Original Article

Prevalence and Correlates of Psychiatric Disorders among Residents of a Juvenile Remand Home in Nigeria: Implications for Mental Health Service Planning

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ABSTRACT

BACKGROUND: Research has established that psychiatric disorders are common among children and adolescents within the juvenile justice system. However, the bulk of these researches had been from the developed countries, with very limited data from sub-Sahara Africa. In a region like sub-Sahara Africa with acute shortage of mental healthcare resources, availability of data on mental health needs of children within the juvenile justice system is about the only way to ensure that they are not excluded from needed services. This study aims to determine the pattern, prevalence and correlates of psychiatric disorders among the residents of a juvenile justice facility in Nigeria and to speculate appropriate policy responses.

METHODS: Using a cross-sectional comparative study design, 60 consecutive residents of the Ibadan juvenile Remand home and 60 randomly selected age- and gender-matched school going adolescents were evaluated for the presence of current and lifetime psychiatric disorders. The Kiddies Schedule for Affective Disorders and Schizophrenia was used to assess psychiatric disorders. Logistic regression was done to determine socio-demographic variables that were independently associated with the presence of lifetime psychiatric disorders

RESULTS: Thirty eight (63%) of the Remand Home participants had at least one lifetime psychiatric disorder compared with 14 (23%) among the comparison group ($p < 0.001$). Thirteen (22%) of the Remand Home participants had at least one current psychiatric disorder compared with 2 (3%) among the comparison group ($p = 0.004$). Disruptive behaviour disorders, posttraumatic stress disorder and substance use disorders were the most common psychiatric disorders among the Remand Home residents. Indices of family disruption and inconsistency in caregivers were the key predictors of psychiatric disorders.

CONCLUSION: Study has established further that psychiatric disorders are common among children within the juvenile justice system and that there is a need for appropriate policy response. Some policy directions were highlighted.

KEY WORDS: Juvenile justice, psychiatric disorders, remand home, mental health, policy

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INTRODUCTION

Epidemiological data from different parts of the world, though sparse, has shown higher prevalence rates of psychiatric disorders among children and adolescents within the juvenile justice system when compared to children living in the community[1-4]. This has been ascribed to the mental health implications of sundry traumatic events, life-course inconsistencies, and family disruptions that often characterise the lives of children that will later come in contact with the juvenile justice system[5-9]. Identifying and attending to the mental health needs of adolescents within the juvenile justice system will improve their quality of life; minimise the risk of psychiatric disturbance in later life and reduce the chances of recidivism[10]. It will also ensure a successful reintegration back into the community and enhance the likelihood of living a normal and productive life after discharge from institutional care.

There is a comparative scarcity of epidemiological data on the prevalence and correlates of psychiatric disorders among adolescents in conflict with the law in sub-Sahara Africa compared with the developed countries. This is a critical omission. This is because sub-Sahara Africa is home to about a quarter of the world's children and youth population[11], who are even at a higher risk of juvenile justice contact in view of widespread poverty and social inequalities in the region[12]. Furthermore, there is an acute shortage of mental health professionals in the region and access to mental health services is very limited[13]. The situation is even worse for Child and Adolescent Mental Health (CAMH) services, as many countries in sub-Sahara Africa lacks the infrastructural and human-resource capacity for CAMH service provisioning[14]. In this kind of setting, providing needed mental health services to 'minority groups' like inmates or residents of juvenile justice and other child care institutions are likely to be of low priority. Therefore, if the scarce mental health service in the region is to reach children and adolescents in such institutions, there is a need for careful and strategic planning. Such planning will include generation of robust database on the prevalence and pattern of, as well as risk factors for psychiatric morbidity among these high risk groups. This can then serve as a guide for planning interventions and service.

