevalence of 2.7 for schizophrenia was found. Authors concluded that in the selected studies no significant difference of prevalence w.r.t. sex and locality could be found. Ganguli (2000), reviewed major epidemiological studies in the last four decades came out with a national prevalence rate of 2.5 per 1000. He also concluded that schizophrenia is the only disorder whose prevalence is consistent across cultures and over time.

B. Incidence studies

Incidence studies are few in number. It is due to absence of demarcated catchment areas for health service delivery, lack of case registers and cost effectiveness of studies. In 3 incidence studies, rates have varied from 3.5 - 4.7 per 10,000. As a part of WHO collaborative study on Determinants of Outcome of Specific Mental Disorders, overall incidence was reported to be 4.4 per 10,000 in rural and 3.8 per 10,000 in urban areas of Chandigarh (Wig et al., 1993). In an ICMR study carried out by Rajkumar et al., (1993), incidence of schizophrenia was studied in Madras using ICD-10, PSE and IPSS criteria. An incidence rate of 3.5 per 10,000 was reported. No male -female differences were found.

C. Limitation of epidemiological studies:

Epidemiological work in India, so far has focused only on frequency of illness and other wide variety of associated factors have not been researched. No large-scale socio-demographic analysis on factors such as social class, religion, communities have been carried out.

III. Psychopathology, sub-syndromes and diagnosis

Issues of psychopathology, sub-syndromes and diagnosis have been addressed to a limited extent in the last decade.

A. Psychopathology:

In earlier studies done in the Indian settings on this subject, it has been brought out that psychopathology of Indian patients of schizophrenia differs from that of Western patients and is coloured by the culture. Kulhara et al., (2000) in this context suggested the occurrence of sub cultural delusions and hallucinations in Indian patients, though the same is declining.

Jaydeokar et al., (1997) determined the prevalence of OC symptoms among chronic schizophrenic patients. 101 patients satisfying DSM-IV diagnosis of chronic schizophrenia were assessed for OC symptoms. All patients were also rated on the Yale-Brown Obsessive Compulsive Scale for the severity of their symptoms. The study revealed that 26.7% of the chronic schizophrenic patients had significant OC symptoms with a high prevalence in the age group below 35 years. OC symptoms were more severe in patients with duration of illness more than 5 years. The OC symptoms were more prevalent among paranoid schizophrenics with the frequent obsessions being that of contamination, sexual and aggressive thoughts and frequent compulsion was need to ask or confess.

Comparing phenomenology of early versus late onset schizophrenia, Harrish et al., (1996) in a retrospective chart analysis studied 59 patients of schizophrenia with an age of onset more than 45 years. Persecutory delusions were most common, followed by delusions of influence. 53% had third person type hallucinations. 42% had negative symptoms. There was no delusional perception or thought echo. In a comparative study, Kulhara et al., (1999) found that late onset schizophrenia was different from early onset primarily on “persecutory delusion”.

Jiloha et al., (1998) reported a case of a female patient with schizophrenia who developed delusion that she was a male and behaved and dressed like a male. She developed intimacy with another girl and wanted to marry her. The patient responded to effective treatment of schizophrenia.

B. Sub-syndromes

Sub typing and delineation of various sub syndromes of schizophrenia using multivariate analysis have been the focus of research in this decade. Indian researchers have mainly concentrated their work on positive and negative subtypes of schizophrenia. Arora et al., (1997) reported about syndromic manifestations of schizophrenia and demonstrated the applicability of this concept to India. It was also shown that negative symptoms have stability over period of time, though factor structure of positive/negative subtype changed over time. Another important finding is delineation of “thought disordered” sub syndrome and the need to state more than two factors (Kulhara, 1997).

Post psychotic depression, depressive symptoms in schizophrenia, distinction between depressive and negative symptoms in schizophrenia too have been researched (Kulhara & Avasthi, 1993). Avasthi (1997) reviewed this topic and elaborated that depressive symptoms do occur in...
schizophrenia in India to the same extent as in West. Repeated hospitalization, a variable associated with depression in West is not much important in India (Chintalpudi et al., 1993). Also, there has been mention of retaining the concept of “simple schizophrenia” (Singh and Kulhara, 1991).

