# Life Events and Schizophrenia in Nigerians
## A Controlled Investigation

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Forty-two first-episode RDC schizophrenic patients were matched on sociodemographic variables with an equal number of control subjects. The life-event histories of both groups for 6 months before onset or interview were compared. Onset of illness was not preceded by an increase in life events. The only significant observation was that control subjects had experienced more events in the month previous to interview. These were reported mainly by male control subjects, involved the family, and were possibly related to the period when the control subjects were interviewed. The observations are discussed within the context of the Nigerian culture.

The aetiological importance of recent life events in the development of psychiatric disorders continues to be a focus of intense research. Most of the efforts in this area have been directed at finding what role such events play in the evolution of depressive illness (Paykel *et al*, 1969; Brown & Harris, 1978). In spite of the methodological problems involved (Tennant *et al*, 1981), it now seems fairly well established that depressive illness is often preceded by adverse life events, in developed countries (Paykel, 1982). The same may also be true for developing African countries (Vadher & Ndetei, 1981; Gureje, 1986*a*).

The relationship of life event to the onset or relapse of schizophrenia has also received attention. However, studies in which replicable operational definitions of schizophrenia have been used are conspicuously few (e.g. Brown & Birley, 1968; Jacobs & Myers, 1976; Leff *et al*, 1983; Chung *et al*, 1986; Day *et al*, 1988). This is especially evident in the developing world where only the study of Al Khani *et al* (1986) meets the criteria for a case-control study of life events in schizophrenia itemised by Dohrenwend & Egri (1981). In view of the evidence from the International Pilot Study of Schizophrenia (Sartorius *et al*, 1978, 1986) that schizophrenia may have a different course in the developing countries from that in the industrialised countries, it is clearly desirable to have the origin of this disorder more thoroughly investigated in these non-industrialised societies.

The study of Brown & Birley (1968) was conducted in Camberwell, London. The results show a significantly higher rate of life events in general for the patients in the 3 weeks before onset of illness, than in the comparable period for control subjects. They also show a clustering of life events in the 3 weeks before admission for schizophrenia; 46% of patients

having a first episode or recurrence had experienced at least one independent event in the 3-week period, as compared with 12% of the control subjects. Jacobs & Myers (1976) conducted their study in New Haven, Connecticut. It was found that there was a significantly higher rate of life events for the patients than for the control subjects, in the reporting period of 1 year. However, analysis of events classified as independent of a person's ability to influence them revealed no significant difference between the two groups. With regard to categories of events, schizophrenic patients had experienced significantly more undesirable events, events causing an 'intermediate degree of upset', those occurring within familial or legal spheres, and those involving relocation or role transition, or requiring a 'low degree of adjustment'. The occurrence of the events at weekly or monthly intervals was not dated.

Of the 40 patients studied by Chung *et al* (1986), 15 had a DSM–III (American Psychiatric Association, 1980) diagnosis of schizophrenia, while nine had schizophreniform psychosis. More than half of their control subjects were surgical patients. These authors found threatening life events to be significantly related to the onset of schizophreniform psychosis, but not schizophrenia. The study of Leff *et al* (1983) was concerned with relapse in schizophrenic patients receiving medication, and not with recent onset of the illness.

The study of Al Khani *et al* (1986) was largely a replication of that by Brown & Birley (1968), with a few differences. It was conducted in Najd, Saudi Arabia, a Third World country. A later edition of the PSE (Wing *et al*, 1974) was used both for the selection of cases from out-patient clinics and for the screening of the control groups from the general population. A slightly stricter definition of schizophrenia than that

of the earlier study was used, but both had samples composed of a roughly similar proportion of first episodes. Al Khani *et al* (1986) used a 70-item unpublished WHO Life Events Schedule. Events were recorded for the 12 months prior to the onset or relapse of schizophrenia for the 48 patients, and 12 months prior to the interview for the 62 control subjects. Both groups were matched for age, sex, and marital status. However, results were presented for an equivalent 6-month period for both groups. For each patient, events were rated as 'controllable' when they were outside his/her own practical control, 'controllable/possibly independent' when within the subjects' control, but without evidence that they were associated with any abnormal behaviour, or 'controllable/probably dependent' when there was objective evidence that they might have been brought about by behaviour regarded as abnormal within the patient's cultural context. Events in the last category were excluded from analysis.

