

WHO Studies on Schizophrenia: An Overview of the Results and Their Implications for the Understanding of the Disorder

Giovanni de Girolamo

SUMMARY. In this paper we shall briefly describe the three main studies carried out by World Health Organization on schizophrenia, namely:

1. the International Pilot Study of Schizophrenia (IPSS);
2. the study on impairments and disabilities in schizophrenic patients;
3. the study on determinants of outcome of severe mental disorders.

We shall then discuss the main results of these studies and their implications for a general understanding of this disorder.

Giovanni de Girolamo is affiliated with the Division of Mental Health, World Health Organization, 1211 Geneva 27 (CH).

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INTRODUCTION

Some twenty million people in the world suffer from schizophrenia. The disease usually starts early and often has a chronic, disabling course. The overall cost of the disorder, both direct and indirect, is huge. The burden caused to the patient's family is very heavy and both patients and their relatives often experience disadvantages because of the stigma associated with the disorder, sometimes over generations. Schizophrenia is a major public health problem. These facts were among the reasons which have made the World Health Organization pay special attention to the problem of schizophrenia and launch or stimulate studies aimed at a better understanding of schizophrenia and at finding ways to deal with it. The programme of collaborative clinical and epidemiological research on schizophrenia, which started in the late 1960s, also aimed to develop a reliable methodology for carrying out comparative cross-cultural studies in different populations.

THE INTERNATIONAL PILOT STUDY OF SCHIZOPHRENIA (IPSS)

As underlined by Jablensky (1987), "Both the epidemiological and cross-cultural approaches to the study of schizophrenia have their birth-dates around the turn of the century." Emil Kraepelin was one of the first psychiatrists to publish some cross-cultural observations on dementia praecox and manic-depressive illness after a trip to Java (Jablensky, 1989). Since then, other researchers have investigated the epidemiology and the clinical picture of schizophrenia in different cultures (Warner, 1985). However, it was only when WHO planned and started the IPSS that a comparative cross-cultural research on this disorder, carried out using a standardized reliable methodology, was made possible.

As shown in Table 1, the IPSS involved 9 centres in Africa, Asia, Europe and North America, with a total of 1,202 patients aged 15-44. The patients were selected for presence of psychotic symptoms and for absence of gross organic brain pathology, chronicity, alcohol- or drug-dependence, sensory defects and mental retardation. The majority of patients (811) had a clinical diagnosis of schizophrenia; the remaining 391 were classified as having affective disorders, reactive psychoses, neuroses, and personality disorders. Each patient has a detailed standardized clinical examination at the point of inclusion into the study and full reassessments two years later and five years later. The principal research instruments used in the IPSS were the Present State Examination, a psychiatric history schedule and a social description form.

TABLE 1. Summary of the WHO Studies on Schizophrenia

	INTERNATIONAL PILOT STUDY OF SCHIZOPHRENIA	WHO COLLABORATIVE STUDY ON PSYCHIATRIC DISABILITY	DETERMINANTS OF OUTCOME OF SEVERE MENTAL DISORDERS
NUMBER OF CENTRES	9	7	12
COUNTRIES	China (Taipei), Colombia, Czechoslovakia, Denmark, India, Nigeria, UK, USA, USSR	Bulgaria, Federal Republic of Germany, Netherlands, Sudan, Switzerland, Turkey, Yugoslavia	Colombia, Czechoslovakia, Denmark, India, Ireland, Japan, Nigeria, UK, USA, USSR
NUMBER OF PATIENTS	1,202	520	1,379
MAIN AREAS ASSESSED	Mental state (PSE), past history, social description, course and outcome	Mental state (PSE), past history, sociodemographic description, disability in social roles, behavioural impairments, pattern of course	Mental state (PSE), past history, course and outcome, disability in social roles, stressful life events, expressed emotion, perception of illness, family functioning
DIAGNOSIS	Clinical (ICD-8), computer (CATEGO), statistical clusters	Clinical (ICD-9), computer (CATEGO)	Clinical (ICD-9), computer (CATEGO), DSM-III (in some centres)
FOLLOW-UP	2 years, 5 years	1 year, 2 years, 5 years	1 year, 2 years

Source: Jablensky, 1987.

