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Original Research Article

SCHIZOPHRENIA PREVALENCE AT THE FEDERAL NEUROPSYCHIATRIC HOSPITAL, BENIN CITY, EDO STATE

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ABSTRACT

To assess the prevalence of schizophrenia in the Federal Neuropsychiatric Hospital, Uselu, Benin City. The Federal Neuropsychiatric Hospital in Uselu, Benin City, was the site of this retrospective investigation. Data on patient demographics and illness prevalence patterns were gathered from the case notes (January 2019–December 2021) at the records department using a data collection form and a systematic sampling technique. Ethical approval was obtained from the ethics committee of the hospital. SPSS version 21.0 was used to analyze the data, which were then presented as percentages and frequencies. Chi-square was used to do inferential statistics. A P value less than 0.05 was found to be statistically significant. During the review period, 23.81% of patients who attended the Federal Neuropsychiatric Hospital in Uselu, Benin City, had schizophrenia. Males (52.2%) and patients aged 20-39 (59.7%) had higher prevalence. Approximately twenty-three percent of the cases were smokers, and twenty-one percent were alcohol consumers. Only 19.5% of the patients had co-morbid conditions, with hypertension being the most common (43.1%), and a sizable portion of the participants were jobless (40.3%). The most common kind of schizophrenia was paranoid schizophrenia (53.8%). The most common presenting symptoms were hallucinations (73%) and delusions (60.8%). Age and sex were shown to have a statistically significant impact on the prevalence of schizophrenia (P<0.05). The prevalence of Schizophrenia disorder in Federal Neuropsychiatric Hospital, Uselu, Benin City was 23.81%. It was found to be more prevalent in young males and the unemployed.

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INTRODUCTION

Schizophrenia is a debilitating mental condition characterized by a variety of emotional, behavioral, and cognitive problems that make it difficult to discriminate between truth and hallucination. Schizophrenia is characterized by distorted mental processes, significant emotional issues, and communication breakdowns such as disorganized speech and an unusual tone. It is a serious mental disorder that affects around 1% of the worldwide population and ranks among the top ten factors contributing to disability [1] [2]. The American Psychiatric Association defines schizophrenia as characterized by delusions, hallucinations, disordered speech, highly disorganized or catatonic behavior, and negative symptoms such as limited emotional expressiveness or avolition. The symptoms must be present for an entire month [3]. Schizophrenia is associated with anatomical changes in the brain as well as aberrant neurotransmitter levels in the glutamate and dopamine systems. Even though psychotic symptoms are the primary focus of current diagnostic and treatment procedures for schizophrenia, the disorder's negative and mental symptoms considerably impair

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social and vocational performance and typically react poorly to antipsychotic medication [4] [5]. Positive, negative, and cognitive symptoms are the three types of symptoms that define schizophrenia. Positive symptoms, such as hallucinations and abnormal motor activities of various intensity, are immediately identifiable and absent in healthy persons. Negative symptoms, on the other hand, are modest and associated with high morbidity; common examples are apathy, diminished speech, anhedonia, and restricted emotional expressiveness. The most current description of cognitive symptoms includes disorganized thinking, speaking, and attention [6] [7].

The disease's etiology is complex and diverse owing to the environmental and genetic interaction. However, birth complications, time of year, acute malnutrition, maternal influenza during pregnancy, family history, childhood trauma, social isolation, cannabis use, minority ethnicity, and urbanization are also risk factors [8]. People with schizophrenia suffer a lot of discrimination, which leads to self-stigma [9], a rise in positive, negative, and depression, as well as an overall increase in the intensity of symptoms and a reduced probability of recovery. [10] [11].

About 24 million people globally, or 1 in 300 persons (0.32%), suffer from schizophrenia. Among adults, this rate is 1 in 222 (0.45%) [12]. Compared to the general population, those with schizophrenia have a two to three times higher risk of early death [13]. This is commonly caused by physical problems such as viral, metabolic, and cardiovascular disease. Schizophrenia has a 1% lifetime risk and is often diagnosed in the late teens or early thirties. It occurs earlier in boys (late adolescent to early twenties) than in females (early twenties to early thirties) [14], and it is more prevalent in men than in women [15] [5].