Various analyses of the results, some of them novel, were conducted. Essentially, the results showed a higher frequency of events in the 6-month period only for female patients over control subjects. This was mainly due to events reported by married females. There were no significant differences within the various patient and control groups with regard to the number of subjects reporting events. Significant clustering of events in the 3-week period before onset was noticed only between married schizophrenic females with previous episode of illness and control subjects, and between both single and married first-episode schizophrenic females and the equivalent control groups.

The Najd study is thus a powerful indicator of the cultural relativity of the impact of life events. It indicates that group vulnerability within each cultural milieu is an important determinant of what role, if any, life events could play in the precipitating of schizophrenia.

The present study is an attempt to explore further the relationship of life events to schizophrenia in a non-industrialised society. It is not intended as a replication of any of the previous studies, since prevailing circumstances and clinical realities dictate different approaches to data collection. However, it has been strongly influenced by the three cited studies with regard to methodological principles and forms of analysis. Two questions were considered: Are life events more frequent before the onset of schizophrenic illness? Are there particular types or categories of events that are more specifically associated with the onset of schizophrenia?

## Method

The Aro Hospital, Abeokuta, is the oldest psychiatric hospital in Nigeria. It is situated in Ogun State, but also serves the adjoining Yoruba-speaking states. The population of this area is over 12 000 000. Abeokuta, which is the immediate catchment area of the hospital, is an ancient Yoruba city. Even though it was one of the first communities in Nigeria to make contact with Western culture and education, the society remains strongly traditional. The basic family unit is of the extended type.

The study was conducted between March and August 1986.

### Subjects

These were selected from 352 neuropsychiatric consecutively referred patients to the Aro Neuropsychiatric Hospital, Abeokuta. Patients were selected who met the following criteria for inclusion:

1. Research Diagnostic Criteria (Spitzer *et al*, 1975) for definite schizophrenia. These criteria were used in order that cases of 'acute transient psychoses', relatively common in this environment (German, 1972), might not be included. (Even though the causes of these psychoses among Africans have not been fully worked out, it is known that transient and self-limiting psychotic reactions may be produced by overwhelming stresses or 'extreme situations').
2. First episode of illness.
3. Duration of illness of not more than 3 months. This was to allow for reliable recall and dating of events by these largely illiterate subjects. For this purpose, a global judgement of the reliability of dating of onset was made after considering every available information. Onset was defined in both symptomatic and social-functioning terms. Patients for whom assessment of onset was judged 'unreliable' because it could not be dated to within a week were excluded.
4. An informant sufficiently knowledgeable about the patient available to provide corroboration of the occurrence and circumstances of each event. (Almost every patient coming to the Assessment Unit had a relative or close friend with him or her).

The initial selection of patients was made at the Assessment Unit of the hospital by AA, a trainee psychiatrist with over 4 years' experience. A symptom check-list was used. After obtaining demographic, family, and catamnestic details from patients and their accompanying relatives, questions were asked to determine presence or absence of psychotic symptoms, mainly first-rank symptoms of schizophrenia, symptoms of affective disorder, or evidence of organic disorder. Patients with prominent affective symptoms or evidence of organic disorder at any stage of the illness were excluded. Evidence of organic disorder was taken as either a recent history of substance abuse, or presence of any of disorientation, clouding of consciousness, or abnormal vital signs (Gureje, 1986), at any stage of the illness. Three hundred and fifty-two new referrals with various neuropsychiatric disorders were so screened. Out of these, 127 had a clinical diagnosis of

