Comparison of clinical profiles and treatment outcomes between vagrant and non-vagrant mentally ill patients in a specialist neuropsychiatric hospital in Nigeria

L Onofa[1], AA Fatiregun[2], OI Fawole[2], T Adebowale[1]
[1]Department of Community & Rehabilitative Psychiatry Neuropsychiatric Hospital, Aro, Abeokuta, Nigeria
[2]Department of Epidemiology, Medical Statistics & Environmental Health, University of Ibadan, Ibadan, Nigeria

Abstract

Objective: Vagrant mentally ill patients are a highly marginalized group that receive limited care and attention from society. There is a dearth of information on the clinical status of this group in low-income countries. The aim of this study was to compare the clinical profiles and treatment outcomes between vagrant and non-vagrant mentally ill patients admitted to Aro Psychiatric Hospital, Abeokuta, Nigeria. **Method:** We conducted a retrospective review of clinical records charting vagrant and non-vagrant mentally ill patients treated over a five year period from January 2004 to December 2008. **Results:** The medical records of 61 vagrant and 122 non-vagrant mentally ill patients were reviewed and compared. The vagrant patients were more likely to be older, unmarried and alone, poorly educated, unemployed or performing unskilled labour, and diagnosed with schizophrenia. This cohort was also more likely to have physical co-morbidities compared with the non-vagrant mentally ill patients. The median time to improvement among the vagrants (211.0 days) was significantly longer than for the non-vagrant patients (34.0 days) suggesting more intractable illnesses. Other factors found to prolong the time to improvement among all patients were old age, education, being single, unemployment, the diagnoses of schizophrenia, and substance abuse. **Conclusion:** The clinical profiles and treatment outcomes were poorer among the vagrant mentally ill patients, underscoring a need for more comprehensive healthcare resources directed to this patient group in Nigeria.

Key words: Vagrant; mental illness; clinical profile; outcome; Nigeria

Introduction

A significant proportion of chronic mentally ill patients are homeless. They wander idly from place to place with no lawful or visible means of support.[1] In tropical African countries, perhaps more than elsewhere, one encounters a sizeable and striking number of apparently homeless mentally ill people wandering about the towns and cities.[2] This is particularly true for Abeokuta, Nigeria, where one of the major neuropsychiatric hospitals in Nigeria is located (Aro Psychiatric Hospital). As is the case in many low and middle income countries, little attention is paid to this population in Nigeria.[3] In addition, there are few studies on vagrant mentally ill patients in Africa. A prevalence of one vagrant psychotic patient per 2,570 residents of Abeokuta was estimated in one study.[2] Most mentally ill vagrants are male, of lower social economic class, less than 40 years of age, had a poor social network, were single, and unemployed.[4] Almost all of such patients suffer from schizophrenia and related psychotic disorders, with 95% of the vagrant mentally ill in Nigeria suffering from schizophrenia and the other 5% from a schizo-affective disorder. In addition, vagrant patients suffered from a wide range of physical co-morbid conditions that prolonged hospitalisation and increased consumption of health resources.[2] However, clinical profiles and treatment outcomes among this group have not been compared with the non-vagrant mentally ill. The current study was designed to compare the clinical profiles and time to improvement of vagrant and non-vagrant mentally ill patients admitted to Aro Psychiatric Hospital.

Correspondence

Dr. AA Fatiregun,
Department of Epidemiology, Medical Statistics and Environmental Health, College of Medicine, University of Ibadan, Nigeria
email: fatireguna@gmail.com

Method

Site

Aro Neuropsychiatric Hospital is a 526 bed specialized hospital located in Aro, Abeokuta, Nigeria. It is a World Health Organization (WHO) collaborating centre for training and research in mental health. The hospital plays a vital role in mental health care for patients from all parts of Nigeria and neighbouring countries. A comparative retrospective review of clinical status and treatment outcomes of vagrant and non-vagrant mentally ill patients was performed using patient records of first time admission from January 2004 to December 2008.

