The relationship between schizo-affective, schizophrenic and mood disorders in patients admitted at Mathari Psychiatric Hospital, Nairobi, Kenya

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Abstract

Objective: The prevalence of schizoaffective disorder (SAD) and the relationship between schizophrenia (SCZ), SAD and mood disorders (MD) in non-Western countries is unknown. To determine the prevalence of SAD and the relationship between SCZ, SAD and MD in relation to socio-demographic, clinical and therapeutic variables in 691 patients admitted at Mathari Psychiatric Hospital, Kenya. **Method:** A cross-sectional comparative study using both clinician and SCID-1 for DSM-IV diagnoses. **Results:** Approximately twenty three percent (n=160) met DSM-IV criteria for SAD using SCID-1. There were significant differences between SCZ, SAD and MD regarding: affective and core symptoms of schizophrenia (with the exception of core symptoms of schizophrenia between SCZ and SAD); presence of past trauma; a past suicide attempt; and comorbidity with alcohol and drug abuse disorders. SAD and MD patients took significantly more mood stabilizers than SCZ patients. There were no significant differences between the three groups regarding socio-demographic variables, brief psychiatric rating scale scores, cognitive performance, anxiety and depressive symptoms, presence of obsessions, and usage of both antipsychotics and antidepressants. **Conclusion:** There is no distinct demarcation between the three disorders. This lends support to recent evidence suggesting that SAD might constitute a heterogeneous group composed of both SCZ and MD patients or a middle point of a *continuum* between SCZ and MD.

Keywords: Schizoaffective Disorder; Schizophrenia; Mood disorders; Epidemiology; Africa

Introduction

The Kraepelian dichotomy of psychoses[1] does not cover all psychoses. This led Jacob Kasanin to coin the term 'schizoaffective psychosis'[2] to include other psychotic episodes that did not fit into the Kraepelian dichotomy, but nevertheless had good premorbid functioning and the presence of both affective episodes and core symptoms of schizophrenia. Since its first description in the literature, schizoaffective disorder (SAD) has raised considerable discussion regarding its definition and its existence. Nevertheless, the construct of schizoaffective diagnosis has

survived and it constitutes a diagnosis currently used in clinical practice.[3]

As summarized by Cheniaux[4], the controversy about SAD and its relationship with schizophrenia (SCZ) and mood disorders (MD) can be recapitulated into six different possibilities: (1) an atypical form of SCZ with affective symptoms[4], (2) an atypical form of MD with core symptoms of schizophrenia[6,7], (3) a co-morbidity between SCZ and MD[8] (4) a heterogeneous group composed by both SCZ and MD[9] (5) a completely separate condition, a ''third psychosis'' distinct from both SCZ and MD[2,10] (6) a psychosis occupying an intermediary position on a *continuum* between SCZ and MD.[11]

Findings from clinical, genetic, neuropsychological and neurophysiological studies have failed to highlight a clear demarcation between the two main psychotic syndromes i.e. MD and SCZ[12], while evidence from brain imaging,

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molecular neurobiology and genetics support an overlap across diagnostic boundaries in terms of both pathology and etiology; as well as the existence of disorder-specific findings. Furthermore, with respect to psychopathological symptoms, no clear boundaries have been found between SCZ, SAD and MD.[13] All of these data complement each other in suggesting that SAD might constitute a heterogeneous group composed by both SCZ and MD patients or a middle point of a *continuum* between SCZ and MD.[4,14]