The main conclusions of the IPSS can be summarized in this way (WIIO, 1979; Jablensky, 1984, 1987, 1989; Sartorius, 1988):

1. Schizophrenia is a universal disorder, which can be found both in the most industrialized areas of the world, and in developing countries and areas with a predominantly rural structure. Although in the IPSS no single symptom was invariably present in every patient and in every setting, the clinical pictures associated with a diagnosis of schizophrenia were remarkably similar at the level of symptom profiles. Patients diagnosed as schizophrenic tended to have high scores on lack of insight, suspiciousness, delusional mood, delusions or ideas of reference and persecution, flatness of affect, auditory hallucinations, and the delusion of being controlled by an external agency. Different proportions (between 31% and 85%, with an average of 56%) of the patients meeting the general criteria of a non-affective functional psychosis also exhibited one or more of the Schneider 'first-rank' symptoms, considered for many years as reliably distinguishing schizophrenia from other non-organic psychotic illnesses. These symptoms appeared to define a subpopulation of schizophrenia patients characterized by a generally high frequency and intensity of "positive" psychotic symptoms which manifested great similarity across the cultures.

2. Although schizophrenia is universal, there is great variability in terms of course and outcome. At the 2-year follow-up, which included 82% of the initial cohort, 37% of the patients were psychotic; 31% were symptomatic but not psychotic; and 32% were asymptomatic. On the whole, more than half of the patients were in the two groups with better prognoses.

3. Finally, the outcome at the 2-year follow-up and at the 5-year follow-up was significantly better for the patients from developing countries (Colombia, India, Nigeria) than for those from the other countries. This result was largely unexpected, but was confirmed even when it was controlled for certain variables, such as sex, age, and marital status. Out of all 9 countries, the two extremes of outcome were represented by strikingly different results in Nigeria and in Denmark. While in Nigeria about 57% of patients were in the group with the best outcome, in Denmark this number was only 6%. In a parallel manner, while in Nigeria only 5% of the patients were in the group with the worst outcome, in Denmark this group included 31% of the patients.

In the IPSS no single variable, and no combination of a few "key" variables, could explain much of the variation of any of the course and outcome measures in schizophrenia; in other words, no characteristics of the patient, of the environment, or of the initial manifestations of the disorder considered in isolation were an effective predictor of the subsequent course and outcome of the illness. The main variables associated with a positive

outcome were an acute onset of the disorder, being married, a good work adaptation and the presence of affective symptoms. On the other hand a negative outcome was associated with a slow onset, being divorced or separated, being socially isolated, having received a prior psychiatric treatment, a long duration of the illness episode and a history of behavioural disorders.

The results of the 2-year follow-up have been amply confirmed at the 5-year follow-up, which included a total of 807 patients representing 76% of the initial cohort (Leff et al., 1990). Once again the patients from developing countries exhibited a clearly better outcome than the patients from developed countries. In terms of clinical outcome, measured by symptomatic status at time of follow-up, time spent in a psychotic episode and pattern of course, the Indian and Nigerian patients did much better than all the others. In addition, these patients and those from Colombia also showed an exceptionally good social outcome.

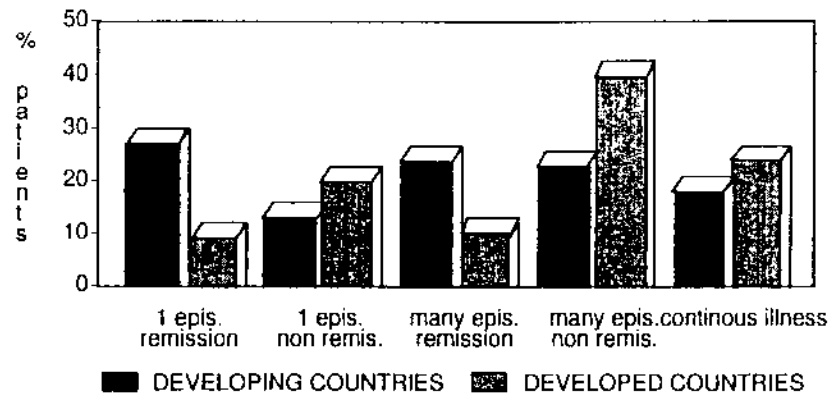
Figure 1 shows the different patterns of course at the 5-year follow-up (Sartorius et al., 1987). A significantly larger number of patients from developing countries had a course characterized by a single episode of illness, followed by full remission, or by many illness episodes, each followed by full remission. On the other hand, a significantly larger number of patients from developed countries showed either a course characterized by one or more episodes followed by incomplete remission, or a continuous condition of illness. All the different patterns of course correlated poorly with the initial diagnostic classification of the cases.

