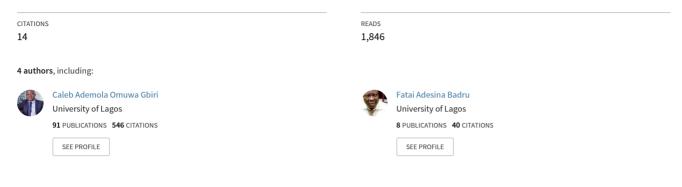
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# Socio-economic correlates of relapsed patients admitted in a Nigerian mental health institution

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**ORIGINAL ARTICLE** 

## Socio-economic correlates of relapsed patients admitted in a Nigerian mental health institution

### CALEB A. GBIRI<sup>1</sup>, FATAI A. BADRU<sup>2</sup>, HARRY T. O. LADAPO<sup>1</sup> & ADEFOLAKEMI A. GBIRI<sup>2</sup>

<sup>1</sup>Federal Neuro-Psychiatric Hospital, Yaba, Lagos, Nigeria, and <sup>2</sup>University of Lagos, Akoka–Yaba, Lagos, Nigeria

#### Abstract

Background. Relapse in psychiatric disorders is highly distressing, costly and engenders burn-out syndrome among mentalhealth workers. Aims. To study the socio-economic factors associated with relapse in individual admitted with psychiatric disorders and the pattern of socio-economic impact of relapse in those groups. Methods. A cross-sectional survey of all relapsed patients without cognitive deficit admitted into the federal Neuro-Psychiatric Hospital, Lagos, Nigeria between June and October 2007 was conducted using a self-validated Structured Interview Schedule (Relapse Socio-economic Impact Interview Schedule) and Key Informant Interview Guide. Secondary data were elicited from the patient folders, case notes, ward admission registers and nominal rolls. Data were summarised using mean, standard deviation, frequency and percentiles. Pearson's moment correlation coefficient was used to test the association among variables. The Mann-Whitney U-test was used to compare the pre-morbid and the post-morbid states. Results. This study involved 102 respondents. Their mean age was  $36.5 \pm 9.8$  years, mainly of male gender (72.5%) suffering from schizophrenic disorder (37.8%). Relapse and re-admission ranged between 2 and 12. Unemployment rate, marital separation and divorce increased more than 5-fold from pre-morbid to morbid states. Few (4.9%) could still settle their hospital/drug bills on their own, while most (95.1%) depended on family, philanthropist and government/waivers to pay for their bills. Their social relationships were negatively influenced with most of them expressing social isolation and low quality of life. There were significant relationships (P < 0.05) between age, sex, number of relapses, number of admissions, pre-morbid marital status, morbid state marital status, pre-morbid state occupational status and morbid state occupational status. There was significant change (P = 0.00) in the quality of life, societal integration/acceptability, economic status, employment status and marital status of the respondents between the pre-morbid and post-morbid periods. The illness significantly affected the emotional status of the participants. Conclusion. Relapse and readmission in psychiatric patients have a negative impact on socio-economic well-being of patients, family and the society. Efforts should be taken to provide early interventions.

Key Words: Socio-economic, relapse, readmission, mental health, Nigeria

#### Introduction

The definition of relapse in mental illness remained contentious among researchers because of its complexity and the multiple continuous dimensions involved [1,2]. Symptomatic relapse in psychiatric disorder is highly distressing, costly and has negative impact not only on the lives of the patients, but also on the family and society at large [3]. Since the dramatic decline in long-term hospitalization and consequent reductions and closures of state-operated hospitals, readmission rates have increased in the industrialized countries [4–6]. However, there has not been consensus on reasons for the increase in relapse and readmission rates in psychiatric disorders. Some authors proposed that these could be due to deinstitutionalization and failure of the community mental health reform in most countries [4]. Nevertheless, it was proposed that the phenomenon could be seen as a result of failure of previous hospitalization or too short inpatient treatment [7–10]. However, others concluded that neither poor hospital outcome nor hasty hospital discharge is a risk factor for either relapse or readmission in psychiatric illnesses [7–9]. A previous study among drug abusers in Nigeria reported that relapse rate was positively influenced by socio-economic status like: private

Correspondence: C.A. Gbiri, Department of Physiotherapy, Federal Neuro-Psychiatric Hospital, Yaba, Lagos, Nigeria. E-mail: calebgbiri@yahoo.com

employment, never married, low educational status, poor family background and male gender [2]. While a study to identify the differences in clinical and environmental factors comparing children with mental illnesses readmitted with a group without readmission, the authors identified an inverse significant relationship between age at first admission and rate of readmission. A study based on data from 20 hospitals in Norway involving 5520 individuals with different mental illnesses found that patients' turnover was the most significant determinant of being at risk of readmission [9]. Specific disorders have also been described as contributing more the others to this problem. Strategies for improving the outcome of treatment and preventing relapse have been the major clinical problems confronting many clinical researchers and social scientists.