Sample

During this five year period, a total of 3,056 patients were admitted for the first time, of which 68 patients were confirmed vagrants as detailed in the records. Vagrant patients were ascertained by history of homelessness, sleeping on the street, market places, forests, under bridges or in abandoned and uncompleted buildings. Most of them were picked-up by a team comprising of security men, nurses, rehabilitation and social workers who also kept their records. All case-records of vagrant patients who were also confirmed from the records of rehabilitation and social workers were deemed eligible for this study. Two of the case-records, however, were missing and five case-records had too many missing variables to be included. Consequently, only 61 vagrant patient case records were analysed. A simple random sampling technique was used to select 122 non-vagrant case-records for comparison. For every record of a vagrant patient, all case-records of the non-vagrants admitted for the first time that same day were retrieved and numbered. A table of random numbers was then used to select two-non vagrant case records for each day. Fulfilment of the International Classification of Disorders and Related Mental Health Problems 10th edition (ICD 10) diagnostic criteria for mental disorders was the main inclusion criterion. The diagnoses were made by the various consulting psychiatrists according to ICD-10 diagnostic criteria.

Data

Data were carefully collected from the case records for information on diagnosis at first admission using a semi-structured pro-forma containing socio-demographic variables, clinical variables, medical co-morbidity, the outcome of care, rehabilitation success, and follow up care. The consistency of the diagnosis with the ICD 10 codings from the case-records was cross-checked during data extraction. Other important variables obtained included length of stay at first admission (time between first admission and discharge, escape, death, or last recorded treatment session) and treatment outcome at first admission, including data on clinical improvement or deterioration, death, and escape or discharges against medical advice. The pro-forma was sorted, cross-checked, and coded serially.

Data analysis

Data entry and analysis was performed using Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics were used to describe socio-demographic characteristics of the patients, clinical profile, and outcome of care. Frequency tables and cross tabulations on relevant socio-demographic and clinical variables were constructed. However, the severity of the diagnosis was not measured by a standard rating scale on

admission. To estimate time to improvement, the length of stay was used as the time variable and the outcome of care, re-categorised into "improved" and "not improved" as the binary status variable. Case records with documentation of patient stability during the first admission were classified as "improved", while other outcomes, including escape, death, and no record of stability, were categorised as "not improved".

Comparisons were made between socio-demographic variables, diagnoses, and co-morbidity conditions between the two groups. Comparison of time to improvement between the groups was performed using the Kaplan-Meier method, and statistical significance was determined using a Log Rank test. The factors influencing time to improvement were modelled using Cox's Proportional Hazard Regression. The factors in the model were socio-demographic variables, psychiatric diagnosis, and medical co-morbidity. Statistical significance was set at $p<0.05$. The chi-square tests were used to test associations between categorical variables, and independent Student's t-tests were used to compare difference in means between the two patient groups. Hazard ratios (HRs) and their 95% confident intervals (CIs) were obtained as the measure of associations.

Ethics

Confidentiality of patients' information was assured and the approval for the study was obtained from the Ethical Committee of the Neuropsychiatric Hospital, Aro before embarking on the study.

Results

Mean age (s.d) of the vagrant mentally ill patients was 50.6 (16.3) years while the mean for the non-vagrants was significantly younger at 35.2 (10.9) years, ($p<0.05$). A comparison of the socio-demographic characteristics of the two groups is shown in Table I. Gender, tribal affiliation, and religion were not significantly different between the two groups. However, marital status, educational level, employment, and living situation varied significantly between the groups.

The vast majority of the vagrant patients (80.3%) were diagnosed with schizophrenia, compared to only 62.3% of the non-vagrant patients ($p=0.005$). A comparison of physical co-morbidities revealed that the vagrant patients were significantly more likely to be hypertensive (31.1% vs. 9.9%, $p=0.005$) and diabetic (4.9% vs. 0%, $p=0.014$), than the non-vagrant patients. Analysis of treatment outcomes revealed that vagrant patients showed significant improvement (91.8%), but still significantly less than the non-vagrant patients (97.5%). Five deaths (8.2%) were recorded among the vagrant patient, while 3 non-vagrant patients (3.2%) absconded.

A survival function curve (complementary cumulative distribution function) for time to improvement is illustrated in Figure 1. The cumulative probability of improvement was higher for the vagrant patients at all times. The median time to improvement among the vagrant patients was 211 days (IQR 21 to 229) days compared with 34 (IQR 4 to 43) days for the non-vagrant patients ($p<0.05$). The factors identified by Cox proportional hazard regression analysis that significantly influenced time to improvement (increase or decrease) included non-vagrant status (HR 0.31, 95% CI, 0.18-0.53), age < 60 years (HR 0.97, 95% CI, 0.95-0.99), having little or no education (HR 0.41, 95% CI 0.22- 0.74), being married (HR 9.25, 95% CI 2.36-36.34), and have a job (0.02, 95% CI 0.002-0.28), (Table II).