schizophrenia, 65 of them being first episodes. [The tendency for the hospital to draw such a high proportion of psychotic presentation has been previously noted (Odejide, 1980).] However, even though these 65 were presented for orthodox psychiatric treatment for the first time, virtually all had consulted traditional healers or syncretic churches before coming to Aro Hospital. This meant that most had been ill for between 4 and 8 weeks before presentation. Final selection of subjects was jointly made by both authors. It was based on a detailed mental-state examination that included PSE-style questions to elicit the presence of symptoms for making an RDC diagnosis of schizophrenia. At this stage, only questions relevant to the eliciting of presence or absence of specific symptoms for making an RDC diagnosis of schizophrenia and to the further excluding of cases of affective disorder were asked. The approach for eliciting these symptoms followed the format of the relevant areas of the PSE, but the questions were asked in Yoruba, the first language of both the authors and the subjects. Only symptoms that were rated definitely present were considered. Particular attention was also placed on the age at onset of symptoms (had to be less than 40 years) and the minimum duration of illness being at least 2 weeks. A previous study by the first author (OG) had involved the use of this approach for case selection (Gureje & Bamgboye, 1987). Patients whose symptoms of psychosis started within 3 weeks of childbirth were regarded as suffering from puerperal psychosis (Brockington *et al*, 1982), and were excluded.

Forty-two patients who met the stated criteria were selected for the study. Even though all of them would, on the basis of duration of illness being less than 3 months, fit into the RDC category of acute schizophrenia, the emergence of illness in almost all the cases was characterised by the progression of symptoms to florid psychosis over 1–4 weeks.

### Control subjects

These were selected from three main sources: employees of Aro Hospital (mainly clerical staff and manual workers), traders in the market place, and artisans in the government-designated artisan villages at the outskirts of the town. Subjects were approached at random and invited to take part in the study, in which their state of health and social well-being would be assessed. Most were willing to take part, and for some it provided an easy way of getting medical advice on some personal problems. However, 9 of the 66 people approached refused. These were almost all artisans who suspected data were being collected for tax purposes. Each of the remaining 57 subjects was interviewed using the Standardised Psychiatric Interview (SPI) (Goldberg *et al*, 1970). This instrument has been previously used by the interviewer (Gureje, 1986*b*) and found to be quite easily applied in the local language, Yoruba. The SPI was used to screen the control subjects because of its brevity and direct appropriateness for use among subjects who might not see themselves as being psychiatrically disturbed. It allows for very-general non-threatening initial probes, answers to which provide leads for more specific questions to elicit symptoms. It was felt these qualities would promote

better co-operation from these subjects, most of whom were interviewed at work. The SPI has been previously used among black Africans and found to have a high correlation ($r = 0.89$) with the PSE (Orley & Wing, 1979; Cox, 1983). Any subject scoring a total of four or more in the section on "Reported Symptoms" or rated two or more on any item in the section on "Manifest Abnormalities" was excluded. Seven of the subjects had prominent symptoms of anxiety or depression, and were therefore excluded. Their total score (generated by doubling the score on "Manifest Abnormalities" and adding that to their score on "Reported Symptoms") ranged between 15 and 21. None of them had received previous psychiatric treatment. This is in keeping with previous observations that many black Africans with significant symptoms of affective illness fail to seek medical help (Orley & Wing, 1979; Cox, 1983). None showed evidence of psychosis. Of the remaining 50, 42 were matched with patients with regard to sex, marital status, age (in decades), and social class. None of the married male patients or control subjects were married to more than one wife. Three of the married female patients had polygamous marriages and so did three married control females. All were of the same Yoruba tribe as the patients. The classification of social status used by Minde (1975) in a setting comparable to the present one was adopted for this purpose. Minde's classification is a modified form of Hollingshead & Redlich's (1958). It is as follows: Class I, professionals with university education; Class II, senior government officials and owners of large businesses who had a secondary education; Class III, junior civil servants, primary-school teachers, policemen, clerks; Class IV, craftsmen, farmers owning more than 3 acres of land, mechanics; Class V, small-plot farmers, unskilled labourers. Married females were classified according to the social class of their husbands.

### Interviews

The life-event schedule published by Paykel *et al* (1969) was used for this study. It has been previously used among schizophrenic patients (Jacobs *et al*, 1974; Jacobs & Myers, 1976). This 33-item check-list allows for a semi-structured interviewing approach: most of its items are discrete and recognisable experiences that can be easily dated and for which circumstances surrounding occurrence can be clarified by subjects and close informants. A shorter version of it has previously been used among depressed and normal Nigerian women by Gureje (1986*a*). It was found acceptable to the subjects and generally appropriate to the culture. Two items on the list were discarded because of their inapplicability in this environment:

1. Son drafted, for which "failed at school" was substituted; and
2. Divorce which, in this traditional setting, is not different from marital separation. For this, "miscarriage (or abortion)" was substituted.

