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Prevalence, Patterns and Correlates of Schizophrenia among Out-Patient Attendees at Madonna University Teaching Hospital, Elele: A 3-Year Review

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Abstract

Objective: The study was designed to assess the prevalence, patterns and correlates of schizophrenia among outpatient attendees at Madonna University Teaching Hospital, Elele over a three year period.

Materials and Methods: Case files of all psychiatric patients who attended the psychiatric clinic of Madonna University Teaching Hospital (MUTH) from January 2014, to December 2016 were reviewed.

Results: A total of 978 psychiatric patients attended the hospital within the time frame stated. Out of this, 214 were diagnosed schizophrenic. The prevalence rate of schizophrenia in the study was 21.9% and the mean age of the subjects was 35.6±10.4 years. A greater proportion of the subjects were aged 31-40 years (37.4%), male (60.7%), unemployed (39.2%), single (58.9%), had secondary education (42.1%), Christians (99.1%), paranoid schizophrenics (47.7%), and aggressive (55.1%). There was significant association between aggression and age ($X^2=21.417$, $df=5$, $p<0.05$), employment status ($X^2=29.686$, $df=5$, $p<0.05$), marital status ($X^2=21.971$, $df=3$, $p<0.005$). Also significant correlations were found between aggression and delusion as well as between family history of psychiatric disorder and both suicidal variables and delusion.

Conclusion: Mental health disorders are not uncommon and schizophrenia ranks high among them. The continued neglect of mental health issues in our environment and the large unmet need for service to them is a stiff challenge. Improvement in our knowledge of the epidemiology of schizophrenia in our environment will contribute in bridging this gap.

Keywords: Schizophrenia; Aggression; Prevalence; Delusions; Psychiatric; Hallucination

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Introduction

Schizophrenia is a chronic, disabling, psychiatric disorder characterized by a diverse array of symptoms affecting thought, perception, emotion, behaviour, speech and motor activity [1]. Disturbances of thinking may lead to misinterpretation of reality as well as psychotic features such as delusions and hallucinations which may be viewed as a product of unhealthy defence mechanisms aimed at psychological self-protection [2]. In these patients, emotional responsiveness are often inappropriate and behaviour is in general odd and may be withdrawn, regressive

or bizarre [2]. It is estimated that approximately 1% of the population suffers from schizophrenia globally and this places significant social and economic burden on society [3].

Many studies on the epidemiology of schizophrenia have been carried out in many parts of the world but not in the Niger Delta region of Nigeria. Furthermore varying reports of prevalence estimates have been reported from different countries [4-6]. This is not surprising because the epidemiology of schizophrenia is characterized by a multiplicity of etiologies and variations which in turn have significant implications for clinical care, health service planning and public health [1]. This underscores the

need to have some data within the Niger Delta Region of Nigeria on this very challenging disorder; data that will be invaluable in managing patients from this part of the world effectively; considering the peculiar socio-cultural characteristics of this part of Nigeria. Not only is Rivers State (where the study was carried out) cosmopolitan in nature, accommodating almost all the ethnic nationalities that make up Nigeria, it is the hub of Nigeria's booming oil industry and has been bedeviled with militancy, violence, kidnapping and violent crimes as well as abuse of psychoactive substances especially in the past three decades [7].

In view of the foregoing and for the fact that mental health disorders are not uncommon and the global burden of mental health disorders is projected to reach 15% by the year 2020 [8], this study has become imperative.

This exploratory, pilot study aims at studying the prevalence, patterns and correlates of schizophrenia among out-patient attendees at Madonna University Teaching Hospital Elele from 2014 to 2016.

Methodology

This retrospective cross sectional study was conducted at the psychiatric department of Madonna University Teaching Hospital (MUTH), from January to April 2017.

The case files of all psychiatric patients who attended the psychiatric clinic of Madonna University Teaching Hospital (MUTH) Elele, from January 2014 to December 2016 were reviewed. These medical records were domiciled in the records department of the institution. The medical records department is adjacent to the psychiatric department in the hospital complex. The institution's medical librarian assisted by two library assistants retrieved the files for the researcher from the file rack where they were stacked. Starting with the files of the psychiatric patients who came to the hospital on January 2nd 2014, more than fifty files were reviewed weekly within the study period. Patients who had a diagnosis of schizophrenia met the inclusion criteria and were therefore studied. Diagnosis of schizophrenia was made using the ICD-10 criteria.