Subtle changes in social interactions and cognitive abilities frequently precede diagnosis. Suicide is thought to claim the lives of 4.9% of individuals with schizophrenia, with the risk being highest in the early stages of the disease [16]. Nowadays, the great majority of individuals with schizophrenia worldwide do not receive mental health treatment. Schizophrenia is diagnosed in about 50% of patients in psychiatric hospitals (17).

This study aims to assess the prevalence of schizophrenia in Federal Neuropsychiatric Hospital, Uselu, Benin City, Edo State.

MATERIALS AND METHODS

Study Setting And Design

This retrospective study was conducted at the records section of the Federal Neuropsychiatric Hospital (FNPH), Uselu, Benin City, Nigeria. FNPH has both in-patient and out-patient sections. FNPH is a Federal Government owned tertiary healthcare institution established on the 7th of December, 1964 and currently has a capacity of over 300 bed spaces.

Study Population

All psychiatric patients presented to the Federal Neuropsychiatric Hospital, Uselu, Benin City, Edo State between January 2019 and December 2021.

Sample Size Determination/ Sample Size

The study sample was taken from all 7,765 patients who attended the Federal Neuropsychiatric Hospital in Uselu, Benin City, between January 2019 and December 2021, as recorded by the hospital's medical records department. From the 1554 samples collected, 370 patients with schizophrenia were identified and participated in the research

Sampling Technique

This study employed a systematic sample approach with a sampling interval of five case notes.

Inclusion Criteria

The study comprised patients who had been diagnosed with schizophrenia throughout the review period.

Exclusion Criteria

Patients with incomplete case notes were excluded from the study.

Ethical Approval

Ethical Approval was obtained from the ethics committee, Federal Neuropsychiatric Hospital, Uselu, Benin City, Edo State, with approval number PH/A.864/VOL.XXX111/16.

Data Collection

The case notes of patients diagnosed with schizophrenia during the time period under review were obtained from the medical records department. Using a data collection sheet, important information about the patients was extracted from the case notes. The data collecting sheet has two components. Section A collected socio-demographic information such as gender, age, employment, marital status, education

level, family history of schizophrenia, smoking, and alcohol intake. Section B obtained data on the prevalence and illness pattern of schizophrenia.

Data Analysis

Data collection sheets were coded, input into Microsoft Excel, and transferred to SPSS for analysis, yielding descriptive statistics reported in frequency and percentages. Inferential statistics were performed using Chi-square to investigate the potential relationship between socio-demographic data, prevalence patterns, and management (prescription patterns). A P value less than 0.05 was found to be statistically significant.

RESULTS

Table 1 reveals that schizophrenia cases accounted for 23.81% of all patients that attended the Federal Neuropsychiatric Hospital in Uselu, Benin City, from 2019 to 2021. The percentage prevalence was highest in 2019 (27.92%) and lowest in 2021 (21.34%).

Table 1: Yearly prevalence of schizophrenia between 2019-2021.

Year	Total patient population	Number of Samples	Schizophrenia prevalence (%)
2019	2399	480	134(27.92)
2020	2298	460	105(22.83)
2021	3068	614	131(21.34)
Total	7765	1554	370(23.81)

Table 2 shows the socio-demographic information on patients with schizophrenia. Schizophrenia was more common in men (193, 52.2%). Patients aged 20 to 39 accounted for the greatest number of cases (221, 59.7%). Individuals under the age of 20 were the least affected, accounting for just 5.9% of all cases. The majority of the patients (224, 60.5%) were single, with 86 (23.3%) married and 8 (2.2%) divorced. Smokers and alcohol drinkers accounted for 23% and 21.1% of the cases, respectively. A large proportion of the individuals (149, 40.3%) were jobless, while only 72 (19.5%) had a co-morbid condition.

Table 2: Socio-demographic data of patients with Schizophrenia (n= 370).

