RESEARCH PAPER

PENAL CHARACTERISTICS AS PREDICTORS OF DEPRESSION IN A SOUTHERN NIGERIAN PRISON

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ABSTRACT

This study examined the penal characteristics acting as predictors of depressive disorders among 400 prison inmates using the stratified random sampling technique and the Depression component of WHO Schedule for Clinical Assessment in Neuropsychiatry (SCAN). Data analysis was performed with the SPSS software package (Version 17) with the test of significance set at $p<0.05$. Results revealed a prevalence of 14.8% mild depression; 14.2% moderate depression with somatic features; 6.2% severe depression without psychotic features; 4.5% severe depression with psychotic features and an overall prevalence of 37%. Significant penal factors were nature of crime, reasons for delay in trial, and duration of stay. `The most frequently violated criminal code was Criminal code 401 (Armed Robbery). Logistic regression analysis indicated that the strongest predictor of depression was the duration of time spent in prison (or: 1.43, ci=1.19-1.73, p=0.00). Our findings suggest that duration of stay in prison increases the risk of depression among inmates and that the penal predictors for depression during imprisonment could help identify people for mental health interventions. It is recommended that concerned agencies of government should, as a matter of urgent public health importance, consider reforming the criminal justice system to reduce the duration of stay in prisons.

Keywords: Crime, penal, depression, offender, prison population.

INTRODUCTION

The research area of imprisonment and its effects on inmates and its relationship with duration of stay and nature of crime has had a long and complex history over the past decades, with researchers having varying opinions (Picken, 2012). The nature of the offence committed by a prisoner can either add to an inmate's psychological state or decrease it (Krestev, 1998).

Many early researchers had concluded that imprisonment had negative psychological and physical effects on its inmates, leading to psychological effects. It is noteworthy, that how these experiences are perceived by the individual, the duration of exposure to a forcible experience, and the ability to control these experiences are among the factors which determine the individual's negative reactions (Gorgulu and Tutarel-Kislak, 2015). These effects included emotional withdrawal, depression, suicidal thoughts or actions and increasing levels of hostility (Picken, 2012; Gorgulu and Tutarel-Kislak, 2015).

Diagnostic and Statistical Manual (DSM)-1V and the new DSM-V, are in agreement that Major depression include diagnoses of unipolar affective disorder with at least 5 of 9 of the symptoms of low mood, loss of interest, changes in sleep and activity, loss of energy, guilt feelings, suicidality, and loss of concentration for nearly every day for a duration of at least 2 weeks (Joukamma, 1995). In Nigeria, prevalence rates vary between 11-60% depending on the study setting (Kadiri, 2013). Its noteworthy that from the moment of admission into the penal justice system, prisoners are at high risk of severe mental and co-morbid substance use disorders (Mir *et al*. 2015). A prevalence study in a random sample of consecutively admitted prisoners in the penal justice system in Chile had shown that almost half of the people (49%) had major depression (Mundt *et al*., 2015). In a study by Pinesse *et al*. (2010), the major criminal offences were drug trafficking (64%) and robbery (12%), 81% were in prison for the first time, 89% had already been convicted and 59% of them had been in prison for at least 2 years without conviction. The most frequently violated penal code among the inmates was penal code 12, Illicit drugs trafficking (64%) (Beck *et al.* 1998). Conviction time varied from no current conviction (that is, awaiting trial) to 3 years (Beck *et al.* 1998). Most of them have completed 2 years of their sentence (58%) or 2 to 4 years (32%) (Pinesse *et al*., 2010; Beck *et al.*, 1998). In 62 relevant surveys, reported in 66 publications, 2568 (26%) of 9776 prisoners were charged with or convicted of, violent offences (Fazel and Danesh, 2002).