For the present study, a childbirth event was regarded as "new person in home", thus reducing the total number of items to 32.

Each patient was interviewed with at least one informant about the occurrence of life events. Thirty-two of the

patients had a first-degree relative as the principal informant, seven had spouse informants, while three had close friends. Almost all had more than one informant with them during the interview. The circumstances surrounding the occurrence of each event were clarified with information obtained from the relative or friend. On the basis of this clarification, a global judgement of each event was made in relation to the local culture, and all events were classified into three categories (following Brown & Birley, 1968).

1. Independent events: events over which patients had no control.
2. Possibly independent events: events within the control of patients but which, in the circumstances in which they occurred, could not be reasonably attributed to the mental state of the patient.
3. Probably dependent event: events that were likely to have occurred as a consequence of the patient's illness.

All events in the last category were excluded from analysis. Classification of events into these categories was done by consensus of the authors. When vignettes of events were independently rated, there was 96% agreement between the two authors for events considered probably dependent on the patient's illness. Events were recorded if they occurred during the 6 months prior to onset in the case of patients, or 6 months prior to interview in the case of control subjects for whom the same list of events was used. Patients were interviewed as soon after the first assessment as their mental state allowed.

### Statistical methods

Comparisons between the patients and controls were made using the $t$-test for continuous variables and the chi-squared test (with Yates correction) for categorical variables.

### Results

The demographic characteristics of the patients are as shown in Table I. Analyses were carried out for four subgroups of subjects in both the control and the patient groups: total group; males; females; and married females. This followed the observation of Al Khani et al (1986) of a significant effect of gender in the reporting of life events.

Table II shows the frequency of reported events in the 6-month period. Even though there were no significant differences between the patients and the control subjects, there were a number of interesting observations. In general, more control subjects than patients reported events in the period. Control subjects also had a higher frequency of events than patients. This trend was very noticeable when male control subjects were compared with male patients. However, while the same number of female control subjects and female patients reported life events, the latter group had a higher mean frequency of events than the former. This difference became more pronounced when married females were considered. For this subgroup, more patients than control subjects also reported events. The picture for the 3-month antecedent period was closely identical, except that more female patients reported events, even though the mean frequency of events was higher for control subjects (Table III).

#### TABLE I
Comparison of controls and schizophrenics by socio-demographic characteristics

| | Subjects | |
| --- | --- | --- |
| | Control (n = 42) | Schizophrenic (n = 42) |
| Sub-group | | |
| Single males | 20 | 20 |
| Single females | 6 | 6 |
| Married males | 3 | 3 |
| Married females | 13 | 13 |
| Males aged 25 years | 14 | 15 |
| Females aged 25 years | 7 | 13 |
| Males aged 25 or over | 9 | 8 |
| Females aged 25 or over | 12 | 6 |
| Mean age (years) ± s.d. | 24.2 ± 4.53 | 22.9 ± 4.87 |
| Social classes | | |
| I–III | 11 | 9 |
| IV | 22 | 23 |
| V | 9 | 10 |

When the analyses were carried out for the 1-month antecedent period, some of the observed trends at 6- and 3-month periods were emphasised (Table IV). There were significantly more control subjects than patients reporting events, and this difference was due mainly to the proportion of males reporting events in each group. The trend for the control subjects as a whole or for the male control subjects to have a higher mean frequency of events than the equivalent patient subgroups also became more pronounced. As in the 6-month period, the proportion of females in both groups reporting events during the month before onset or interview was the same but now, as in the 3-month period, the mean for control female patients was higher than for female patients. The observed trend for a higher mean

#### TABLE II
Six-month antecedent period: average number of life events and number of subjects having at least one event in different subgroups of patients and control subjects

| | Mean frequency of events (s.d.) | | Subjects having events: % | |
| --- | --- | --- | --- | --- |
| | Control subjects | Patients | Control | Patient |
| Total group | 0.88 (0.73) | 0.83 (0.92) | 67 | 52 |
| Males | 0.87 (0.68) | 0.61 (0.77) | 65 | 39 |
| Females | 0.89 (0.79) | 1.11 (1.02) | 68 | 68 |
| Married females | 0.92 (0.62) | 1.54 (0.93) | 77 | 92 |

There were no significant differences between patients and control subjects.