Unfortunately, the bulk of the limited number of studies that have examined the mental health of juvenile justice samples in sub-Sahara Africa had focussed on the presence of psychopathology[15,16,17] or select psychiatric

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disorders[18,19]. Psychopathology is too generic to inform policy on service planning, while focussing on select psychiatric disorder does not give a holistic view of the problem. Examining a wide range of psychiatric disorders among the inmates will give a clearer picture on where priorities should lie when planning service provisioning. The very few studies that have examined a wide range of psychiatric disorders among juvenile justice inmates in sub-Sahara Africa had been either gender biased[20]; focussed mainly on young offenders as representative of 'juvenile justice population'[20] or did not include a comparison group[20,21,22].

Gender bias will reduce the representativeness of the findings and non-inclusion of a comparison group will limit the degree to which a profound scientific assertion can be made from the results. Furthermore, Juvenile justice practice in sub-Sahara Africa is still evolving[23,24] and as such, young offenders and vulnerable children in need of care and protection are often processed together through the same legal and administrative framework[25]. In other words, for practical purposes young offenders and vulnerable children in need of care and protection together constitutes 'juvenile justice populations' in many parts of sub-Sahara Africa[25]. Therefore, before it can genuinely inform policy, 'juvenile justice population' sample in this region should include both offenders and victims.

This study therefore examines a full range of psychiatric disorders among a cohort of adolescents of both genders who were resident in a mixed offender/victim custodial institution in Ibadan Nigeria. A non-offender/victim comparison group was included. Independent socio-demographic risk factors that were associated with psychiatric morbidity were also assessed. The findings from this study are expected to bridge current knowledge gaps in the epidemiology of psychiatric disorders among children and adolescents living in juvenile justice institutions in sub-Sahara Africa. It is also envisaged to assist CAMH workers in early detection and treatment planning for mental health problems among children and adolescents in juvenile justice institutions in the region and to guide policy makers on pre-emptive intervention programmes and equitable allocation of scarce mental health resources.

MATERIALS AND METHODS

Setting

The study was conducted at the Ibadan Juvenile Remand Home. The home was established in 1955 and it is one of the 24 of its type situated in the major cities in Nigeria. Remand homes in Nigeria serve as multipurpose institutions where adolescents and children who had suffered abuse and neglect and as such in need of care and protection are mainly kept. However, most often than not, it also serve as a temporary abode for children and adolescents on 'criminal code". Part of the study was carried out in United Secondary School Ijokodo, Ibadan. The school is located at about a distance of 400 meters from the Home. The school, which is a public school, draws students mostly from low and middle income families in the neighbourhood.

Participants

All adolescents (age 10-19years) who were resident or admitted into the Home over a 4 month period were recruited into the study. The comparison group comprise of a randomly selected school-going adolescents. They were matched with the Remand Home participants for age and gender. All prospective participants with severe communication difficulties or those who were otherwise unable to comprehend the interview were excluded from the study.

Instruments

A socio-demographic questionnaire was developed by the authors to assess basic socio-demographic information like age, gender, birth order, family structure and school attendance before juvenile justice contact. The care-giving structure in early childhood and as at the point of juvenile justice contact was also examined. Other mental health risk factors like history of physical abuse and general exposure to family violence were also assessed.

Current and lifetime psychiatric disorders among the participants were assessed using the Present and Lifetime Version of the Kiddies Schedule for Affective Disorders and Schizophrenia (K-SADS-PL). This is a semi-structured diagnostic interview designed to assess current and past episodes of psychopathology in children and adolescents according to the fourth edition of the Diagnostic and Statistical Manual (DSM-IV) criteria[26]. In this study, a psychiatry syndrome was diagnosed when a participant having had significant symptom cluster in the screening section of K-SADS-PL that warranted further assessment, meets the DSM IV criteria for the syndrome. Current psychiatric syndrome was defined as having met the diagnostic criteria within the last six months.