Relapse and frequent readmission in psychiatric patients has been estimated to cost about US\$2 billion annually in the USA [3]. This may be even more pronounced in developing countries like Nigeria where almost 50% live below the poverty line [11]. The rate of relapse in psychiatric illnesses in Nigeria could in consequence be of major concern for both the health care providers and the society in general. Therefore, there is need for an investigation into the likely causes of this public health issue leading to possible solutions to the problem and its concurrent socio-economic variables associated with patients' relapse.

Most research on relapse and reason for possible readmission in psychiatric disorders are centred on patients' symptomatology. Other external factors such as social relationship, family and societal acceptability, economic and environmental factors, among other possible significant variables, have received less attention. This study, therefore, investigated the socio-economic factors responsible for relapse and frequent readmission of individuals with psychiatric illnesses in a tertiary mental health institution in Nigeria.

#### Methods

#### Instruments

This study was approved by the Research and Ethical Committee of the Federal Neuro-psychiatric Hospital, Yaba, Lagos, Nigeria where the research was carriedout. The participants were those patients who had been diagnosed as being relapsed among the whole population of in-patients in the tertiary mental health institution excluding patients with organic psychosis. Out of 536 in-patients in the two branches of the hospital (Yaba main hospital and the annex at Oshodi), 182 had at least one earlier admission, while 124 were relapse cases. Only 103 of those patients met the inclusion criteria for this study while for 102 data were valid and included in the final result. The methods employed specially designed instruments for the study: the Relapse Socio-economic Impact Interview Schedule (RSIIS) which contains four domains and 40 items, to elicit data from the participants. It is a researcher-administered instrument. The instrument was developed in a focused group discussion involving selected mental health providers and concerned individuals in Nigeria (five consultant psychiatrists, a neuro-physiotherapist, a sociologist, four psychiatric social workers, five psychiatric nurses, a psychiatric laboratory scientist, two accountants, five relatives of individuals with mental illness, five individuals who previously had been admitted for mental illnesses and two guidance and counsellors). The items in the questionnaire resulted from consensus form the focused group members. The instrument was tested for inter-tester reliability  $(r^2 = 0.90)$ , intra-tester reliability  $(r^2 = 0.96)$ , facevalidity (Cronbach's  $\alpha = 0.93$ ) and content validity (Cronbach's  $\alpha = 0.89$ ).

#### Sample

Data were collected using purposeful sampling technique from current and old psychiatric case files from the hospital, patients' nominal roll and admission and discharge book which constitute the sampling frames. The patients' records were compared with the present diagnosis using the DSM-IV and ICD-10 criteria to arrive at the final (definitive) diagnosis. Included were the patients who had a diagnosis of psychiatric illnesses for more than one year based on ICD-10, had been admitted more than twice for relapse, confirmed by a consultant psychiatrist as relapsed using ICD-10 criteria, stayed in the hospital for not less than 4 weeks, had been diagnosed with a mental illness for more than 1 year, and were able to sign an informed consent. Patients with cognitive deficits and/or diagnosed as suffering from an organic psychoses were excluded from this study.

#### Statistical analyses

Data were analysed using the Statistical Package for Social Sciences (SPSS 15). Data were summarised using mean, standard deviation, frequency and percentiles. Pearsons moment correlation coefficient was used to test the association among the variables. Mann–Whitney *U*-test was used to compare the pre-morbid and the post-morbid states of the participants while multiple regression analysis was used to identify the predictors of relapse.