Shrivastva and Rao (1999) studied seventy-six first episode, drug naive patients of schizoaffective disorder, diagnosed as per DSM-III-R criteria. They were followed up over a period of two years in order to verify the consistency of diagnosis. It was observed that only in 14 (18.4%) patients diagnosis did not change over a period of two years. In the majority of the patients (47, 61.9%) the diagnosis changed to schizophrenia. Eight patients (10.5%) had only depressive symptoms during the subsequent episodes and they satisfied the diagnostic criteria for major depression. While 7 (9.2%) patients remained symptom free over the study period, so diagnosis of schizoaffecive disorder could not be reconfirmed. Authors cautioned against the diagnosis of schizoaffective disorder early in course of illness.

C. Insight

In various studies on insight in schizophrenia, insight was found to be negatively correlated with psychopathology and only partially dependent on psychopathology (Aga et al., 1995; Kulhara et al., 1992). Tharyan and Saravanan (2000) found a significant correlation of severity of psychopathology with dimensional measures of awareness about abnormal experiences. It was also concluded that awareness of abnormal nature of individual items of psychopathology does not necessarily overlap with insight as measured by awareness of concept or consequence of mental illness or need for treatment.

IV. Biological Research

Despite the worldwide focus, biological research on schizophrenia in India, has remained at a primitive level. It is primarily due to the lack of facilities, financial constraints, lack of national register, poor awareness, associated stigma and dearth of psychiatric centers. Despite all difficulties, in last decade some progress has been made to study various biological variables associated with schizophrenia, which would be reviewed under sections of biochemical, immunological, genetics, neuroimaging and miscellaneous.

A. Biochemical studies

From 1960 to 1990, number of biochemical and hormonal variables such as histamine, indole, CSF-NANA levels, homovanillic acid, 5 hydroxy indole - acidic acid (5-HIAA), HVA level, prolactin levels, leutinising hormones and growth hormones, VMA levels were studied in patients with schizophrenia. In the last decade there has been dearth of such studies. Sharma et al., (1990, 1991) reported that platelet MAO could be specific for some categories of schizophrenia. They reported that paranoid types had significantly lower MAO activity than non-paranoid types. Moreover, a premorbid schizoid personality resulted in significant lower enzyme levels, but no correlation existed for family history of schizophrenia and types and age of onset of illness.

B. Immunological studies :

Aggarwal et al., (1991) found similar baseline values of T and B-lymphocytes count in schizophrenia, depressive and healthy controls, which increased significantly with antipsychotic medication.

C. Genetic studies

Genetic research in schizophrenia has concentrated mainly on studying dermatoglyphics. Male catatonics were reported to have more arches, loops and less whorls, smaller angles (Jhingran & Munjal, 1990) and higher frequency of C-absent line (Sen Gupta & Bhuyan, 1995). Higher co-occurrence of SRBC (Single Radial Base Crease) and TRBC (Triple Radial Base Crease) was found in catatonic, disorganized and undifferentiated subtypes (Jain, 1991).

D. Radio imaging studies

Due to lack of facilities, this area has received little attention. Siddartha et al., (1997) studied Ventricular Brain Ratio, Width of Third Ventricle (WTV), Width of Sylvian Fissure (WSF) in schizophrenia (divided into positive, negative and mixed types). Parameters were found to be higher in schizophrenia than in normal controls. Positive subgroup had smaller VBR and WTV than negative or mixed, but larger WSF and WTV than control.

Lal et al., (1998) attempted to examine positive/negative dichotomy of schizophrenia and its relation to neuropsychological performance, presence of soft signs and VBR. VBR had negative correlation with neuropsychological performance. It was concluded that soft signs were consequence of damage to cerebrum and not linked to any subtype.
E. Miscellaneous studies

Sharan et al., (1990) found higher prevalence of Smooth Pursuit Eye Movements (SPEM) in schizophrenia than normal controls, and attempted to examine these as a genetic trait marker.

