

Culture and Schizophrenia: The DOSMD Challenge

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The World Health Organization's International Pilot Study on Schizophrenia (IPSS) and subsequent Determinants of Outcomes of Severe Mental Disorder (DOSMD) studies have reported that the course of schizophrenia is more favourable in 'developing' than 'developed' societies. The 1992 DOSMD study attributes this difference to culture. We review studies concerning the course of schizophrenia and conclude that the evidence for a more favourable course in developing societies is not conclusive. Indeed, a favourable course has also been reported in various industrialised societies. We also raise questions about the findings reported in the recent DOSMD study, including the conclusion that the putatively more favourable course is a product of culture. Finally, we argue that longitudinal, direct observation of patients in their natural environments must be carried out before variations in the course of schizophrenia can be adequately understood.

In 1979, the International Pilot Study on Schizophrenia (IPSS) by the World Health Organization (WHO) reported that the course of schizophrenia was more favourable in what were referred to as 'developing' than in 'developed' countries, a finding that it reaffirmed in a subsequent five-year follow-up of the same individuals (Leff *et al*, 1990). Several previous studies had reported similar findings, but perhaps because this was the first major research enterprise to attempt comparable diagnosis and assessment of outcome in a transnational study, the IPSS finding was hailed by one member of its research team as "astonishing" (Bertelson *et al*, 1989). At the same time, a leader in the field of cross-cultural psychiatry referred to this finding as "... the single most provocative datum" to emerge in that field (Kleinman, 1988).

Although the validity of this finding has occasionally been questioned (Edgerton, 1980; Cohen, 1992) it is now frequently cited with approval in the literature on schizophrenia (e.g. Lin & Kleinman, 1988; McGlashan, 1988). For example, Birchwood *et al* (1992, p. 783) began their exploration into the influence of ethnicity and family structure on relapse in first-episode schizophrenia with this statement: "There is now overwhelming evidence that the outcome for people with schizophrenia in Western industrialised countries is markedly inferior to that of those in the Third World."

With the long-awaited publication of the details of the WHO Determinants of Outcomes of Severe Mental Disorder (DOSMD) study in 1992, not only was this IPSS finding strongly reaffirmed, but the reason for the difference in course between 'developing' and 'developed' societies was said to be a result of 'culture' (Jablensky *et al*, 1992). The DOSMD investigators called for research into the

mechanisms by which culture affects the outcome of schizophrenia. We discuss some of those possible mechanisms after first examining the prior IPSS and DOSMD claims that the course of schizophrenia is more favourable in 'developing' countries.

The IPSS also reported the controversial finding that the core symptoms of schizophrenia occur with similar frequency throughout the world. However, even investigators who have questioned this finding have endorsed the conclusion that the course of schizophrenia is more favourable in 'developing' countries (Torrey, 1987, p. 598). The only authority cited is Lin & Kleinman (1988), who concluded that the relevant evidence was "fairly convincing", not "overwhelming", but in making their assertion Birchwood *et al* (1992) are expressing a widely held belief. This is largely attributable to the WHO IPSS and DOSMD studies. We cannot here address the IPSS and DOSMD finding that schizophrenia occurs with similar frequency among its research centres, except to observe that such a phenomenon is not supported by recent data collected in the USA and Taiwan (Compton *et al*, 1991).

The 'favourable course in developing countries' hypothesis

Several studies from various parts of the world have reported a more favourable course and outcome for schizophrenia in so-called developing countries (Warner, 1985; Lin & Kleinman, 1988). If these various studies are considered in the aggregate, they appear to lend support to the favourable-course hypothesis, but when they are examined more closely, each is found to contain significant inadequacies in research design and execution. In fact, even those studies most often referred to as

supporting the favourable-course hypothesis have serious flaws.