Limited epidemiologic data suggest SAD is up to one third as common as SCZ in Western cultures (e.g. the United States, Europe and Australia); however, the frequency in other regions and the global prevalence rate is essentially unknown.[15] A recent study conducted in four globally diverse regions (Asia Pacific, Eastern Europe, India and the US) showed that, in a sample of 208 psychotic patients, the frequency of SAD varied by region and ranged from 23.3% to 40.8%.[15] There is a paucity of data in the African context regarding the prevalence of SAD as well as the relationship between SCZ, SAD, and MD; except for anecdotal evidence from a recent Kenyan study on 691 psychiatric in-patients admitted at Mathari hospital. This study found a significant positive correlation between SCZ and Bipolar Disorder (BD), suggesting an overlap between these two syndromes.[16] An earlier study in the same setting found an overlap of SCZ and depression.[17] In addition, Ethiopian research has documented the lifetime prevalence of SAD to be 0.4% using a random community sample of 1420 individuals.[18] Furthermore it is remarkable that an American study conducted on 156 African-American patients showed that the symptom clusters for diagnoses of SAD overlapped in 41% of respondents with MD and 71% respondents with SCZ, supporting the assumption that schizoaffective disorder falls within the spectrum of schizophrenia disorders.[19]

This study attempts to fill this gap and also to contribute to the current international debate about the definition and the existence of SAD in relation to SCZ and MD as well as the validity of the Kraepelian dichotomy.[1] We sought to determine the prevalence of SAD in patients admitted to Mathari Hospital and describe the socio-demographic, clinical and therapeutic features of this condition. We also compared socio-demographic, clinical and therapeutic variables among patients that suffer from SCZ, SAD and MD.

Methods

The setting

Mathari hospital, which has a bed capacity of 600 (a third of which are reserved for females), is Kenya's premier psychiatric hospital, and is the national psychiatric teaching and referral hospital. The institution admits patients with severe psychiatric disorders who cannot afford private services and are considered too disturbed to be managed in other public facilities or in the community. Its catchment area is largely the Nairobi urban area where the facility is located, together with the close rural and urban environs to the city.

Participants

Patients who met the following inclusion criteria were recruited to the study: in-patient in the month of June 2004; well enough and voluntarily accepted and signed informed consent; further selection from among these patients was

based on their diagnoses using the study-described instruments.

Instruments and procedure

A structured format interview was used to record the patients' socio-demographic information. This information was standard as it was obtained from patients and their relatives at the time of admission. Clinical information on the diagnoses for which patients were being treated and past admissions was extracted from the patients' files, also using a structured format. The SCID-I[20], which yields DSM-IV diagnoses when a subject is interviewed was also used. The administration of the SCID is systematic as it probes for all the symptoms suggested by the 16 screening questions. Clinicians with a psychiatric background who are trained on its use can administer it. In this study, psychiatric nurses were trained as research assistants to administer this instrument. The formats for the SCID questionnaire and the clinical notes were matched to ensure that both had the same admission numbers in order to avoid crossover or repetition. The trained psychiatric nurses also administered the Brief Psychiatric Rating Scale[21], Mini-Mental State Examination[22], Hamilton Depression Rating Scale[23] and Hamilton Anxiety Rating Scale[24] to the patients.

The data was re-analyzed with DSM-IV criteria[20] to confirm diagnosis of SAD, SCZ and MD. The rationale for this was that during the administration of SCID, we did not screen specifically for SAD. Thus, we decided to use DSM-IV criteria to re-analyze our data, because the clinical diagnoses extracted from the notes relied on the clinicians as a single assessment entity; while DSM-IV criteria for SAD require a monitoring of patients during a given period of time (criteria B and C). We also determined the prevalence of SAD using the ''Maj and Perris classification.''[26]

The three groups were compared according to three types of variables: socio-demographic (sex, age, marital status, number of children, occupation and religion); clinical (brief psychiatric rating scale, symptoms at SCID, cognitive performance, depressive symptoms, anxiety symptoms, past traumatic event, suicide attempt and presence of obsessions); therapeutic (use of antipsychotics, mood stabilizers or antidepressants); and for comorbidity with alcohol and drug dependence disorders.

Ethics

Ethical clearance was obtained from the Mathari hospital institutional ethical clearance committee. This committee is constituted according to the institution's regulatory requirements. There were no invasive procedures involved. Informed consent was obtained only for those who were well enough (mentally and physically) to participate in the study. The questionnaires were anonymous and only the patients' admission numbers were indicated on the filled questionnaires. Information about the study was provided to the patients and their relatives who also signed informed consent to allow the respondent participate in the study. The patients and their relatives signed the informed consent forms in the presence of the research assistant. Through this study, the patients benefited from a more comprehensive evaluation of their psychiatric conditions.