Procedures

All instruments were administered by the investigators in face-to-face interviews which took place in the Home or the school as the case may be. The socio-demographic questionnaire was administered by trainee psychiatrists with experience in clinical clerkship as applied to child and adolescent mental health. The K-SADS-PL was administered by OA. In this study, the instruments were administered in English. However participants who were not fluent in English were assisted with the Yoruba version of the instruments. The Yoruba version was generated by the method of 'Translation and Back-translation' between Yoruba-speaking psychiatrists and Yoruba linguists until agreement was reached on its

literary accuracy. All interviews were conducted with adequate privacy.

Ethical permission to conduct the study was obtained from the Ethical Committee of the Ministry of Health, Oyo state of Nigeria. Written permission to interview the participants was obtained from the appropriate government agencies. In addition to individual assent given by the participants, consent to participate in the study was provided by the Head of the Remand Home and the School as the case may be. In doing so, they stood in as *loco parentis* according to the laws of the land in relation to low risk research like this one[27].

The data collected were analyzed using the Statistical Package for Social Sciences version 16 (SPSS 16) soft ware. Descriptive statistics were used to compare the prevalence of psychiatric disorders among the residents in the Home and the comparison group. In order to determine the independent risk factors for lifetime psychiatric disorders among the Remand Home participants, the socio-demographic characteristics of those with at least one lifetime psychiatric disorder were initially compared with that of those without using bivariate analysis. All socio-demographic factors that were significantly associated with having at least one lifetime psychiatric disorder were then run as co-variates in a stepwise binary logistic regression. The length of stay in the home was included in the logistic regression as a co-variate to control for any confounding effect of having lived in the remand home. In all analyses, level of statistical significance was set at 5% ($p< 0.05$)

RESULTS

A total of 120 adolescents comprising 60 participants each from the Ibadan Remand Home and a nearby school completed the study. Sixty seven prospective participants were sampled in the Remand Home group but seven were excluded because of severe communication disabilities. Those who were excluded were mostly younger (Mean age 10.8 ± 0.8) and all were girls. All the prospective participants sampled from the school met inclusion criteria. Majority of the participants were admitted into the home by reason of being victims of child maltreatment and neglect (n=46; 77%). The rest were admitted having been declared as juvenile offenders (n=6; 10%) or 'beyond parental control' (n=8; 13%).

Socio-demographic Characteristics of the Participants

The participants were mostly males (n = 80; 66.6%) with a male: female ratio of 2:1. Their mean age was 12.5 years (SD ± 2.1). There was no significant difference in the mean age of males and females (M = 12.6 ± 2.1, F = 12.25 ± 2.1; t = 0.84, p = 0.4). Thirty six (60%) of the remand home participants had dropped out of school while 8 (14%) were never in school. Other than the age and gender for which the two groups of participants were matched, there were significant differences in the socio-demographic characteristics of the two groups of participant.

As shown in Table 1, more than half (56.7%) of the Remand Home participants were from polygamous families compared with 23.3% of the comparison group ($p < 0.001$) and their parents were less likely to be living together (83% vs. 35%; $p < 0.001$). Family transitions, which refer to disruption of subsisting family structure or care-giving pattern such that there is a sudden or gradual change in the quality or quantity of caregivers, were commoner in the Remand Home participants than the comparison group. For instance, while at least one parent was involved in the early childhood upbringing of 73% and 93% of the Remand Home and the comparison group respectively, only 50% of the former were living with at least a parent as at the time of coming into contact with the juvenile justice system. The percentage of the comparison group living with at least a parent as at time of interview was unchanged.