Prior to the commencement of this study, the required ethical approval was obtained from the institution's ethics committee. The data was analysed using the Statistical Package for Social Sciences (SPSS), version 16 at 5% level of significance and 95% confidence interval. Frequencies of the various variables were displayed using frequency distribution tables. Association between categorical variables was tested using chi-square tests; while correlation between the clinical variables was assessed using Pearson's correlation analysis.

Results

The total number of psychiatric patients who attended the psychiatric clinic of Madonna University Teaching Hospital from January 2014 to December 2016 was nine hundred and seventy eight (978). Out of this number, two hundred and fourteen (214) were diagnosed with schizophrenia which translates to a (21.9%) prevalence rate of schizophrenia among the cohort. The mean

age of the subjects was 35.6+10.4 years. The minimum age of the cohort was 19 years while the maximum was 65 years.

Table 1 depicts the frequencies of the socio-demographic variables of the cohort. The largest proportions of the subjects were aged 31-40 years (37.4%), male (60.7%), unemployed (39.2%), single (58.9%), had secondary education (42.1%) and were Christians (**Table 1**).

Table 2 displays the frequencies of the clinical variables of the subjects. The largest proportions of the subjects were paranoid schizophrenics (47.7%), had no recorded suicidal variable (72.0%), were not reported to abuse any psychoactive substance (62.6%), had no delusion (55.1%), experienced at least one hallucination (58.9%), were aggressive (55.1%) but had no family history of mental illness (51.4%) (**Table 2**).

Table 3 shows the association between socio-demographic variables and aggression. Subjects younger than 41 years exhibited greater penchant for aggression unlike those in the older age brackets; for example, there is statistically significant difference in aggression between those aged between 11-20 years compared to those aged 51-60. Therefore there is statistically significant association between age and aggression. Similarly the largest proportions of the students (68.2%) and

Table 1 Frequency of socio-demographic variables of the subjects (N=214).

	Frequency	Prevalence (%)
Age (Years)		
11-20	6	2.8
21-30	74	34.6
31-40	80	37.4
41-50	34	15.9
51-60	16	7.5
>60	4	1.9
Sex		
Male	130	60.7
Female	84	39.3
Employment		
Unskilled Labour	22	10.3
Skilled Labour	42	19.6
Professional	22	10.3
Student	44	20.6
Unemployed	84	39.2
Marital Status		
Single	126	58.9
Separated/Divorced	16	7.5
Married	64	29.9
Widowed	8	3.7
Literacy Status		
Primary Education	72	33.6
Secondary Education	90	42.1
Tertiary Education	44	20.6
Illiterate	8	3.7
Religion		
Christian	212	99.1
Others	2	0.9

Table 2 Frequency of clinical variables of the subjects (N=214).

	Frequency	Prevalence (%)
Diagnosis		
Undifferentiated schizophrenia	38	17.8
Paranoid Schizophrenia	102	47.7
Catatonic schizophrenia	24	11.2
Hebephrenic Schizophrenia	42	19.6
Others	8	3.7
Suicidal Variables		
Suicidal Ideation	18	8.4
Death Wish	32	15.0
Suicidal Attempt	10	4.7
Nil Suicidal Variable	154	72.0
Psychoactive Substance Used		
Nil Use	134	62.6
Alcohol	32	15.0
Cannabis	30	14.0
Other Types Used	4	1.9
Polysubstance Used	14	6.5
Delusion		
Yes	96	44.9
No	118	55.1
Hallucination		
Yes	126	58.9
No	88	41.1
Aggression		
Yes	118	55.1
No	96	44.9
Family History		
Yes	104	48.6
No	110	51.4

unemployed (64.3%) were clearly more aggressive than the rest and the association between aggression and employment status was statistically significant (compare the aggression between the unemployed subjects and those employed on skilled vocation) (**Table 3**).

Furthermore, the unmarried exhibited more aggression (66.7%) compared to the married, separated and widowed, and the relationship between marital status and aggression was found to be statistically significant (compare the single with the widows).

However, there was no statistically significant association found between aggression and the other socio-demographic variables: gender, literacy status and religion.

Table 4 depicts the Pearson's correlations values of the various clinical variables. Significant correlation was found between aggression and delusion, family history of psychiatric disorder and suicidal variables as well as family history of psychiatric disorders and delusion (**Table 4**).