THE STUDY ON IMPAIRMENTS AND DISABILITIES IN SCHIZOPHRENIC PATIENTS

The second study aimed to explore the behavioural impairments and social disabilities in schizophrenic patients of recent illness onset. It included 520 patients in seven countries who were examined initially and also at one-year and two-year follow-up investigations (Table 1). In addition to the PSE and a history schedule, two new instruments, the WIIO Disability Assessment Schedule (DAS) and the Psychological Impairments Assessment Schedule (PIRS), were developed for and used in this study. The PIRS was designed to describe and quantify negative symptoms, such as social and communication skills, while the purpose of the DAS was to elicit and rate data on social role performance and the environment factors influencing such performance.

The main results of this study can be summarized in this way (Jablensky, 1984, 1986, 1987):

1. There was a specific pattern in the occurrence of disabilities, in the sense that some social roles, with their behavioral correlates, were

FIGURE 1. Pattern of course in schizophrenia
5 year follow-up (IPSS)

impaired before others; specifically, the area of sexual relationships tended to be impaired first, followed then by the work role. The area of self-care, which was initially preserved, became dysfunctional only when the majority of the other social roles had been impaired. In Table 2 the percentages of patients with dysfunctions in the main 7 social roles are shown: the range goes from a high of 74% of patients showing a dysfunction in sexual behaviour to a low of 35% of patients who exhibited a dysfunction in the area of self-care. This pattern could also be interpreted in the sense that a patient who exhibited a dysfunction in sexual behaviour, because this was the first area to be impaired, may not yet show disabilities in other areas, while a patient with a disability in the area of self-care was likely to already have a disability in the other areas.

2. Negative symptoms, such as inactivity, loss of interest and initiative, poverty of speech, etc., were the best predictors of outcome at the 5-year follow-up. Many similarities have emerged in patients from various centres in terms of frequency of diagnostically important syndromes, the nature and severity of psychological and behavioural impairments, and the pattern of development of social role dysfunctions.

THE STUDY ON THE "DETERMINANTS OF THE OUTCOME OF SEVERE MENTAL DISORDERS"

The third study, bearing the title "Determinants of the Outcome of Severe Mental Disorders," was undertaken in view of the great potential

TABLE 2. Number and Percentage of Patients with Social Role Dysfunctions, in up to 7 Roles, by Type of Social Role

ROLE	PATIENTS	
	n	%
Sexual relationship	198	74
Work role	171	64
Social withdrawal	158	59
Underactivity	156	58
Participation in household	138	52
Interests and information	136	51
Self-care	93	35
Total no. of patients	267	100

Source: Jablensky, 1986.

importance of the IPSS findings, and it focused more than the IPSS on the frequency of occurrence, the "natural history" of schizophrenia and the factors associated with differences in course and outcome. This study was based on more representative patient samples in different cultures (Sartorius et al., 1986). The case-finding strategy designed for the new study consisted of: (a) a prospective survey of specified psychiatric, other medical and social services in a given catchment area in each setting; and (b) identification of all individuals making a first lifetime contact with such services who exhibited signs and symptoms of a possible schizophrenic illness.

By extending the case-finding network to include a variety of "helping agencies" in the community (e.g., religious institutions, traditional healers), this strategy was expected to result in a better coverage of the incident cases of the disorder than the first inclusion method, although patients who never contacted any agency would still be missed.

Several research techniques which had earlier thrown light on specific facets of the course of schizophrenia were also used. These included the ascertainment of stressful life events prior to the onset of psychotic episodes, the measurement of expressed emotion in a key relative, the assessment of the perception of psychotic symptoms by the patient's family, and the evaluation of functional impairments and social disability. It was

hoped that the application of these techniques would help to obtain data that could contribute to an explanation of the extraordinary finding of the IPSS that patients in developing countries on the whole have a better outcome than those living in developed countries.