Variables	Frequency	Prevalence (%)
Sex		
Male	193	52.2
Female	177	47.8
Age (years)		
< 20	22	5.9
20 – 29	123	33.2
30 – 39	98	26.5
40 – 49	48	13.0
50 – 59	29	7.8
60 – 69	27	7.3
≥ 70	23	6.2
Marital status		
Married	86	23.2
Single	224	60.5
Divorced	8	2.2
Widowed	34	9.2

Separated	18	4.9
Occupation		
Student	49	13.2
Government worker	11	3.0
Self-employed	135	36.5
Unemployed	149	40.3
Private sector worker	13	3.5
Retired	13	3.5
Education		
No formal education	23	6.2
Primary education	77	20.8
Secondary education	155	41.9
Tertiary education	115	31.1
Family history		
Yes	95	25.7
No	275	74.3
Smoking status		
Yes	85	23.0
No	285	77.0
Alcohol consumption		
Yes	78	21.1
No	292	78.9
Admission		
Yes	46	12.4
No	324	87.6
Comorbidity		
Present	72	19.5
Absent	298	80.5

Table 3 outlines the various forms of schizophrenia and their presenting symptoms. Over half of the patients had paranoid schizophrenia (199, 53.8%), with residual schizophrenia accounting for the smallest proportion (1, 0.3%). The most common symptom at presentation was hallucination (270, 73%), followed by delusion (225, 60.8%) and lack of desire (53, 14.3%). Out of 370 patients, 72 (19.5%) had co-morbid disease conditions.

Table 3: Diagnosis and symptoms at presentation (n= 370).

Schizophrenia diagnosis	Percentage
Paranoid	53.8
Undifferentiated	13.5
Catatonic	4.1
Organic	3.8
Hebephrenic	3.2
Substance induced	13.8

Acute	3.5
Residual	0.3
Simple	4.1
Presenting symptoms	**Percentage**
Hallucination	73.0
Delusion	60.8
Paranoia	56.5
Perception disturbance	60.3
Disorganised thought	42.4
Apathy	12.4
Social withdrawal	33.2
Anhedonia	16.2
Emotional blunting	20.8
Cognitive deficit	13.0
Lack of motivation	14.3

Table 4 reveals that hypertension was the most common concomitant illness among the participants (43.1%). This was followed by drug addiction (27.8%) and diabetes (12.56%). Peptic ulcer disease was the least common co-morbid disease condition.

Table 4: Co-morbidities of patients with Schizophrenia (n=370).

Co-morbidities	Percentages
Hypertension	43.1
Substance abuse	27.8
Diabetes	12.5
Diabetes and hypertension	8.3
Dyslipidemia	4.2
Asthma	2.8
Peptic ulcer	1.4

Table 5 shows how age and gender influence the prevalence of schizophrenia. Schizophrenia was predominately male at an early age and female later in life. And the relationship between the variables was statistically significant (P = 0.0001).

Table 4: The effect of sex and age on schizophrenia prevalence (n = 370).

		Age(years)							
Sex	**Total**	**<20**	**20-29**	**30-39**	**40-49**	**50-59**	**60-69**	**≥70**	**P**
Male	193	10(5.2)	91(47.2)	48(24.9)	25(13)	9(4.7)	7(3.6)	3(1.6)	0.0001
Female	177	12(6.8)	32(18.1)	50(28.3)	23(13)	20(11.3)	20(11.3)	20(11.3)	
Total	370	22	123	98	48	29	27	23	

DISCUSSION

The prevalence of schizophrenia at the Federal Neuropsychiatric Hospital in Uselu, Benin City, was investigated in this study. When data on population prevalence is difficult to get, hospital-based prevalence studies come in handy. The temporal criteria used, such as point-prevalence, period-prevalence, and lifetime-prevalence, influence prevalence estimates. One significant issue that has garnered a lot of attention in the medical community is the frequency of mental disorders in psychiatric hospitals. Psychiatric hospitals are specialized institutions that provide comprehensive treatment and therapy to individuals suffering from various mental health concerns. Recognizing the prevalence of these disorders in diverse contexts is essential for developing effective

treatment regimens, assigning resources, and improving patient outcomes.