Out of the 352 inmates in a Ilesha Prisons, South-West Nigeria, majority (59.3%) were awaiting trial. Thirteen inmates (4.3%) had been imprisoned before (i.e. before current imprisonment) (Fatoye *et al*., 2006). In a Nigerian prison service report in 2006, it was stated that out of a total number of female prisoners in Nigeria then, 200 were convicted and 577 were awaiting trial (Agomuoh and Ogbozor, 2006). This number obviously, must have increased compared to the records in 2006 as documentary evidence does show that even by 2011, the Nigerian criminal justice system was so backlogged that at least three-fifths of the country's prison population consisted of pretrial detainees rather than convicts (The Nigerian Prisons Service, 2011). In fact, majority of the 2,000 inmates awaiting trial at Ikoyi in the late 1980's, spent nine years in detention for minor offences which, on conviction, would have carried prison terms of less than two years (The Nigerian Prisons Service, 2011). Another report in 1998 on the Port Harcourt prison revealed also that out of a total population of 1,344 inmates, 965 people were on the awaiting trial list while 379 persons were convicts (Enuku, 2001).

Very few studies have assessed the link between penal characteristics and depression in Southern Nigeria. Even the data available from this region is over 17years ago and trends may have changed since then. None of the previous studies compared the criminal code to the nature of crime committed and depression. Some of the studies also have methodological shortcomings. Most studies examined the course of psychological symptoms over time with self-report instruments. The few studies that used standardized diagnostic interviews to also establish diagnoses used self-rated screening prior to the application of the structured interview, which may have limitations in terms of representativeness depending on the validity of the screening instrument. These points to the paucity of evidence and so, there was need for further high quality studies (Walker, 2014). Therefore, this study in the South-South region of Nigeria was carefully undertaken, to provide data on the burden of depression, in the population of the prisoners particularly among the inmates of the Maximum Security Prisons in Port Harcourt, Nigeria. It is also to show how penal characteristics predict depression.

With these rationales, the authors set out to test 3 hypotheses:
1. That there is an intricate link between penal characteristics and depression.
2. That penal factors like nature of crime, duration of stay in prisons, recidivism, can be predictors of depression in a prison population.
3. That the prevalence of depression is high among the incarcerated.

MATERIALS AND METHODS

Study Setting: This study was carried out at the Maximum Security Prison located in Port Harcourt, Nigeria. The Port Harcourt Prison was selected because it is a maximum security Prison where offenders of all categories of crime, including awaiting trial, convicts, and condemned criminals of both sexes are kept. It is one of the earliest remand institutions in Nigeria. It was established by the British Colonialists in 1928. The institution has a holding capacity of 804 inmates.

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Study design and population: This is a cross sectional descriptive study among prison inmates of the maximum security prison, in Port Harcourt, Rivers State, Nigeria.

Ethical Considerations: The permission for this study was obtained from the ethics committee of University of Port Harcourt Teaching Hospital, and State Controller of Prisons. A written informed consent was obtained from each participant. Confidentiality was ensured, at all stages. Participant's participation was voluntary and they could withdraw from the study at any time.
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Inclusion and exclusion criteria: Prisoners who were serving different terms of prison sentence or on the awaiting trial list but gave their consent were recruited to participate in this study. However, those in the categories above but declined to give consent to participate in the study or those who were too ill or floridly psychotic to be meaningfully engaged in the study, were excluded.

Sample size determination:

According to the fine population correction (FPC) principle, postulated by Araoye (2003),

$$n = \frac{n^n nn}{n^n} = \frac{(n.nn)^n (n.nn)\,(n.nnn)}{(n.nn)^n} = 384.$$

Using the Finite Population Correction for Proportions formula:

$$n = \frac{n_n}{nn\,\frac{(n_n{}^n\,n)}{n}}$$

Where: $n =$ the desired sample size when population < 10,000, $n_n =$ the desired sample size when population is > 10,000, $n =$ the estimated study population 2,900 in this study.

$$n = \frac{nnn}{nn\,\frac{(nnnn\,n)}{nnnn}} \quad = 339$$

Using an assumed non-response rate of 15%, a corrected sample:

$$\frac{nnn\,nm\,nnn}{nnnn\,nn} \times 100 = \frac{nnn}{n.nn} = 398.8. \quad \text{Approximately 400.}$$

Sampling Technique: A list of all the study population was obtained, which became the sampling frame. A Simple random sampling was used to select the required sample size, based on proportional allocation to each stratum. The population was divided into two homogenous groups based on gender. Every seventh inmate on the register in both the male and female sections of the prisons was selected. It was a two stage design. The Socio-demographic questionnaire and Beck Depression Inventory (BDI-11) were administered to all participants. Only respondents with a BDI score of 11 and above were the Schedule for Clinical Assessment in Neuropsychiatry (SCAN 2.1). There was also random selection and analysis of the negatives with the SCAN 2.1 instrument which was done in 1 in 10 of them.