Furthermore, compared with the comparison group, Remand Home participants were more likely to have lived with at least one person other than their parents (70% vs.27%; $p < 0.001$) in their lifetime; more likely to have been brought-up in early childhood by people other than parents (27% vs. 7%; $p = 0.007$) and to have been living with a non-parent (uncles, aunts, grandparents, family friends and apprenticeship supervisors) before their contact with the juvenile justice system (50% vs. 7%; $p < 0.001$). In the same vein, involvement in serial marriages (moving from one marriage to another after separation or divorce) was more common among the mothers of the Remand Home participants when compared with the comparison group (57% vs. 10%; $p < 0.001$). Further details of the results of comparison of the socio-demographic characteristics of the two groups of participant are as shown in Table 1

Prevalence Rates of Current and Lifetime Psychiatric Disorders among the Participants

Thirty eight (63%) of the Remand Home participants had at least one lifetime psychiatric disorder compared with 14 (23%) among the comparison group ($\div^2 = 13.2$; $p < 0.001$). Thirteen (22%) of the Remand Home participants had at least one current psychiatric disorder compared with 2 (3%) among the comparison group ($p = 0.004$). Among the Remand home participants, 26 (43%) had multiple (two or more) lifetime psychiatric disorder as against none (0%) in the comparison group.

When the lifetime psychiatric disorders were grouped, 48 (80%) of the Remand Home participants had disruptive behaviour disorders, 24 (40%) anxiety disorders, 16 (27%) mood disorders, 17 (28%) substance use disorders, 8 (13%) elimination disorders and 2 (3%) psychotic disorders. In contrast to the comparison group, there were

statistically significant differences in the prevalence rates of disruptive behaviour disorders ($p < 0.001$), anxiety disorders ($p = 0.02$) and substance use disorders ($p < 0.001$). See Figure 1. When the disruptive behaviour disorders were excluded, the prevalence of lifetime psychiatric disorder among the remand home participants reduced from 63% to 55% but that of the controls remained unchanged. However, the difference remained statistically significant ($p<0.001$).

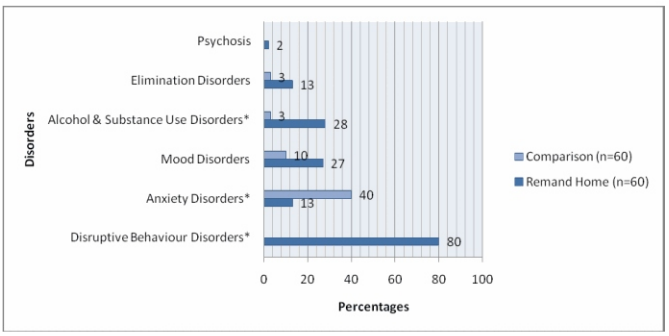

Figure 1. Shows the comparison of the lifetime psychiatric disorders among participants. Elimination disorders were mainly enuresis. Substance use disorders were mainly alcohol and cannabis abuse. Mood disorders were mainly depression while anxiety disorders were mainly posttraumatic stress disorder (PTSD). Disruptive Behaviour Disorders comprised of conduct disorders, oppositional defiant disorders and attention deficit hyperkinetic disorder.*$p<0.05$

As shown in Figure 2, the most common group of current psychiatric disorder among the Remand Home participants were the disruptive behaviour disorders (n-=18; 30%). When the disruptive behaviour disorders were excluded, the prevalence of any current psychiatric disorder among the remand home participants reduced from 27% to 13.3% but that of the controls remained unchanged. With this, the difference in prevalence of current psychiatric disorder between the two groups was no longer statistically significant ($p = 0.09$).

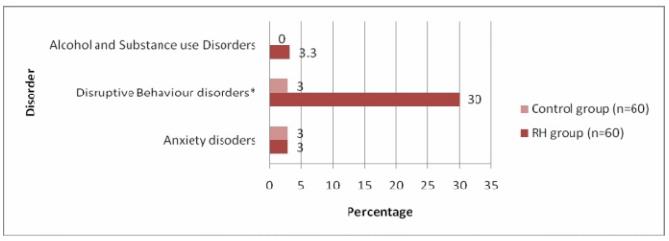

Figure 4. Shows the comparison of the prevalence of current psychiatric disorders among participants. Substance use disorders were mainly alcohol and cannabis abuse. Anxiety disorders were mainly posttraumatic stress disorder (PTSD). Disruptive Behaviour Disorders comprised of conduct disorders, oppositional defiant disorders and attention deficit hyperkinetic disorder.*$p<0.05$ (Fisher's exact statistics)

Independent Risk Factors for Lifetime Psychiatric Disorders among the Remand Home Participants

Logistic regression showed that living with non-parents before juvenile justice contact; having lived with other care-givers other than parents and having been brought up by non-parents in early childhood were independently associated with higher odds of having a lifetime psychiatric disorder among the Remand Home participants. Other factors with statistically significant independent association with a lifetime psychiatric disorder among the Remand Home participants are as shown in Table 2.

