

# Schizophrenia, Prevalence, Types, and Causes, Case study Khartoum Teaching Hospital

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## Introduction

Sudan is the largest African country with a 200,000,000-fedan area. It constitutes 26 States with a population of 25,000,000 people (1993 Census), and annual growth rate of 2.8% with many ethnic groups. The predominant language is Arabic. Illiteracy rate is 59% among males and 80% among females.

In each State there are many Bourgh. In each Bourgh there are many Public Hospitals as well as private ones. All specialized psychiatric services are located in Khartoum State (e.g. Khartoum Teaching Hospital, Tigani El Mahi Teaching Hospital, Khartoum North Psychiatric Hospital, and Kuber Hospital for severe psychotic and neurotic disorders). Multidisciplinary team (specialized, psychiatrists, clinical psychologist, social workers, and counselors) are providing the psychiatric services. Most of the sever cases are referred to Khartoum Teaching Hospital from rural areas of Khartoum State (Figure, 1):

The term Schizophrenia means the splitting of psychic functions. It was coined in the early 1900s to describe what was assumed to be the primary symptom of the disorder: the breakdown of integration, emotion, thought, and action. It is the disease that is most commonly associated with the concept of madness. It attacks about 1% of all races and cultural groups, typically beginning in adolescence or early adulthood (John, 1997). According to Bleuler the new term schizophrenia-schizin, to divide or split, and phreu, the mind (Greek)-has supplanted the old Kraepelinian label. Schizophrenic disorders are at one time attributed to a type of 'mental deterioration' beginning in childhood. It involves those psychotic disorders that are characterized by withdrawal from reality, disturbance in emotional and bizarre speech, thought, and motor symptoms, delusions and hallucinations. Kraepelin is credited with the first grouping of the schizophrenic disorders together on the basis of what he perceived to be a common characteristics-dementia following progressive deterioration.

Nevertheless, the different types of schizophrenia may show some variation in cause symptoms, course of development, and response to treatment (Coleman, 1976).

As Dennis & Roger, (1988:680) mention "Schizophrenic disorders are characterized by serious disruptions in normal functioning, a severe deterioration in personality, and a loss of contact with reality" In addition, it involves abnormalities in attention, thinking, perception, emotional reactions motor behavior, and social relations. Robert & Laura (1991: 532) consider schizophrenia as "a disease of the central nervous system that affects virtual cognitive processes and behavior. Schizophrenia is probably the best known of the serious psychological disorders. Although the name implies that schizophrenia is one disorder, it is possible that schizophrenia is actually a group of disorders similar in certain respects, but different in others".

Because, of its complexity its high rate of incidence, especially during the most productive years of life, and its tendency to recur and/or become chronic, schizophrenia is considered one of the most serious of all psychotic disorders as well as one of the most baffling.

In USA, although schizophrenic disorders sometimes occur during childhood or old age, about three-fourths of all first admissions were between the ages of 15-45 years, average age of 30 years.

Kramer, (1977) mentions that in America approximately one-fourth of the people initially admitted to mental hospitals, and from 40%-50% of long-term patients have been diagnosed as schizophrenic. Estimates of the prevalence of this disorder suggest that up to one person in every one hundred will suffer from it in his or her life (Rimm & Somerville, 1977). In addition, Groningen, (1992) states that in the United States of America urban populations have reported higher rates of schizophrenia. Denis & Roger, (1988) conclude that schizophrenic disorder is most prevalence among people from 25-35 years. The effect of age was significant in the negative direction for positive and disorganized symptoms, (Schultz et al., 1997).

Studies done in United States in Europe and Asia, using a relatively narrow concept of schizophrenia, have reported a lifetime prevalence rate from 0.2% - 1%.

Regarding schizophrenia and gender Groningen (1992) explains

that Schizophrenia is a disorder that is apparently equally common in males and females. To Eggers and Bunk (1997: 105-107) "there is no gender differences exist in average age at onset, although cumulative prevalence is earlier in females than males". Concerning the types of schizophrenia Beratis and Gabriel, (1997) found no significant differences between men and women, in the residual and catatonic subtypes, however, the frequency of men was more than three times greater than that of women. In addition, Schults et al., (1997) state that male gender was associated with greater severity of negative symptoms.