Data analysis

All the questionnaires were forwarded to a central point (the Africa Mental Health Foundation offices) for data sorting, entry and cleaning. Data analysis was done using SPSS Version 16. Descriptive statistics; frequencies and percentages were used for narrating socio-demographic characteristics and prevalence of psychiatric disorders according to clinician and SCID[20] diagnoses. To explore relationships between continuous quantitative variables, the ANOVA test (with Scheffé correction for multiple comparison) was performed, while for quantitative binary variables we used X^2 test (with Bonferroni correction for multiple comparison; statistically significant if p < 0.0166).

Results

Epidemiology

As shown in Table I and Figure 1, using DSM-IV criteria, SCZ was the most common disorder (n=170; 24.6% of total patients), followed by SAD (n=160; 23.1%) and mood disorders (n=125; 18.1%). Of the SAD participants, 85.6 % were manic type and 14.3 % were depressive type. The most frequent mood disorder was bipolar type I disorder (n=102; 81.6% of MD), while depressive episode or recurrent depressive disorder accounted only for 18.4% of MD patients (n=23). While SCZ and bipolar affective disorder (BP) were commonly diagnosed by clinicians (respectively 276 patients had SCZ and 212 BP), SAD was diagnosed in 37 patients, only 16 of whom are included in our SAD classification based on DSM-IV criteria. The age of onset of patients' illnesses could not be ascertained accurately because the majority of patients were referrals to hospital from general medical facilities across Kenya, and had been admitted more than once to other medical facilities, and therefore could not recall accurately the onset of their illness.

Figure 1: Flow chart with number and percentage of patients that suffer from Schizoaffective disorder, Schizophrenia and Mood Disorders adapted to DMV-IV diagnoses from /ICD-10 & Maj and Perris classifications
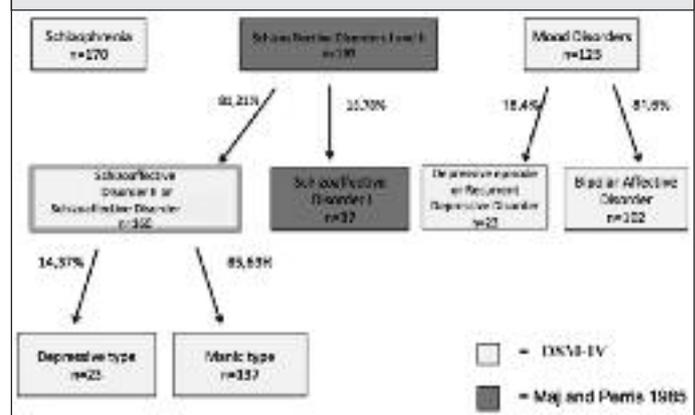
Furthermore, using ''Maj and Perris classification''[26], we found that 197 patients (28.5% of total patients) met the criteria for schizoaffective disorders (SADs). Thirty-seven of these patients (18.8% of SADs) were schizoaffective type I (characterized by the consecutive appearance of an affective and a schizophrenic syndrome) and 160 (82.2% of SADs) were schizoaffective type II (that is marked by the concurrent appearance of a full schizophrenic and a full affective syndrome; i.e. in accordance with DSM-IV classification of SAD).

Socio-demographic characteristics

The analysis of socio-demographic characteristics (Table II) did not show any statistically significant difference between the three groups, with reference to age, gender, marital status, number of children, occupation and religion; although we found a borderline difference (X^2=5.465; df=2; p= 0.065) for marital status: patients with MD were more likely to be married than those with SCZ (p= 0.026; SCZ≤MD). However, no difference was found between SCZ and SAD and between SAD and MD for marital status (SCZ=SAD=MD). SAD patients were comprised of almost the same percentage of male (52.2%) and female (47.8%). All the three disorders were found to be more common in unmarried people, in Christians, and in manual workers, casual labourers or self-employed patients. Each patient had three children on average.

