

## Psychopathologies and Parental Factors as Predictors of Substance Abuse among In-School Adolescents in Akungba- Akoko, Nigeria

### Authors

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### Abstract

Substance abuse causes social problems to the individual, the family and the larger society if unresolved. Studies have investigated several predictors of substance abuse such as personality traits, self-esteem, parenting styles with varied results. However, studies linking psychopathologies and parental factors to substance abuse are scarce. Therefore, this study investigated psychopathologies of depression, anxiety and stress and parental factors of family system and family system as predictors of substance abuse among in-school adolescents

in Akungba-Akoko in Ondo State, Nigeria. The study adopted a cross-sectional survey design while simple random sampling technique was used to select six secondary schools in Akungba-Akoko metropolis. Data were collected from 234 participants using Drug Use Scale (DAST-20) and Depression Anxiety and Stress (DASS-21) scale and analyzed using multiple regression statistics. One hypothesis was tested and accepted at  $p = .001$  level of significance. The result revealed that psychopathologies of depression, anxiety, stress, and parental factors of family types and family systems jointly predicted substance abuse among in-school adolescents [ $R^2 = .27$ ,  $F(5, 217) = 10.54$ ,  $p = .001$ ]. However, depression ( $\beta = 0.31$ ,  $p > .05$ ), stress ( $\beta = 0.26$ ,  $p > .05$ ), anxiety ( $\beta = -0.09$ ,  $p > .05$ ), family types ( $\beta = 0.33$ ,  $p > .05$ ), and family systems ( $\beta = 0.07$ ,  $p > .05$ ) did not independently predict substance abuse among in-school adolescents. The study concluded that psychopathologies and parental factors jointly predicted substance abuse while these factors did not independently predict substance abuse among in-school adolescents. It is recommended that parents, school authority and government agencies should work in synergy to educate and implement programmes that would reduce the tendency of in-school adolescents going into substance abuse.

**Keywords:** *Psychopathologies, Parental Factors, Substance Abuse, In-School Adolescents, Akungba- Akoko/Nigeria*

## Introduction

Substance abuse refers to the harmful or hazardous use of psychoactive substances that include alcohol and other illicit substances or drugs (World Health Organization [WHO], 2018). It has also been conceived as a patterned use of psychoactive substances in which the users consume in amount or with methods which are harmful to themselves and other people (Leikin, 2007). Statistics have shown the percentage of individuals engaging in substance abuse to have been on the increase. According to the WHO (2021), nearly 70% of the total death tolls among people aged 25-39 years were related to substance abuse. Furthermore, the United Nations Office on Drug and Crime (UNODC, 2023) reported about 35 million people are engaging in substance abuse globally. In addition, Nigeria is estimated to have 14.3 million people aged 15 to 64 years as engaging in substance abuse (Jatau et al., 2021). Indeed, the trend of more youths engaging in substance abuse has become a cause for concern in Nigeria (Jatau et al., 2021). Substance abuse has been associated with several social vices such as rape, armed robbery, domestic violence, accidental death, increase in suicidal behaviour, kidnapping, vandalism, dangerous driving, killing, cyberbullying, etc. (Dapap et al., 2020; Okoye et al., 2021; Gotsang et al., 2017). When these substances are abused, it becomes harmful and dangerous to the users, the family and the larger society (Gobir et al., 2017).

Psychopathology has been implicated as predictor of substance abuse. These include anxiety, depression and stress which are symptoms of dysfunctional emotional health of individuals. Depression is a persistent and chronic feeling of dejection, sadness and worthlessness reflecting poor mental health which can lead an individual to engage in substance abuse (Meier et al., 2016). Anxiety is an unpleasant sensation of fear and worry which can cause an individual to take to substance abuse (Gavin et al., 2015). Stress is when an individual is overwhelmed with stimuli of anxiety and depression as a result of engaging in substance abuse (Lazarus & Folkman, 1986). Studies have supported psychopathological factors of depression, anxiety and stress as predictors of substance abuse among different populations and across different samples. Njoku and Obogo (2017) found stress to positively influence substance abuse among undergraduates in Calabar, Nigeria. Also, Klein et al. (2022) confirmed the result that adolescents with depressive and anxiety disorders were significantly more likely to experiment with psychoactive substances such as alcohol or tobacco than those without these symptoms. Furthermore, Carmo et al. (2020) found anxiety, depression and stress to predict substance abuse in their study in Rio Grande do Sul, Brazil. A related study found use of alcohol in the binge pattern (monthly) and heavy episodic drinking (weekly) to be higher among youths with higher levels of anxiety, depression and stress. In another study, Farnia et al. (2018) found substance abuse to be caused by depression, anxiety