Borde et al., (1996) revealed right hemispheric dysfunctions in schizophrenia as compared to normal controls on happy-sad chimerie faces test.

Ravikumar Kurup et al., (1999) demonstrated elevated serum digoxin levels and elevated HMG CoA reductase activity suggesting increased digoxin synthesis, reduced sodium-potassium ATPase activity and altered sugar residues of serum glycoprotein in schizophrenia. They proposed a hypothalamic digoxin mediated model for conscious and subliminal perception. Significance of its dysfunction due to abnormal glycoprotein induced synaptic connectivity defects in schizophrenia was discussed.

F. Comments on biological studies

Although the studies done in this decade have shown improvement in areas such as selection of proper control group, diagnostic criteria etc., still there is hardly any research available on the structural and functional abnormalities of the brain found in schizophrenia. Lacks of facilities are the major reasons for this shortcoming. Better facilities associated with creation of national register and attempts at removal of stigma are some of the steps suggested to improve the situation.

V. Research on Management

A. Somatic Treatment

i) Pharmacological Management

Research on pharmacological management of schizophrenia in last decade has mainly concentrated on establishing usefulness of various agents (mainly atypical antipsychotics) in disorder and some attempt at defining management guidelines (Kulhara et al., 2000).

1. Antipsychotics

Since various atypical antipsychotics were introduced in the beginning of last decade, majority of studies have focused on usefulness and side effects of these antipsychotics. Research into the typical antipsychotics has taken a back seat.

A) Clinical usefulness

Evidence for clinical usefulness comes from case reports, case series, open trials, controlled trials and double blind trials.

a) Open trials

Typical antipsychotics

Emmanuel et al., (1997) treated 60 patients of schizophrenia as per DSM III-R criteria in an open, non-comparative study with loxapine over duration of 6 weeks. The assessment of the patients was carried out using the Positive And Negative Syndrome Scale (PANSS) and Clinical Global Impression (CGI) Scale. The side effects were noted on the Extrapyramidal Rating Scale and Asberg Scale for side effects. There was a statistically significant improvement in all the item scores of PANSS except ‘Guilt feeling’ and ‘Depression’. A similar significant improvement was also observed in the factor scores and cluster scores of PANSS. On analysis, there was substantial improvement in the negative scale ratings on PANSS in the negative subtyped group.

Atypical antipsychotics

In an open trial, drug-resistant schizophrenics were treated with clozapine for sixteen weeks. The patients were rated on BPRS, PANSS, Side effects scale and Global Impression Scale at weeks 0, 9 and 16. Of the total 29 patients included, 25 completed the trial. The patients showed significant improvement on both BPRS and PANSS, although the improvement was more in initial weeks than between 9 and 16 weeks. The most common side effects observed were sedation, hypersalivation and tachycardia (Aggarwal et al., 1997). Desai et al., (1999) also reported usefulness of clozapine in reduction of scores on BPRS and PANSS in treatment resistant schizophrenia. Risperidone also has been reported to be useful in reduction in both positive and negative symptoms in treatment resistant, treatment intolerant, drug naïve and chronic schizophrenia ( Bajaj P et al., 1999; Aggarwal et al., 1998; Agashe et al., 1999). Suresh Kumar (1999) conducted an open clinical trial of risperidone (6-8 mg/day) on a group of DSM-IV defined 24 drug naïve schizophrenic population for a period of 12 weeks. Risperidone showed significant improvement in their positive, negative, general psychopathology and depressive symptoms when compared with the baseline scores. Comparison of response of positive versus negative symptoms did not show any significant difference. Assessment of extra pyramidal symptoms using Simpson

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and Angus extra pyramidal symptoms rating scale showed high incidence of rigidity (59%), tremor (32%), salivation (30%), gait disturbance (25%) and akathisia (17%).