In Sudan during the years 1995-1997 statistics show that approximately about one third of all psychotic first admission to the hospital were schizophrenic (Psychiatric records at Khartoum Teaching Hospital, 1998). They came om urban and rurfral areas. They were from different age groups, socioeconomic, and socio-cultural backgrounds. The exact prevalence rate of schizophrenia in Sudan could not be estimated, because, there are no absolute criteria for it. In addition, most cases go unreported because people prefer to be treated by religious and traditional healers.

In view of the broad array of symptoms characterizes schizophrenia it is not surprising that a broad array of theories have been advanced to explain it. Some theories focus on the genetic background of people with schizophrenia and some focus on possible biochemical abnormalities. Others, more psychological in nature focus on what they consider to be the basic defect in schizophrenia (defects in attention, perception thought, and language). Even humanistic psychologists have attributed schizophrenia to an inner search for a sense of identity and wholeness.

Robert & Laura (1991) mention that genetic factors play an essential role in the development of schizophrenic disorder, but the role is not a simple one. Other investigators have found a higher prevalence of the disorder in first-degree biologic relatives of people with schizophrenia than would be expected in the general population. Included are studies in which the adopted offspring of people with schizophrenia have been reared by parents who do not have the disorder. First it was discovered that although only (1%) of the population develops schizophrenia, the probability of schizophrenia

occurring in a close biological relative (i.e., in parent, child, or sibling) of a schizophrenic is about (10%) even if the relative was adopted shortly after birth by a healthy family (Rosenthal et al., 1980; Kendler & Gruenbert, 1984). Since experts now believe that schizophrenia expands on complex interactions among specific parts of a variety of genes -they emphasize that- some of which are more important than others, and some of which are expressed only under certain environmental conditions.

With respect to the high concordance rates, Gottesman & Shields (1972) found (42%) concordance for identical twins, but only (9%) for fraternal twins. Then, it was discovered that the concordance rates for schizophrenia are higher in identical twins (45%) than in fraternal twins (10%) (Kallman, 1946). However, Robert & Laura (1991:536) argue, "Although the concordance rate is high, it is not perfect, however, it indicates a predisposition, not a certainty". For Jablensky and Cole (1997: 234-40) "The model that explained the highest percentage of the total variance indicated strong main effects ( $P < 0.001$ ) for marital status and premorbid personality, a weak effect for history, and an attenuated effect for gender. Two independent verification procedures suggested an independent onset-delaying effect for marital status (married), more marked in males". In relation to the type of schizophrenia, Kraepelin distinguished the three types known as hebephrenic, paranoid, and catatonic and accepted the recommendation by Bleuler to add the simple type. As (Coleman, 1976) mentioned, the different types of schizophrenia may show some variation in cause symptoms, course of development, and response to treatment. The American Psychiatric Association classification (APA) of mental disorders lists ten subtypes of schizophrenia. They are: Acute type, Paranoid type, Catatonic type, Hebephrenic type, Simple type, Schizo-affective type, Latent type, Chronic undifferentiated type, Residual type and Childhood type. Since, the schizophrenics are dangerous for themselves and the other it is necessary to study the types, causes and prevalence of this disorder, in order to set a preventive, medical, and rehabilitation strategy.

### **Objectives**

The objectives of the present study were set:

1. To investigate the prevalence of schizophrenia among inpatients at the psychiatric wards in Khartoum Teaching Hospital.

2. To explore the different types of schizophrenia among the inpatients at the psychiatric wards in Khartoum Teaching Hospital.
3. To find the causes of schizophrenia among inpatients at the psychiatric wards in Khartoum Teaching Hospital.

### Method

**Population :** The inpatients diagnosed as psychotics in Khartoum Teaching Hospital during May 1998-December 1999 were the population, from which schizophrenic patients for the present study were selected.