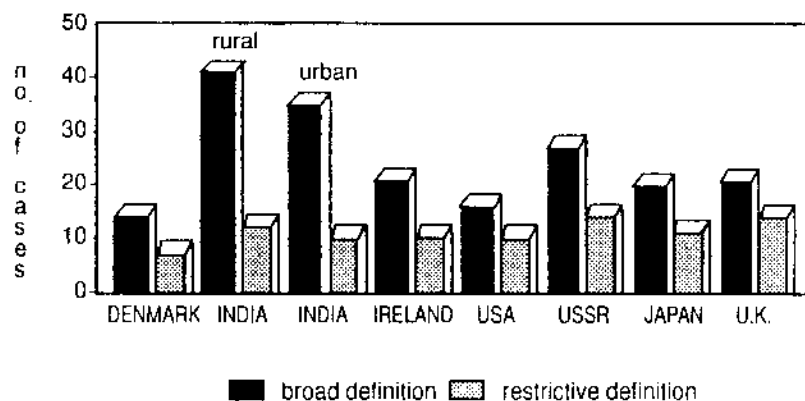
The total population included in this second major study, which was carried out in 12 centres, 6 of which also participated in the IPSS, consisted of 1,379 subjects (745 men and 634 women) most of whom were urban residents (Table 1). With the exception of Ibadan, Cali and the rural area of Chandigarh, where most patients came from very poor neighbourhoods, the socio-economic status of the patients' neighbourhoods and households in the other centres was rated as "average" in comparison with local standards in the majority of cases.

The great majority (86%) of the 1,218 cases for which the beginning of the psychotic illness could be dated, had been identified by the case-finding network and assessed within 12 months of the onset of the disorder; in 61% of the cases this had occurred within 3 months.

The main results of this study can be summarized in this way (Jablensky, 1987, 1989; Sartorius, 1988; Sartorius et al., 1986, 1989):

1. Although there is a remarkable difference in incidence rates for schizophrenia diagnosed according to a broad definition, there is a striking similarity in incidence rates for schizophrenia diagnosed according to restrictive criteria. Adopting restrictive diagnostic criteria, the incidence of schizophrenia is more or less the same in all countries: 7-14 cases per year per 100,000 inhabitants aged 15-54 (Figure 2).

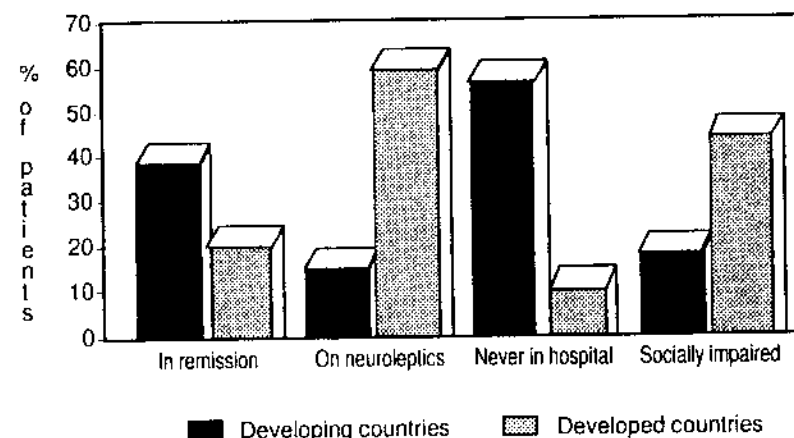
FIGURE 2. Incidence rates per 100,000 aged 15-54 (both sexes)



2. As already found in the IPSS, schizophrenic patients from developing countries have a course and an outcome significantly better than patients from developed countries. While 56% of the patients from developing countries exhibited a mild course, this percentage decreased to 39% for the patients from developed countries. Moreover, while only 24% of the patients from developing countries had a severe course, this percentage was 40% for the patients from developed countries. Regarding the type of onset, 36% of the patients under study had had an acute onset of the illness; the others had had a sub-acute or an insidious onset. However, as already found in the IPSS, the patients from developing countries had a greater frequency of acute onset (49%) compared to the patients from developed countries (26%), while the latter had more insidious onsets (43%) compared to the former (27%).