Table 1 Comparison of the socio-demographic characteristics of the Remand home participants and the Comparison Group

Variable	Remand Home (n=60)	Comparison Group (n=60)	χ^2	p
Family Type				
Monogamous	26(43.3)	46(76.7)		
Polygamous	34(56.7)	14(23.3)	13.4	**<0.001**
Parental Marital status				
Married/cohabiting	21(35.0)	50(83.3)		
Other statuses**	39(65.0)	10(16.7)	29.0	**<0.001**
Position among parents children #				
First/last born	44(73.3)	26(43.3)		
Other birth orders	16(27.6)	42(72.4)	10.2	**0.001**
Number of marriages/cohabitations mother had had	26(43.3)	54(90)		
Fathers is the only ever	34(56.7)	6(10)	29.4	**<0.001**
Other(s) before/after father				
Early childhood care giver				
At least one parent involved	44(73.3)	56(93.3)		
No parent involved	16(26.7)	4(6.7)		**0.007***
Current care giver* **				
At least one parent involved	30(50.0)	56(93.3)		
No parent involved	30(50.0)	4(6.7)		**<0.001***
Number of different people participant had lived with in lifetime** **				
None	18(30.0)	44(73.3)		
At least one other person	42(70.0)	16(26.7)	22.6	**<0.001**
Highest level of fathers education				
Primary or koranic school	24(40.0)	18(30.0)		
Secondary education & higher	8(13.3)	32(53.3)	23.7	**<0.001**
Dont know	28(46.7)	10(16.7)		
Highest level of mothers education				
Primary or koranic school	22(36.7)	12(20.0)		
Secondary education & higher	12(20.0)	42(70.0)	32.1	**<0.001**
Dont know	26(43.3)	6(10.0)		
Fathers occupation				
Elementary occupations/unemployed	6(10.0)	14(23.3)		
Craft and related works	28(46.7)	18(30.0)	5.5	0.06
Service providers and professionals	26(43.3)	29(48.4)		
Mothers occupation				
Elementary occupations	20(33.3)	13(21.6)		
Craft and related works	22 (36.7)	18(30.0)	4.2	0.09
Service providers and professionals	18(30.0)	29(48.4)		
Lifetime regular witness of physical fight among parents				
Yes	18(30.0)	2(3.3)		**<0.001***
No	42(70.0)	58(97.7)		
Punishment to the point of serious bodily harm by any parent/guardian				
Yes	30(50.0)	14(23.3)	9.2	**0.002**
No	30(50.0)	46(76.7)		

*Fisher's exact statistics
**Include: single parents, separated, divorced and widow/widower
***As at point of entry into the juvenile justice custody for the Remand Home participants and as at the point of interview for the comparison group
****Other than parents
Only-child not considered separately, classified as first-borns

Table 2 Independent Risk Factors for Lifetime Psychiatric Disorders among the Remand Home Participants*

Variable**	β	SE	OR	CI	P
Current care giver **At least one parent involved vs. No parent involved**	.042	-.077	0.08	.02- .44	**0.04**
Number of different people participant had lived with in lifetime **None vs. At least one other person**	-.21	.48	0.12	.08- .52	**0.001**
Earlier childhood care provider **At least one parent involved vs. No parent involved**	.32	.29	0.06	.03 - .47	**0.03**
Position among parents children# **First/Last vs. Other birth orders**	.91	.55	12.2	3.7 22.6	**0.005**
School Status as at point of contact with juvenile justice Not in school vs. In school	.33	.45	9.6	3.8 17.9	**0.001**
Length of stay in Remand Home **d median duration of 10 months vs. > median duration of 10 months**	.43	-.28	1.7	0.45 5.5	0.67