**Subjects :** Eighty eight subjects (38 males, 50 females) who were diagnosed by DSM-VI as Schizophrenic were selected by quota sampling procedures. Age at onset ranged from 14-28 years (mean=21 years). The rationale behind Quota sampling was "the selection of a sample that is a replica of the population to which one wants to generalize-hence the notion that it represents" (Louise et al, 1986). In addition, the researcher used this procedure because, of time limitation and availability of cases in the hospital during the assigned time of research.

**The instrument:** A structured interview using a questionnaire was the research instrument. It was developed by utilizing surveys from other studies as well as incorporating questions unique to the objectives of this study. Thus, a variety of questions were developed. Most of the questions were close-ended so that quantification and analysis of the results be carried out efficiently.

The items of the questionnaire were pre-checked by five specialist in Arabic language and three psychiatrists.

**The procedures:** The current study was undertaken during May 1998- December 1998. Detailed physical examination was conducted and the laboratory investigations were requested to assure the diagnosis. Each subject was subjected to an interview by the attending psychiatrist and one of the nursing staff. A point should be made here that interviews with patients were undertaken as soon as the subject was capable to respond. Some of the

subjects responded only after rewarding them. Watchers gave information about their relatives who were unable to respond. Data that were collected from patients and watchers were computed using descriptive statistics

## Results

In the present study 88 schizophrenic inpatients were investigated. The total of 88 were accounted for response rate for all schizophrenic inpatients in Khartoum State and its near rural areas and other States (during May 1998-December 1998) and thus eligible to participate in the study. Data collected from 88 subjects were analyzed.

Of the 88 subjects only 66 were interviewed. Information about the other 22 subjects were given by their relatives (watchers) for their inability to respond.

There were 38 males, 50 females. The mean age of the subjects was 21 years old. (43.18%) from rural areas and (56.82%) from urban areas.

All the subjects were receiving the same health care, of them (7.35 %) are having fathers with university education, and (45.84 %) are having fathers with intermediate education, the remainders are having illiterate fathers. Illiterate mothers outnumbered fathers (82%). Of the subjects (48.42 %) stated that their fathers are employers, (28.74%) are businessmen. The majority of their mothers (85.9 %) are housewives, mothers' employment statuses are given only by (17.04%) of the subjects. Of the subjects (29.54%) stated that they receive money from their parents, sons/daughters or spouse, for spending on oneself between 5000-10000 Sudanese pounds a week, (6%) of the subjects (males) are involved themselves on full-time jobs. No female stated her involvement in any type of job other than housewife. Prevalence of schizophrenia is higher among females (56.82%) than among males (43.18%) The prevalent types of schizophrenia among the subjects were paranoid (26.13%), simple types (26.13%), residual type (18.18%), disorganized type (15.90%), and Catatonic type (13.63%). The results show that the most important causes of schizophrenia among subjects were heredity and past traumatic effects. Of the subjects (31.81%) are having one schizophrenic relative among their families. The cause of schizophrenia among (27.27%) of the subjects was the past traumatic effects. Among these traumatic effects, loss of

parents and intimate relatives was found to be the number one effect, followed by the excessive stress due to parents problems. The cause of schizophrenia among (14.77%) was neurological diseases, among (11.36%) was the use of cannabis (bango), and among (3.41%) with unknown cause. (Table,3)

### Discussion

The sample investigated in the present study consisted of 88 males/females schizophrenic inpatients. Data was collected by a structured interview either with the subject or by his/her watcher.

The incident of schizophrenia was significantly higher among urban subjects than among rural subjects in the psychiatric wards in Khartoum Teaching Hospital.

Table (1) shows that (56.82 %) of the patients came from urban areas. This result coincides with Richard & Suinn (1970) who found that cases of schizophrenia tended to concentrate in the most densely populated centers of each region. It could be stated here that this rate differences may be pointed to the stresses involved in urban living, such as the loss of personal relationships and the extreme competitiveness. Acquired western culture and the technological advancements existent in cities press workers to keep up with their field or be displaced. Higher cost of living, greater material needs drought and desertification, war and famine and increased taxation may all add. In addition, they found both a higher incidence of schizophrenia and a greater likelihood of relapse on lower socioeconomic levels, especially in areas of large cities that are undergoing rapid and drastic social change. However, They emphasize that the social disorganization, rapid changes, insecurity, poverty, and harshness characteristic of urban slums intensively personal problems tend to increase the likelihood of schizophrenic and other psychopathology.