Data Collection Tools. A self-administered Socio-demographic questionnaire, was designed for data collection and consisted of three sections (A-C), with questions pertaining to socio-demographic data, clinical and penal characteristics. The Becks Depression Inventory -11, was used to assess the severity of depression. The BDI-11 is a 21- item self- rated instrument which measures the presence and degree of depression in adolescents and adults[17]. The internal consistency estimate of reliability Cronbach's alpha based on the present study was a = 0.74 and had a mean score of 15.7. Schedule for Clinical Assessment in Neuropsychiatry (SCAN 2.1), is a semi-structured, researcher administered instrument, used to derive ICD-10 diagnosis. SCAN has been validated in a number of studies on depression (Mundt *et al*., 2016). It is used to diagnose a broader range of disorders than other instruments like Present State Examination (PSE 9).

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Procedure: It was a two stage design. The Socio-demographic questionnaire and the Becks Depression Inventory were administered to all. Only respondents with Becks Depression Inventory (BDI) score of 11 and above were administered the SCAN 2.1. There was also random selection and analysis of the negatives with the SCAN 2.1 instrument which was done in 1 in 10 of them. Respondents were encouraged to provide their answers voluntarily after signing the informed consent form. Allowance was made for variation in time taken for this aspect of the interview. This was dependent on the symptoms and psychopathology and the ability of patient to understand and properly respond to questions asked, promptly. Many of such interviews would last 1 hour or longer because of the reasons adduced above.

Data Analysis. Data collated were analyzed using SPSS version 17. A descriptive and inferential statistical analysis was employed. Chi-square test was used to test for association between the predictor variables and the outcome variable. P-value was set at $P \leq 0.05$ which was considered significant. Multiple logistic regression was computed to determine the size of the predictor variables on the dependent variable.

RESULTS

The 400 subjects involved in the study and interviewed, ranged in age from 14 to 90 years, with a mean age of 33.8 (SD±14.42), most of whom were between the ages of 18 and 25 years (30%). Thirty inmates, representing 7.5% of the study population, were found to be under aged, having ages below the legal age of 18 years. The age distribution of the sample size was normally distributed when compared to a theoretical distribution (statistic=0.237, df =400, p-value=0.000).

Severity of depression among inmates: The severity of depression was assessed from the scores on the Beck Depression Inventory (BDI). Scores of 11-20 indicate mild depression, 21-30 moderate depression, 31-40 severe and 41^+ extreme. Fifty seven (14.2%) scored for mild depression, 67 (16.8%) for moderate and 37 (9.2%) for severe depression. 8 (2.0%) scored for extreme depression. Two hundred and thirty one inmates (57.8.0%) had no significant score.

TABLE 1.1: Socio-demographic characteristics of participants –Sex, Age and Religion

Variable	Frequency (n)	%
Sex		
Male	392	98.0
Female	8	2.0
Age		
<18	30	7.5
18-25	120	30.0
26-33	93	23.2
34-41	69	17.2
42-49	35	8.8
50-57	19	4.8
58-65	18	4.6
>65	16	3.9
Religion		
Christianity	352	88.0
Islam	45	11.2
Traditional Religion	2	0.5
Others	1	0.3

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TABLE 1.2: Socio-demographic characteristics of participants –Level of education, Employment status before incarceration, place of living and occupation

Variable	Frequency (n)	%
Level of Education		
No formal Education	40	10.0
Primary Education	196	49.0
Secondary Education	139	34.8
Post Secondary Other than University	10	2.5
	15	3.7
Employment Status before incarceration		
Yes	270	67.5
No	130	32.5
Place of Living		
Urban	276	69.5
Rural	92	23.0
Semi-urban	32	8.0
Occupation		
Legislators/CEOs/Managers	3	0.8
Professionals	13	3.2
Technicians/Associate Professionals	49	12.2
Clerks	3	0.8
Service Workers /Shop/Sales Workers	56	14.0
Skilled Agriculture/Fishery Worker	26	6.5
Craft and related trade worker	32	8.0
Plant /Machine Operators	6	1.5
Elementary Occupation	20	5.0
Armed Forces/ Police	9	2.2
Workers not classified by Occupation	46	11.5
Others	7	1.8
Not employed	130	32.5