#### Results

Out of 536 in-patients in both the Yaba main hospital and the annex at Oshodi, 124 were relapse cases, with a final sample size of 102 patients based on study criteria. The percentage of readmitted patients was 34% (one in three patients) with a relapse rate of 23.1% (one in four patients) among the participants. The majority of the relapsed patients (82.3%) were between the age of 19 and 62 years ( $36.5 \pm 9.8$ years). Males constituted 72.5% of the population. Forty-eight (47.1%) were diagnosed with schizophrenia, 25.5% with mental and behavioural disorder due psychoactive substances, 12.8% had bipolar affective disorder (current episode manic without psychotic symptom), 4.9% were diagnosed with a bipolar affective disorders (current episode manic with psychotic symptom), 7.84% had major depression and 1.96% co-morbid schizophrenia and mental and behavioural disorder due to multiple drug use. A total of 4.9% of the patients had separated from their spouses since their diagnosis of mental illness as compared with only 1.0% before their illness (Table I). More than 44% were unemployed since onset of their mental problems in contrast with only 8.8% pre-morbid unemployment (Table I). Twentynine (28.4%) respondents held either a first degree (23.7%) or a postgraduate certificate, 48.8% had secondary education and 9.8% had primary education, 13.8% reported to be without any formal education (Table I). Eighty-seven (85.3%) were living in Lagos prior to onset of mental health problems as compared with 91.2% in their morbid state (Table I). Four (3.9%) lived outside Nigeria before their first episode of mental illness (Table I). Thirty-nine (38.2%) were of Igbo ethnic extraction, 2.0% Hausa, while the majority (59.8%) were Yoruba. Ninety (88.2%) of the respondents had their hospital and drug bills paid by their relatives, with only 4.9% able to settle their bills personally (Table I). Eighty-nine (79.4%) spent much as N11,000 to N49,999 (US\$79 and US\$357) on every relapse (Table I). Thirty (29.4%) earned less than N10,000 (US\$71) per month, while 22.5% were financially dependent on others (Table I).

Seventy-six (74.5%) of the respondents were either living with their parents or guardian, 15.7% lived alone, 3.9% lived with their relatives, while 5.9% were destitute. The illness had forced 18.6% of them to dispose some of their properties for reasons such as upkeep, financing of drug of abuse and payment of hospital bills. Thirty-five (34.3%) of the respondents reported that their relapse was caused by non-adherence to instructions from their psychiatrists, 4.9% for lack of access to health facilities, 9.1% for lack of financial means, 3.9% for lack of Table I. Frequency distribution of socio-demographic variables of participants before and after first onset of disorder.

| Parameters                 | Frequency  | %              | Cumulative % |
|----------------------------|------------|----------------|--------------|
| Age (in years):            |            |                |              |
| ≤20                        | 1          | 1.0            | 1.0          |
| 21-30                      | 35         | 34.3           | 35.3         |
| 31-40                      | 35         | 34.3           | 69.6         |
| 41–50                      | 18         | 17.6           | 87.3         |
| ≥51                        | 13         | 12.7           | 100.0        |
| Pre-morbid marital status: | - 0        |                | 60 f         |
| Never married              | 70         | 68.6           | 68.6         |
| Married                    | 31         | 30.4           | 99.0         |
| Separated                  | 1          | 1.0            | 100.0        |
| Present marital status:    | < <b>-</b> |                |              |
| Never married              | 67         | 65.7           | 65.7         |
| Married                    | 19         | 18.6           | 84.3         |
| Separated                  | 5          | 4.9            | 89.2         |
| Widowed                    | 11         | 10.8           | 100.0        |
| Pre-morbid occupation:     | 0          | 0 0            | 00           |
| Unemployed                 | 9          | 8.8            | 8.8          |
| Student                    | 17         | 16.7           | 25.5         |
| Unskilled<br>Semi-skilled  | 22<br>17   | $21.6 \\ 16.7$ | 47.1<br>63.7 |
| Highly-skilled             | 9          | 8.8            | 72.5         |
| Professional               | 28         | 0.0<br>27.5    | 100.0        |
| Present occupation:        | 28         | 21.5           | 100.0        |
| Unemployed                 | 45         | 44.1           | 44.1         |
| Student                    | 10         | 9.8            | 53.9         |
| Unskilled                  | 10         | 9.8<br>14.7    | 68.6         |
| Semi-skilled               | 12         | 11.8           | 80.4         |
| Highly-skilled             | 5          | 4.9            | 85.3         |
| Professional               | 15         | 14.7           | 100.0        |
| Pre-morbid religion:       | 19         | 1 1.7          | 100.0        |
| Christianity               | 85         | 83.3           | 83.3         |
| Islam                      | 14         | 13.7           | 97.1         |
| Traditional                | 1          | 1.0            | 98.0         |
| Others                     | 2          | 2.0            | 100.0        |
| Present religion:          | -          | 2.0            | 10010        |
| Christianity               | 83         | 81.4           | 81.4         |
| Islam                      | 15         | 14.7           | 96.1         |
| Traditional                | 1          | 1.0            | 97.1         |
| Others                     | 3          | 2.9            | 100.0        |
| Place of residence:        |            |                |              |
| Pre-morbid Period:         |            |                |              |
| Lagos central              | 56         | 54.9           | 54.9         |
| Lagos East                 | 8          | 7.8            | 62.7         |
| Lagos West                 | 23         | 22.5           | 85.3         |
| Other states in Nigeria    | 11         | 10.8           | 96.1         |
| Overseas                   | 4          | 3.9            | 100.0        |
| Morbid period:             |            |                |              |
| Lagos central              | 57         | 55.9           | 55.9         |
| Lagos East                 | 9          | 8.8            | 64.7         |
| Lagos West                 | 30         | 29.4           | 94.1         |
| Other states               | 6          | 5.9            | 100.0        |
| Income:                    |            |                |              |
| ≤ N10,000                  | 30         | 29.4           | 29.4         |
| <del>N</del> 10,000–30,000 | 22         | 21.6           | 51.0         |
| ₩30,001-50,000             | 6          | 5.9            | 56.9         |
| ≥ <del>№</del> 50,001      | 10         | 9.8            | 66.7         |
| No idea/None               | 34         | 33.3           | 100.0        |
| Spending on hospital bill: |            |                |              |
| <₩11,000                   | 6          | 5.9            | 5.9          |
| ₩11,000-49,999             | 81         | 79.4           | 86.1         |
| ₩50,000-99,999             | 5          | 4.9            | 91.1         |
| No idea                    | 9          | 8.8            | 100.0        |