Since Sudan is considered as an integral part of the world, it should suffer the same harsh circumstances mentioned by Richard & Suinn (1970) and as such is prone to the same degree of prevalence of schizophrenia among urban people.

The Varma, et al (1997) conclusion of their study may give another explanation to the present result as they found that "rural psychoses have a more favorable course than in the urban area and this may be

explained in large part by psychoses distinct from 'nuclear' schizophrenia". In addition, Torrey & Clark (1977) mention that previous studies in England and Sweden have reported that being born in, or raised in, an urban area are also a risk factor for later developing schizophrenia. This fact was also supported by Dottle (1977) who found that rural clients are less likely to have a diagnosis of schizophrenia or organic brain syndrome than urban clients. Moreover, Groningen, (1992) states that in the United States of America urban populations have reported higher rates of schizophrenia.

From the available results it could be stated, that Schizophrenia was significantly higher among urban inpatients than among rural inpatients in the psychiatric wards in Khartoum Teaching Hospital.

Results (Table, 2) show that the prevalence of Paranoid type was (26.13%). Simple type was (26.13%). Both were the predominant types among the subjects in the present study. The prevalence of paranoid type was higher among males than females. This could be explained (in Sudan) by the fact that males are always tending to be dominant, strong and brave, so their moods and any type of emotional behavior could be masked by rigidity, stiffness and harshness. In addition males are always seen by mothers as valuable gifts compared to females. Accordingly, males-themselves-feel that they are grand. However, it is not a surprise that when they develop schizophrenia even their delusions come to be of grandiose.

The prevalence of Simple type was higher (20.45%) among Subjects age 16-20 years with mean age of 18 years than among older ones (5.68%). This might be due to failure in school, or in social relationships, socio-cultural stress, and experimentation with drugs. Subjects with simple schizophrenia showed poor hygiene, and they have difficulty in concentration. For this reasons their relatives gave all information about them. High prevalence of schizophrenia among females may be explained by the socio-cultural stress that females face in urban areas. This point has been raised before by Norman & Malla (1993) who mention that "Several studies have found that exposure to stressors is common just before a schizophrenic attack is, and several have found correlations between the severity of the stressors and the severity of the resulting schizophrenic symptoms.

Interestingly this result is a new fact in the situation of schizophrenia in Sudan. It could be recommended that serious



intervention should be set to decrease this incident and to try to help this group of patients in order not to be dangerous for them and for the society.

Catatonic type was more prevalent among males than among females. This may be supported by Jablensky and Cole (1997) who conclude that the greater preponderance of men in the catatonic subtype appears to reflect an intrinsic characteristic of this subtype.

As mentioned before the goal of the present study was based on research findings indicating that there are ten types of schizophrenia, which are found to be related to: -

1. Heredity and various biochemical and neurological processes,
2. Psychological and interpersonal factors (including faulty learning, pathogenic Interpersonal and family patterns, and decompensation under, excessive stress);
3. Socio-cultural factors (focusing on the role of pathological social conditions in determining the types and incidence of schizophrenic reactions).

The result (Table, 3) shows that heredity is the cause of schizophrenia among (43.18%) of the subject. At least having one schizophrenic among the close relative. This result is in agreement with Heston, (1966) who found that (16.6%) of children reared apart from their schizophrenic parents developed schizophrenic disorder, and in line with Robert and Laura, (1991) who found that the risk of developing schizophrenia is 5 to 15 times in siblings of schizophrenics than in general population.

The result shows that neurological diseases as a factorial cause of schizophrenia in the present study is (14.77%) of the subjects, this finding could be supported by Wynne, Cromwell, and Mattysse, (1978) who hypothesis that neuropsychological abnormalities might be a causal factor. They explain this by the imbalance in the exciting and inhibiting processes, which might be leading to inappropriate arousal, and consequently, the disturbances of these processes would interfere with the normal attentional process. This process is explained by the surplus of dopamine receptors cites by Snyder (1979) who states that the very effective anti-psychotic drugs given to patients to control their schizophrenic symptoms work by blocking dopamine at a synapse receptors sites.