Table I: Comparison of the socio demographic characteristics of the vagrant and non-vagrant mentally ill

Variable	Vagrant N=61 Total (%)	Non-vagrant N=122 Total (%)	Total (%) N=183	Test statistic (Chi Square)	P-Value
Mean Age (s.d) Gender	50.62 (16.3)	35.2 (10.9)	40.3(14.8)	7.588*	0.001
Male	41 (67.2)	68 (55.7)	109(59.6)	2.223	0.136
Female	20 (32.8)	54 (44.3)	74(40.4)		
Tribe					
Yoruba	51 (83.6)	101 (82.2)	152(83.1)	1.765	0.623
Ibo	6 (9.8)	10 (8.2)	16(8.7)		
Hausa	2 (3.3)	2 (1.6)	4(2.2)		
Others	2 (3.3)	9 (7.4)	11(6.0)		
Religion					
Christainity	41(67.2)	87(71.3)	128(69.9)	1.560	0.458
Islam	20(32.8)	33(27.0)	53(29.0)		
Traditional	0(0)	2(1.6)	2(1.1)		
Marital status					
Single	40(65.6)	82(67.2)	122(66.7)	29.907	0.0001
Married	1(1.6)	31(25.4)	32(17.5)		
Divorced	14(23.0)	7(5.7)	21(11.5)		
Separated	6(9.8)	2(1.6)	8(4.4)		
Education					
No formal education	38(62.3)	17(13.9)	55(30.1)	49.317	0.0001
Primary school	12(19.7)	28(23.0)	40(21.9)		
Secondary school	6(9.8)	39(32.0)	45(24.6)		
Post secondary school	1(1.6)	14(11.5)	15(8.2)		
University	4(6.6)	24(19.7)	28(15.3)		
Employment					
Employed	2(3.3)	47(38.5)	49(26.8)	26.653	0.0001
Retired	3(4.9)	4(3.3)	7(3.8)		
Unemployed	56(91.8)	70(57.4)	126(68.9)		
Occupational status					
Highly skilled professional I	0(0)	10(8.2)	10(5.5)		
Highly skilled professional II	2(3.3)	27(22.1)	29(15.8)	49.633	0.0001
Semi-skilled	6(9.8)	46(37.7)	52(28.4)		
Unskilled	53(86.9)	39(32.0)	92(50.3)		
Living situation					
Alone	12(19.7)	4(3.3)	16(8.7)	74.769	0.0001
With others	23(37.7)	116(95.1)	139(76.0)		
No accommodation	26(42.6)	2(1.6)	28(15.3)		
*student t test					

Figure 1: Kaplan-Meier estimate of the survival function curves for vagrant and non- vagrant patients

Y-axis label = Cumulative survival probability
X-axis label= Time to improvement in days
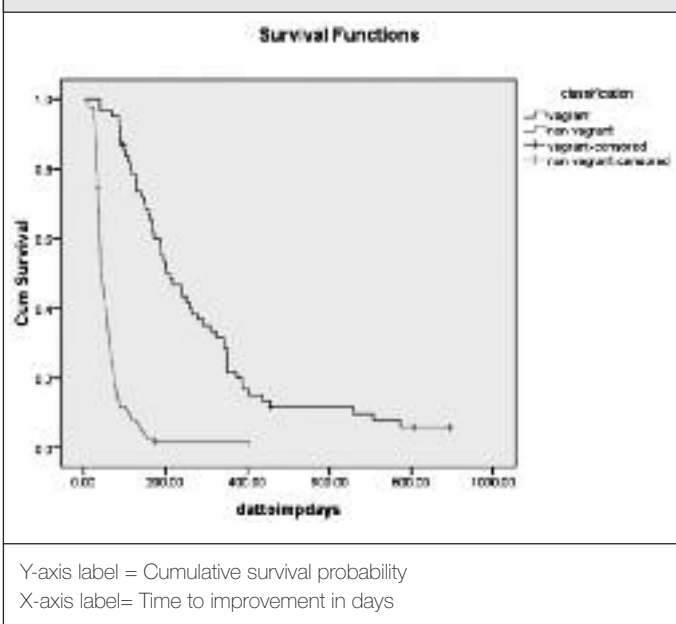
Table II: Factors affecting time to improvement using Cox regression

Variables	Hazard Ratio (HR)	95% Confidence Interval (CI)
Non Vagrant	0.31	0.18-0.53
Age<60 years	0.97	0.95-0.99
No education	0.41	0.22-0.74
Married	9.25	2.36-36.34
Employed	0.02	0.002-0.28

Discussion

The current study revealed that the average age of the vagrant mental patients was significantly higher than the non-vagrant patients. This finding suggests that the vagrant patients were likely to have suffered a longer duration of chronic mental illness before first admission. Indeed, this longer duration may have contributed to homeless, though this requires further study. Asuni found that the duration of mental illness among the vagrant patients that he studied ranged from 6 to 25 years.[2] Thus, lack of early intervention may increase the likelihood of homelessness.