and stress among epileptic patients in India. Other studies have supported the predictability of depression, anxiety and stress on substance abuse among youths including in-school adolescents (Belfiore et al., 2019; Lal et al., 2019; Espada et al., 2019). Therefore, depression, anxiety and stress were found to have significant effects on the tendency of individuals including in-school adolescents to engage in substance abuse (Njoku & Obogo, 2017; Esmaeaelzadeh et al., 2018).

Parental factors which comprise family types and family systems influence substance abuse. Family types could be monogamy or polygamy families. Monogamy is when a man has one wife while polygamy is when a man has more than one wife at the same time (Barut & Mohamud, 2023). On the other hand, family system has to do with whether the family is nuclear (parents and children only) or extended family of parent, children and other family members (Barut & Mohamud, 2023). Family system speaks of the size of the family. A family type of small size (nuclear family) is easier to manage, monitor and in control of children involvement in inappropriate behaviour such as engaging in substance abuse compared to those in extended family system which lack all these qualities (Allen et al., 2018; Giallo et al., 2021; Arthi & Fenske, 2018).

Studies on the parental factors influencing substance abuse have been conducted yielding varied results. For example, Jayeola (2024) found family system to influence substance abuse among in-school

adolescents in the study population. This implies that in-school adolescents from nuclear families have a higher tendency to engage in substance abuse than those from extended family systems. Similarly, Mochoge et al. (2019) found family cohesion (family system) to influence substance abuse among in-school adolescents. Anetor and Oyekan-Thomas (2018) found family system roles in substance abuse to be higher among youths from nuclear families than those from extended families due to lack of proper parental love and care which were uncommon among extended families. On the other hand, Denwigwe et al. (2018) found family types (monogamy/polygamy) as a significant factor that influenced substance abuse among their study participants. Furthermore, Malah, (2022) found poor parenting or individuals from broken homes to have a greater chance of going into substance abuse than those in stable family settings. Conclusively, Alhammad et al. (2022) found in-school adolescents without parents to be more likely to engage in substance abuse compared to in-school adolescents with one or both parents. However, Jayeola (2024) did not find family types as a significant factor that influenced substance abuse among in-school adolescents. This connotes that whether the in-school adolescents were from monogamous or polygamous families did not influence their being involved in substance abuse

Although some studies have investigated psychopathologies and parental factors as predictor of substance abuse among

different populations and samples in developed and other developing countries, such studies are lacking in Nigeria which leave gaps in knowledge to fill. Therefore, the purpose of this study was to investigate whether psychopathologies of anxiety, depression, stress and parental factors of family types and family systems will jointly and independently predict substance abuse among in-school adolescents in Akungba-Akoko, a university town in Ondo State, Nigeria.

The findings of this study would help mental health practitioners to develop effective intervention strategies toward the treatment, recovery and reintegration of substance abused in-school adolescents.

The hypothesis tested in this study was: Psychopathologies of depression, anxiety, stress and parental factors of family types and family systems will jointly and independently predict substance abuse among in-school adolescents in Akungba-Akoko, Ondo State.

### Methodology

The study adopted cross-sectional survey research design using validated questionnaires to collect data from the participants. The study independent variables were depression, anxiety, stress, family types and family systems, while the dependent variable was substance abuse. The study was conducted among in-school adolescents in Akungba-Akoko, Ondo State, Nigeria. Simple random sampling method was used to select six out of eight secondary schools in the study area while a

convenience sampling method was used for the distribution of the questionnaires to the potential participants.

The study used two validated scales for data collection. Drug Use Scale (DAST-20, Saeed et al., 2022) was used to measure substance abuse among participants. It is a 10-item scale rated on “Yes “or “No” response. Sample items include: “Have you used drugs other than those required for medical reasons?” And “Do you ever feel bad or guilty about your drug use?” High score indicated high drug use disorder while low score indicated low drug use disorder. Authors obtained Cronbach’s alpha of 0.72 while in this study, Cronbach’s alpha was 0.61.