For example, a study by Murphy & Raman (1971) has frequently been credited with demonstrating that a higher percentage of first-admission schizophrenic patients in Mauritius experienced a symptom-free recovery than was the case in a roughly comparable sample of patients studied earlier in London (Jablensky *et al*, 1992). Murphy & Raman speculated that Mauritius was less likely to retard recovery by imposing a 'sick role' on patients than was the case in England (Brown *et al*, 1966), but they offered no data bearing on this point, and they were quite cautious about interpreting the apparent difference in recovery rates between the two samples. For example, they admitted that they could not be certain that course and outcome were estimated similarly for both samples and that there was much more 'inter-current disease' in the Mauritius sample which may have led to more rapid and complete recovery after these diseases were treated. The authors failed to indicate whether the samples were similar with respect to acute versus gradual onset of symptoms, nor did they discuss possible differences in the severity or chronicity of prodromal symptoms prior to hospitalisation. Given these potential problems, the fact that 64% of the Mauritius sample was found to have maintained a symptom-free recovery versus 49% of the London sample may not be a meaningful differential, especially since in both Mauritius and London approximately 30% of the patients had remained continuously symptomatic and disabled. The differences between the two populations lay in the estimated degree of improvement among the remaining 70%, something which could have been affected by many factors.

A second study which is often quoted as supporting the 'more favourable course' hypothesis was conducted in Sri Lanka by Waxler (1979). Troubling questions have been raised about this research as well (Cohen, 1992). First, Waxler's reliance on a hospital sample assumed that among Sinhalese Buddhists all those identified as being ill would receive treatment at a Western hospital or clinic. Evidence from other sources, however, belies that notion: most people with schizophrenia do not receive ongoing treatment in such places (Wijesinghe *et al*, 1978; Wolffers, 1988). Hence Waxler's reliance on a hospital-based sample is questionable. Second, measurement of course and outcome variables depended on self-report, a methodology (Bernard *et al*, 1984; Raphael *et al*, 1991) that is suspect in any follow-up research and one that is especially prone to error given the 5 years between inclusion and follow-up in this study.

Waxler identified three domains in the culture of

Sinhalese Buddhists that purportedly discouraged chronicity and made for a relatively benign course and outcome for schizophrenia: large tolerant families, a treatment system in which short-term care is emphasised, and an aetiological explanation of mental illness that does not stigmatise the patient. However, supporting evidence was not provided, leaving Waxler's hypothesis intriguing but in need of demonstration (Cohen, 1992).

The IPSS evidence

The most frequently cited source of support for the favourable-course hypothesis has been the IPSS. Begun in 1968, this WHO study used a prospective research design and similar case-finding methods, as well as standardised diagnostic procedures and outcome measures, but it too used a hospital-based sample. It studied 1202 patients admitted to psychiatric treatment centres in Aarhus (Denmark), Agra (India), Cali (Colombia), Ibadan (Nigeria), London (UK), Moscow (then USSR), Prague (then Czechoslovakia), Taipei (Taiwan), and Washington DC (USA).

Despite the relative sophistication of its research design, the study encountered serious methodological problems. For example, its reliance on hospital admissions very likely led to bias in sample selection between 'developed' centres where psychiatric facilities are relatively accessible, and 'developing' centres where access is more problematic. Reliability of diagnosis, too, was problematic. Re-diagnosis at follow-up found that substantial numbers of patients originally diagnosed as schizophrenic in developing centres had been misdiagnosed (28% in Agra, 18% in Ibadan and 28% in Cali), a phenomenon that occurred with similar frequency in only one of the 'developed' centres (Moscow). The attrition rate varied widely among centres, reaching unacceptably high levels in some, especially Ibadan, London and Washington DC (47%, 42% and 34% respectively). There were also marked differences in symptoms, severity, chronicity and mode of onset among the various populations, and with the partial exception of patients who were still hospitalised at follow-up, outcome measures were not applied consistently (Lin & Kleinman, 1988; Hopper, 1991). That there were methodological deficiencies in the IPSS was acknowledged by its key investigators, who developed the subsequent DOSMD study (Jablensky *et al*, 1992).

There is ample reason then to doubt whether studies like these have convincingly demonstrated the existence of a more favourable course for schizophrenia in developing countries. What is more, some studies from so-called developing countries have

reported a less favourable course for schizophrenia. One of these is particularly significant because it was conducted in the city of Chandigarh, India, where two of the four research centres that were designated 'developing' in the later DOSMD study were also located (Kulhara & Wig, 1978). One hundred out of 174 schizophrenic patients consecutively admitted to a psychiatric hospital were identified for follow-up evaluation approximately 5 years later. Based on multiple sources of information, only 29% of them were judged to be symptom-free, 16% had minor adaptive problems, 23% continued to experience episodes of relapse and 32% exhibited symptoms of schizophrenia throughout the follow-up period, a pattern less positive than that reported by Murphy & Raman (1971), Waxler (1979), or the IPSS (WHO, 1979). However, this study, like the IPSS, suffered from a high attrition rate and dependence on a hospital-based sample.

