Knowledge and Practice of Relapse Prevention among Family Caregivers of Patients with Schizophrenia in Kano State, Nigeria

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Abstract

Background: Schizophrenia is a severe mental disorder which causes significant disability and burden. Primary caregivers, who are often family members, are responsible for relapse prevention by monitoring medication, detecting early warning signs, and facilitating hospital follow-ups. Caregiver knowledge and practices significantly influence the success of this role. Poor knowledge and practices can lead to high relapse rates. The study aimed to assess caregivers' knowledge and practices regarding relapse prevention and management among patients with schizophrenia.

Materials and Methods: Using a cross-sectional design, this study investigated the knowledge and practices of relapse prevention among 166 family caregivers of patients with schizophrenia in Kano State, Nigeria. Data was collected using a socio-demographic questionnaire and an adapted Knowledge, Attitude and Practice (KAP) questionnaire. Analysis was carried out using chi-square tests and logistic regression.

Results: Caregivers demonstrated good understanding of relapse, signs and preventive measures, with most utilising medication (93.4%) and regular clinic follow-up (94.6%) as relapse prevention strategies. The highest attributions as cause of relapse were poor compliance with medication (75.9%) and poor social support (74.7%), while positive symptoms (4.7%) were more readily identified as signs of relapse. Caregiver practices regarding relapse prevention independently predicted the number of admissions in the past year (OR=0.110, 95% CI= 0.014 – 0.832). Harmful practices such as physical restraints, confinement and visiting prayer houses during a relapse highlight a need for intervention.

Conclusion: Study findings emphasise the importance of enhanced family interventions, family psychoeducation and tailored relapse prevention education in the management of schizophrenia. While caregivers demonstrate good knowledge and practices regarding relapse prevention, gaps remain. To enhance schizophrenia care, we recommend individualised psychoeducation to family caregivers, while policymakers should establish supportive frameworks and ongoing evaluations to foster caregiver empowerment and early interventions.

***Keywords*:** *Schizophrenia, Caregiver, Knowledge, Practice, Relapse prevention, Nigeria*

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Introduction

Schizophrenia is a major mental disorder involving a complex set of disturbances of thought, perception, affect and social behaviour. Characterised by symptoms such as hallucinations, delusions, disorganised communication, poor planning, reduced motivation, and blunted affect. It is a severe and chronic illness that affects all aspects of the lives of those experiencing it. Though affecting

approximately 1% of the global population (1-3), the recent Global Burden of Disease study by the World Health Organisation (WHO) ranks it among the top 10 causes of global disability (4) and recognises it as one of the most costly mental health disorders to manage (5-8). In Nigeria, the annual cost of treatment per patient may exceed $800 (9), which, when compared to the purchasing power of the majority of the population, indicates a huge economic burden (8). The course of schizophrenia varies in different individuals and is often characterised by recurring relapses associated with significant clinical, social and financial distress (10) making relapse prevention pivotal in its management.

With global deinstitutionalisation of psychiatric patients, community-based mental health services have become imperative, with the family as a primary resource, although this may not be available in many developing countries. In Nigeria, the National Health Insurance Scheme serves only a minority of the population and does not provide for long-term hospitalisation of the mentally ill (11). This is compounded by a dearth of community-based mental health services to cater for the needs of patients with schizophrenia (12). With the trend towards shorter hospital stays and reduction of in-patient beds, these have shifted the responsibility of the day-to-day care of patients with schizophrenia from formal caregivers in mental health institutions in the country to informal caregivers within the family setting who are tasked with among other roles, financial support, social support and the prevention of relapse among patients with schizophrenia. They do this through monitoring drug compliance, detecting early warning signs for relapse and facilitating regular hospital follow-up during the recovery period (13), with the family's ability to care for patients with schizophrenia reducing the likelihood of relapse within a year (14).