TABLE III

*Three-month antecedent period: average number of life events and number of subjects having at least one event in different subgroups of patients and control subjects*

| | Mean frequency of events (s.d.) | | Subjects having events: % | |
|---|---|---|---|---|
| | Control subjects | Patients | Control | Patient |
| Total group | 0.60 (0.79) | 0.43 (0.58) | 45 | 38 |
| Males | 0.65 (0.70) | 0.39 (0.57) | 57 | 35 |
| Females | 0.53 (0.88) | 0.47 (0.60) | 32 | 42 |
| Married females | 0.54 (0.75) | 0.62 (0.62) | 38 | 54 |

TABLE IV

*One-month antecedent period: average number of life events and number of subjects having at least one event in different subgroups of patients and control subjects*

| | Mean frequency of events (s.d.) | | Subjects having events: % | |
|---|---|---|---|---|
| | Control subjects | Patients | Control | Patient |
| Total group | 0.29 (0.59) | 0.07 (0.26)* | 24 | 7*** |
| Males | 0.30 (0.46) | — | 30 | —*** |
| Females | 0.26 (0.71) | 0.16 (0.36) | 16 | 16 |
| Married females | 0.15 (0.36) | 0.23 (0.42) | 15 | 23 |

*$t = 2.22$, $P < 0.05$; **$\chi^2 = 4.45$; $P < 0.05$; ***$\chi^2 = 8.26$, $P < 0.01$.

frequency of events for married female patients than married control females remained non-significant, as did the higher number of the former compared with the latter reporting events at the 1-month antecedent period.

The clustering of events noticed among control subjects in the month prior to interview was curious. Further analysis revealed that this trend was again due to the pattern among male control subjects. It was accounted for by two groups of events: education-related events, which occurred only among control subjects, and the upsurge in the movements of new persons other than the newly born to the homes of the control subjects. The latter were mainly young school-leavers coming to the city to pursue a career. Both events showed an increase in frequency at the time of this study, because they spanned the end of the school year. More control than patient subjects were interviewed at this period.

Table V shows the number of patients and control subjects reporting each event at least once in the 6-month period. No single event significantly differentiated the groups. The data were further analysed using categories of events (following the groupings originally done by Paykel *et al*, 1969; and Jacobs & Myers, 1976). Table VI shows the results. There were no significant differences. The only difference that approached statistical significance was that relating to the 'family' category. This trend was due to the number of males reporting entry of new persons, other than new babies, into their homes. Most of these entrants were members of the extended family.

TABLE V

*Frequency of each event for control subjects and patients*

| Event | Control subjects | Patients |
|---|---|---|
| 1. Increase in arguments with spouse | 2 | 1 |
| 2. Marital separation | — | — |
| 3. Starting new type of work | 4 | 3 |
| 4. Change in work conditions | 2 | 3 |
| 5. Serious personal illness | 1 | 3 |
| 6. Death of immediate family member | — | 2 |
| 7. Serious illness of family member | — | — |
| 8. Family member leaving home | 3 | 1 |
| 9. Move from home | 1 | 4 |
| 10. New person in home | 11 | 8 |
| 11. Major financial problems | — | — |
| 12. Pregnancy | 4 | 5 |
| 13. Unemployment | — | — |
| 14. Court appearance | — | — |
| 15. Lawsuit | — | — |
| 16. Engagement | 1 | — |
| 17. Demotion | — | — |
| 18. Changing school | — | 1 |
| 19. Child becoming engaged | — | — |
| 20. Promotion | — | — |
| 21. Being given notice from work | — | 1 |
| 22. Leaving school | 3 | — |
| 23. Marriage | — | 1 |
| 24. Child getting married | — | — |
| 25. Imprisonment | — | — |
| 26. Failing at school | 1 | — |
| 27. Birth of child (for father) | 1 | 2 |
| 28. Miscarriage | 1 | — |
| 29. Business failure | 1 | — |
| 30. Stillbirth | — | — |
| 31. Pregnancy of wife | 1 | — |
| 32. Retirement | — | — |