Whilst some studies have identified male gender as a

significant risk factor for vagrancy among mentally ill patients[5-8], Asuni found an almost equal male:female ratio of 12:13 in his study.[2] While most vagrant patients in the current study were male, gender was not a predictive variable for homelessness. The vagrants were more likely to be single, divorced, or separated compared to the non-vagrants in this study. This could reflect either the vagrancy itself or the extent of mental illness. The vagrant patients had lower educational status compared with non-vagrant patients. This could reflect earlier development of psychotic symptoms that would interfere with education. Alternatively, schizophrenia associated with major cognitive deficits, independent of age of diagnosis, may interfere with both education and employment.

The vagrant group of patients experienced higher unemployment compared to the non-vagrant group, and most employed vagrants were in unskilled occupations. Low education, the severity of illness, few social contacts, and vagrancy probably all contribute to this high unemployment. The vagrant patients were significantly more likely to live alone, cut off from family and social networks that provide emotional, financial, and material support. The absence of these crucial supports had been identified as risk factors for vagrancy.[9]

The diagnosis of schizophrenia was significantly higher among the vagrant group of patients. This finding mirrors that of Asuni , who found that schizophrenia was the predominant diagnosis among vagrant patients several decades ago.[2] Comparing the lifetime and current prevalence of diagnostic interview schedule/DSM III disorders among a probability sample of homeless adults with a household sample, Koegel et al. found that the rates of major mental illnesses were the most disproportionately high.[10] The authors reported that substance abuse was more highly prevalent among older individuals and Native Americans, while schizophrenia was most highly prevalent among those subjects between 31 and 40 years of age. However, studies relying on clinical judgement have found lower rates of chronic mental illness among the homeless.[10-12]

Physical co-morbidities were significantly higher in the vagrant group of patients, which may reflect a lack physical security, street violence, poor diet, and unhygienic conditions. Indeed, these patients were prone to a myriad of infections and physical injuries. In addition, the vagrant are 15 years older in this study and because of their social circumstances are likely to be more severely ill on admission compared with the non vagrants. These facts might explain the higher morbidity of hypertension and diabetes, and the staggering mortality of over 8% found among them. The female vagrant patients were prone to sexual abuse, and they stood a greater risk of contracting sexually transmitted diseases, including HIV-AIDS. They are also at a risk of having illegitimate children while on the street.

The estimate of the median time to improvement among the vagrant patients (211 days) was significantly longer than for the non-vagrant group (34 days). This may be a reflection of the greater severity of illness among the vagrant patients. They may have been on the street for sometime before admission, with a long period of untreated psychosis and co-morbidities. The factors found to significantly prolong the time to improvement were old age, higher educational status, single marital status, unemployment, and vagrancy. In contrast to previous studies[11-14], the dual diagnosis of schizophrenia and substance abuse disorders did not significantly increase the length of stay in this study. These factors are common to the vagrant patients, and they may be acting as confounding variables in the association between time to improvement and vagrant status.

Limitations

All retrospective studies have certain limitations. Some patient's case records were missing, while others had missing entries. At the time of admission, there was no baseline rating of illness severity with any standard symptom rating scale. The time point of improvement was chosen based on the subjective assessment of the consultant psychiatrists and their management team, and again and there was no use of standardized symptom rating scales. For some of the patients, their ages may not be exact. In contrast, these raw retrospective data will show no systematic bias in the diagnosis or reported progress between vagrant and non-vagrant patients, so our primary conclusions are sound. Although age is a potential variable determining the clinical profile and outcome of treatment, we did not match for this variable in the design stage. We, however, evaluated the effect of age and other potential confounding variable in the multivariable Cox Proportional hazard regression analysis.

Conclusion

In the current study, we conclude that vagrant mentally ill patients had poorer mental and physical health status, and required longer hospital stays on first admission. In addition, clinical outcomes were inferior to patients in the non-vagrant group. A focus on earlier diagnosis of mental illness and greater resources directed to this patient population in Nigeria and potentially elsewhere, are clearly warranted.

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