 $\aleph$ 140.00 (Nigeria currency) = US\$1.00 (US currency).

social support and 33 (32.4%) reported that they had not been taking their prescribed drugs regularly. Thirty-seven (36.3%) of the respondents said they were very satisfied with their relationship with friends before their illness while only 12.7% after first onset of their illness (Table II). Thirty-one (30.4%) reported that they were very satisfied with their relationship with their relatives before their illness while only 13.7% were satisfied with this relationship after the onset of illness. Table II also demonstrates that 41 (40.2%) of the respondents were very satisfied with their ability to perform their activity of daily living before their illness as compared with only 12.7% after their illness. Thirty (29.4%) were very satisfied with their place of residence before illness while 26.5% after their mental illness (Table II).

The relapse and readmission rates of the participants ranged between 2 and 12 with means of  $2.40\pm1.60$  and  $2.0\pm1.5$ , respectively. Sixty-five (63.7%) have had relapsed more than two times, this included 54 (53.9%) who have had readmitted due to relapse. Various reasons were given for not taking prescribed drugs such as feeling of drugs being unnecessary or feeling already healthy (11.8%), no time to take it (2.9%) and weight gain due to prescribed drugs, and interference of work routine (2.9%). There were significant relationships (P < 0.05) between age, sex, number of relapse, number of admissions, pre-morbid marital status, morbid state marital status, pre-morbid state occupational status and morbid state occupational status (Table III). There was significant change (P = 0.00)in the quality of life, societal integration/acceptability, economic status, employment status and marital status of the respondents between the pre-morbid and post-morbid periods. Ethnicity had no significant influence on relapse rate. Age, sex, number of relapse, number of admissions, pre-morbid marital status, co-morbidity, morbid state marital status, pre-morbid state occupational status and morbid state occupational status were predictors of relapse. The illness significantly affected the emotional status of the participants.

#### Discussion

This study involved respondents from Federal Neuro-Psychiatric Hospital, Yaba, Lagos, Nigeria. While most of these patients had schizophrenic disorder (F2 ICD-10), substance abuse patients (F1 ICD-10) had the highest relapse rate. This corroborates the results of Davies [12] and Davies et al. [13] that schizophrenia patients tend to relapse more frequently than other mental illnesses; but in agreement with Ayorinde et al. [14] who identified patients suffering from schizophrenia as having the second

Table II. Frequency distribution of expressed satisfaction in social relationships and performance of activity of daily living.