Descriptive statistics: N=frequency, %= percentage

Prevalence and pattern of depression among prison inmates: All the 169 subjects who scored greater than 10 using the Becks Depression Inventory (BDI), were interviewed in the second phase of the study, with the depression module of the Schedule for Clinical Assessment in Neuropsychiatry version 2.1(SCAN 2.1) and the computer algorithm was used to generate an ICD-10 diagnosis. Based on this, 169 subjects (42.2%) of the study population, fulfilled the criteria for current depressive disorder of whatever form. Among the population with depression, 59 (14.8%) met criteria for mild depression with somatic symptoms, 57 (14.2%) for moderate depression with somatic symptoms, 25(6.2%) severe depression without psychotic

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symptoms and 18 (4.5%) for severe depression with psychotic symptoms. Ten (2.5%) had no SCAN depression. The BDI negatives were screened in the ratio of 1:10 and two (2) inmates were found to have depression.

TABLE 1.3: Socio-demographic characteristics of participants –Social Class, Marital Status, Living Arrangements and Ethnic Group

Variable	Frequency (n)	%
Social Class		
1(Professionals)	12	3.0
2(Managerial positions)	25	6.3
3(Skilled)	101	25.3
4(Semi-Skilled)	79	19.8
5(Unskilled)	183	45.8
Marital Status		
Single	257	64.3
Married	118	29.4
Divorced	3	0.8
Separated	14	3.5
Widowed	8	2.0
Living Arrangements		
Alone	153	38.5
Spouse	107	26.8
Parents	61	15.2
Siblings	29	7.2
Relatives	32	8.0
Sexual Partner	18	4.5
Ethnic Group		
Ibo	125	31.2
Ibibio	66	16.5
Ijaw	57	14.3
Ikwere	54	13.5
Hausa	39	9.7
Yoruba	19	4.8
Non-Nigerians	2	0.5
Others	38	9.5

Penal Profile of inmates: Table 2 shows that the most frequently violated Nigerian criminal code among the inmates as identified was criminal code 401 (Armed Robbery) with 92(23.0%) inmates. This was followed by criminal code 316/320 (Attempted murder and Murder respectively) with 89 (22.2%) inmates. The least violated code was criminal code 463(Forgery) with 2(0.5%) inmates identified.

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Table 2: Nature of crimes committed by inmates and their corresponding criminal codes:

Nature of Crime	Criminal Code(s)	N	%
Murder/attempted murder	316, 320	89	22.3
Armed robbery	401	92	23.0
Stealing	383	38	9.5
Sexual crime (rape/defilement)	357, 218	14	3.5
Illegal possession of firearms	428	5	1.3
Kidnapping	364	23	5.8
Manslaughter	317	6	1.5
Land cases	133	8	2.0
Assault	252,355	7	1.8
Illegal oil bunkering (Economic and Financial Crime Commission)	EFCC Act 2004	15	3.8
Pipeline vandalism	EFCC 2004	7	1.8
Malicious damage	451	6	1.5
Illegal possession of drugs	Law No 30	15	3.8
Cultism	62	29	7.3
Fraud (obtaining by tricks) criminal code 419(a & b)	419	15	3.8
Other offences (impersonation, traffic offences), affray(fighting), pilfering, sedition, buying stolen goods, Jail break,	484, 83, 51,427	11	2.8
Trafficking in persons	371	4	1.0
Terrorism	Terrorism act, 2011	3	8
Burglary	410,411	3	8
Threat to life	86	5	1.3
Arson	443	3	8
Forgery	463	2	5
Total		400	100

N=frequency, %= percentage

Penal Profiles associated with depression among prison inmates: Chi-square analysis and cross tabulation of data showed that there were significant associations between depression and type of offence or crime committed($x2=32.73$, df=21, p-value=0.01), time sentenced ($x2=13.84$, df=6, p-value=0.03), reason given for delay in trial ($x2=26.78$, df=8, p-value=0.001), duration of awaiting sentence or awaiting trial($x2=41.07$, df=9, p-value=0.000), and conviction or reconviction for same offence ($x2=5.34$, df=1, p-value=0.02).