*Based on the results of the bivariate analysis (not shown), other variables included as independent variables but which did not reach level of significance at multivariate analysis include: Family type, Parental marital status, Position among parent's children, Lifetime punishment to the point of serious bodily harm and Lifetime regular witness of physical fights among parents/guardians

** Parental level of education was excluded as a dependent variable in the logistic regression model due to the high proportion of 'don't know' answers. Length of stay in the Home was included in

Only-child not considered separately, classified as first-borns

DISCUSSION

The study participants were mostly males with a male: female ratio of 2:1. This pattern of gender distribution had been described among residents of the Remand Home in a recent study[15]. Odejide and Toye[28] however found an even higher ratio of 3:1 with a predominance of boys in a study conducted in the same facility three decades earlier. This trend may suggest that even though boys are still in the majority, the number of girls coming into contact with the juvenile justice system in Nigeria is on the rise. This finding is in keeping with global trends as Snyder and Sickmund[29] reported that between 1985 and 2000, the number of girls coming into contact with the juvenile justice system in the United States of America increased by 92%.

The majority of children and adolescents in the Remand Home in this study were admitted for care and protection having been declared as maltreated or neglected. This finding can be explained by the fact that Remand Homes in Nigeria are primarily refuge centres for such children but doubles as a remand institutions for young offenders due to lack of sufficient facilities in the country for young offender management. This practice, though borne out of necessity, is capable of indirectly criminalising the victim status of the primary occupants of the Remand Home. This is because staying in the same institution with children tagged as 'offenders' will rub-off on the perception of the other children especially when there is no other separation in the Home for these children beyond the labels of admission category. In addition, there is also the fear of criminal initiation of the other children by the 'offender' minority.

About two-thirds of the Remand Home participants in this study reported living with their parents in early childhood but only half reported living with them before admission into the Home. This is a wide shift compared with the comparison group whose early-childhood and current caregivers remained largely the same. The tendency to have experienced frequent changes in family structure among the Remand Home participants in this study is further buttressed by the finding that a significantly higher proportion of them had lived with at least one other person aside their parents in their lifetime. Their mothers were also more likely to have been involved in more than one marriage or cohabitation and their parents were less likely to be living together. This study therefore further expands the catalogue of studies, both in developing countries like Nigeria [15,16,21,28] as well as in the developed world[30-32], that have linked family transition, disruption and dysfunction with a higher risk of coming into contact with the juvenile justice system.

Specifically, the setting of inconsistencies in family structure and lack of harmony in the care environment is well known to increase the risk of child maltreatment and neglect, which is the most common reason for Remand Home placement in this study. Family stability and consistency has been described as critical to ensuring that children are shielded from all forms of maltreatment and neglect[33]. This is because the chances of optimal care and well-being of the average child is most guaranteed in a stable, consistent and harmonious family unit[34,35]. The chaotic care-environment that may be engendered in the setting of family instability and inconsistency will encourage situations requiring social interventions such as care and protection for children[36]. Other than higher indices of family instability and inconsistency, the Remand Home participants in this study were significantly more likely to report being regular witness of domestic violence and being victims of violent physical abuse than the comparison group. Consistent with the ongoing discussion, being a witness of domestic violence is a risk factor for child maltreatment and neglect[37] while physical abuse is a direct attestation to same.