Discussion

The prevalence of schizophrenia in the study cohort which consisted of attendees to the psychiatric clinic within the study period was 21.9%. Alasomi et al. [9] recorded a similar

Table 3 Association between socio-demographic variables and aggression (N=148).

	With Psychiatric Comorbidity N (%)	Without Psychiatric Comorbidity n (%)	Total	X ²	df	p-value
Age (Years)						
11-20	6 (100)	0 (0.0)	6	21.417	5	0.00 *
21-30	50 (67.6)	24 (32.4)	74			
31-40	42 (52.5)	38 (47.5)	80			
41-50	16 (47.1)	18 (52.9)	34			
51-60	4 (25.0)	12 (75.0)	16			
>60	0 (0.0)	4 (100.0)	4			
Sex						
Male	68 (52.3)	62 (47.7)	130	1.074	1	0.185
Female	50 (59.5)	34 (40.5)	84			
Employment						
Unskilled Labour	14 (63.6)	8 (36.4)	22			
Skilled Labour	8 (19.0)	34 (81.0)	42			
Professional	12 (54.5)	10 (45.5)	22			
Student	30 (68.2)	14 (31.8)	44			
Unemployed	54 (64.3)	30 (35.7)	84	29.686	5	0.000*
Marital Status						
Single	84 (66.7)	42 (33.3)	126	21.971	3	0.000*
Separated/ Divorced	6 (37.5)	10 (62.5)	16			
Married	28 (43.8)	36 (56.3)	64			
Widowed	0 (0.0)	8 (100)	8			
Literacy						
Primary education	38 (52.8)	34 (47.2)	72	1.451	3	0.694
Secondary education	50 (55.6)	40 (44.4)	90			
Tertiary education	24 (54.5)	20 (45.5)	44			
No formal education	6 (75.0)	2 (25.0)	8			
Religion						
Christian	116 (54.7)	96 (45.2)	212	1.642	1	0.303
Others	2 (100)	0 (0.0)	2			

*Significant at p<0.05.

result (28.9%) in a study carried out in similar settings in Saudi Arabia. These figures are much higher than varying estimates of schizophrenia in the general population reported by various researchers [4-6]. While the mean prevalence estimate of schizophrenia in developing countries is 1.64 per 1000, that from developed countries is significantly higher at 7.67 per 1000 individuals [5].

The largest proportions of the cohort were unemployed (39.2%). This is similar to the reports by other researchers [9-11]. While other researchers reported that most of the subjects they studied had no formal education, a greater percentage of our study cohort (42.1%) had secondary education [10,11]. Furthermore, most of the subjects were single (58.9%). This is similar to the statistics

Table 4 Correlations of the various clinical variables (N=214).

		Aggression	Family History	Diagnosis	Suicide	Psychoactive Substance Used	Delusion	Hallucination
Aggression	Pearson Correlation Sig (2-tailed)	1	0.125 0.068	-0.018 0.788	-0.024 0.730	-0.111 0.106	0.285** 0.000	-125 0.069
Family History	Pearson Correlation Sig (2-tailed)	0.125 0.068	1	0.031 0.650	0.199** 0.003	-0.066 0.337	0.213** 0.002	-0.099 0.147
Diagnosis	Pearson Correlation Sig (2-tailed)	-0.018 0.788	0.031 0.650	1	-0.057 .406	0.006 0.928	0.104 0.131	-0.057 0.405
Suicide	Pearson Correlation Sig (2-tailed)	-0.024 730	-199** 0.003	-.057 .406	1	-0.095 0.166	-.087 .207	-.124 .070
Psychoact Subst Used	Pearson Correlation Sig (2-tailed)	-0.111 0.106	-0.066 0.337	0.006 0.928	-0.095 0.166	1	-0.018 0.795	0.034 0.619
Delusion	Pearson Correlation Sig (2-tailed)	0.285** 0.000	.213** .002	0.104 0.131	-0.087 0.207	-0.018 0.795	1	0.028 0.682
Hallucination	Pearson Correlation Sig (2-tailed)	0.125 0.069	-0.099 0.147	-0.057 0.405	-0.124 0.070	0.034 0.619	0.028 0.682	1

**Correlation is significant at the 0.01 level (2-tailed).

reported by Ihezue et al.; however, while there were more males in the cohort of this study (60%), Ihezue reported that females were more preponderant than the males by a ratio of 2:1 in his study (10). The largest proportions of our study cohort were aged 31-40 years (37.4%) unlike the Ihezue study in which 65.7% of the patients were <30 years old [10]. Most of the subjects in this study were Christians (99.1%). This is not surprising when one considers that the study was carried out in a Catholic institution in Southern Nigeria.