| Parameters                               | Frequency | %           | Cumulative % |
|--|-----------|-------------|--------------|
| Relationship with friends:               |           |             |              |
| Pre-morbid state:                        |           |             |              |
| Very dissatisfied                        | 2         | 2.0         | 2.0          |
| Dissatisfied                             | 10        | 9.8         | 11.8         |
| Indifference                             | 9         | 8.8         | 20.6         |
| Satisfied                                | 44        | 43.1        | 68.6         |
| Very satisfied<br>Morbid state:          | 37        | 36.3        | 100.0        |
| Very dissatisfied                        | 13        | 12.7        | 12.7         |
| Dissatisfied                             | 13        | 12.7        | 26.5         |
| Indifference                             | 15        | 14.7        | 41.2         |
| Satisfied                                | 46        | 45.1        | 86.3         |
| Very satisfied                           | 13        | 12.7        | 99.0         |
| Missing                                  | 1         | 1.0         | 100.0        |
| Relationship with relatives:             |           |             |              |
| Pre-morbid state:                        |           |             |              |
| Very dissatisfied                        | 2         | 2.0         | 2.0          |
| Dissatisfied                             | 12        | 11.8        | 13.7         |
| Indifference                             | 7         | 6.9         | 20.6         |
| Satisfied                                | 50        | 49.0        | 69.6         |
| Very satisfied                           | 31        | 30.4        | 100.0        |
| Morbid state:                            |           |             |              |
| Very dissatisfied                        | 17        | 16.7        | 16.7         |
| Dissatisfied                             | 19        | 18.6        | 35.3         |
| Indifference                             | 3         | 2.9         | 38.2         |
| Satisfied                                | 49        | 48.0        | 86.3         |
| Very satisfied                           | 14        | 13.7        | 100.0        |
| Performance of activity of daily living: |           |             |              |
| Pre-morbid state:                        |           |             |              |
| Very dissatisfied                        | 1         | 1.0         | 1.0          |
| Dissatisfied                             | 4         | 3.9         | 4.9          |
| Indifference                             | 4         | 3.9         | 8.8          |
| Satisfied                                | 46        | 45.1        | 53.9         |
| Very satisfied                           | 41        | 40.2        | 94.1         |
| Missing                                  | 6         | 5.9         | 100.0        |
| Morbid state:                            |           |             |              |
| Very dissatisfied                        | 16        | 15.7        | 15.7         |
| Dissatisfied                             | 23        | 22.5        | 38.2         |
| Indifference                             | 4         | 3.9         | 42.2         |
| Satisfied                                | 43        | 42.2        | 84.3         |
| Very satisfied                           | 13        | 12.7        | 97.1         |
| Missing                                  | 3         | 2.9         | 100.0        |
| Situation of residence:                  |           |             |              |
| Pre-morbid state:                        | 24        | aa =        | 22.5         |
| Not satisfied                            | 24        | 23.5        | 23.5         |
| Fairly satisfied<br>Satisfied            | 1<br>42   | 1.0<br>41.2 | 24.5<br>65.7 |
| Very Satisfied                           | 42<br>30  | 29.4        | 95.1         |
| Indifference                             | 2         | 29.4        | 97.1         |
| Missing                                  | 3         | 2.9         | 100.0        |
| Morbid state:                            | 2         | 2.7         | 100.0        |
| Not satisfied                            | 27        | 26.5        | 26.5         |
| Fairly satisfied                         | 3         | 2.9         | 29.4         |
| Satisfied                                | 38        | 37.3        | 66.7         |
| Very Satisfied                           | 27        | 26.5        | 93.1         |
| Indifference                             | 3         | 2.9         | 96.1         |
| Missing                                  | 4         | 3.9         | 100.0        |
| Condition affecting                      |           |             |              |
| societal acceptability:                  |           |             |              |
| Yes                                      | 34        | 33.3        | 33.3         |
| No                                       | 67        | 65.7        | 99.0         |
| Missing                                  | 1         | 1.0         | 100.0        |

Table III. Relationships among the variables.