Figure 3 shows more specifically the differences between the patients on selected outcome variables; so, while 38% of the patients from developing countries were in full remission more than 3/4 of the follow-up time, compared to 22% of the patients from developed countries, only 16% of the patients from developing countries were on antipsychotic medication from 76% up to 100% of the follow-up time, compared to 61% of the patients from developed countries. While 55% of the patients from developing countries had never been hospitalized, this was true for only 8% of the patients from developed countries. Finally, while 15% of the patients

FIGURE 3. Differences between Patients on Selected Outcome Variables



No. of patients studied: 1,014

from developing countries had impaired social functions throughout the follow-up time, 42% of the patients from developed countries were in this condition.

3. As shown in the IPSS, patients from developing countries showed a higher frequency of "voices speaking to the subject" and of visual hallucinations, while patients from developed countries showed more affective symptoms (mainly depressive) and a higher frequency of delusional mood and "thought insertion."

A high proportion of patients (from a low of 52% in Agra to a high of 92% in Prague) had made their first contact for the disorder under study with a health facility (psychiatric facility or GP); on the other hand 22% of patients in India and 31% of patients in Nigeria had made their first contact with an "alternative" facility (traditional healers or religious facilities). In 90% of the cases the reasons for contact were related to the occurrence or worsening of bizarre behaviour or of unintelligible speech, and to the deterioration of daily functions. In 26% of the cases it was possible to find a family member with a history of psychiatric disorders.

The most common sub-type of schizophrenia was paranoid schizophrenia (29% of the cases); in the developing countries about 10% of the patients were affected by catatonic schizophrenia.

As mentioned above, two sub-studies focused on the role of life-events and expressed emotion in the onset and course of schizophrenia.

In nine centres, among 386 patients studied with an acute onset, about 65% reported significant life events, independent from the illness, in the two or three weeks prior to the occurrence of the disorder (Day et al., 1987). Therefore it is confirmed that socioenvironmental stressors may precipitate schizophrenic attacks and that such events tend to cluster in the two to three week period immediately preceding illness onset. Interestingly, although the Indian and Nigerian centres reported many very acute onsets, they also reported very low rates of life events; therefore, on the basis of these results, the acute benign psychoses seen in these countries do not seem to be psychogenic (Bebbington, 1987).

Regarding schizophrenia and expressed emotion, patients from the Indian centre (Chandigarh) were compared to those from the Danish centre (Aarhus). While 54% of the Danish patients were rated as high on EE, which is a percentage similar to that found in British studies, in the Indian centre 30% of the urban families and only 8% of the rural families were classified as high EE. In particular, Indian relatives expressed significantly fewer critical comments, fewer positive remarks and less overinvolvement (Wig et al., 1987a, 1987b). The low proportion of high-EE

relatives in the Indian sample was significantly associated with a low relapse rate (Leff et al., 1987).

CONCLUSIONS

What general conclusions can be drawn from this brief review of WHO studies on schizophrenia?

The first conclusion is that multicentric transcultural studies represent a valuable methodology for studying comparative psychiatric disorders and for understanding the influence which psychosocial and biological variables have on their pattern of course and outcome. They are feasible, and can also significantly improve research capabilities through the training of large groups of researchers and clinicians in the use of various research instruments. WHO is now planning a new long-term follow-up study, in which all patients included in the three studies discussed above, plus others included in a WHO study on dosage of neuroleptics in different populations, will be pooled in order to study the long-term course and outcome of the illness (O'Connor, 1990). This study will be the largest international long-term study on the course and outcome of schizophrenia ever undertaken and will include a total sample of more than 3,000 patients in 18 research centres. Data collection for this study would begin in June 1991 and would be completed within 12 months.