Clinical and therapeutic variables

As shown in Table III, there was no difference among the three groups regarding brief psychiatric rating scale scores, cognitive performance assessed with mini-mental state examination (MMSE), scores of anxiety and depression assessed with Hamilton rating scale and for presence of obsessions.

With the exception of disorganized speech (for which all patients were negative) and core symptoms of schizophrenia between SCZ and SAD, all clinical symptoms assessed with SCID were significantly different within the three groups. Respectively schizophrenic and schizoaffective patients had more core symptoms of schizophrenia (delusions, hallucinations, behavioural and

Table I: Number and frequency of patients that suffer from schizoaffective disorder, Schizophrenia and Mood Disorders adapted to DSM-IV diagnoses from ICD-10 and Maj and Perris classifications.

Diagnosis	n.	%
DSM-IV		
Schizophrenia	170	24.6%
Schizoaffective disorder	160	23.1%
Schizoaffective disorder manic type	137	19.8%
Schizoaffective disorder depressed type	23	3.32%
Mood Disorders	125	18.1%
Bipolar Affective disorder	102	14.8%
Depressive episode or Recurrent Depressive Disorder	23	3.3%
Maj and Perris 1985		
Schizoaffective Disorders	197	28.5%
Schizoaffective I	37	5.3%
Schizoaffective II	160	23.1%
Total number of patients	**691**	**100%**

Table II: Comparison between socio-demographic characteristics among patients with Schizophrenia (SCZ), Schizoaffective Disorder (SAD) and Mood Disorders (MD) in accordance with DSM-IV classification

	Schizophrenia (SCZ) (n= 170), (%) or SD	Schizo affective disorder (SAD) (n= 160), (%) or SD	Mood Disorders (MD) (n= 125), (%) or SD	Statistic	df	p-Value	Scheffé comparaison		
							SCZ vs SAD	SAD vs MD	SCZ vs MD
Age	33.5 ± 12.7	33.1 ± 10.9	33.2 ± 9.8	ANOVA F= 0.071	2	p= 0.931			
Sex Male Female	107 (62.9%) 63 (37.1%)	83 (52.2%) 76 (47.8%)	73 (58.4%) 52 (41.6%)	X2= 12.125	8	p= 0.146			
Marital Status Married Not married	40 (24.4%) 124 (75.6%)	44 (29.5%) 105 (70.5%)	45 (37.2%) 76 (62.8%)	X2=5.465	2	p= 0.065	p= 0.311	p= 0.195	p= 0.026
Number of Children	3.10 ± 2.0	3.44 ± 2.2	3.15 ± 3.2	ANOVA F= 0.360	2	p= 0.698			
Occupation Manual, casual self-employed Formal housewife student	45 (54.9%) 17 (20.7%) 10 (12.2%) 10 (12.2%)	50 (53.8%) 13 (14.0%) 19 (20.4%) 11 (11.8%)	43 (57.3%) 14 (18.7%) 16 (21.3%) 2 (2.7%)	X2= 8.577	6	p= 0.199			
Religion Christian Muslim	148 (91.4%) 14 (8.6%)	145 (93.5%) 10 (6.5%)	119 (97.5%) 3 (2.5%)	X2= 4.647	2	p= 0.098			

negative symptoms) than patients with MD; while for affective symptoms (manic and depressive symptoms) the MD group showed higher scores than schizophrenic group, but lower than SAD group. On the other hand there was no significant difference between SCZ and SAD for 'schizophrenia-like' symptoms; while for manic and depressive symptoms there was a significant difference between these two groups: patients with SAD had more manic and depressive symptoms than those of the schizophrenic group. All these results had strong statistical significance (p≤ 0.003).

As shown in Table III: a past traumatic event was reported more commonly in SAD patients than in either SCZ or MD patients, while suicide attempts in SAD patients were higher only compared to MD patients. Comorbidity with alcohol dependence disorder was more common in SAD than in SCZ; while drug dependence disorder was more common in MD than in SCZ. No differences were found: between SCZ and SAD concerning drug dependence disorder and suicide (the latter had a sub-threshold difference when using correction for multiple comparison; p= 0.026); between SAD and MD for alcohol and drug dependence; and between SCZ and MD for traumatic event, suicide attempt and alcohol dependence disorder.