|                     | Age  | Sex         | PS          | MS          | ΓS           | PB           | DP          | $\operatorname{TP}$ | NR          | NA          | HE          | PC             | MC          | IW           | EG          | PR           | MR         | ШD   | PD          |
|---------------------|--|-------------|-------------|-------------|--------------|--------------|-------------|---------------------|-------------|-------------|-------------|----------------|-------------|--------------|-------------|--------------|------------|--|-------------|
| Age                 | 1  | $0.00^{**}$ | 0.00**      | 0.00**      | 0.00**       | $0.03^{*}$   | $0.01^{*}$  | 0.01*               | 0.00**      | 0.00**      | 0.09        | 0.00**         | 0.95        | 0.88         | 0.27        | -0.42        | -0.57      | 0.05   | 0.01*       |
| PS                  | 0.00**   | $0.00^{**}$ | 0.00        | 0.00**      | 0.00         | 0.33<br>0.33 | 0.43        | 0.46                | 0.19        | 0.19        | 0.11        | 0.03*<br>0.03* | 0.40        | 0.56<br>0.56 | $0.04^{*}$  | 66.0<br>76.0 | 0.27       | 0.67   | 0.23        |
| MS                  | $0.00^{**}$  | $0.01^{*}$  | $0.00^{**}$ | 1           | 0.32         | -0.14        | 0.47        | 0.10                | 0.08        | 0.08        | $0.02^{*}$  | $0.00^{**}$    | $0.03^{*}$  | $0.03^{*}$   | $0.04^{*}$  | 0.27         | -0.08      | 0.18   | 0.11        |
| LS                  | $0.00^{**}$  | $0.00^{**}$ | $0.00^{**}$ | 0.32        | 1            | 0.84         | -0.78       | 0.47                | 0.49        | 0.16        | 0.14        | 0.32           | 0.80        | 0.50         | 0.10        | 0.32         | 0.29       | 0.47   | 0.43        |
| PB                  | $0.03^{*}$   | 0.32        | 0.33        | -0.14       | 0.84         | 1            | 0.75        | 0.42                | 0.24        | 0.17        | -0.23       | 0.14           | 0.63        | 0.87         | 0.73        | 0.15         | 0.20       | 0.42   | 0.62        |
| $\mathrm{DP}$       | $0.01^{*}$   | $0.02^{*}$  | 0.43        | 0.47        | -0.78        | 0.75         | 1           | $0.00^{**}$         | 0.17        | 0.88        | 0.41        | 0.47           | 0.65        | 0.52         | 0.24        | 0.23         | 0.23       | $0.00^{**}$  | $0.00^{**}$ |
| $\operatorname{TP}$ | $0.01^{*}$   | $0.01^{*}$  | 0.46        | 0.10        | 0.47         | 0.42         | $0.00^{**}$ | 1                   | 0.35        | 0.88        | 0.99        | 0.10           | 0.65        | $0.03^{*}$   | 0.63        | 0.62         | 0.45       | $0.00^{**}$  | $0.00^{**}$ |
| NR                  | $0.00^{**}$  | $0.00^{**}$ | 0.19        | 0.08        | 0.49         | 0.24         | 0.17        | 0.88                | 1           | $0.00^{**}$ | 0.46        | 0.08           | 0.09        | 0.35         | 0.89        | 0.24         | 0.73       | 0.40   | 0.40        |
| NA                  | $0.00^{**}$  | $0.00^{**}$ | 0.19        | 0.08        | 0.16         | 0.17         | 0.35        | 0.88                | $0.00^{**}$ | 1           | 0.93        | 0.51           | 0.51        | 0.48         | 0.33        | -0.43        | 0.93       | 0.82   | 0.91        |
| HE                  | 0.09   | $0.00^{**}$ | 0.11        | $0.02^{*}$  | 0.14         | -0.23        | 0.41        | 0.99                | 0.46        | 0.21        | 1           | $0.00^{**}$    | 0.14        | 0.50         | 0.35        | -0.43        | 0.49       | 0.63   | 0.83        |
| PC                  | $0.00^{**}$  | 0.07        | $0.03^{*}$  | $0.00^{**}$ | 0.32         | 0.14         | 0.47        | 0.10                | 0.08        | 0.41        | $0.00^{**}$ | 1              | 0.00        | $0.03^{*}$   | $0.00^{**}$ | $0.03^{*}$   | $0.02^{*}$ | 0.10   | $0.03^{*}$  |
| MC                  | 0.95   | 0.40        | 0.65        | $0.03^{*}$  | 0.80         | 0.63         | 0.65        | 0.65                | 0.09        | 0.51        | 0.14        | $0.00^{**}$    | 1           | $-0.01^{*}$  | -0.47       | $0.04^{*}$   | 0.51       | 0.99   | 0.82        |
| IM                  | 0.88   | 0.95        | 0.56        | $0.03^{*}$  | 0.50         | 0.87         | 0.52        | $0.03^{*}$          | 0.35        | -0.48       | 0.50        | $0.03^{*}$     | $0.01^{*}$  | 1            | 0.77        | 0.87         | 0.58       | $0.00^{**}$  | 0.58        |
| EG                  | 0.27   | 0.23        | $0.04^{*}$  | $0.04^{*}$  | 0.10         | 0.73         | 0.24        | 0.63                | 0.89        | -0.96       | -0.96       | $0.02^{*}$     | -0.47       | 0.77         | 1           | 0.33         | 0.35       | 0.64   | -0.37       |
| PR                  | -0.42  | 0.93        | 0.97        | 0.27        | 0.32         | 0.15         | 0.23        | 0.62                | 0.24        | -0.43       | 0.37        | 0.27           | $0.04^{*}$  | 0.87         | 0.33        | 1            | 0.47       | 0.62   | 0.07        |
| MR                  | -0.57  | -0.95       | 0.27        | -0.08       | 0.29         | 0.20         | 0.23        | 0.45                | 0.73        | 0.93        | 0.49        | 0.08           | -0.57       | -0.58        | -0.35       | -0.47        | 1          | $-0.03^{*}$  | -0.43       |
| ШD                  | 0.05   | $0.02^{*}$  | 0.67        | 0.18        | 0.63         | 0.62         | $0.00^{**}$ | $0.00^{**}$         | 0.40        | 0.91        | 0.83        | 0.18           | 0.82        | 0.64         | 0.37        | 0.67         | $0.04^{*}$ | 1  | 0.00        |
| PD                  | $0.01^{*}$   | $0.01^{*}$  | 0.23        | 0.11        | 0.43         | 0.42         | $0.00^{**}$ | $0.00^{**}$         | 0.40        | 0.82        | 0.62        | 0.10           | 0.99        | 0.48         | 0.45        | 0.62         | 0.33       | 0.82   | 1           |
| PS. pr              | PS. pre-morbid marital status: MS. present marital status: LS. livin | marital sta | tus: MS. r  | resent mai  | ital status: | I.S. living  | z with son  | Jenne: PR           | namen       | - of hosnit | al and dru  | o hills: DF    | D. disnosit | ion of nro   | merties: T  | P. to who    | m properi  | e with someone: PB. navment of hosnital and drug hills: DP disnosition of nronerties: TP, to whom pronerties were disnosed | :pasousi    |