The 'favourable course in developed societies' hypothesis

With a very few exceptions (Lin & Kleinman, 1988; Corin, 1990; Hopper, 1991), those interested in the purportedly more favourable course of schizophrenia in non-Western, non-industrialised societies have not acknowledged the existence of research reporting an equally favourable course in some fully industrialised societies. To be sure, there is clear evidence from various studies that the course of schizophrenia in the United States, the UK and Europe can be unfavourable – even dismal in some instances – but it is now clear that the condition does not inexorably deteriorate. While some 30% of schizophrenic individuals remain chronically disabled in industrialised societies (the same percentage as typically reported in developing societies), the condition of these persons often levels off or improves somewhat after 5–10 years, and most patients studied over the long term show definite improvement or recover fully (Harding *et al.*, 1987; Angst, 1988; McGlashan, 1988). In Bleuler's research in Switzerland, 53% of schizophrenics recovered or showed marked improvement over the long term; Huber's research in Germany found 57% in this category; and Ciompi in Switzerland found 59% (Ciompi, 1980). Some European research has been criticised for utilising a relatively broad diagnosis for schizophrenia and for imprecision in the specification of outcome measures, but the methodology used by these three research groups is in most respects less flawed than that used in studies reporting a favourable course of schizophrenia in developing countries.

It is not only European research that sometimes

reports a favourable course and outcome for schizophrenia. A dramatic example of this pattern in the USA has been provided by Vermont Longitudinal Research Project, a long-term follow-up study of 118 former patients from Vermont State Hospital who, when re-diagnosed retrospectively, met the DSM-III criteria for schizophrenia at the time of their index hospitalisation in the mid-1950s (Harding *et al.*, 1987). When these persons originally entered into the study they were "middle-aged, poorly educated, lower-class individuals further impoverished by repeated and prolonged hospitalisation" (Chittick *et al.*, 1961, p. 29). Selected from the back wards of Vermont State Hospital, these patients suffered from chronic disabilities that did not respond to treatment. At follow-up, 20–25 years later, 93% of those still living were interviewed and the course of their post-hospital experience was evaluated from several perspectives. The patterns of their adaptation to life outside the hospital were complex and highly varied, but despite the severity of their disability at inclusion, one-half to two-thirds of the sample were found to have improved considerably or to have recovered (Harding *et al.*, 1987).

Similar findings have also been reported from industrialised localities in Asia. Lo & Lo (1977) retrospectively followed up 82 schizophrenic patients 10 years after their first admission to the Hong Kong Psychiatric Centre. Attrition was significant and their methodology was not adequately described, but they found that 21% had recovered and another 44% were much improved. A 5-year follow-up in Singapore reported an even more favourable course (Tsoi *et al.*, 1988). Perhaps the most impressive Asian study which found a favourable course was conducted near Tokyo by Ogawa and colleagues (Ogawa *et al.*, 1987). Although the study is marred by some inconsistencies in the collection of outcome data, the investigators were able to follow up 98 of 105 patients still living more than 20 years after discharge from Gunma University Hospital: 31% were judged to have "recovered" and another 46% were classified as "improved".

The DOSMD study

The results of studies like these would seem to indicate that schizophrenia can have a favourable course and outcome in industrialised societies as well as in developing ones, just as it can have an unfavourable course in both types of societies. The challenge, then, is to identify those factors tending to a more favourable prognosis. These are generally supposed to include the length of time the schizophrenic symptoms have been manifested, various

premorbid characteristics, age at onset and type of onset, and a host of environmental factors. We shall consider these and other possible predictor variables in a later section, but first we must examine the following, undeniably robust conclusion of the DOSMD research team:

“The outcome study replicated in a clear and, possibly, conclusive way the major finding of the IPSS, that of the existence of consistent and marked differences in the prognosis of schizophrenia between the centres in developed countries and the centres in developing countries” (Jablensky *et al.*, 1992, p. 88; further references in this section to this study will be by page number only).

They conclude that on five out of six measures of course and outcome after a 2-year follow-up, patients in developing countries show “a more favourable evolution” (p. 88). Because this conclusion is certain to have a major impact on the field, it deserves careful scrutiny.