Though they constitute a minority group in this study, the family-related problems mentioned earlier are also known risk factors for juvenile delinquency and youth crime. There is a large body of evidence that family instability, disruption and inconsistency are all risk factors for juvenile delinquency and youth crime[37-42]. This apparent similarity in the pre-contact social milieu of the Remand Home residents in this study irrespective of their reason for admission buttresses the earlier notion that there is a link between child maltreatment/neglect and delinquency/juvenile crime[25,43,44]. The implication of the foregoing is that family support programmes targeting the most vulnerable households could be a viable strategy to stem the rising proportion of children coming in contact with the juvenile justice/social welfare systems in Nigeria.

Consistent with the results of the current study, a higher prevalence of psychiatric disorders among children and adolescents within the juvenile justice system has been established in several studies from different parts of the world[1-4]. For instance, similar to the finding of 63.3% of any lifetime psychiatric disorder among the Remand Home residents in the present study, Teplin *et al*[46] found a prevalence rate of 66.3% while Ulzen and Hamilton[47] found a prevalence rate of 83.7% among children within the juvenile justice system in the United State of America and Canada respectively. Results from African countries are also similar. For instance, Maru *et al*.[21] in Nairobi (Kenya) and Ajiboye *et al*.[20] in Ilorin (Northern Nigeria) found 44.4% psychiatric morbidity and 64.2% lifetime prevalence of any psychiatric disorder respectively among residents of juvenile justice facilities. Beyond having a high prevalence of psychiatric disorders, the remand home residents in this study were significantly more likely to have a lifetime multiple psychiatric disorders or co-morbidity. Multiple co-existing mental disorders have been described as common among children and adolescents in contact with the juvenile justice system[48].

Among specific disorders, disruptive behaviour disorders were the most common current or lifetime psychiatric disorder among the remand home participants in the present study. The same has been reported in other studies from different parts of the world[46,49] including studies from sub-Sahara African countries[20,21,28]. Disruptive behaviour disorders, substance use disorders and anxiety disorders (mainly PTSD) in that order were the leading lifetime psychiatric disorders among the Remand Home residents in this study. The observation that the difference in prevalence of a lifetime psychiatric disorder among the remand home participants and that of the comparison group remained statistically significant after excluding the disruptive behaviour disorders highlights the significance of PTSD and substance use disorders as major lifetime psychiatric disorders among children within the juvenile justice system.

Independent of their length of stay in the Home, indices of instability and inconsistencies in care-givers and care-giving structure were the most prominent factors independently associated with a higher risk of having a psychiatric disorder among the Remand Home participants in this study. This finding is consistent with earlier reports that inconsistencies in caregivers of and care-giving arrangements for children are associated with an increased risk of psychiatric disorders later in life[31,32,50-51]. It has been postulated that such inconsistency and uncertainties provide a milieu for disruptive social changes which may have adverse implications for children's mental health[50-53].

Pre-existing mental health problems have been mooted as a common precursor of juvenile justice contact[54,55] while access to CAMH services have been found to reduce the risk of entry into the juvenile justice system among at risk groups[56]. The pre-existing lack of a consistent primary support group, which incidentally was also an independent risk for psychiatric disorders in this study, has been reported as a barrier to accessing CAMH services[57,58]. Therefore, it is plausible that children and adolescents in the present study came into contact with the juvenile justice system because of manifestations of untreated mental health problems. This is more likely so in view of the fact that the length of stay in the Home did not show independent association with presence of psychiatric disorders in the current study at logistic regression. That under-age substance abuse which is a major lifetime psychiatric diagnosis in this study

constitutes a chargeable status offence in Nigeria also supports the view. Likewise, disruptive behaviour disorder, which is the most common psychiatric disorder in this study, has been found to be the most common reason for the inability of parents to keep their children within control leading to abuse, neglect or giving-up to the care of juvenile justice institutions[59]. The implication of this is that the juvenile justice and social welfare systems in Nigeria are currently serving, albeit unfortunately, as a bridging the CAMH service gap in the country.