*PS*, pre-morbid marital status; MS, present marital status; LS, living with someone; *PB*, payment of hospital and drug bills; DP, disposition of properties; TP, to whom properties were disposed; NR, number of relapse; NA, number of admission; HE, highest education qualification; PC, pre-morbid occupation status; MC, morbid state occupational status; MI, monthly incomes; EG, ethnic group; PRR, present relationship with relatives; MR, present religion; PD, purpose of disposing properties; WD, what has been disposed. P < 0.05.

highest relapse rate among mental and behavioural disorders, followed by substance abuse in a sample of Nigerians with mental illness. This finding also corroborated that of Al-Nahedh [15] that substance abuse is an important component responsible for repeated admissions of psychiatric patients, though age, peer pressure and social stresses were also factors identified. However, it is worth noting that not all readmissions among individuals with mental illness in Nigeria are due to relapse. Some patients are frequently readmitted because their relatives want them at a distance from their vicinity to avoid "social embarrassment", or systematic isolation using such language in Yoruba (one of Nigeria local language) as "inú igbó ni wèrè ńgbé" (the mad lives in the jungle) and "tani o fé bá wèrè gbélé?" (who will live with a mad man?). This had led to the increase in readmission rate (one in three) among patient in the Nigeria premier mental health institution. Efforts should be directed towards advocacy against stigmatisation and for the traditional African cultural model which is based on family support. This study is also in agreement with those of Leff and Wing [16] and Ventura et al [17] that, apart from reasons such as unemployment, non-adherence to hospital instruction and abstinence from prescribed and maintenance drugs, there are some other factors that made relapse more frequent in mental illnesses. The frequent relapse in the substance abusers could be attributable to the fact that some of these patients are left to fend for themselves after hospital discharge. This often leads to having recurrent peer-pressure and influence resulting in going back to earlier habits through associating with touts at motor-packs for means of survival, and with local criminals (known as "area boys" in Lagos). While a large number of people are poor in Nigeria and the extended family is giving way in terms of the safety valves it provides, the coping behaviours of the respondents may be severely hampered. On this background, it would not be surprising if the commitment to abstinence from drugs is enhanced with negative impact on the patients. Unemployment was found to be associated with frequent relapse of psychiatric patients. This corroborates earlier findings who have earlier reported significant positive and unidirectional relationship between relapse in individuals with mental illness and being without a permanent job [18,19].