The DOSMD study was undertaken by WHO in an attempt to confirm the similarity in symptom pattern found in all research centres by the IPSS, as well as the more favourable course found in developing countries. Unlike the IPSS, which used a sample consisting of hospital admissions, the DOSMD study attempted to reproduce approximately a sample of the incidence of the disease by identifying all persons in each catchment area who had recently made a first lifetime contact with a ‘helping agency’ (including police, and traditional and religious healers). In addition to six centres that had previously participated in the IPSS (Aarhus, Agra, Cali, Ibadan, Moscow and Prague), two centres were added in Chandigarh (India), and one each in Dublin (Ireland), Honolulu (USA), Nagasaki (Japan), Nottingham (UK), and Rochester (USA).

‘Developing’ and ‘developed’ sectors

Before examining methodological issues concerning the DOSMD data, we should turn to the WHO distinction between ‘developing’ and ‘developed’ centres. Remarkably little information about the demographic, social or cultural characteristics of these research centres has been provided in any of the publications relating to the IPSS or DOSMD studies (though see Day *et al.*, 1987; and also Leff *et al.*, 1987; Leon, 1989). Of the developing centres, we are told that Agra is a district in central India; only 14% of its population consists of agricultural labourers, while the remainder appear to be employed in urban or peri-urban occupations. The overall adult literacy rate is 33%. The populace has access to a modern psychiatric centre but there are also various

kinds of traditional health practitioners throughout the district. Cali, another developing centre, is a city of well over one million people. It contains modern psychiatric facilities as well as many traditional healers, especially in its extensive slum areas. Ibadan is a sprawling urban area estimated to contain well over one million inhabitants. It, too, has modern psychiatric treatment agencies as well as traditional ones. Chandigarh includes two centres, one in urban Chandigarh, a newly developed, relatively modern city with an estimated population of 340 000, and one in the rural centre of Chandigarh, said to consist of an adjacent block of villages inhabited by some 104 000 people (Day *et al.*, 1987). We are told nothing specific about how traditional or modernised these centres are, much less anything detailed about the sociocultural world in which these people live or the ways in which people with schizophrenic symptoms are viewed or treated by their families, friends or the general population.

But one thing is obvious. These five centres do not begin to represent the full range of social or cultural diversity in what might be called the developing world, nor can they be said to be typical of that world. Indeed, because the data from Nigeria are omitted from the most crucial analyses of course and outcome in the DOSMD study, this sample of developing societies actually consists of only four locations; three centres (two of which are partially rural) in India and one in a large city in Colombia. No amount of statistical ingenuity can overcome the fact that the ‘more favourable course’ finding in developing societies is based on research with only 234 people from three culturally similar settings in India and 138 people from Cali, Colombia. (Further, that the three north India sites should be treated as independent cases is questionable from a statistical viewpoint because they are culturally so closely related.) It is difficult to comprehend how findings about differences between ‘developing’ and ‘developed’ societies could be considered ‘conclusive’ when they are based on this sample.

Concerns also arise with respect to the ‘developed’ centres. These cities no doubt share some common demographic, social and technological features, including ready availability of neuroleptic drugs, but they also differ from each other in many potentially significant ways. The socialised health care systems of Aarhus, Prague, and Moscow, for example, contrast sharply with those of centres in the USA. Moreover, even within the USA, cities like Washington DC, with its predominantly African-American population, differs socially and culturally from Rochester NY with its largely Euro-American population of Italian and German ancestry, and yet again from Honolulu,

with its poly-ethnic Euro-American, Polynesian, Asian-American and Filipino-American population mix. If culture is the key explanatory variable for the course of schizophrenia, as DOSMD suggests, these developed centres lack the cultural homogeneity one might hope for in a research design intended to test for cultural effects, and the DOSMD investigators do not analyse the existing ethnic or cultural heterogeneity.

At a more fundamental level, the very distinction between 'developing' and 'developed' centres must be questioned. As pointed out by Hahn (1978) and Eaton (1985), this is a dichotomous variable of dubious validity. Even if it were possible to operationalise this concept, there is not enough cross-cultural information about the day-to-day lives of individuals suffering from schizophrenia to make meaningful predictions about the cultural settings in which one would expect to find better or worse prognoses for this mental illness. Nor do we possess a comparative scale of cultural demands and stresses which could use empirical data to test various hypotheses about the relationship between culture and mental illness (Cohen, 1992).