Finally, with regard to treatment, we found a difference between the three groups only for the use of mood stabilizers (carbamazepine). Specifically, mood stabilizers were used more in SAD and MD (respectively 42.5% and 39.2%) than in SCZ (22.9%), but there was no difference between SAD and MD. No difference was found between

the three groups for usage of antipsychotics (mainly chlorpromazine) and antidepressants (mainly amitriptyline). Antipsychotics were used by the majority of patients (from 88.8% to 93.1% of patients), while antidepressants were used only by a minority (from 8% to 9.4%).

Discussion

Our results show on the one hand, for the first time, that schizoaffective disorder is a common psychiatric disorder in the African context, and on the other hand, that regarding socio-demographic, clinical and therapeutic features, there is no demonstrable clear demarcation between SCZ, SAD and MD. This is in line with recent evidence that suggests that SAD might constitute a heterogeneous group composed of both SCZ and MD patients or a middle point of a continuum between SCZ and MD.[1,4,13]

Epidemiology

The finding (using DSM-IV criteria) that there were more SAD (n=160) than MD (n=125), but less than SCZ (n=170) and, even more using Maj and Perris criteria (patients who had not only concurrent but also consecutive appearance of an affective and a schizophrenic syndrome; n=197), suggests that SAD was common in this cohort of Kenyan patients and that it is less recognized by clinicians (n=37, of whom only 16 met DSM-IV criteria for SAD). These findings are similar to what Kebede et al.[18] found in the Ethiopian context (lifetime prevalence of SCZ: 0.5%; lifetime prevalence of SAD: 0.4%) and further suggest that clinicians should pay more attention to the possibility of SAD, preferably assisted by routine use of a diagnostic instrument

Table III: Comparison between clinical and therapeutic variables of patients with Schizophrenia (SCZ), Schizoaffective Disorder (SAD) and Mood Disorders (MD) in accordance with DSM-IV classification