The foregoing observations have some policy implications for Nigeria and indeed most sub-Sahara African countries where human-resource and infrastructural capacity for child and adolescent mental healthcare are severely limited[14]. To start with, being the most common disorders among the residents of the juvenile justice facility in the current study; prioritising strategies for early detection and treatment of disruptive behaviour disorders, PTSD and substance use disorders among them is a prudent way of maximizing the resources for the care of children within the juvenile justice system in this region. In the same vein, screening for these and other mental health problems among children at the point of entry into the juvenile justice system will ensure early detection and treatment. In addition, school or community based screening for the early signs of these disorders especially in the background of family and social problems could serve as a way of reducing juvenile justice contact for children in this region.

Furthermore, status offences like street wandering and alcohol/substance use should be de-criminalized in Nigeria so as to reduce the barriers to mental health services among vulnerable children and adolescents. In addition, officials of juvenile justice facilities also need to be trained on basic mental health services like counselling, debriefing, de-escalation of an aggressive child, to note a few. Kitchener and Jorm[60] developed a short training course that can be used to equip non-health professionals working with children and adolescents on basic mental health skills. Linkages with local mental health service points in the vicinity of Remand homes in Nigeria should also be a deliberate policy of juvenile justice policy makers in Nigeria

STRENGTHS AND LIMITATIONS

The strength of this study lies in the fact that it did not only examine a wide array of neuro-psychiatric disorders among juvenile justice residents, it also examined the predictive roles of wider socio-demographic factors. In addition, the current study employed a control group for comparison. These steps allow for a global assessment of the psychosocial problems of juvenile justice inmates and the effects of the complex interplay of these factors in the development of Neuro-psychiatric disorders among them. However, there are some limitations within which the findings of this study should be interpreted. Being a retrospective study, there may also have been some recall bias and direction of associations could not be determined. In addition, the authors relied on little or no information from other sources (parents, teachers and wardens) as they were not available. Therefore, generating reliable data on externalizing disorders may have been limited by the participants' ability to recognize and provide information about such symptoms.

The sample size is small and may have reduced the power of the associations found and would explain the wide confidence intervals on logistic regression. In addition, the small sample size precluded sub-divisions in the data variables which could have strengthened the data. For instance, there is no doubt that offenders and victims are quite different people with plausible possibilities of different mental state and as such, could have been sorted apart before the prevalence rates of psychiatric disorders were estimated. Though it is sound argument is that practical policy strategies could have been more reliably drawn if the victims and offenders were separated, a recent study in Nigeria found a lot of similarities in the pre-institutionalisation psycho-social profiles of victims and offenders[25]. The study concluded that useful policies on the psychosocial needs of adolescents within the juvenile justice system in Nigeria can still be reliably formulated while treating this distinct group of adolescents as one group.

Furthermore, in determining the role of birth order in psychopathology and social outcomes for the adolescents in this study, it would have been better to consider first-, middle- and last-born adolescents as well as the only-child separately according to the views of Alfred Adler[61,62]. Such modification to the design would have strengthened the inferences drawn from the data in this study. However, this could not be done due to the same challenge of small sample size. Future large scale studies may want to build on the strengths of this study and improve on the limitations.

CONCLUSIONS

Within its limitations, this study has further established that psychiatric disorders are common among children and adolescents within the juvenile justice systems. The study has also helped bridge some knowledge gap in the area of risk factors for neuropsychiatric disorders among children and adolescents living in juvenile justice institutions in Nigeria. It has also provided some guides for policy makers in ensuring equitable allocation of scarce mental health resources to reach this vulnerable group. The findings and recommendations of this study can be used to design training programmes for health workers working with children and families on early recognition of risks and prevention of juvenile justice contact. It can also serve as a basis for a need to train

health workers and other support staff working in juvenile justice institutions, on the needs of children with psychiatric disorders and intellectual disabilities living in these institutions.

ABBREVIATIONS:
CAMH, Child and Adolescent Mental Health; **PTSD,** Posttraumatic Stress Disorder; **KSADS**, Kiddies Schedule for Affective Disorder and Schizophrenia

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