The DOSMD findings

Turning now to the DOSMD findings themselves, we begin by noting some apparent discrepancies. First, the authors state that the goal of their research was to find "untreated" cases, and that they succeeded in locating "... a sample of practically untreated patients of recent onset" (p. 82). They go on to state that only between 7% and 16% of the total study population had seen traditional or religious practitioners prior to inclusion. But they also write that, prior to inclusion in the study, "considerable numbers (between 22% and 46%) of patients in Agra, Chandigarh and Ibadan had received traditional remedies or unspecified 'drugs'" (p. 20). On the same page, they report that 73% of the sample in Agra had seen traditional or religious practitioners and 17% had had one or more ECT treatments. This relatively common pattern of pre-inclusion therapy suggests the possibility that the more favourable course for schizophrenia in developing centres could have resulted in part from prior treatment (and perhaps from continued but unreported treatment during the follow-up period).

Another concern is raised by the DOSMD discussion of attrition. It is stated that "drop-out" rates varied significantly ($P < 0.001$) among the various research centres but that these differences

"were unrelated to the developing/developed country dichotomy" (p. 57). Yet the three lowest attrition rates of all the centres occurred in the four 'developing' centres (Agra 6.4%, Cali 9.7%, and Chandigarh-rural 5.6%). Contrast these attrition rates to those of 57.4% in Honolulu and 43.6% in Rochester NY, and an average for all 'developed' centres of 29.4%. This is a curious contradiction in the DOSMD report, and if, as Vaillant (1963) and others have noted, those patients who drop out of follow-up psychiatric research samples tend to be healthier than those who remain in contact, then the reason for a more favourable course in developing than in developed countries could have been the different attrition rates between the two types of centres.

There are also concerns about diagnosis. Although DOSMD went to great pains to make diagnostic criteria consistent across all sites they were not entirely successful. For one thing, the Present State Examination (PSE) was not always used: 80 cases were included on the basis of clinical diagnosis alone. This would hardly be a problem if those cases were evenly distributed throughout the sample, but it appears that they were not. Thirty-three of them were in Chandigarh (we are not told whether in rural or urban, or both). This represents about 15–20% of the cases from Chandigarh. If the majority of the rest of these non-PSE cases were to be found in the localities in the developing countries, it would mean that about 10% of all the cases in the developing countries had passed different inclusion criteria from the rest of the sample.

But problems with diagnosis do not end here. Fully 25% of the study patients reported having had medical problems in the year preceding inclusion. As might be expected, the highest percentages were found in the developing countries. Unfortunately, the precise data on this point are not reported in the DOSMD monograph so we cannot assess the effect that physical health problems may have had on course or outcome. Nevertheless, in light of the evidence demonstrating that the manifestation of schizophrenia-like symptoms may be the result of diseases or toxins common to developing countries, it is important that an organic basis for these symptoms be ruled out. (Discussions of schizophrenic-like symptoms due to infections or toxins in developing societies are available in Tooth (1950), Wallace (1970) and Kennedy (1974); we also note the DOSMD finding of heavy alcohol and drug use in three of the 'developed' centres (Aarhus, Honolulu and Rochester), something that could have contributed to a less favourable course among the 'developed' centres.)

The measurement of onset and course

The most important finding of the DOSMD study concerns the relationship between type of onset and favourable course. The IPSS finding of a more favourable course among developing centres was criticised for, among other things, not being able to reject the possibility that the larger number of cases having a favourable course which they found among developing centres was due to a greater proportion among these populations of cases of acute onset, which probably had a more rapid recovery. However, the DOSMD study found that among developing centres there was an approximately 10% greater likelihood of a more favourable course, no matter whether the type of onset was acute or gradual. But, as is acknowledged by the DOSMD investigators, determining the type of onset was difficult, especially when a patient was included in the study after a lengthy period of illness. A fairly large proportion (20.1%) of patients was included in the study 6 months or more after onset. Fully 14% were included more than a year afterwards. Given the frequent unreliability of self-report data, it may be imprudent to rely on this variable for a high degree of accuracy. Nevertheless, the DOSMD investigators conclude that their 'more favourable course' finding is not artefactual but rather due to the "pervasive influence of a powerful factor which can be referred to as 'culture'" (p. 89).