The second conclusion is that schizophrenia is universal, and patients with a diagnosis of schizophrenia in different populations and cultures share many features at the level of symptomatology. The incidence rates of the disorder are very similar across different countries and cultures. However, available evidence shows that socio-environmental factors play a very important role with regards to incidence, and also prevalence, of the disorder. Although the traditional social causation/social selection issue is still unresolved (Angermayer & Klusman, 1987; Dohrenwend et al., 1991), there are strong evidences which show a significant relationship between the socioeconomic status and the risk for schizophrenia. Data from the Epidemiological Catchment Area (ECA) Program shows that the estimated relative risk for schizophrenia in the lowest socioeconomic status groups was 7.85 ($p < .001$) compared to the highest socioeconomic status group and provides, according to the authors, "a quite dramatic confirmation of the findings reported by Hollingshead and Redlich a generation ago" (Holzer et al., 1986). Moreover Eaton (1985), in a review of the epidemiology of schizophrenia, concluded that the studies carried out show a consistent pattern in a using three basic categories of social class, it is common to observe a three-to-one difference in rates between the lowest

and the highest class. Jablensky (1988), in a comprehensive review of the relationship between schizophrenia and the environment, stated that "Notwithstanding the methodological flaws of the early studies . . . , they have been consistent in finding a significant relationship between macrosocial variables and the epidemiology of schizophrenia." Also the finding of a substantial difference in the age of onset between males and females (Hafner et al., 1989) seems to confirm the importance of sociocultural factors in the occurrence of the disorder. In this context, it should be noted that a substantial decrease in the incidence of the disorder over the last few decades seems to have occurred, as shown in some specific studies (Munk-Jorgensen, 1986; Munk-Jorgensen & Jorgensen, 1986; Stromgren, 1986; Torrey, 1989; Sartorius et al., 1989; Beiser & Jacono, 1990; Der et al., 1990).

However, although universal, schizophrenia appears to have substantial variations in terms of course and outcome substantially different depending on the type of socio-cultural and socio-economic setting. Generally speaking, in the WHO studies the course and the outcome was significantly better for patients from developing countries than for those from developed countries, and this is confirmed by the results of many other studies (Warner, 1985). In addition, Warner (1985) has demonstrated that macrosocial variables, including the unemployment rate and the overall socioeconomic conditions of the society in which the patients live, can deeply affect the course and the outcome of schizophrenia, for instance in terms of recovery rates.

In any case, independent from the setting and contrary to the beliefs held in the psychiatric field for decades, there is a remarkable percentage of patients who recover from the illness. Table 3 shows the results of the major long-term follow-up studies of schizophrenia published between 1960 and 1991; in these studies, which were carried out over a follow-up period of up to 37 years, the percentage of patients clinically recovered ranged from a low of 6% to a high of 66%, with an average of 28% and a median value of 26%. The percentage of patients who showed a social recovery ranges from a low of 17% up to a high of 75%, with an average of 52% and a median value of 54%. Authors who have provided indepth reviews of the follow-up studies of schizophrenia have reached the same conclusion, stressing the possibility of social and/or clinical recovery for schizophrenic patients, even when institutionalized for decades (Harding, 1985; Warner, 1985; Ciompi, 1988, 1989; Wing, 1987; McGlashan, 1988; Shepherd et al., 1989; Wyatt et al., 1988). For this reason some authors have proposed a challenging view of the very concept of chronicity, stating that a variety of environmental and psychosocial factors can affect

patient outcome and induce a misperception of chronicity (Ciompi, 1980; Harding et al., 1987).

It has been suggested that the existence of extended families may help to explain the better recovery rate for patients living in developing countries. To test this hypothesis, data from the 5-year and 10-year follow-up obtained within the IPSS at Cali, Colombia, have been compared with data from two 5- to 8-year follow-up studies of former schizophrenic inpatients of the Max Planck Institute of Psychiatry (MPIP) in Munich (Germany) (von Zerssen et al., 1990). Although schizophrenics in Cali are hospitalized and treated with drugs only during acute episodes of the psychosis and no facilities exist for long-term treatment, the psychopathological outcome was, on the whole, not worse than in Munich. Furthermore, the duration of hospitalization during the follow-up period was much lower in Cali compared to the German patients and a significantly lower number of Colombians were separated from their families. However, contrary to the hypothesis, family size did not predict course and outcome at both centers. The main results of the study concern the differences in the hospitalization rate and the degree of family integration during the course of the psychosis in an industrial and a developing country. They challenge the view that a highly developed professional care system is the best guarantee for improving the long-term course of schizophrenia. Rather, the integration of patients in a natural social environment, and the restriction of medical interventions to an indispensable degree may provide an optimal care strategy. This strategy is easier to realize in developing countries where the family structure is, on the whole, more intact than in industrialized countries with high divorce rates and a tendency to isolate the elderly and the sick from their families.