Table 3: Penal profile associated with depression among inmates

Variable	X^2	df	p-value
Crime committed	32.73	21	0.01[*]
Awaiting trial, Sentenced or Condemned	6.25	3	0.10
Reason for awaiting trial	26.78	8	0.001[*]
Duration of Sentence/awaiting trial	41.07	9	0.00[*]
Duration already served	10.59	7	0.15
Previous Conviction	0.41	1	0.51
Current or previous conviction for same offence	5.34	1	0.02[*]
Current for previous conviction for different offence	0.06	1	0.93
No of times jailed before	6.10	3	0.10

* = Statistically Significant.

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TABLE 4: Other penal profiles among the inmates.

Variable	n (%)	p-value	OR	CI=95%	
				LOWER	**UPPER**
Nature of remand of inmates					
Awaiting trial					
i. Not yet charged	121(30.2)	0.53	0.73	0.29	1.8
ii. Abandoned by relatives	13(3.2)	0.41	0.54	0.12	2.3
iii. No access to lawyer	26(6.5)	0.75	0.83	0.26	2.60
iv. No money or bond or guarantor for bail	28(6.8)	0.48	0.64	0.19	2.7
v. Long adjournments	60(15.0)	0.27	1.70	0.65	4.44
vi. Missing files	8(2.0)	0.12	6.32	0.60	66.3
vi. Unknown	9(2.2)	0.55	0.54	0.07	4.17
vii. Charged but not going to court	30(7.5)	0.26	2.50	0.49	12.5
Convicted	295(73.5)				
Condemned criminals	49(12.3)				
Lifers	4(1.0)				
Recidivism among the inmates		0.097	0.16	0.02	1.39
Previous conviction/reconviction for same offence:					
Yes	15(3.5)				
No	385(96.5)				
Previous conviction or reconviction for different offence:					
Yes	35(8.8)				
No	365(91.2)				
Duration completed in jail for convicted inmates in years					
< 1	10(2.4)				
1 -4	46(11.5)				
5 – 9	15(3.8)				
10 – 14	13(3.2)				
15 – 19	11(2.8)				
>20	10(2.5)				
Not convicted	295(73.8)				
Duration spent in prison in years		0.00	1.48	1.19	1.73*
< 1	144(36.0)				
1 – 4	166(41.5)				
5 – 9	22(5.5)				
10 – 14	5(1.2)				
15 – 19	1(0.2)				
25 – 30	2(0.5)				
Lifer	4(1.0)				
On death row	52(13.0)				

N=frequency, %= percentage

There was apparently no statistical association between nature of remand (i.e. awaiting trial, condemned or sentenced), duration already served, history of conviction before and previous or current history of conviction or reconviction for different office and number of times jailed before (Table 4). Thirty seven (37; 9.2%) of this number,

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reported having been in jail once. 7(1.8%) have served prison sentences twice and 1(0.2%) had been convicted four times. 15 (3.8%) had been convicted in the past for the same crime while 35(8.8%) had been convicted in the past for different offences as shown in table 9 below. Conviction time varied from no current conviction (that is, awaiting trial) with 295(73.8%) inmates, to different terms of convictions. Fifty-two (52; 13.0%) of the inmates were on death row having been condemned to death, while 49 (12.2%) were serving different terms of prison sentence as convicts, 4(1.0%) were serving a life sentence as shown in Table 4.

Table 4, shows that, a number of reasons were adduced by those awaiting trial. These included those not yet Charged, 121 (30.3%), while 8 (2.0%) blamed missing files for the delay, in 9 (2.3%), the reasons for awaiting trial was unknown to them. A total of 295 (73.8%) subjects were awaiting trial, 49 (12.3%) had been convicted, 52 (13%) were condemned criminals while 4 (1%) were serving a life sentence (Lifers).

Associations between penal factors and depression: Logistic regression, containing five independent variables (type of crime committed, time sentenced, reason for delay in trial, duration of sentence, recidivism), was performed to assess their impact on depression. The full model containing all predictors was statistically significant, χ^2 (32, N = 400) = 80.7, p =.000, indicating that the model was able to distinguish between respondents who had depression and those who did not. The Hosmer and Lemeshow goodness of fit test was also statistically significant (p=0.855), because it is greater than 0.05. The strongest penal predictor of depression was duration spent in prison (OR: 1.43, CI=1.19-1.73).