## Discussion

The conduct of this study was guided by certain criteria: the selection of a representative sample of patients whose illness met a set of standard criteria, and who were having their first episodes of illness; the selection of a representative sample of control subjects whose demographic attributes closely matched those of the patients; an attempt to gather life-events information systematically from the subjects and their informants; the accurate determination of the onset of illness and dating of events with respect to that onset; and the need to discard from analysis events that could have occurred as consequences of the patient's mental state when considered within their cultural setting. These criteria have been emphasised as essential for an adequate

TABLE VI
*Categories of events*[1]

| Category | Schizophrenic patients | Control subjects | Events included in category |
|---|---|---|---|
| Entrance | 11 | 13 | Engagement<br>Marriage<br>Birth of child<br>New person in home |
| Exit | 3 | 3 | Death of close family member<br>Separation<br>Family member leaving home<br>Child getting married |
| Desirable | 1 | 1 | Engagement<br>Marriage<br>Promotion |
| Undesirable | 3 | 3 | Death of family member<br>Separation<br>Demotion<br>Serious illness of family member<br>Imprisonment<br>Major financial problems<br>Unemployment<br>Court appearance<br>Failing at school<br>Miscarriage<br>Stillbirth<br>Being given notice from work |
| Employment | 7 | 6 | Begin new job<br>Changes at work<br>Demotion<br>Fired<br>Unemployment<br>Promotion<br>Retirement<br>Business failure |
| Health | 5 | 7 | Serious personal illness<br>Serious illness of family member<br>Pregnancy<br>Miscarriage<br>Stillbirth |
| Family | 8 | 15* | New person in home<br>Family member leaving home<br>Child getting engaged<br>Child getting married |
| Marital | 3 | 2 | Increase in arguments with spouse<br>Separation<br>Marriage |
| Legal | — | — | Court appearance<br>Lawsuit<br>Imprisonment |
| Role transition | 10 | 9 | Starting new type of work<br>Becoming separated from spouse<br>Moving from home<br>Getting engaged<br>Getting married<br>Leaving school<br>Retirement |

1. Number of subjects reporting at least one event in category.
*$\chi^2 = 3.16$; d.f. = 1; $0.05 > P < 0.1$.

retrospective case-control study of life events in schizophrenia (Dohrenwend & Egri, 1981). The control sample was representative rather than random, an imperfection shared with previous studies (Brown & Birley, 1968; Al Khani *et al*, 1986). There is, however, nothing to suggest that the groups from which the control subjects were drawn had a particular susceptibility to the life events specifically investigated. Also, while a considerable degree of selection went into identifying the patients, this was done to enhance the reliability of dating of onset, meeting diagnostic criteria, and improving reliability of life-events data. It would have been difficult not to attribute whatever results were obtained to inaccuracy of dating of life events had we studied a less rigidly selected sample. This is particularly so because most of these patients were either illiterate or semi-illiterate, and could be expected to distort the chronological order of events if they had had an overlong duration of illness or antecedent period for life events. It is believed (Uhlenhuth *et al*, 1977; Jenkins *et al*, 1979) that the validity of retrospective studies becomes doubtful when the period being reported is more than 6 months in the past. However, interviewing significant numbers of others would generally increase validity (Schless & Mendels, 1978). We are thus inclined to believe that our methods would serve to improve the reliability of our results rather than weaken them.

Our results suggest that for Nigerian schizophrenic patients in general, onset of illness is not preceded by an increase in life events. This is true of the three antecedent periods prior to overt onset of illness. This is in marked contrast to the observations of Jacobs & Myers (1976), and of Brown & Birley (1968). However, the former found no difference between their patient and control groups for events classified as independent of the subjects' mental state.

Even though differences in selection criteria, and the lack of control subjects in a recent WHO collaborative study (Day *et al*, in press) limit comparability, it is noteworthy that Nigeria was one of the centres in that study where a significant clustering of events before the onset of schizophrenia was not observed. Indeed, in spite of the use of a relatively broad definition of schizophrenia, and of the inclusion of cases of acute exacerbations of existing psychotic symptoms, patients from the Nigerian centre reported a lower rate of events than those from centres in developed countries.