Depression, Anxiety and Stress *Scale* (DASS-21, Henry & Crawford, 2005) was used to assess depression, anxiety and stress among the participants. It is a 21-item scale presented on 4-point Likert’s format that ranges from 0= Did not apply to me at all, 1= Applied to me to some degree, 2= Applied to me to a considerable degree and 3= Applied to me very much). Sample items include: “I found it hard to wind down”, and “I found it difficult to relax”. High score indicates high depression, anxiety, and stress while low score indicates low depression, anxiety, and stress. The authors obtained Cronbach’s alpha of 0.78. In the present study, Cronbach’s alpha obtained was 0.72.

A letter of introduction was obtained from the Department of Pure and Applied Psychology, Adekunle Ajasin University,

Akoko-Akungba to introduce the researchers to the respective school Principals. School counselors assisted in random gathering of the potential participants in the classrooms. The researchers explained the purpose of the study to the potential participants and obtained verbal consent from them and participation in the study was voluntary. They were equally informed that all responses given would be treated confidentially. A total of 241 questionnaires were administered and during screening and coding, seven questionnaires were found to have more than 15% missing data and were removed thus leaving 234 used for the analysis.

IBM SPSS version 26 was used for data analysis. Both descriptive and inferential statistics were computed. The hypothesis was tested using multiple regression analysis statistics and was accepted at  $p = .001$  level of significance.

## Results

### Socio-Demographic Data of Study Participants

The participants consisted of 234 in-school adolescents. Descriptive statistics revealed that 100 (43%) of the participants were males while 133 (57%) were females with the ages between 15 and 20 years ( $M_{age} = 14.11$ ,  $SD = 2.39$ ). Also, the family types of the participants showed that 124 (53%) were from monogamous families while 110 (47%) were from polygamous families. In terms of the family systems, 121(52%) of the participants were from the nuclear family system while 113(48%) were from

the extended family system. Furthermore, the participants' living status showed that 110 (47%) were living with both parents, 90 (38%) were living with father only, while 34 (15%) were living with mother only. The initial screening of the participants on substance abuse showed that 92(39%) had moderately used substances while 141 (61%) had substantially used substances. This raised adequate concern for this investigation.

### Test of Relationships

To test the extent and direction of the relationship that existed among the study variables, zero-order correlation analysis was computed. The results are presented in the Table 1.

Table 1 shows zero-order correlation of the study variables. The results revealed that depression had a negative relationship with substance abuse [ $r(234) = -.19$ ,  $p = .001$ ]. This implies that substance abuse is motivated by depression. Moreover, anxiety had a negative relationship with substance abuse [ $r(234) = -.20$ ,  $p = .001$ ]. This suggests that those with high levels of anxiety have high tendency to engage in substance abuse. Finally, stress had negative relationship with substance abuse [ $r(234) = -.13$ ,  $p = .001$ ]. This means that stressful in-school adolescents have a higher tendency to engage in substance abuse. Therefore, the study variables were robust to run multiple regression analysis.

### Testing the Hypothesis

Psychopathologies of depression, anxiety and stress and parental factors of family types and family systems will jointly and independently predict substance abuse among in-school adolescents in Akungba-Akoko, Ondo State. The hypothesis was tested using multiple regression analysis and the results are presented in Table 2.

Table 2 shows multiple regression analysis of psychopathologies of depression, anxiety stress and parental factors of family types and family systems on substance abuse among in-school adolescents. The result showed that depression, anxiety, stress, family types and family systems jointly predicted substance abuse among in-school adolescents [ $R^2 = .27$ ,  $F(5, 217) = 10.54$ ,  $p = .001$ ]. This implies that depression, anxiety, stress, family types and family systems jointly accounted for 27% variance in substance abuse among study participants. However, the results showed that depression ( $\beta = 0.31$ ,  $p > .05$ ), stress ( $\beta = 0.26$ ,  $p > .05$ ), anxiety ( $\beta = -0.09$ ,  $p > .05$ ), family system ( $\beta = 0.33$ ,  $p > .05$ ), and family types ( $\beta = 0.07$ ,  $p > .05$ ) had no statistical significance on substance abuse among in-school adolescents. Therefore, the hypothesis was partially accepted.