The success of caregiving for patients with schizophrenia is strongly influenced by several factors, including knowledge, perception and practice (15). Caregivers need to have knowledge related to the concept of schizophrenia, appropriate treatment methods and practice of relapse prevention (16). A study conducted at Federal Neuropsychiatric Hospital in Kaduna, Nigeria, revealed that the high rate of relapse of patients with schizophrenia could be caused by a lack of the family's ability to care for their family member (17). Caregivers often wrongly assume that patients who have been discharged from inpatient care no longer need to take medicine. This assumption sometimes derives from the family's lack of knowledge and practice of relapse prevention. To significantly reduce the rates of relapse, therefore, it is important to assess the caregivers' knowledge and practice of relapse prevention for patients with schizophrenia.

Materials and Methods

Study design and site

The study utilised a cross-sectional quantitative descriptive design. Psychiatric Hospital, Dawanau is a specialist hospital owned by the Kano State Government (though this has been converted to Federal Neuropsychiatric Hospital, Kano in 2023). The hospital has seven wards and a 200-bed capacity that manages a variety of psychiatric diagnoses. It provides inpatient and outpatient clinics (twice a week), primary healthcare, social welfare, occupational therapy, clinical psychology, and pharmacy services.

Aminu Kano Teaching Hospital (AKTH) is a Federal Government-owned Teaching Hospital. Its department of psychiatry started operation at its temporary site in Dawanau Drug Rehabilitation Centre with only outpatient clinics. In December 2009, the department migrated to its permanent site and presently has three wards, including male, female and DATER (Drug Addiction Treatment Education and Research). It has a total bed capacity of 60 and outpatient clinics running three days a week.

Sampling

A sample of 166 adult family caregivers of patients with a confirmed diagnosis of schizophrenia who had experienced at least one relapse in the course of their illness was interviewed.

Sample size was calculated using the Cochran's formula (18), with a normal standard deviation corresponding to a 95% confidence interval, degree of accuracy set at 0.05 and estimated proportion of schizophrenic patients who had relapsed in the last year at 12% (19).

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$= \frac{(1.96)^{2*} 0.12*(1-0.12)}{0.05^2}$$

n= 151

Respondents were systematically selected from a sampling frame made up of patient records detailing admissions and relapse. The first participant was selected randomly, while subsequent participants were selected through a pre-calculated sampling interval. Selected respondents were contacted by phone to obtain their consent for inclusion in the study and to fix a date for the interview at the hospital. Participants who could not be reached or declined to join the study were replaced with the next available person on the sample frame.

Inclusion and exclusion criteria

Family caregivers of either gender, who were 18 years or older, had cared for the patient for at least a year and consented to participate were included in the study. Caregivers who had prior medical training or could not comprehend the questions due to a language barrier were excluded.

Study instruments

A questionnaire was designed and used to draw participants' socio-demographic variables, including age, gender, level of education, and occupation. A section of the questionnaire was specific to patients, including questions relating to years lived with illness and number of admissions in the past year, while the section specific to caregivers explored the relationship to the patient and the number of years they had spent caring for them.

An adapted Knowledge, Attitudes and Practice (KAP) questionnaire was designed based on those used in previous studies by Edna et al (12) to assess caregivers of patients with Schizophrenia in Kenya. This consisted of six sections and 50 questions that assessed the family caregivers' knowledge of: the meaning of relapse, factors responsible for relapse, signs of relapse, relapse prevention measures and their practices related to relapse prevention and management.

Reliability and validity of instruments

The questionnaire was pre-test at a similar hospital not included in the final data collection (Psychiatric Hospital Kazaure, Jigawa State). The questionnaires were administered to 10% of the sample size, twice during a two-week interval, yielding a test-retest reliability coefficient of 0.85 as measured with the Cronbach's alpha coefficient.

Though validity coefficients had not been previously computed for the KAP questionnaire, it was still a reasonable choice for assessment in this study because of its face and content validity as assessed by two clinical psychiatrists, and its relative ease of administration.

In addition to the original English questionnaire, a Hausa version was made available, as this is the lingua franca of the region where the study was conducted. Two senior registrars in psychiatry confirmed the accuracy of the translation.