We have already speculated that some portion of the 10% differential in favour of a more benign outcome in developing centres might be due to non-cultural factors such as pre-inclusion treatment or sample attrition, variables that were apparently not included in the DOSMD log-linear model that is said to have ruled out "artefactual" factors, and we are not convinced by the data presented that some of that 10% differential in outcome might not be a result of other factors such as inconsistencies in diagnosis or in the measurement of the type of onset or outcome variables. It is plausible that some 'cultural' factors such as the conditions imposed by hospitalisation and social isolation contribute to a less favourable course in developed societies, just as other factors such as tolerant families and social acceptance might lead to a more favourable course in developing societies, but two attributes of the DOSMD findings thwart the effort to link culture to outcome. First, neither relevant cultural variables, nor proxy variables for cultural beliefs and practices, appear to have been included in the DOSMD data analysis. The variables that are included (e.g. marital status, type of household, avoidance of patient by relatives) are treated as if they were culturally equivalent when, in principle,

they are likely to have different cultural emphasis and meaning from one society to another (pp. 72–73). Second, because the DOSMD data are aggregated into two dichotomous categories – developing and developed – the differential contribution of various culturally different centres, or of different individuals within a given centre, to a more or less favourable course cannot be examined. Indeed, with the partial exception of gender, we cannot determine whether the course of schizophrenia in one developing centre was more favourable than in another (e.g. rural Chandigarh Vs. urban Chandigarh), and therefore we cannot even speculate about what social or cultural factors might have been most influential.

Gender as a predictor of outcome

Let us consider the role of gender, for which some centre-specific data are reported (p. 63). It is true that more patients fall into the category of 'mild course' in the developing countries, and more come under the heading of 'severe course' in the developed countries, although the latter difference is not as great. However, except for Agra, female schizophrenic patients in the developing countries always have a dramatically better course than do males. This may be seen in the average difference between percentage of male and female patients designated as having a mild course. While a higher percentage of female patients seem to have a mild course in all of the centres, in Cali, Ibadan, and North India the average difference between men and women comes to +16.2%. Among the developed countries it is only +5.1%. That gender is a predictor of good outcome is clearly noted by the DOSMD report (p. 77). What is not noted by the DOSMD investigators is that these gender differences are more than three times as great in the developing countries as in the developed countries, and may fully account for the 10% differential in better outcomes among those with schizophrenia in the 'developing' centres. Is this difference a product of culture? Are there gender role differences that buffer women against poor course and outcome? If so, why do women in Agra not share in a more favourable course? Or is it an artefact of bias in outcome measures? As Strauss noted concerning follow-up measures in the IPSS, assessing favourable outcome among women was problematic. He described one woman who, though actively delusional, had better social functioning than many "normal" people, and another who was socially dysfunctional but asymptomatic (Strauss, 1992, p. 20).

To recapitulate, the DOSMD study has done a service by pointing to the possible impact of culture on the course of schizophrenia but it has not

demonstrated that culture has had a “pervasive” influence, unless by “culture” the authors mean simply anything that is environmental. Indeed, we must conclude that the more favourable course in developing centres may be a product of artefacts unrelated to culture as such.

Cultural factors in the course of schizophrenia

The DOSMD investigators appear to have identified culture as a pervasive factor in determining the course of schizophrenia because the variables in their data set were not predictive of course or outcome. But culture is not a synonym for unexplained variance. The concept of culture refers to a people’s way of life, their traditional beliefs and practices, or (more correctly for anthropologists who developed the concept) the world of meaning in which people live – the symbols, rituals, values, emotional styles and all of their understandings about what is and what ought to be. Defined in this way, culture is indeed pervasive. It influences how people everywhere think, feel and behave, and it may well have an impact on the course of schizophrenia.

An example of a cultural factor that could have a significant effect on the course of schizophrenia would be the extent to which people in a particular society believe that schizophrenia is an affliction caused by the malevolence of others and that it can be cured by the entire family making a public confession of its misdeeds (Winans & Edgerton, 1964). The belief by some populations that the symptoms we call schizophrenia are shameful could also be a cultural factor that influences the course of schizophrenia, as could the idea that the syndrome runs in families, making members of an affected family undesirable as marriage partners. Needless to say, there are many other cultural factors that could make a difference in the course of schizophrenia.