### Discussion

The hypothesis that psychopathologies of depression, anxiety, stress and parental factors of family types and family systems will jointly predict substance abuse among in-school adolescents was supported. This implies that depression, anxiety, stress,

family types and family systems jointly interacted to influence in-school adolescent engaging in substance abuse. This means that individual who are depressed, anxious with high level of stress, whether from extended/nuclear and/or monogamy/polygamy families interacted to predict substance abuse among study participants. The result corroborated with the Klein et al. (2022) findings that those in-school adolescents who are depressive or have anxiety disorders would be more likely to engage in substance abuse such as using alcohol or tobacco compared to those who are not depressed or anxious. Further confirmation was in Brazil where Carmo et al. (2020) found that the use of alcohol in the binge pattern (monthly) and heavy episodic drinking (weekly) were higher among individuals with higher levels of anxiety, depression and stress. Furthermore, the result corroborated Farnia et al.'s (2018) finding that depression, anxiety and stress were significant predictors of substance abuse among epileptic patients in Kermanshah, Iran. In sum, psychopathological symptoms of depression, anxiety and stress tend to be excellent predictors of substance abuse across many populations including in-school adolescents.

Moreover, the family system did not predict substance abuse among in-school adolescents. This means that whether in-school adolescents were from nuclear or extended family did not influence them taking into substance abuse. The result contradicted Jayeola's (2024) finding that teenagers in nuclear family systems who

through their interactions with their parents and other significant members in the family tended to have some understanding with their parents that perhaps gave them liberty to indulge in substance abuse such as alcoholism and smoking. This implied that children from nuclear families were more susceptible to substance abuse than children from extended families. Finally, this finding corroborated Mochoge et al. (2019) and Anetor and Oyekan-Thomas (2018) results that strong and significant association existed between family system and substance abuse such as the use of alcohol, cigarette and marijuana among in-school adolescents.

Finally, family type did not predict substance abuse among study participants. This implies that being brought up from either monogamous or polygamous family is not a determinant of substance abuse among in-school adolescents. The result did not support findings by Anetor and Oyekan-Thomas (2018) that youths from polygamous homes were more into substance abuse than those from monogamous homes. Similarly, the result contradicted Denwigwe et al.'s (2018) finding that family type strongly influenced substance abuse among in-school adolescents in their study. These findings could be attributed to the differences in the study settings, socio-cultural characteristics of the participants, and differences in the number of schools included in the studies.

### Conclusion and Recommendations

The study examined psychopathologies of depression, anxiety and stress and parental

factors of family system and family types as predictors of substance abuse among in-school adolescents in Akungba-Akoko, Ondo State, Nigeria. The study has empirically confirmed that depression, anxiety, stress, family types and family systems are joint predictors of substance abuse among study participants. However, depression, anxiety, stress, family types and family systems did not independently predict substance abuse among study participants.

Based on the findings of this study, the following policy recommendations are put forward:

To begin with, the school counseling units should develop programs that aim to educate in-school adolescents on the dangers of substance abuse on their mental health as possible triggers to psychopathological disorders. In addition, the government should be more proactive to implement and enforce the extant laws and policies on substance abuse especially on the sales of banned psychoactive substances on open markets. Moreover, parents, educators and all stakeholders must come together and be in the forefront to fight the menace of substance abuse among in-school adolescents and beyond the classroom environment for a better society.

Additionally, drug enforcement agents should visit schools to educate in-school adolescents on the danger of engaging in substance abuse. National essay competition with cash rewards should be frequently

organized by the government to keep the in-school adolescents in the forefront of campaign toward reducing substance abuse among in-school adolescents.

### Limitations and Suggestions for Further Study

The study suffered some limitations which need to be addressed in further study. To begin with, data were collected using self-reported questionnaires which were not free of social desirability bias. Further study would benefit from the use of focus group discussion and documentary evidence from the school counsellors to triangulate data collected from self-reported questionnaires.

In addition, data were collected from one local government area with a sample size of 234 which hindered generalization of study findings. Generalization of the study findings would be enhanced with increase in sample size and addition of other states.

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**CONFLICT OF INTEREST** The authors declare no conflict of interest in the study.