Scoring of questionnaire

The scores for each participant in the knowledge section were generated by summing correct responses to the respective questions. Correct responses were scored '1', while incorrect responses were scored '0'. The practice scores were generated through the summation of desirable responses to the corresponding questions, each desirable response scoring '1' and

other responses scoring '0'. From the summed knowledge and practice scores, three categories were derived: 'average', 'below average' and 'above average' depending on their distance from the mean score for that variable. Average scores were those within ±1sd, below average scores were those less than the mean by 1sd or more and above average were those greater than the mean by ±1sd or more.

Study procedure

Three psychiatric nurses were trained on the administration of the study instruments. Two at Psychiatric Hospital Dawanau and one at the Department of Psychiatry, AKTH. All interviews were conducted face-to-face to ensure a good understanding of the questions.

Data management and analyses

Data collected was entered, cleaned and analysed using the Statistical Package for Social Sciences Software Version 25 (SPSS-25). A combination of descriptive and inferential statistics was employed in the presentation of findings. In bivariate analysis, the chi-square test was used to test the statistical significance of associations for categorical variables. Fisher's exact test was utilised where cells had values preventing valid analysis with the chi-square test. Logistic regression analysis was carried out, and the Odds Ratio was calculated to determine the independent predictors for KAP scores. Values of $p<0.05$ were considered statistically significant.

Ethical considerations

Ethical approval was obtained from Kano State Hospitals Research and Ethical Review Committee (NHREC/17/03/2018), while approvals to collect data were obtained from the respective hospitals. Written consent from study participants was obtained after the study had been explained to them as simply as possible in a language they understood. Participants were interviewed one at a time, in a private area to ensure strict privacy and confidentiality. General findings in each hospital studied were discussed with the ward matrons and unit heads. Appropriate management measures were discussed where necessary, and intervention strategies to improve knowledge and practices regarding relapse were mapped out.

Results

A total of 166 patients and 166 family caregivers participated in and completed the study. The age of the patients ranged from 18 to 77 years, with a mean of 39.5 (SD=13.5), while that of caregivers ranged from 17 to 70 years, with a mean of 42.3 (SD=12.1).

There were more male than female patients (55.4% vs. 44.6%), with a similar ratio reflected in the gender of the caregivers (58.4% vs. 41.6%). Most patients were not currently married (56.6%), and lived with a family member (72.9%). On average, patients had lived with the illness for between 1 and 30 years, while caregivers had been in their roles for between 1 and 25 years. Table 1 shows the socio-demographic characteristics of participants.

About three-quarters of caregivers correctly understood relapse to mean a recurrence of the initial illness for which the patient was being managed. Among caregivers, the most frequently ascribed factors responsible for a relapse were poor compliance with medication (n=126, 75.9%), poor social support (n=124, 74.7%) and inadequate mental health care (n=114, 68.7%).

Regarding signs of a relapse in patients with schizophrenia, the highest attributions among caregivers were recorded to be appearance of positive symptoms (including hallucinations and delusions, n=124, 74.7 %), poor sleep (n=123, 74.1%) and inability to cope with daily activities (n=106, 63.9%). Conversely, close to half of caregivers did not readily identify irritability as a sign of relapse (n=78, 47.0%), just as about four in ten also did not identify feeling tense, confusion and difficulty concentrating as signs of a relapse.

Three-quarters and more of caregivers variously identified measures that may be taken

to prevent relapse to include all seven questions asked in this section, adherence to medication (n=150, 90.4%), keeping hospital appointments (n=151, 91%), adherence to medication plan (n=150, 90.4%), and stress management (n=141, 84.9%). Tables 2 and 3 show the distribution of the participants' knowledge of relapse in patients with schizophrenia. Among the caregivers, the most commonly identified relapse prevention practices were: making medication available (n=155, 93.4%), giving medication (n=155, 93.4%) and facilitating regular follow-up to the clinic (n=157, 94.6%).