It is difficult to reduce cultural belief systems to easily coded variables, even though it is sometimes possible to approximate some of them adequately for certain kinds of more global analysis. The difficulty is that cultural beliefs and practices are usually embedded in larger, interrelated systems that cannot easily be separated or “untied”, as Egon Brunswik (1955) once put it. Hence there is an inherent methodological tension between comprehending a particular cultural system in all its interrelatedness and reducing that system to variables amenable to cross-cultural quantitative analysis.

Another difficulty, as we have already noted, is the tendency in psychiatric epidemiological research to treat various demographic, premorbid and post-inclusion variables as if they were culture-free

(Hopper, 1991). Eight years of education clearly do not have the same meaning in all societies, but it is less well understood that even the variables age and gender are not culture-free. It is not only that different ages, for example, have different meanings in different cultures, but the age at which stressors are most severe can differ too. Recent work on expressed emotion has acknowledged the critical role that culture can play in family dynamics (Leff *et al*, 1987; DiNicola, 1988; Katz *et al*, 1988; Jenkins & Karno, 1992), and as recent research comparing the course of schizophrenia in Cali with that in Munich has shown, the size of the family of a person with schizophrenia is unrelated to the course or outcome of their recovery, no doubt because mere family size is not a cross-culturally meaningful variable (von Zerssen *et al*, 1990).

Similarly the role of work in the course of schizophrenia is often discussed as if ‘work’ were an activity that could meaningfully be compared from one culture to another. The idea of work as an activity distinct from non-work is widespread in the industrialised world but is much less common elsewhere. Indeed, in many smaller societies our concept of work would be alien to people whose lives are spent in rounds of subsistence activities that bear little resemblance to ‘work’ as we know it. However, that does not mean, as is often supposed, that it would necessarily be possible for a man with schizophrenia to engage in flexible, tolerant, communal subsistence activities in most developing or small-scale societies (cf. Warner, 1985; von Zerssen *et al*, 1990). That is an empirical question calling for research that has not yet been carried out. Moreover, it cannot be assumed *a priori* that women would be more likely than men to find congenial work roles. Any analysis of work in transnational psychiatry must become culturally sensitive.

What, then, is required if such studies are to comprehend cultural influences? One key is to avoid treating research centres as culturally homogeneous entities capable of being compared one with the other or categorised as ‘developing’ or ‘developed’. Another is to avoid multivariate analyses of large data sets when those sets contain variables that are not culturally equivalent from one centre to another. Finally, what we most need is research that is attuned to the cultural context in which the course of schizophrenia is actually played out (Edgerton, 1980; Kleinman, 1988; Littlewood, 1990; Hopper, 1991; Cohen, 1992; Jenkins & Karno, 1992).

An intracultural analysis

If a culturally sensitive analysis had been carried out by the WHO investigators in, say, Ibadan, let us see

what issues it might have clarified. Ibadan is a large, sprawling city in south-western Nigeria. Probably 90% of its one and a half million or so population are members of the Yoruba ethnic group, a population of some 60 million in all, divided into seven major ethnic subdivisions, various social classes and occupational groupings. If the IPSS and DOSMD samples were largely Yoruba, as one would expect and as Day *et al* (1987) imply, the DOSMD research team could have gained, from the sizeable literature that exists on Yoruba culture, background knowledge of cultural factors that might affect the course of schizophrenia among members of the Ibadan sample.

However, Ibadan is not a culturally homogeneous centre. Not everyone in that city is Yoruba, and even the Yoruba differ among themselves concerning the causes of severe mental illness. It is sometimes attributed to the malevolence of others, sometimes to personal wrongdoing and at other times to heredity. If cultural beliefs about the aetiology of schizophrenia can influence the course of the disorder, then it would be important to know which beliefs were held by members of this sample and their relatives. Although Yoruba of all classes seek treatment from native healers or syncretic apostolic churches (Erinosho, 1977), it would be important to know which kind of treatment was received. Church-based treatments can provide powerful social and psychological support to patients and their families, while native healers often employ *Rauwolfia* and other psychoactive drugs, some of which may have neuroleptic properties (Prince, 1964; Maclean, 1971; Braito & Asuni, 1979). It is also known (and mentioned by some of the WHO investigators) that patients may be turned away from psychiatric clinics if they admit to having had prior treatment from a traditional healer (Day *et al*, 1987, p. 166). Patients therefore typically under-report such treatment, a phenomenon that may have led the DOSMD investigators to underestimate the chronicity of their illness.