**Table 1**

*Zero-order Correlation of the Study Variables*

Variables	1	2	3	4
1. Depression	1			
2. Anxiety	.68**	1		
3. Stress	.76**	.69**	1	
4. Substance Abuse	-.19**	-.20**	-.13*	1
Mean	3.57	3.95	4.01	17.69
SD	3.579	3.71	3.36	1.90

\*\*  $p < 0.01$ , \*  $p < 0.05$ ,  $N=234$

**Table 2**

*Multiple Regression Analysis Showing Joint and Independent Predictors of Substance Abuse among In-School Adolescents*

Predictors	$\beta$	$t$	$R$	$R^2$	$df$	$F$	$p$
Depression	0.31	1.78					
Stress	0.26	1.54					
Anxiety	-0.09	-0.89	0.32	0.27	5,217	10.54	.001
Family system	0.33	1.23					
Family Types	0.07	0.46					

Dependent variable: Substance abuse

## References

- Alhammad, M., Aljedani, R., Alsaleh, M., Atyia, N., Alsmakh, M., Alfaraj, A., Alkhunaizi, A., Alwabari, J., & Alzaidi, M. (2022). Family, individual, and other risk factors contributing to risk of substance abuse in young adults: A narrative review. *Cureus*, *14*(12): e32316 <https://doi.org/10.7759/cureus.32316>
- Allen, J.L. Sandberg, S. Chhoa, C.Y. Fearn, T. & Rapee, R.M. (2018). Parent-dependent stressors and the onset of anxiety disorders in children: Links with parental psychopathology. *European Child & Adolescent Psychiatry*, *27*(2), 221-231
- Anetor, G. O. & Oyekan-Thomas, M.F. (2018). Knowledge and attitude of youths to substance abuse in Alimosho Local Government area of Lagos State. *Int. J. Biol. Chem. Sci.* *12*(2), 822-836
- Arthi, V. & Fenske, J. (2018). Polygamy and child mortality: Historical and modern evidence from Nigeria's Igbo. *Review of Economics of the Household*, *16*(1), 97-141
- Barut, A. & Mohamud, S.A. (2023). The psychosexual and psychosocial impacts of polygamous marriages: a cross-sectional study among Somali women. *BMC Women's Health*, *23*:669 <https://doi.org/10.1186/s12905-023-02830-1>
- Belfiore, E. Calarco, F. Cricri, E. & Leonello, B. (2019). Anxiety and depression in addiction: investigation at a Ser.D center. *Journal of Clinical & Developmental Psychology*, *1*(3), 1-11
- Carmo, D.P. Cattani, A.N. & Pillon, S.C. (2020). Relationships between substance use, anxiety, depression and stress by public university workers. *Rev Bras Enferm.*, *73*(1), e20190839
- Dapap, D.D., Okpataku, C.I., & Audu, M. D. (2020). Use of psychoactive substance among patients presenting at the emergency department of a tertiary hospital. *Nigerian Postgraduate Medical Journal*, *27*(3), 230-236 [https://doi.org/10.4103/npmj\\_5\\_20](https://doi.org/10.4103/npmj_5_20)
- Denwigwe, C. P. Okpechi, P. A. Asuquo, P. N. & Eze, A.E. (2018). Family influences on substance abuse tendency among secondary school students in Yakurr Local Government Area of Cross River State, Nigeria. *Journal of Pharmaceutical Research International*, *23*(2), 1-6,
- Esmaeelzadeh, S. Moraros, J. Thorpe, L. & Bird, Y. (2018). Examining the association and directionality between mental health disorders and substance use among adolescents and young adults in the U.S. and Canada: A systematic review and meta-analysis. *Journal of Clinical Medicine.*, *7*, 543, 1-24

Espada, J., Sussman, S., Huedo-Medina, T., & Alfonso, J. (2019). Relation between substance use and depression among Spanish adolescents. *International Journal of Psychology & Psychological Therapy*, 11(1), 79-90

Farnia, V. Afshari, D. Khodamoradi, M. & Farhadian, N. (2018). The effect of substance abuses on depression, anxiety, and stress (DASS-21) in epileptic patients. *Clinical Epidemiology & Global Health*, 9, 128-131

Gavin, R. S., Reisdorfer, E, Gherardi-Donato, E.C.S, Reis, L.N, Zanetti, A.C. G. (2015). Associação entre depressão, estresse, ansiedade e uso de álcool entre servidores públicos. *Rev. Eletrônica Saúde Mental Álcool Drog.* 11(1):2-9.