	Schizophrenia (SCZ) (n=170), (%) or SD	Schizo affective disorder (SAD) (n=160). (%) or SD	Mood Disorders (MD) (n=125). (%) or SD	Statistic	df	p-Value	Trend (Scheffé Ranges)	Scheffé comparison SCZ vs SAD	SAD vs MD	SCZ vs MD
CLINICAL VARIABLES										
Brief psychiatric rating Scale Symptoms at SCID (n.)	17.7 ± 15.0	20.01 ± 14.8	18.5 ± 15.5	ANOVA F= 1.038	2	p= 0.355				
Delusions	3.89 ± 2.39	3.44 ± 2.22	0.52 ± 1.26	ANOVA F= 106.646	2	p< 0.001**	SCZ=SAD>MD SCZ>MD	p= 0.144	p< 0.001**	p< 0.001**
Hallucinations	2.27 ± 1.37	2.07 ± 1.46	0.34 ± 0.77	ANOVA F= 94.779	2	p< 0.001**	SCZ=SAD>MD SCZ>MD	p= 0.379	p< 0.001**	p< 0.001**
Disorganized speech	0	0	0	ANOVA						
Behavioural symptoms	0.35 ± 0.65	0.37 ± 0.74	0.03 ± 0.18	ANOVA F= 13.949	2	p< 0.001**	SCZ=SAD>MD SCZ>MD	p= 0.946	p< 0.001**	p< 0.001**
Negative symptoms	0.35 ± 0.55	0.34 ± 0.56	0.13 ± 0.34	ANOVA F= 8.016	2	p<0.001**	SCZ=SAD>MD SCZ>MD	p= 0.986	p= 0.003**	p= 0.001**
Manic symptoms	0.25± 0.54	4.49 ± 2.35	2.37 ± 2.21	ANOVA F= 218.950	2	p< 0.001**	SCZ<SAD>MD SCZ<MD	p< 0.001**	p< 0.001**	p< 0.001**
Depressive symptoms	0.37± 0.87	2.11 ± 2.78	1.19 ± 2.03	ANOVA F= 30.183	2	p< 0.001**	SCZ<SAD>MD SCZ<MD	p< 0.001**	p= 0.001**	p= 0.003*
Cognitive performance (MMSE)	24.9 ±7.4	25.8 ± 6.3	25.7 ± 6.6	ANOVA F= 0.861	2	p= 0.423		p= 0.455	p= 0.967	p= 0.661
Hamilton Depression Rating Scale	8.11 ± 7.53	9.51 ± 9.12	8.85 ± 7.41	ANOVA F= 1.135	2	p= 0.322				
Hamilton Anxiety Rating Scale	6.73 ±5.78	8.21 ± 7.29	7.39 ± 5.84	ANOVA F= 2.060	2	p= 0.129				
Traumatic event										
yes	25 (14.7%)	43 (26.9%)	10 (8.0%)	X2= 18.736	2	p< 0.001**	SCZ<SAD>MD SCZ=MD	p= 0.007°	p= 0.000°°	p= 0.101
no	145 (85.3%)	117 (73.1%)	115 (92.0%)							
Suicide attempt										
yes	8 (4.7%)	19 (11.9%)	4 (3.2%)	X2= 10.216	2	p= 0.006*	SCZ=SAD>MD SCZ=MD	p= 0.026	p= 0.008°	p= 0.568
no	162 (95.3%)	141 (88.1%)	121 (96.8%)							
Alcohol Dependence Disorder										
yes	25 (14.7%)	46 (28.8%)	26 (20.8%)	X2= 9.720	2	p= 0.008*	SCZ<SAD=MD SCH=MD	p= 0.002°°	p= 0.133	p= 0.212
no	145 (85.3%)	114 (71.2%)	99 (79.2%)							
Drug Dependence Disorder										
yes	18 (10.6%)	28 (17.5%)	27 (21.6%)	X2= 6.873	2	p= 0.032*	SCZ=SAD=MD SCZ< MD	p= 0.081	p= 0.450	p= 0.013°
no	152 (89.4%)	132 (82.5%)	98 (78.4%)							
Presence of obsessions										
yes	9 (5.3%)	9 (5.6%)	10 (8.0%)	X2= 1.033	2	p= 0.597				
no	161 (94.7%)	151 (94.4%)	115 (92.0%)							
THERAPY										
Use of Antipsychotics										
yes	151 (88.8%)	149 (93.1%)	115 (92.0%)	X2= 2.037	2	p= 0.361				
no	19 (11.2%)	11 (6.9%)	10 (8.0%)							
Use of Mood stabilizers										
yes	39 (22.9%)	68 (42.5%)	49 (39.2%)	X2= 15.842	2	p< 0.001**	SCZ<SAD=MD SCZ<MD	p< 0.001°°	p= 0.628	p= 0.003°
no	131 (77.1%)	92 (57.5%)	76 (60.8%)							
Use of antidepressants										
yes	16 (9.4%)	15 (9.4%)	10 (8.0%)	X2= 0.215	2	p= 0.898				
no	154 (90.6%)	145 (90.6%)	115 (92.0%)							

* = p< 0.05 Significative difference for quantitative variables.

** = p< 0.01 Strong Significative difference for quantitative variables.

° = p< 0.0166 Significative difference for qualitative variables. p value significance adjusted with Bonferroni correction.

°° = p< 0.003 Strong Significative difference for qualitative variables. p value significance adjusted with Bonferroni correction.