From the study results, the year 2019 saw the greatest percentage prevalence (27.92%). In this study, the prevalence of schizophrenia was 23.81% across the study period. This is low in comparison to the findings of a previous study, which reveal that around half of the patients who consults mental institutions have been diagnosed with schizophrenia [18].

Schizophrenia has a higher prevalence in male compared with female. It is well known that men are more likely than women to have schizophrenia, with a nearly 1.4:1 ratio. Two separate meta-analyses have shown this, and it persists even after adjusting for a number of confounding variables, including age range, diagnostic criteria, and hospital bias [19] [20]. Given that men often participate in more risky social behaviors than women, this is to be expected. These include using illegal substances [21] and engaging in other dangerous behaviors that can put one's mental health at jeopardy. Furthermore, the idea that women with schizophrenia have a less severe course of the illness than men has been validated by a number of researches [22] [23]. Men are more likely than women to have anatomical

abnormalities of the brain, such as larger ventricles and reduced temporal lobe volume [24]. Additionally, it was discovered that older females and younger boys had higher prevalence. This supports a study's conclusion that men under 40 have a higher prevalence of schizophrenia, with the peak incidence occurring between the ages of 20 and 29 [25].

This is also not true for women, as an increased risk was seen in those over 40. This may be related to decreased levels of estrogen after menopause. Estrogen can protect women from mental problems. Its neuro-protective properties are believed to originate from its ability to control neurotransmitter systems such as dopamine, prevent cell damage, encourage neurogenesis and plasticity, and improve cognitive abilities [26]. Estrogens also regulate dopamine activity through the enzyme catechol-O-methyltransferase (COMT), which degrades dopamine [27].

Because estrogens prevent the transcription of the COMT gene, a lack of estrogen can lead to elevated COMT activity and compromised dopaminergic performance. Additionally, recent studies have shown that COMT reduces estrogen activity [28]. Psychosis may also develop as a result of a variety of psychological causes, including loneliness, adverse life experiences, and a lack of social and familial help, all of which are common in menopausal and postmenopausal women. Despite the fact that men are more prevalent than women to suffer schizophrenia, it has been proposed that women have a more favorable outcome [29] [30].

The majority of the patients were unmarried [31]. The most frequent contributing factor linked to mental illnesses like schizophrenia has been shown to be marital status [32]. Married people typically experience a favorable prognosis, less time in the hospital, and a later development of the disease [33]. An earlier age of beginning is linked to a worse marital outcome, even when marriage itself seems advantageous. Additionally, being married raises one's level of social engagement. In a Chinese study, the percentage of married patients without impairment was greater than the percentage with impairment. This implies that compared to patients who are divorced, widowed, or have never been married, married patients may have better mental and physical adaptation. Put differently, there is a high correlation between marriage and improved outcomes for patients having schizophrenia [33].

The majority of the patients were unemployed when they visited the hospital. This is consistent with multiple prior investigations [34], [35]. The job rate among participants in this study was 43%, although earlier studies revealed that the employment rate among patients with schizophrenia ranged between 10 and 30% [36, 37]. Unemployment has been linked to worse mental and social behavior, greater levels of negative and depressed symptoms, and lower levels of education in people with schizophrenia [38] [39]. People with schizophrenia, particularly in severe instances, seldom have the mental fortitude to find a job or stay working, therefore they lose the potential to offer earnings and nonfinancial rewards, like a sense of self, social networks and assistance, activity and engagement, and a feeling of personal gratification [40].

Being jobless will exacerbate the illness state, as employment has been shown to enhance the health-related quality of life of persons with schizophrenia[41]. Hospital admissions, illness severity, length of inpatient stay, and obligatory hospitalizations have all been recognized as major contributors to joblessness among people with schizophrenia [42]. The substantial rate of unemployment among these patients can be reduced by care and treatments.