None of the respondents incorporated giving the patient a sense of belonging into their relapse prevention measures, and about a third took the patients to prayer houses to prevent a relapse.

Table 1
Socio-Demographic Characteristics of Participants

Variable		Patient (N=166) Freq (%)	Caregiver (N=166) Freq %)
Age (years)	Mean (sd)	39.5 (13.5)	42.3 (12.1)
	Range	18-77	17-70
	18-27	30 (18.1)	22 (13.3)
	28-37	48 (28.9)	29 (17.5)
	38-47	46 (27.7)	64 (28.6)
	48-57	20 (12.0)	30 (18.1)
	58-67	18 (10.8)	18 (10.8)
	>68	4 (2.4)	3 (1.8)
Gender	Male	92 (55.4)	97 (58.4)
	Female	74 (44.6)	69 (41.6)
Marital Status	Currently married	72 (43.4)	38(22.9)
	Not currently married	94 (56.6)	128 (77.1)
Highest Level of Education	No formal education	21 (12.7)	14 (8.4)
	Primary	24 (14.5)	21 (12.7)
	Secondary	50 (30.1)	44 (26.5)
	Tertiary	45 (27.1)	67 (40.4)
	Quranic	26 (15.7)	20 (12.0)
Living arrangements	Living alone	30 (18.1)	-
	Living with family	121 (72.9)	-
	Institutional home	14 (8.4)	-
Admissions in the last year	Range	1-9	-
	1-3	148 (89.2)	-
	4-6	15 (9.0)	-
	>7	3 (1.8)	
Years lived with illness	Mean (sd)	9.01 (7.51)	-
	Range	1-30	-
Years of caring for	Mean (sd)	-	7.5 (5.9)
patient	Range	-	1-25
	1-10	-	132(79.5)
	11-20	-	27(16.3)
	>20	-	7 (4.2)
Relationship with patient	First degree relative *	-	139(83.7)
	Spouse	-	17(10.2)
	Others	-	10(6.0)

*First degree relative: Close blood relative (parent, sibling or child of the patient)

Most caregivers (n=150, 90.4%) offered the patient medication in the event of a relapse, contrasting with at least a third of the population who isolated the patient by locking them in a room (n=56, 33.7%) and two-fifths who presented the patient to a prayer house during the episode of relapse. About one in ten caregivers in this study reported a level of relapse prevention and management practices that could be described as poor. See Tables 4 and 5.

Table 2
Family Caregivers' Knowledge of Relapse in Patients with Schizophrenia

Variable		Correct	Incorrect
		Freq (%)	Freq (%)
Meaning of relapse	Re-occurrence of initial illness	124 (74.7)	42 (25.3)
	Appearance of a similar illness	99(59.6)	67(40.4)
	Appearance of a new illness	64(38.6)	102(61.5)
Factors contributing to relapse	Poor compliance with medication	126(75.9)	40(24.1)
	Unemployment	102(61.4)	64(38.6)
	Inadequate mental health care	114(68.7)	52(31.3)
	Failure to recognise warning signs	99(59.6)	67(40.3)
	Social discrimination	104(62.7)	62(37.3)
	Poor social support	124(74.7)	42(25.3)
	Psychoactive substance use	108(65.1)	58(34.9)
	Poverty	101(60.8)	65(39.1)
	Stressful life events	106(63.9)	60(36.2)
Signs of relapse	Appearance of positive symptoms	124(74.7)	42(25.3)
	Feeling tense	102(61.4)	64(38.6)
	Confusion	99(59.6)	67(40.4)
	Difficulty concentrating	100(60.2)	66(39.8)
	Loss of interest in activities	105(63.2)	61(36.7)
	Poor sleep	123(74.1)	43(25.9)
	Irritability	88(53.0)	78(47.0)
	Talking out of context	100(60.2)	66(39.7)
	Inability to cope with daily activities	106(63.9)	60(36.2)
	Adherence to medication plan	150(90.4)	16(9.6)
Relapse prevention measures	Keeping hospital appointments	151(91.0)	15(9.0)
	Stress management	141(84.9)	25(15.0)
	Avoiding psychoactive substances	134(80.7)	32(19.3)
	Presence of social support	132(79.5)	34(20.5)
	Provision of basic needs	123(74.1)	43(25.9)
	Allowing patient express themselves	123(74.1)	43(25.9)