MMSE: Mini-Mental State Examination

for SAD. The majority of SAD patients were on treatment with antipsychotics, even though a sizeable proportion of them (42.5%), (significantly higher than SCZ patients but similar to MD ones), were also taking a mood stabilizer. Though these are clinical observations, they reflect directly an epidemiological pattern as perceived by the clinicians in that, although clinicians did not make a specific diagnosis of SAD, they did recognize and treat with mood stabilizers patients with mood instability. Nowadays there is no clear evidence that any pharmacological treatment is superior to any other during acute or maintenance phases of SAD.[14] However, if further studies demonstrate that a therapy is more effective than the others, it will have serious clinical implications in differentiating SAD from SCZ and MD. Furthermore, it is also important to distinguish SAD from SCZ because, in accordance with ICD-10 criteria, SAD has a more favorable outcome than SCZ.[13]

Socio-demographic characteristics

Socio-demographic characteristics generally reflect the characteristics of the young Kenyan population. Patients admitted at Mathari Hospital represent the most economically disadvantaged families who are also unlikely to have any medical insurance or subsidies, and are therefore entirely dependent on relatives (an overwhelming majority of Kenyans live on less than one US dollar a day). The patients also tend to be highly disturbed and they cannot be managed in the community or in general facilities.

The fact that we did not detect any difference between the three groups according to age, gender, and marital status, number of children, occupation and religion is in agreement with the heterogeneity of results present in the literature. A recent review by Cheniaux et al.[4] that examined 155 papers related to SAD, SCZ and MD, reported that twenty-three studies failed to show any difference between SAD and SCZ regarding gender distribution, whereas twelve reports found more females among SAD patients as compared to SCZ. When the comparison was done between SAD and MD, thirty-two of the studies revealed no difference between these two groups, whereas four found fewer women in SAD when compared to MD. Only two studies found proportionally more women in SAD than in MD. With regards to marital status, the proportion of SAD patients that never married was equal (five studies) or inferior (six studies) to SCZ patients. On the other hand, the proportion of SAD patients that never married was equal (nine studies) or superior (three studies) to MD. Similar findings were also found for the variable employment. The age of schizoaffective patients in this study is consistent with other findings that show how SAD onset is more common in adults.[27]

Clinical and therapeutic variables

Similar to socio-demographic variables, all clinical features taken in totality do not suggest a clear demarcation between SCZ, SAD and MD. At face value, concerning only clinical symptoms, we found differences between the three disorders, especially between SAD and MD and between SCZ and MD (where both affective and core symptoms of schizophrenia were different) while a smaller difference

was found between SCZ and SAD (only for affective symptoms). These findings, if considered alone, might suggest that, in the African context, SAD and MD and SCZ and MD could be different disorders, while there is a more close relationship between SCZ and SAD. This would drive us to a dichotomous model in which SAD could be a variant of SCZ. However the heterogeneity of socio-demographic and of the other clinical variables (brief psychiatric rating scale, Hamilton anxiety and depression scale, past traumatic event, suicide attempt, presence of obsessions, alcohol and drug dependence comorbidity), together with recent evidence from genetic studies[11], probably suggests that these disorders, that share a common biological basis, may evolve with different clinical expressions, with a heterogeneity of presentation that is compatible both with the hypothesis of a *continuum* between SCZ and MD and with the hypothesis that SAD constitutes a heterogeneous group composed by both SCZ and MD patients.

Therefore the totality of the clinical data in this study is quite comparable with the international literature, in which several studies have not found differences between SCZ, SAD and MD on scores of the brief psychiatric rating scale[4,5,27,28], and with two studies that proved that there were no differences in terms of comorbidity with anxiety disorders.[29] Cognitive performance also shows a similar pattern between the three groups in various works[4], in particular Advokat et al[30] who obtained similar findings using the same instrument (mini-mental state examination). As in our results, suicide attempt has been found more common in SAD than in MD in 5 studies, or similar between SCZ and SAD in another two studies.[4] Moreover a study conducted by Pini et al[28] demonstrated a similar pattern of suicide attempt (SCZ=SAD>MD) to the current study. Considering substance related disorder comorbidity rate, they reached the same conclusion that we drew from our data related to alcohol dependence (SCZ< SAD=MD), although the majority of works[28,31,32] do not describe similarities between SCZ, SAD and MD, as we found for drug dependence in our sample (SCZ=SAD=MD).