DISCUSSION

The current study aimed to identify penal characteristics which act as predictors of depressive disorders in incarcerated offenders in Port Harcourt, Nigeria. The results of this study are in line with earlier reports by Deutsche Welle (2014) and All Africa (2014), indicating that the implementation of the right to health for people with mental disabilities like depression is far from being achieved in the prison population. The fact that the prevalence of depression in high in Port Harcourt prisons and those affected were neither taking medication nor getting any specialist care is a pointer, that depression is a significant source of morbidity among prison inmates. It may also be concluded from the present study that prisons may apparently contain a larger number of people with untreated major depression. It may also be an indication that the proportion of inmates with mental illness including depression is increasing. However, the prevalence of depression estimates were higher than those published in similar studies (Thorn-Rita, 2008; Bartol and Bartol, 1998; Torrey *et al.*, 2010), which agrees with our hypothesis

In this study, the prevalence of depression using BDI, varied with the values using WHO SCAN 2.1. This variation may be due to differences in populations studied, in the study referred, because in the current study, both males and females were included. In this study, symptomatic clustering is applied towards the goal of clinical sub typing, based on the presence or absence of somatic complaints and psychotic features. This however raises the question as to why additional clinical aspects such as chronicity, recurrence, melancholic or atypical features were not similarly considered. This should be understood in the context of the limited utility of a purely clinical approach to Major Depressive Disorder sub-typing (Sloma, 2015). These values were obtained were lower than that obtained in a similar study where 33% met criteria for mild depression, 29% met criteria for moderate depression, and 20% met criteria for severe depression Pinese (2010).

The true prevalence rate of depression from this study was 37% and this was higher than values from similar studies. Assadi *et al.*, (2006), found that 29% met the criteria for major depressive disorder. An average prevalence of 10% for major depression among male prisoners and 12% for females [11]. A prison survey in the United States in 2006, found that 24% of state prison inmates, 16% of federal inmates and 30% of local jail inmates had a major depressive disorder (Bartol and Bartol, 1998; Torrey *et al.*, 2010). Prevalence rate was 16% in another study (Singh and Verma, 2011; Sandeep *et al.*, 2011). Aghaghowe *et al.*, 1998), found a prevalence of 23% in a study in Benin Nigeria. In another study the rate of depression in the study was 30% (23-36%) among elderly inmates (Nseluke and Siziya, 2011). The prevalence in a French study was 17.9% (Naidoo and Mkise, 2012) and was 7.9-15.2% in another study (Taylor and Parrot, 1988; National Commission on Correctional Health Care, 2002). In a recent study in a maximum security prison in Jos,

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Nigeria, the prevalence rate was 30.8% (Jessica, 2012). However, this prevalence rate correlated with the lifetime prevalence of 37% in a case control study (Sarkin, 2008) and 36% found in a similar study (Criminal Code CAP, 2004). The finding of a prevalence of depression of 35.8% by Yusuf et al was close to the prevalence in this study (Yusuf *et al.,* 2011). It is however lower than the value in a recent Indian study (Krishna *et al.,* 2015).

Several explanations can be suggested for the differences observed. First, the instruments used in the studies were different, the locations of the studies were different, with none conducted in Port Harcourt. The majority of the studies were conducted many years ago and prevalence of depression may have changed within the period. Another possibility for the comparatively lower prevalence in the prison in developed countries may be because of the better prison environment in those climes and maybe the supply of better health services to the prisoners. The harsher prison condition noted in the location of the prison for the present study may have contributed to the higher prevalence noted. The lower rate of 23% obtained in a similar study in Benin, may be related to the fact that Port Harcourt prisons, is a maximum security prison with a bigger capacity and houses different kinds of crimes compared with the medium security prison earlier which has a smaller capacity for inmate.

The prevalence of depression was also noted to vary depending on the class of inmates. Depressive episodes were more among under trials, when compared to that of convicted prisoners (Thorn-Rita, 2008). The higher rate among under trials may not be unconnected with the fact that for most of them their fate in jail is uncertain with difficulties they face before arraignment in court, unlike the convicted inmates that already know their fate.