This study also noted that some of these patients were living outside Lagos before their illness but they have either relocated to Lagos or to a less developed area of Lagos such as Ajegunle, Makoko, among others, as a result of loss of income from retrenchment, unemployment and renewed contact with negative peer influence in case of the substance abusers. This observation corroborates that mentally ill individuals tend to migrate from a more developed area to a less developed area and previous research findings on the significant effect of mental illness on employment status [20,21]. Patients were not satisfied with their relationships with both friends and relatives during their illness period as compared to the time before the illness, in some cases reporting that their illness had affected their acceptability in the society. This indicates that mentally ill individuals may have been facing a substantial level of stigmatisation both within the family and the society as a whole, also observed in previous studies [22-27] The traditional African social system at least in Nigeria is not friendly to mental illness as there are some misconceptions about its causes, ranging from spiritual attacks to curses and retribution. This believe has been previously documented among Nigerian and other samples [28-30]. The findings of this study revealed strong and positive significant relationships between age, sex, number of relapses and readmission rate. The older the patients, the higher their number of relapses as well as readmissions for mental illness, with those having their mental illness diagnosed at younger age having more relapses. This finding corroborates a previous study that the younger the age of diagnosis of mental illness, the higher the rate of relapse [9].

Males are more likely to relapse than females. This finding may be as a result of more males being included in our study despite the fact that the hospital has almost the same number of wards and beds for male and female patients. However, based on adjusted rates, males still had significantly higher relapse and readmission rates. This may due to the fact that males are more frequently abusing substances. A significantly higher number of the respondents were still living with their relatives. Most of them were living a dependent life-style having either relatives, philanthropists and government taking up their responsibilities including paying for their hospital bills with the family and relatives bearing most of the burden. Despite the fact that a large number of the participants were still residing in the same house with their relatives, significant numbers of patients were not satisfied with their relationships with their friends and relatives as compared to their pre-morbid states. Unemployment has also added to their dependency as most of them who were employed before their illness were later jobless due to and in the course of their illness. Their personal possessions have also been affected as a significant number of them had disposed of their belongings either to finance their substance abuse habit or for their prescribed drugs.

Family and social integration has also been affected by the frequency of relapse and readmission as some of them who were married before their illness are now either separated or divorced from their spouses. Several patients also changed their place of residence for reasons such as stigmatization, non-acceptability in the society and peer pressure. The lack of re-integration of mentally ill individuals with the family system and acceptability often lead to a return to their former habits such as psycho-active substance abuse, and frequent relapses. Governmental policy also did not help much to decrease this rate since most of the prescribed drugs and access to hospital facilities are not affordable for most of these patients who are mostly without sufficient financial means.

#### Limitations

This study is limited in its generalisability as it involved only one mental health institution in Nigeria. A multi-centre study may improve the external validity of finding.

#### Conclusion

Relapse in mental illness has negative impact on both social and economic well being of individuals who are involved. Therefore, the need to support families and social integration is imperative. Concrete and positive action should be taken for the care and support of the patients with mental and behavioural disorders. The Government should revisit the mental health policy with a view of providing necessary support to the mentally challenged. Unemployment should be tackled. The prescribed drugs should be subsidized. Stigmatisation and discrimination against the mentally ill should be discouraged. Measures to improve patients relationships with significant others could be integrated in the care of the patients so that the social support after discharged would increase.

#### Key points

- Relapse in mental illness is a universal phenomenon
- Relapse in psychiatric disorder is highly distressing and costly to patients, family and health systems
- Mentally ill individuals suffer stigmatisation and social isolation in Nigeria
- Relapse in psychiatric disorders impacts negatively on socio-economic well-being of patients and their families and care-givers
- Significant factors can be identified that might prevent relapse, culture and community being important aspects

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#### Statement of interest

The authors have no conflict of interest with any commercial or other associations in connection with the submitted article.

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- 26 C. A. Gbiri et al.
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