The third conclusion to be drawn from this review is that the results of the WHO studies are especially important when planning mental health services: according to their results, the vast majority of patients in developing countries and many patients in developed countries can be treated as out-patients, and in such circumstances their illness has a milder course.

The fourth and final conclusion is that some variables seem particularly important for predicting the general and long-term outcome of the illness. For instance, negative symptoms are especially important in this regard and should be given great importance when formulating treatment and rehabilitation plans. However, as underlined by Jablensky (1984), psychiatric services tend to pay much greater attention to the positive, often dramatic symptoms of psychosis, while they give less attention to the negative symptoms and to the impairments and dysfunctions in daily

226 TABLE 3. Clinical and Social Outcome in the Main Studies on the Long-Term Follow-up of Schizophrenia Published Between 1960-1991

AUTHOR, YEAR	COUNTRY	SELECTION YEARS	DURATION OF FOLLOW-UP (YEARS)	SIZE OF SAMPLE	FIRST ADMISSIONS (%)	MALE (%)	CLINICALLY RECOVERED (%)	POOR CLINICAL OUTCOME (%)	SOCIAL RECOVERY (%)
Affleck et al., 1976	U.K.	1959-61	12	155	?	51	?	24	48
Astrup et al., 1962	USA	1938-50	5-20	1102	100	53	20	63	59
Biehl et al., 1986	Germany	?	5	70	100	59	26	35	?
Bland & Om, 1979	Canada	1963	14	90	100	?	21	37	65
Bleuler, 1978	Switzerland	1942-43	5-20	208	66	48	20	24	51
Brown et al., 1966	U.K.	1956	5	339	33	43	18	41	43
Giompil, 1980	Switzerland	1963	mean 37	295	100	32	27	18	33
Gross & Huber, 1986	Germany	1945-59	21	502	-	-	26	35	56
Harding et al., 1987	USA	1955-60	20	82	0	50	-	40	60
Huber et al., 1975	Germany	1945-59	8-28	758	67	42	22	35	75
Kulhara & Wig, 1978	India	1966-67	5-6	174	100	?	29	32	72
Leon, 1989	Colombia	1968	10	84	-	-	43	25	50
Marinow, 1988	Bulgaria	?	20	280	-	-	-	27	51

McGlashan, 1984	USA	1950-75	15	163	0	52	6	41	-
Mignolli et al., 1991	Italy	1979	7	46	71	44	37	24	20
Munk-Jorgensen, 1989	Denmark	1972	13	53	100	-	23	50	24
Murphy & Raman, 1971	Mauritius	1956	12	113	100	?	59	36	71
Ogawa et al., 1987	Japan	1958-62	21-27	140	79	48	31	23	47
Salokangas, 1983	Finland	1965-67	7-8	175	100	47	26	24	69
Shepherd et al., 1989	U.K.	?	5	107	37	53	16	43	60
Stephens, 1970	USA	1948-59	5-16	472	100	?	23	28	?
Stone, 1986	USA	1963-76	10-23	94	-	-	8	-	-
Tsuang & Winokur, 1975	USA	1934-44	30-40	525	?	52	19	48	?
Vaillant, 1978	USA	1959-62	10	56	-	-	-	39	61
Vergheze et al., 1989	India	1981-82	2	323	-	-	66	4	-
Watts, 1985	U.K.	1946-74	28	35	-	43	28	35	17
Waxler, 1979	Sri Lanka	1970-71	5-6	89	100	55	40	36	54
AVERAGE	--	--	14	243	86	48	28	32	52
MEDIAN VALUE	--	--	12	155	99	48	26	35	54

living of these patients. More attention given to the latter will result in an improvement in the therapeutic interventions.

In conclusion it is possible to agree with the statement expressed by Jablensky (1988): "The strongest evidence at present is that of an environmental effect on course and outcome of schizophrenia. Far from being an autochthonous, pre-programmed process, schizophrenia appears to be a dynamic development in which the quantity and quality of social stimuli, the emotional ambience of the family and the community, the demands of the society, and the ethos of treatment interact with the intrinsic neurophysiological vulnerability to shape the prognosis."

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