In common with the majority of studies focused on this topic, we detected more core symptoms of schizophrenia in SCZ and SAD than in MD, and more affective symptoms in MD and SAD than in SCZ.[4] However our results differ from the literature since we found that SAD patients had more affective symptoms than MD patients. These findings, together with the higher prevalence of a past trauma in SAD compared to SCZ and MD (SCZ<SAD>MD), are the variables in which SAD does not seem to reach an intermediate position between SCZ and SAD. This is contrary to what we claimed before regarding schizophrenic symptoms.[12,13,14]

Finally, from the therapheutic point of view, the fact that among SCZ and SAD there was a high percentage of usage of antipsychotics (nearly 90%) without distinction between SCZ and SAD, while there was a higher consumption of mood stabilizers in SAD compared to SCZ, is similar to what Canuso et al[15] found in a sample of psychotic patients evaluated in four globally diverse regions (Asia Pacific, Eastern Europe, India and the US); even if in our sample the percentage of patients that used mood stabilizers was higher (42.5% vs 23.1%).

Furthermore it is remarkable that results from a recent American study conducted on 156 African-American patients, are very close to our findings. In fact, in the American study, there were no significant differences between SCZ, SAD and MD with respect to age, gender, years of education, marital status, total number of symptoms and treatment status. Regarding clinical symptoms, there was, as in our study, a closer association between SCZ and SAD than between SAD and MD. The clusters of symptoms for diagnoses of SAD overlapped 41% with those of MD and 71% with those of SCZ.[19]

Limitations

As was reported previously[16], the most important limitation of this study was the use of the SCID for making DSM-IV diagnoses. The psychometric properties of the SCID, including the cultural appropriateness of the DSM-IV itself (which was developed in North America), have not been documented in the African socio-cultural context. Besides few, if any, gold standards of community and clinical psychiatric epidemiology measures designed for the socio-cultural contexts of developing countries exist. However, the need for culturally appropriate psychometric instruments cannot be overlooked. This is a general limitation that developing countries will have to contend with, while at the same time urgently addressing the problem. This limitation notwithstanding, the SCID and other DSM- IV derived schedules have been used widely outside North America.[33] In the case of this study, experienced psychiatric charge nurses underwent joint training in which all the SCID symptoms and their clinical interpretation were discussed to minimize any individual researcher or patient cultural bias. Furthermore, the inter-rater reliability was not calculated. Another limitation was the difficulty in ascertaining age of onset of illness and duration of illness prior to treatment due to poorly kept records and inaccurate recall.

The next limitation in this study is that these results cannot be generalized to the Kenyan general psychiatric population because patients admitted at Mathari Hospital represent the most severe cases, the majority coming from poor socio-demographic backgrounds, and being referred to the facility for specialized care. In most cases this referral occurred after long periods had passed because of their inability to afford transport to the facility or private psychiatric care – these patients could be managed in the community or in general facilities.

Conclusion

There are two main conclusions to be drawn from this study: firstly, we discovered that schizoaffective disorder, although not often diagnosed by clinicians, is a common disorder also in the African context and that there is a need to pay more attention to identify it, both on a routine clinical basis and in research work; preferably through the implementation of specific sets of diagnostic tools for clinical interviews.

Secondly, the results from the comparison of socio-demographic, clinical and therapeutic variables between SCZ, SAD and MD, have shown a pattern that is similar to what several studies have documented in other contexts.

Although from the clinical point of view SAD and SCZ seem to be more closely related than SAD and MD, there was no clear demarcation between SCZ, SAD and MD and this is a confirmation of recent research that refutes the ''Kraepelinian dichotomy.'' Furthermore this research suggests that SAD might constitute a heterogeneous group composed of both SCZ and MD patients, or a middle point of a continuum between SCZ and MD. According to the published literature, it appears that this is the first study conducted in Africa that has analyzed specifically the relationship between SCZ, SAD and MD. In order to confirm and enrich our findings, further studies should be conducted to analyze both the socio-demographic and clinical pattern of the sub-groups of SAD and MD, and to describe these diagnoses in terms of course and outcome, also in relationship with the therapies undertaken by patients.

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