This study identified that paranoid schizophrenia constituted the largest diagnostic entity (47.7%). This is similar to findings from other studies [10]. However, while Kathir et al. reported a positive family history of mental illness in majority of his subjects [11] the contrary is true for this study where 51.4% had no record of a family history of mental illness. Similarly a greater proportion of the subjects had no record of delusion (55.1%) but 58.9% had a record of at least one type of hallucination in his/her profile of psychopathology. Kathir et al. reported the positive signs of delusion and hallucination as well as the negative symptoms of social withdrawal and blunted affect in the majority of the subjects they studied [11]. Furthermore, most of our subjects were aggressive (55.1%) but had no recorded suicidal variables (72.0%) and no record of abuse of psychoactive substances (62.6%). This is at variance with reports from other studies that have recorded heightened aggression and suicide risk among schizophrenic patients [12,13]. Similarly, Stompe et al. noted that schizophrenic patients exhibited significantly higher rates of substance abuse compared to the general public [14]. The varying results may be due to methodological differences. Those studies were prospective studies where the researchers interacted with the subjects first hand, unlike this which is a retrospective study.

Nevertheless, subjects younger than 41 years exhibited greater penchant for aggression unlike those in the older age brackets and there is significant association between age and aggression. Similarly, the unemployed (64.3%) as students (68.2%) were reported to be more aggressive than other sub cohorts that belong to each of their categories of socio-demographic variable.

It has been reported that aggression and homicide are more frequent in schizophrenia than in the general population [15-17].

Furthermore, aggression and violence in schizophrenia can be explained by psychopathological symptoms such as delusions and hallucinations, co-morbid substance misuse, social deterioration or other clinical symptoms [15-17]. Even though the unmarried exhibited more aggression (66.7%) compared to the other subcategories of marital status, there was no statistically significant relationship between aggression and marital status, nor with gender, literacy status or religion.

Some of the most important findings of this study are the significant correlations found between aggression and delusion, family history of psychiatric disorder and suicidal variables as well as family history of psychiatric disorder and delusion.

Several researchers have reported that a wide range of both neuro-developmental dysfunctions as well as structural abnormalities are responsible for the myriad of psychopathology seen in schizophrenia even though the status of progression of these structural changes is still unclear [18].

Nevertheless, even though much evidence abounds that schizophrenic patients have an increased risk for aggression and violent behaviour, the neurobiological basis and correlates of this risk have not been studied in detail [19,20]. However several polymorphisms especially Val 158 Met of Catechol-O-methyl transferase (COMT) gene on chromosome 22 has been suggested from several studies [19,20]. COMT is an enzyme responsible for the breakdown of dopamine [19].

The significant correlation between aggression and delusion is in consonance with the reports by Fazel and Grann [21], findings from that study that 5.2% of severe acts of violence were committed by persons with a major psychiatric disorder, most commonly schizophrenia, underscores the relationship between aggression and homicide

This study also identified a significant correlation between the family history of psychiatric disorder and suicidal variables as well as family history of psychiatric disorder and delusion. Many

studies indicate that aggression and criminal behaviour are to some extent genetically inherited [22].

Limitation

Researching on mentally ill persons introduces unique theoretical and methodological issues, prominent among which are issues of reliability of their responses on account of their mental state especially at the point of history taking [23]. The medical records of the patients revealed that history was given by some patients while for some others, an accompanying relation or friend assisted or gave the full history when the patient was not in a stable mental state to do so. Therefore, the records in the case files may not be entirely accurate. Aggressive incidents recorded were not captured using a standardized scale. Therefore some

subtle aggressive behaviour may not have been captured except for overt forms. This is a retrospective study; as such, the patients were not attended to first hand by the researcher.

Conclusion

The prevalence of schizophrenia among the psychiatric cohort studied is 21.9%. Other results from the study confirmed reports from previous studies on the relationship between a positive family history of psychiatric illness and developing psychopathology. Furthermore, the association between aggression and the presence of psychotic features in schizophrenia is noted. Improvement in our knowledge of the epidemiology of schizophrenia in our environment will no doubt translate to better management of this multifaceted, chronic disorder.

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