Al Khani *et al* (1986), whose study was also conducted in a non-industrialised society, although with a different culture from the one in which the present study was conducted, obtained an intermediate result. While their patient group had

experienced a higher frequency of (possibly) independent events than did control subjects over the 6 months before onset, this difference was not significant. Their female patients, however, did have a significantly higher rate of life events than female control subjects, a difference that was mostly attributable to married females. Suggestive trends for the influence of gender and marital status could also be observed in our study. While male control subjects had experienced a higher frequency of events than male patients in all the antecedent periods before assessment, the reverse was true of married female subjects. For females in general, however, the trend was inconsistent. However, the number of single females involved was too small to justify separate analysis.

The results suggest that the onset of schizophrenia in males is often preceded by a paucity in the frequency of life events. Our control subjects reported a higher frequency of events than did patients over the 6- and 3-month periods, and this difference became significant at 1 month prior to interview/onset. The same trend was observed for the number of subjects reporting events over these periods. The differences were almost entirely due to male subjects reporting categories of events involving the movement of people into their family environments. However, the significantly higher frequency in the last month possibly reflects the fact that more control subjects than patients were interviewed at about the end of the school year.

A number of possible explanations could be offered for the discrepancy between the results of our study and those of others in different cultural settings. One would be that life events play no part in the onset of schizophrenia in this environment. It would be difficult to defend such a standpoint by drawing on the results of just one study using a limited range of events. We think that the life-event schedule used for this study is comprehensive enough to cover most of the known commonly occurring events in this society, but we cannot be entirely sure that there are events not included in the schedule that are of some importance in the precipitation of schizophrenia. Thus, one other possible explanation for our results might be that some events that cannot be categorised as life events are operative in the precipitation of schizophrenia. One such factor might be related to rapid cultural changes in the Nigerian society. Al Khani *et al* (1986) hypothesised that cultural changes in the Saudi Arabian setting could explain some of their own results as well. Specifically, in the case of the society where our study was conducted, it could be that such changes are more likely to precipitate schizophrenia in males

when their family-support networks become disrupted. Such disruption could be independent of, or consequent upon, the changes. Family interactions could play such a significant role in the onset of schizophrenia mainly in males because they are the dominant figures in the traditional extended Nigerian family. It may be that so long as adequate family interactions continue, the impact of these subtle, but stressful, cultural changes are vitiated.

Also, certain individuals may subjectively feel this impact more than others. Brown *et al* (1973), in a reanalysis of their 1968 study, found that most of the events reported by their schizophrenic subjects had little or no threat when independently rated with consideration of the circumstances in which the events occurred. Jacobs & Myers (1976) also noted that the majority of events experienced by their schizophrenic subjects required little or no readjustment on the part of the subjects. Indeed, when the concept of 'contextual threat' was considered in rating events, Chung *et al* (1986) found no difference between schizophrenic and control subjects. The cumulative evidence is, therefore, that schizophrenic patients "decompensate in the context of life situations which are independently judged as not particularly hazardous" (Beck & Worthen, 1972). Jacobs & Myers (1976) speculate that this may occur "in a setting where customary social supports are strained or unavailable". It is conceivable that in the culture where our study was conducted, reduced family-related events are indicative of such a strain in the social-support network for male schizophrenic patients, while being married possibly has similar implication for females. We did not consider the question of the impact of events in our study.

This study did have a number of methodological problems. One was whether our dating of onset had adequately taken care of the early prodromal phase of the illness. This is important, since if it did not, the possibility of a reduction in social interactions, and consequently, number of life events being due to the prodromal manifestations of the illness could not be discounted. Unfortunately, we cannot be sure of this, since what constitutes the prodromal syndrome of schizophrenia in the ·African is not known.

Finally, we selected patients mainly on the basis of symptom profile. We did not explore their predisposition to developing schizophrenia. This is important in so far as subjects at high risk for schizophrenia may develop the illness whether or not they experience stressful events. If we selected patients with schizophrenic first-degree relatives, this factor may by itself limit family-related events, especially those involving entrances.

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