Table 3
Summary of Family Care Providers' Level of Knowledge about Relapse in patients with Schizophrenia

Variable	Above average knowledge		Average Knowledge		Below average knowledge	
	n	%	N	%	n	%
Factors responsible for relapse	48	28.9	81	48.8	37	22.3
Signs of relapse	43	25.9	96	57.8	27	16.3
Relapse prevention measures	00	00	146	88.0	20	12.0

Table 4

Family Caregivers' Practices Regarding Relapse Prevention and Management in Patients with Schizophrenia

Variable		Yes Freq (%)	No Freq (%)
Relapse preventive measures	Giving medication	155(93.4)	11(6.6)
	Regular follow up to clinic	157(94.6)	9(5.4)
	Making medication available	155(93.4)	11(6.6)
	Identifying early relapse signs	144(86.7)	22(13.3)
	Prompt presentation to hospital on relapse	133(80.1)	33(19.9)
	Engaging patient in energy directed activities	136(81.9)	30(18.1)
	Giving patient a sense of belonging	00(00)	166(100)
	Avoiding strong hurtful words	146(88.0)	20(12.0)
	Preventing substance use	135(81.3)	31(18.7)
	Assisting in problem solving	139(83.7)	27(16.3)
	Taking to prayer houses	58(34.9)	108(65.1)
Relapse management	Giving medication	150(90.4)	16(9.6)
	Identifying abnormal behaviour	147(88.6)	19(11.4)
	Talking in simple and clear language	153(92.2)	13(7.8)
	Bargaining if patient is difficult	121(72.9)	45(27.1)
	Calling the doctor	102(61.4)	64(38.6)
	Calling neighbours to help	94(56.6)	72(43.4)
	Taking patient to the hospital	109(65.7)	57(34.3)
	Binding patient to the hospital	71(42.8)	95(57.2)
	Calling the police	59(35.5)	107(64.5)
	Locking patient in the room	56(33.7)	110(66.3)
	Taking patient to the prayer house	71(42.8)	95(57.2)
	Beating patient	70(42.2)	96(57.8)

Table 5

Summary of Care Giver Relapse Prevention Practices

Variable	Above average practice		Average practice		Poor practice	
	n	%	n	%	n	(%)
Relapse prevention	00	00	143	86.1	23	13.9
Relapse management	24	14.5	123	74.1	19	11.4

Table 6:

Relationship of the Number of Admissions in a Year with the Knowledge and Practice of Family Caregivers of Patients with Schizophrenia

		N=166 No. of admissions in the past year		χ2	p-value
Variables		**1-3[a] admissions n (%)**	**≥4 admissions n (%)**		
Knowledge of relapse prevention	Good	147(89.1)	18(10.9)	1.000*	0.726
	Poor	1(100.0)	0(0.0)		
Practice of relapse prevention	Good	146(90.1)	16(9.9)	0.059*	**0.011**
	Poor	2(50.0)	2(50.0)		
Practice of relapse management	Good	140(89.7)	16(10.3)	0.296*	0.357
	Poor	8(80.0)	2(20.0)		

[a] mean/median number of admissions in the study population

* Fisher's Exact Statistic

Caregiver practices regarding relapse prevention were significantly associated with the number of admissions in the past year, which remained significant when subjected to a logistic regression (p= 0.033, OR=0.110, 95% CI= 0.014 – 0.832).