**Anti Obsessional Drugs**

Aggarwal and Aggarwal (2000) in an open trail lasting 12 weeks tested the usefulness of fluoxetine (80 mg/day) in obsessive-compulsive symptoms in stabilized schizophrenic patients. 5 out of 7 patients showed good response on Yales Brown Obsessive Compulsive Symptoms Scale and the drug was well tolerated.

b) Controlled / comparative trials

**Atypical antipsychotics**

Risperidone was reported to be better than haloperidol on psychosocial functioning, productivity, education and suicidality in an open randomized trial on 100 subjects with diagnosis of schizophrenia (Srivastava & Gopa, 2000).

c) Double blind controlled studies

Cenbutindole was reported to have an early onset of action than haloperidol in one study (Singh et al., 1999).

d) Case reports / series

Case reports have reported on re-emergence of positive symptoms in course of treatment with risperidone in schizophrenia (Siva Prakash et al., 1999) and usefulness of clozapine in childhood onset schizophrenia (Srinivasan and Latha, 1997). Aggarwal (1999) recommended augmentation of clozapine with risperidone in patients who are non responsive to clozapine alone. Srinivasan (1999) recommended that clozapine in low doses could be an effective and safe alternative to typical neuroleptics for controlling severe psychiatric manifestations in dementia patients.

B) Side Effects

**Typical antipsychotics**

Suresh Kumar and Manoj Kumar (1997) compared retrospectively the neurological side effects in schizophrenia patients and found that 70% had EPS or tardive dyskinesia. 54% had pseudoparkinsonism, 25% akathisia and 17% had dystonias. Amongst specific side effects, NMS has been most frequently reported. Few cases have been reported in various case reports (Alexender et al., 1996; Sharma et al., 1996; Das et al., 1997) Majority belonged to either sex, were on high dose oral or depot neuroleptics alone or in combination, had elevated CPK levels and responded to conservative management or bromocriptine. Das et al., (1997) reported about a case with atypical resolution of symptoms and proposed that there should be no stone unturned in the quest for a comorbid condition alongside NMS and systematic reports be made available regarding symptom resolution in NMS with various treatment modalities for better management. Few case reports on rabbit syndrome (Pandey, 1998, Gada, 1997) due to antipsychotics too have appeared.

Metochlopramide and levodopa have been reported to be useful in reduction of tardive dyskinesia (Sethi et al., 1990).

**Atypical antipsychotics**

There have been few case reports on low thrombocytes count during clozapine therapy (Savitharsi Eranti & Chaturvedi, 1998; Tharyan, 1999). Case reports of clozapine-induced agranulocytosis treated with Colony Stimulatory Factor and Lithium (Srinivas & Thomas, 1998; Jagdeesan et al., 2000) too have appeared. There has been one case report each on epilepsy on clozapine therapy, risperidone induced agranulocytosis and risperidone induced NMS and dystonia (Prathima and Haque Nizamie, 1998; Venkataswamy Reddy et al., 2000; Suresh Kumar, P.N., 1999). Aggarwal and Khalid (1997) reported three schizophrenic patients who were resistant to typical antipsychotics and developed obsessive-compulsive symptoms during clozapine treatment. Khalid and Nepal (2000) reported two cases of oculogyric crisis with risperidone therapy.

**ii) Electro convulsive therapy (ECT)**

ECT was one of the first treatments tried for schizophrenia. Presently, role of ECT in schizophrenia is rather limited. It is used mainly for catatonic or affective symptoms and patients with past history of good response. Not much of research in to this area has been carried out in the last decade.

Sarkar et al., (1994) concluded that ECT does not meaningfully improve the response in unselected patients of schizophreniform disorders treated with an adequate dose of antipsychotic drug. In National symposium on ECT in 1990 and a subsequent survey amongst members of IPS, it was found that average number of ECT in schizophrenia was 6.7 and mean maximum length was 11.5 weeks. In the symposia, use of parenteral diazepam as anaesthetic agent and use of unmodified ECT was strongly discouraged.
C) Kulhara (1998) reviewed the area of pharmacological management of schizophrenia, outlining the management strategies for “difficult to treat schizophrenia” and emphasized on combined pharmacological and psychosocial treatment of these patients.