It had been reported earlier that 295 (73.8%) of the study population were awaiting trial. A number of reasons were adduced by the affected subjects for the delay in trial. These include, those that had not been charged, 121 (30.2 %), those that has been abandoned by relatives, 13 (3.2%), no access to lawyer, 26 (6.5%), no money or bond or guarantor for bail, 27 (6.8%). Others are missing files, 8 (2.0%), those charged but not going to court (no vehicle, no fuel for the cars, getting late to court, inadequate number of judges, transfer or withdrawal of presiding judge, etc) 30 (7.5%), those who did not know the reason why their trials were stalled, 9 (2.2%). An evaluation of the prisons in African states as compared to their counterparts in other parts of the world, showed obvious similarity in the area of shortage of police and judges, who are crucial in the justice delivery system and critical in the quest, for the rapid dispensation of justice. These personnel shortages are credited with the surging prison population and an increase in pre-trial detainees which constitute the vast majority of many nations' prison population (Gupta and Girdhar, 2012).

On account of recidivism, in contrast to the 13 (4.3%) with previous convictions in a study in South West region of Nigeria, 45 (11.2%) subjects had been convicted before while 60 (88.5%) of those serving different jail terms had not been convicted before. This was however similar to the finding in another prison study among incarcerated women in which 81% were first time offenders (Pinese *et al*., 2010). It was also lower than the finding 31% with previous prison record in a similar study (Echeburua *et al*., 2003). The lower value of previous record may have been lower because of our defective criminal justice system which allows inmates to stay very long periods in prison, sometimes staying more than the maximum allowable jail term by law as pre trial inmates.

The finding in this study however showed that the major offences were violent offences which included, Armed Robbery 92 (23%) and Murder 89 (22%) is comparable to the finding in a recent finding from a study in Jos, Nigeria, in 2013, which reported that armed robbery (37.3%), and Murder (17.4%), was the major offences among the inmates (Jessica, 2012). It is also comparable to the finding in 62 relevant survey reported in 66 publications, in which 2568 (26%) were charged with or convicted of violent offences (Fazel and Danesh, 2002) and 26.5% convicted of violent offences in inmates in a local jail in another study (Bartol and Bartol, 1994). Robbery was also the most common offence in that study among inmates in a local jail in U.S (Bartol and Bartol, 1994), which is consistent with the finding in this study. When the type of crime was related to the relevant criminal code violated, findings in a Brazilian study showed that the most frequently violated penal code was penal code 12 (Illicit drug trafficking) (Pinese *et al*., 2010). However, the finding from this study showed that the most frequently violated criminal code in Nigeria was criminal code 401, Armed Robbery while the least violated criminal code is criminal code 436, Forgery. There was no reference to criminal code in the available prison studies in Nigeria, as they

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reported only the type of crime without reference to the corresponding criminal codes as reported in the Brazilian study.

Multivariate analysis revealed duration of stay in prison as being a predictor of depression (OR: 1.43, CI: 1.19-1.73). This agrees with our hypothesis and the finding in another study that depression correlates with the length of stay in prison (Chang *et al.*, 2013).

CONCLUSION: The most significant penal factor associated with depression among the inmates was duration of time spent in prison. Reforming the criminal justice system to facilitate arraignment and justice delivery, will help to reduce the duration of stay in prisons.

RECOMMENDATION:

There is need for improvement in trial procedures to reduce delays, reduce duration of incarceration and mental anguish which is associated with increased risk for depression among inmates.

LIMITATION:

The major limitation to the study being that data was obtained by self-report and this carries a potential for recall bias The BDI suffers from the same problems as other self-report inventories, in that scores can be easily exaggerated or minimized by the person completing them. There was also no proper and adequate medical records were kept at the Port Harcourt Prisons to corroborate the self reports.

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AUTHORS CONTRIBUTIONS

This work was carried out in collaboration between all authors. Author NA and SP, designed the study and wrote the protocol. Authors NA, SP and BR managed the literature searches. Authors JA and PL contributed in the discussion. All authors produced the initial draft. All authors read and approved the final manuscript.

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