Discussion

The wide age range of patients in this study is consistent with schizophrenia being a condition that is sometimes diagnosed early and runs a chronic course. The proportion of patients living with family members highlights the multi-generational living arrangements prevalent in many African communities, which is advantageous in terms of the social support and care they receive from a wide array of caregivers (20). This is important considering the dearth of formal long-stay accommodation facilities catering to the needs of patients with chronic mental illnesses in the region. The sociodemographic profile of caregivers in this study mirrors previous Nigerian studies, with middle-aged individuals predominating (21), possibly because they are more likely to have the emotional maturity, empathy and practical resources needed to provide care. Notably, the higher proportion of male caregivers contrasts with traditional female-dominated caregiving roles previously documented in the region and other sub-Saharan communities among individuals with chronic illnesses (20). One explanation is that the caregiver pool was populated by male relatives (parents, brothers and uncles) who felt the need to accompany patients to the clinics to ease transportation logistics, afford some level of protection en route and to take care of financial costs such as refilling prescriptions.

In the management of schizophrenia, caregivers are a critical group, seeing as they are in continual contact with the patients and involved in all aspects of their care, with wide-reaching implications for patients' well-being if caregivers are equipped with proper knowledge of relapse prevention and management.

In this study, caregivers showed a good understanding of the meaning of relapse, the most endorsed meaning correctly being a recurrence of the initial illness. The proportion of caregivers who did not correctly identify factors contributing to relapse ranged from two to four out of ten, and this was more prominent in the psycho-social domains. Relapse prevention is a complex interaction between medication management and psycho-social measures, and caregivers must be aware of this. For example, the ability to identify early warning signs is vital in ensuring that early intervention is instituted before the relapse becomes full-blown, adding to the already huge burdens that the illness causes, including economic burden, admissions, long hospital stays, stigma, family and work disruptions and loss of productivity (22). Thus, there is a robust benefit in caregivers being aware of the wide array of biopsychosocial factors that can precipitate or perpetuate a relapse.

Close to half of caregivers did not correctly identify irritability as a sign of relapse, as about four in ten did not correctly identify confusion, difficulty concentrating, feeling tense and loss of interest in activities, despite these being common early warning signs (23). While patients often have varied relapse signatures (i.e. a set of symptoms unique to each patient and consistently predicting a relapse), knowing the general common early warning signs and looking out for them have great value in the clinical setting(24). Overall, regarding factors causing relapse, signs of relapse and relapse prevention measures, an appreciable proportion of caregivers show knowledge considered average and above.

In the sample, an appreciable proportion practised acceptable relapse prevention and management measures, with more than 90% of caregiver respondents utilising medication and regular clinic follow ups as relapse prevention strategies. About one in three, however, report beating the patient, locking them in a room or taking them to a prayer house following a relapse.

This is worrisome and highlights how alternative care is still seen as a first line pathway to care in some families.

Good relapse prevention practice among caregivers was significantly associated with the likelihood of having three or fewer admissions in the past year, this being a useful proxy for determining relapse frequency, as admissions often reflect severe symptom exacerbations.

Implications for intervention

Schizophrenia is a condition wherein the risk of neurotoxicity may increase with relapse (25). During a relapse, the risk of injuries to themselves or others is increased; additionally there is the risk of disease progression and treatment refractoriness, causing patients to spend longer times before remission or not returning to their previous level of functioning (26). This, coupled with the prevalent pattern of caregiving noted in the study, underscores the need for enhanced family interventions, family psychoeducation and tailored relapse prevention education in the management of schizophrenia.

Strengths and limitations

The study is cross-sectional; thus, results may not be generalised to the wider population. It relies on self-reports from the participants, which may have been confounded by social desirability. It is, however, strengthened by its use of objective quantifiable proxy measures (hospital admissions) of relapse.

Conclusion

The majority of the caregivers in this study reported a good level of knowledge and practice of relapse prevention and management. Further qualitative and quantitative studies are required to improve the understanding of the interactions between knowledge and practice of relapse prevention and management.

Recommendation

We recommend that psychiatric nurses and other health care workers involved in the management of patients with schizophrenia offer tailored psychoeducation and holistic relapse education to their caregivers. We also recommend that policy measures be instituted to support relapse prevention initiatives, regularly assess caregivers' relapse prevention practices and understanding of early warning signs.

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