It would also be important to have some measure of the degree of social tolerance and support patients receive after they develop schizophrenia. Yoruba families can be supportive but their support may not persist long in the face of florid psychotic symptoms (Prince, 1964), and wandering dishevelled isolated psychotics are familiar figures in many Nigerian markets, as they are throughout Africa (Maclean, 1971; Imperato, 1977). Of course, schizophrenics in Ibadan who come to the city from the Muslim north or other ethnic populations to the east might have no social support at all in the city and be forced to return home or become wandering beggars. We are

told that 61% of the sample had relatives in Ibadan, but the quality of support offered by these relatives is not indicated (Day *et al*, 1987, p. 154); the circumstances of the 39% without social support are not reported.

If culturally sensitive psychiatric research is to succeed, it should not rely solely on self-reports, the report of others, and psychiatric examinations. All of these forms of data collection are useful, even vital, but without frequent direct observation of the day-to-day adaptation of patients and those close to them, an adequate understanding of the course of their schizophrenic symptoms cannot be obtained. That is so for two quite obvious reasons: because schizophrenic symptoms are often episodic, they must be monitored over time, and because people do not always behave as they or others say they do, direct observation of them is an essential corrective.

These principles are often acknowledged only to be rejected because it is presumed that conducting direct observation for a prolonged period would be prohibitively costly (Warner, 1992). In fact, such research need not be any more costly than conventional psychiatric epidemiology. For example, even the promise of small sums of money should be sufficient to induce many patients (or family members) to maintain periodic contact with members of the research team, thus reducing attrition and increasing the feasibility of longitudinal data collection. As many anthropologists have learned, entire networks of people may often be willing to report on daily activities of patients (of course, with informed consent) when they approve of the goal of the research. Undergraduate students from nearby colleges can readily be trained to carry out various kinds of data collection and they can be employed for little cost. And there is no shortage of first-rate doctoral students in anthropology eager to devote a year or more to ethnographic field research and supervision at low cost.

Conclusion

For all the reasons indicated, we believe that it is premature to accept the WHO investigators' assertion that the course of schizophrenia has been shown to be more favourable in developing societies. It is clear, however, that they and other investigators studying both developed and developing societies have shown that the course of schizophrenia varies for reasons which are as yet inadequately understood but which very likely involve a number of environmental factors, including culture. The challenge posed by the DOSMD investigators was to determine how and to what extent cultural factors affect the course of

schizophrenia. As welcome as this focus on culture is, it should not deflect research attention from potentially prognostic variables that are not affected by culture. Values, symbols, beliefs and meanings of all sorts are wholly cultural, but the course of schizophrenia may also be influenced by malaria, trypanosomiasis, drug use, diet, and type of onset, and other environmental factors that are only sometimes significantly influenced by culture (Freeman, 1989; Gupta & Murray, 1992).

The task of identifying cultural and other environmental factors that determine the course of schizophrenia cannot be carried out by anthropologists or other social scientists alone, although it is unlikely that it will be accomplished without them. What has long been needed, yet seldom achieved, is collaborative research involving social scientists with psychiatrists, epidemiologists, and investigators from various biomedical disciplines. If this research is to push aside the cultural curtain that obscures our understanding of the course of schizophrenia, it must involve direct observation at many points in time over the course of illness being examined. The technology for such research is well developed and the cost need not be excessive. Even during the "Decade of the Brain" in mental illness research, the study of the impact of cultural factors on the course of severe mental disorders is clearly warranted (cf. Edgerton, 1980; Hopper, 1991; Cohen, 1992).

However, culture must not become a shibboleth or merely a gloss for 'the environment'. Research into prediction of the course of schizophrenia will not succeed until environmental factors, including culture, are combined with biomedical factors in prospective research designs capable of observing actual behaviour over time. Culture is a conceptually distinct and potentially powerful environmental factor capable of exerting a significant effect on the course of schizophrenia or any other mental disorder. But the nature and power of this effect will remain a 'black-box' phenomenon until cultural factors are fully incorporated into research designs on the course of schizophrenia. It is unfortunate that the DOSMD study did not do this, but we should be grateful to it for so clearly pointing out the need to do so in the future.

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