VI. Psychosocial Variables and Psychosocial management

Though recent developments in schizophrenia research has brought the pharmacological options to fore, comprehensive management of patients of schizophrenia relies heavily on psychosocial treatment techniques. Various psychosocial variables not only lead to variation in course and prognosis of schizophrenia but also overall functioning of individual. Moreover patients of schizophrenia, suffer from various kinds of deficits, which need to be handled by psychosocial means. In this aspect, role of family and society has been increasingly brought to fore. Research in this area in India is primarily descriptive. In following section, various studies on psychosocial variables in last decade have been addressed.

A. Disability

Disability is defined as any restriction in the ability to perform an activity in a manner or within range considered normal for a human being. Disability in schizophrenia is contributed by symptoms, cognitive deficits and soft neurological signs (Murthy, 1997). Researchers in India in last four decades in this area focused attention on either modification/development of scales for assessment of disability and secondly evaluating the level of disability. In the last decade, Padmavathi et al., (1995) developed SCARF Social Functioning Index.

Follow - up studies on disability have reported that males are more disabled than females in occupational functioning (Thara & Joseph, 1995). Occupational dysfunction has been reported to have maximum disability that was stable over 3 years period (Thara & Rajkumar, 1993). Schizophrenia with better outcome has less disability with drug compliance being the major factor behind reduction in disability (Thara & Rajkumar, 1991).

In an effort to study management of disability, Thara et al., (1998) compared effect of medication alone as compared to social skills training, family education and occupational training on social disability. It was found that medication alone group had better improvement in avolition, apathy, anhedonia and asociality. Other group had more improvement in areas of affective flattening, alogia and attention deficits.

Murthy et al., (1994) concluded that non compliance leads to increased disability.

B. Burden of care

Burden refers to the presence of problem, difficulties or adverse events, which affect the lives of individuals who are primary care givers. Various aspects of burden addressed are financial, social discrimination, restriction of social/leisure activity and effect on health of others (Wig, 1997). While negative symptoms contributed maximally to burden (Gopinath & Chaturvedi, 1992), Raj et al., (1991) assessed social burden of positive and negative schizophrenia.

Addlakha (1999) in an ethnographic study of family burden and coping in schizophrenia demonstrated as how chronic mental illness in a female member is managed by a lower middle-class urban family. She argued that a general hospital psychiatry unit might emerge as the only viable option for periodic reprieves for both patients and families in the absence of adequate and acceptable state-sponsored facilities for long-term management of chronicity.

C. Coping Strategies

Understanding the way patients take care of their symptoms is important, as a significant proportion of patients do not respond to drugs satisfactorily. Moreover, it is important because of the shifting trend to community care. Various studies done on coping styles show that patients cope with symptoms by intrapsychic and behavioural strategies (Kumar et al., 1994; Kumar & Srinivasan, 1992). Distraction, physical activities, social activities and cognitive tasks are more frequency used strategies to cope with symptoms by Indian patients (Raguram, 1993). Patients use more coping strategies for subjective complaints than for psychotic symptoms viz. delusion/hallucinations (Kumar et al., 1994).

D. Quality Of Life (QOL)

QOL has been conceptualized as a multifaceted construct that encompasses the individual’s behaviour and cognitive capacities, emotional well being and abilities required for the purpose of various domestic, vocational and social roles.

Murali et al., (1995) found that QOL was better in patients who are occupied and literate. Background and marital
status was not related to QOL. Chaturvedi (1995) found that QOL was better in paranoid schizophrenia but poor in patients with negative symptoms. It was better in families with low levels of distress. Gupta et al., (2000) found that it is possible to apply Quality of Life Scale (QLS) in Indian context.