Giallo, R. Seymour, M. Forgarty, A. Feinberg, M. Christensen, D. & Cooklin, A. (2021). Trajectories of interparental conflict and children's emotional-behavioral functioning at 10-11 years : An Australian population-based study. *European Child & Adolescent Psychiatry*, 31, 625-635

Gobir, A.A., Sambo, M.N., Bashir, S.S., Olorukoba, A.A., Ezeh, O.E., Bello, M., Usman, B., Salaudeen, A.G., Joseph, S., Bashar, J. & Omole, N.V. (2017). Prevalence and determinants of drug abuse among youths in a rural community in North Western Nigeria. *Tropical Journal of Health Sciences*, 24(4), 5-8 <https://www.tjhs.com>

Gotsang, G., Mashalla, Y. & Seloilwe, E. (2017). Perceptions of school-going secondary students about substance abuse in Ramotswa, Botswana. *Journal of Public Health & Epidemiology*, 9(6), 151-160. <https://doi.org/10.5897/JPHE2017.0930>

Henry, J.D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales(DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology*, 44(2), 227-237 <http://www2.psy.unsw.edu.au/groups/dass>

Jatau, A.I., Sha'aban, A., Gulma, K. A., Shitu, Z., Khalid, G.M., Isa, A., Wada, A.S., & Mustapha, M. (2021). The burden of drug abuse in Nigeria: A scoping review of epidemiological studies and drug laws. *Public Health Review*, 42, 1603960 <https://doi.org/10.3389/phrs.2021.1603960>

Jayeola, D. T. (2024). *Influence of parental and psychopathological factors on drug usage/ use among secondary school students in Akungba-Akoko*. BSc project submitted to the Department of Pure and Applied Psychology, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria Pp i + ix, 1-64

Klein, R.J. Gyorda, J.A. & Jacobson, N.C. (2022). Anxiety, depression, and substance experimentation in childhood. *PLoS ONE* 17(5), e0265239

Lal, R. Sekhri, R. & Singh, J. (2019). A Comparative study of depression, stress and happiness among drug addicts and non-drug addicts. *J Addict Res Ther* 10, 386

Lazarus, R.S. (1999). *Stress and emotion: A new synthesis*. Springer Publishing Company.

Leikin, J.B. (2007). Substance- related disorders in adults. *Disease- a Month*, 53, 313-335  
<https://doi.org/10.1016/j.dismonth.2007.04.001>

Malah, H.M. (2022). *Effect of family structure on aggressive behaviour of young adults*. Bachelor of Science degree project, Baze University.

Meier, R., von Wolffl, A., Mohr, H., Härter, M., Nestoriuc, Y., Hölzel, L, & Kriston, L. (2016). Comparative Safety of Pharmacologic Treatments for Persistent Depressive Disorder: A Systematic Review and Network Meta-Analysis. *PLoS ONE* 11(5): e0153380.  
<https://doi.org/10.1371/journal.pone.0153380>

Mochoge, Z.O. Aloka, J.O. & Mwebi, B. (2019). Survey of family size on substance abuse among undergraduate students of one public university in the lake region of Kenya. *International Journal of Brain & Cognitive Sciences*, 8(2): 21-24

Njoku, J. N., & Obogo, G. O. (2017). Prevalence of depression and its relationship with drug abuse among senior secondary school students in Calabar, Calabar Cross River State, Nigeria. *Global Journal of Educational Research*, 16(2), 155-161

Okoye, C. A. F., Ezenwaka, E.M., Nwankwo, I.N., & Ogonwa, H.C. (2021). Drug dependence among a sample of Nigerian undergraduates: Self-downing belief and self-disclosure as predictors. *Practicum Psychologia* 11(1), 149-163

Saeed, W., Bhat, M.A., & Shakir, R. (2022). Translation and validation of Drug Abuse Screening Test DAST-20. *Journal of Professional & Applied Psychology*, 3(3), 381-388  
<https://doi.org/10.52053/jpap.v3i3.111>

UNODC, *World Drug Report 2023* (United Nation publication, 2023)

World Health Organization (WHO). Regional Office for Africa 2021. Available from:  
<https://www.afro.who.int/>