The result that shows traumatic effects as the cause of (27.27%) of schizophrenia among subjects, may be explained by their early traumatic experiences during their life.

Of the subjects (11.36%) developed schizophrenia during war. This could be explained by the facts that these subjects are voluntarily drafted into army without proper training or military experience. They only want to defend their country. They pushed themselves to the front lines in the middle of the vicious guerrilla war. Where they encountered all the vicious and disastrous consequences of fighting including sudden death of their fellows and flying bodies mutilated by exploding mines and tank shells. Obviously, this was a very positive cause of schizophrenia as explained by their relatives, (5.68%) had experienced early psychic trauma (loss of one of the parents or both) (10.23%) were Schizophrenics due to insecurity, and poverty. Informants of (11.36%) subjects mentioned that the cause of schizophrenia among this group was the abuse of cannabis (bango) before age 15 years, (3.41%) developed schizophrenia as the result of marital problems, separation and divorce. This result is supported by Coleman (1976) who mentioned that destructive marital interactions, pseudo-mutuality and role inflexibility, faulty communications, and undertermining of personal authenticity are causes of schizophrenia.

A point should be made here that the researcher could explore the cause of schizophrenia among (2.27%) of the subjects neither from the patients' psychosocial history nor from their informants.

Ideally, our results recommend the urgent need for adequate psychiatric care, supply with food and housing and the development of concepts for personal and vocational rehabilitation considering their specific needs of schizophrenics.

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Table (1) Characteristics of Subjects/Sex and Areas, N=88

	Frequency	Percentage
Males	38	43.18
Females	50	56.82
Urban	50	56.82
Rural	38	43.18

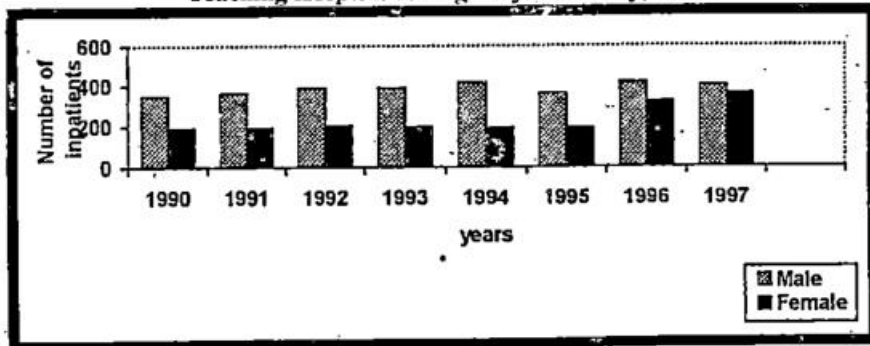
Table (2) Types Of Schizophrenia /Sex Among The study sample, N=88

Types of Schizophrenia	Males	Females	Total
Paranoid	14 (15.90%)	9 (10.23%)	23 (26.13%)
Simple	6 (6.82%)	17 (19.31%)	23(26.13%)
Catatonic	7 (7.95%)	5 (5.68%)	12(13.63%)
Residual	6 (6.82%)	9 (10.23%)	15 (17.05%)
Disorganized	5 (5.68%)	10 (11.36%)	14 (15.04%)
Total	38 (43.18%)	50 (56.81%)	88 (100%)

Table (3) Causes Of Schizophrenia Among The study sample, N= 88

Causes of schizophrenia.	Frequency	Percentage
Hereditiy	38	43.18
Traumatic effects	24	27.27
Neurological diseases	13	14.77
Drug use	8	11.36
Marital problems	3	3.41
Unknown	2	2.27
Total	88	100

Figure (1) Referrals of Schizophrenic Cases to Khartoum Teaching Hospital during May 1990-May 1997



Source: statistical department at The Hospital, 1997