Smoking is recognized to play a significant role in the onset of schizophrenia, as evidenced by the 58% prevalence of smoking among patients with initial onset psychosis [43]. It is essential to note that smoking alone cannot cause the

disease because the pathogenesis of the disease has been shown to be the consequence of an interaction between genetic and environmental risk variables [44], but many studies have found that the use of psychoactive substances sets the stage for the development of schizophrenia [45]. Substance misuse, including smoking and drinking, has been reported to be highly prevalent among patients with schizophrenia [46]. In this study, the percentage of smokers was much lower (23.0%) than nonsmokers. Substance abuse may worsen the effect of schizophrenia, leading to increased social adjustment challenges [47].

Nicotine, a psychoactive part of tobacco, modulates the release of almost all neurotransmitters, including dopamine, glutamate, noradrenaline, serotonin, opioids, acetylcholine, and γ-aminobutyric acid (GABA) [48]. In addition, nicotine has been shown to block both monoamine oxidase (MAO) types A and B, which ordinarily breakdown dopamine into inactive metabolites. As a consequence, smoking causes enhanced dopaminergic activity due to increased release and reduced breakdown [49]. In contrast, one study shows that persons with schizophrenia who smoke may experience less unpleasant symptoms [50]. However, several studies have challenged this idea [51] [52].

Furthermore, new study reveals that smoking might reduce the strength of extrapyramidal symptoms caused by antipsychotic treatment, indicating another putative symptomatic reason for smoking in schizophrenia [53]. Nicotine is believed to interact with nicotinic acetylcholine receptors (nAChRs) in the ventral tegmental area (VTA), increasing dopamine levels in the striatum via the mesolimbic dopaminergic pathway, dampening the effect of dopamine receptor blocking antipsychotics and, as a result, reducing extrapyramidal symptoms [54]. One disadvantage of this investigation is the lack of specificity on the drugs smoked. However, cannabis has been discovered to be more linked in the disease's development [55].

Alcohol can exacerbate the signs of schizophrenia. Regular alcohol use can result in alcohol use disorder (AUD), which has an incidence of 24.3% in people with schizophrenia. Only 21.1% of the patients reported using alcohol. Several investigations have found that alcohol consumption considerably worsens signs of schizophrenia, promotes the chance of relapse, reduces the efficacy of antipsychotic drugs, and even worsens mortality in patients with schizophrenia and other psychotic illnesses [56]. Alcohol usage previous to admission was related with a higher rate of positive signs in first-episode psychosis patients [57], while alcohol use was linked with reduced negative signs [58]. Previous research has indicated that alcohol can enhance dopamine secretion, and prolonged alcohol consumption can culminate in down regulation of dopamine receptors that continues despite withdrawal [59] [60]

Just 72 individuals had co-morbid disorders, with hypertension and drug misuse contributing to 43.1% and 27.8%, respectively. This complements a prior research, which revealed hypertension to be the most common co-morbid condition [61]. Different patients have various co-morbidities. It is being proposed that mental comorbidities are so prevalent that they may be essential to schizophrenia [62]. However, it is unclear whether these co-morbid symptoms happened by coincidence alongside schizophrenia or developed as a result of the fundamental condition, schizophrenia.

A large percentage of patients had paranoid schizophrenia, with residual schizophrenia having the lowest frequency. Schizophrenia symptoms are classified as positive, negative, or cognitive. The positive symptoms (hallucinations and delusions) were more common. Table 5 illustrates that age and gender have a substantial impact on the frequency of schizophrenia. ($P = 0.0001$), with a significantly greater frequency among males at a considerably younger age.

CONCLUSION

Schizophrenia prevalence in this study was found to be 23.81 % and paranoid schizophrenia was the predominant type of the disease. Disease was more prevalent in younger male (20-39 years), single and unemployed patients. The positive symptoms (hallucination and delusion) were the most common symptoms of schizophrenia while apathy was the least prevalent.

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AUTHORS' CONTRIBUTION

Both authors were involved in the design, execution and writing of the manuscript.

CONFLICT OF INTEREST

There is no conflict of interest.

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