E. Life events

There is dearth of work in this area from our country. Das et al., (1997) and Kulhara et al., (1998) have reported about relapse in schizophrenia and its relation to life events and social support. Das et al., (1997) found that relapsing schizophrenia had significantly more life events in the year preceding relapse than stable or not relapsed patients. However, this was not so just prior to relapse, rather events occur in period 3-6 months before relapse.

OTHER ISSUES

A. Marriage

Marriage is implicated to be significant psychosocial variable in schizophrenia. Thara & Srinivasan (1997) followed first episode schizophrenia for 10 years and examined various aspects related to marriage. 70% of patients had got married. 90% of marriages were intact. Less men got married and more women had broken marriages if they had children. Relapses were more common with never married people.

Kulhara et al., (1998) examined life events and social support in 30 married and unmarried schizophrenia. Married patient had more stress scores and undesirable life events than unmarried patients. So married people appeared to have more stress but other factors mitigated the risk of relapse.

B. Expressed Emotions (EE)

Amongst various aspects of family interaction, an important area of study has been expressed emotions. High EE has been found to be related to relapse in schizophrenia. In India, EE have been found to be significantly more in cities than rural areas, though over all, far lower than developed countries (Wig, 1997).

C. Rejection

Sam et al., (1998) conducted a study on 57 relatives (34 male and 23 female) of 57 (32 male and 25 female) schizophrenic patients in Kerala in order to study their rejection feelings towards their schizophrenic relatives. The rejection response was found to be related to gender of patients and relatives, being significantly higher in males. Compared to the German and New York sample, the present sample tends to have high rejection feeling.

Research on psychosocial issues in schizophrenia has been largely at descriptive level only. There has been no systematic research available on important issues of family intervention, social skill training etc.

VII Course and Outcome of Schizophrenia:

Over the years, considerable amount of research work in relation to course and outcome of schizophrenia has been carried out in the West. The general consensus from these studies indicates that about one third of patients recover, one third continue to have chronic disability and another one third have intermediate outcome. In preceding four decades, number of studies were carried out in India to assess the course and outcome in Indian patients and compare those with non-Indian patients (such as International Pilot Study of Schizophrenia, Determinants of Outcome of Severe Mental Disorders etc.). These along with few studies such as those sponsored by Indian Council of Medical Research reached a broader consensus of a relatively better outcome of schizophrenia in India as compared to Western countries.

The follow up findings of International Pilot Study of Schizophrenia at 5 years published in 1992 also reported remarkably favourable outcome in Indian centers than Western centers (Kulhara, 1997). In a 10 years long follow-up of cohort of original ICMR collaborative study at Madras, Thara et al., (1994, 1996) followed up 94 patients and found that 11 patients had complete remission after initial episode, 2 had no relapse, but continued to have symptoms, 37 had one or more relapse with complete remission, 21 had one or more relapse with incomplete recovery and 5 had continuous illness. Authors noted that there was a general decline in both positive and negative symptoms in follow-up.

Despite above significant findings, exact reasons for better outcome of schizophrenia in developing countries remain to be explored, though factors like low expressed emotions have been implicated.

VIII Conclusions and Future Directions:-

Research on schizophrenia in India over the last decade has encompassed almost all areas of relevance. While epidemiological work has been able to highlight the extent
of problem, cross-cultural differences in phenomenology of schizophrenia is a significant finding. There have been definite attempts at some biological research despite all limitation due to paucity of facilities. Pharmacological research, which without doubt has been replicative and directionless, nonetheless is in keeping with the development of newer drugs in this period. Though psychosocial aspects of schizophrenia are increasingly under focus of research, lack of any systematic work on psychosocial interventions in schizophrenia is worth noting. Better prognosis of schizophrenia in developing countries including India is well documented. Unfortunately, if the quality of research in this decade is compared with the last four decades, not much progress seems to have been made. Research in schizophrenia in India has been still without much structure and organization. Multicentric, well-coordinated studies using modern instruments are needed to arrive at a consensual figure about prevalence and incidence of schizophrenia with need to work on associated epidemiological variables. There is a need to create nation wide case registers, improve research facilities and creation of better psychiatric centers for more meaningful research into this area.

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