

KNOWLEDGE AND PERCEPTION OF YOUTHS ON THE EFFECTS OF SUBSTANCE ABUSE ON THE KIDNEY IN SELECTED TERTIARY INSTITUTION IN ILORIN METROPOLIS, KWARA STATE

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Abstract

Substance abuse is a pattern of harmful use of any substance for mood-altering purposes. This study examined the knowledge and perception on effects of substance abuse on the kidney among youths in selected Tertiary institution in Ilorin metropolis, Kwara State. The design of this study is quantitative descriptive design and target population are male and female youths between the age of 16 and 29 years of age. The sample size of 96 was determined by Fischer's formula. The instrument used was questionnaire and data was analyzed using SPSS 23 presented in percentages, frequencies and tables. The socio-demographic data of this study shows that majority of the respondents are within the ages of 22 -24 years (34.9%), females (59%), from Yoruba ethnic group (73.5%) and attended School of health information (43.4%). Further findings indicated that majority of the respondents are in Year 2, ND1 and Post basic nursing (14.5%). Lastly, majority are single (81.9%). Result of this study shows that the knowledge of respondents about substance abuse was very high (82.2%) and the perception of youth towards the effect of substance abuse of the kidneys is positive ($\chi^2=3.58$). This study also indicates that the types of substance commonly abused among youths in selected Tertiary institution in Ilorin metropolis are Alcohol (97.6%), Tobacco (cigarettes, vaping) (90.4%), Cannabis (marijuana, hashish) (91.6%), Prescription drugs (e.g., Tramadol, morphine) (89.2%), Cocaine (77.1%) and MDMA (ecstasy) (61.4%). The recommendation and conclusion suggest that synergy between the community health Nurses, parents, NGO and Government should enforce the implementation of existing policy to enforce the inclusion of preventive curriculum in the school health program and media.

Keywords: Knowledge; Perception; Youths; Effects of substance abuse; Kidney Tertiary Institution

INTRODUCTION

Substance use disorders (SUDs) are prevalent among youth in Nigeria, with alcohol being the most commonly abused substance (Soremekun et al., 2021). Substance abuse poses significant risks to kidney health and overall well-being. Various drugs, including synthetic cannabinoids, can cause acute kidney injury, characterized by elevated serum creatinine levels and increased cortical echogenicity on ultrasound (D'Errico et al., 2022). Psychoactive substance abuse can cause nephrotoxicological profiles, which can impact kidney function and require adequate risk assessment and treatment (Stolić et al., 2024). According to Shaikh, (2024), the long-term alcohol abuse, cocaine abuse, heroin-associated nephropathy and other polysubstance misuse can compromise kidney functions and lead to abnormal urinary analysis results. Kannan (2022) emphasized that drug-induced kidney injury can cause renal complications such as acute kidney injury, rhabdomyolysis, interstitial nephritis, and irreversible conditions like renal infarction and end stage renal disease.

Commonly abused substances like alcohol, cocaine, heroin, and opioids can suppress immune responses and impact viral pathogenesis, potentially accelerating disease progression and increasing transmission risk (Blackard & Sherman, 2021). Kidneys are particularly vulnerable to drug-induced toxicity due to their role in filtration and metabolism, with clinical manifestations including rhabdomyolysis, vasoconstriction, and decreased glomerular filtration rate (Silva et al., 2022). Tobacco use has been associated with increased expression of ACE2 receptors, potentially exacerbating COVID-19 severity,

while opioid and alcohol abuse may lead to respiratory depression and poor prognosis in COVID-19 patients (Althobaiti et al., 2020). These findings underscore the importance of addressing substance abuse for both individual and public health.

Substance use disorder in youth is a prevalent problem. An estimated 2.8 percent (712,000) of youths experienced an alcohol use disorder in the past year, and 6.3 percent (1.6 million) of youths experienced a substance use disorder in the past year (Acevedo et al, 2020). Alcohol is the most widely abused substance across the globe accounting for 90.8%. Except for the United States of America, Brazil, Mexico, Denmark and Spain where cannabis use ranked second, tobacco is the second most commonly consumed substance in most countries including Nigeria (Vincent et al, 2021). Studies have reported varying prevalence rates of substance use among Nigerian students, ranging from 10-35% for alcohol and 10-16% for other substances like marijuana and opioids (Adesida et al., 2022). Factors influencing substance use include peer pressure, curiosity, lack of parental monitoring, and socioeconomic status (Ekpenyong et al., 2024). The prevalence of SUDs is particularly high among incarcerated individuals, with 57.6% diagnosed with SUD in one study (Olagunju et al., 2022). Gender differences in substance use have been observed, with males generally showing higher prevalence rates (Ekpenyong et al., 2024).

Recent studies highlight the complex relationship between substance abuse knowledge, risk perception, and behavior among young adults. While many are aware of the risks associated with substance abuse, a significant portion still engage in these behaviors (Mutiso et al., 2022). Educational institutions play a crucial role in disseminating information about substance abuse, with teachers being a primary source of knowledge (Adesida et al., 2022). However, awareness doesn't always translate to abstinence, as some users continue despite understanding the adverse effects on organs like the kidneys (Silva et al., 2022). Additionally, there's a need for improved risk

communication and public health interventions to bridge the gap between knowledge and behavior (Akokuwebe & Idemudia, 2022). Similar observation had been seen with patients who were youth diagnosed with kidney disease in University of Ilorin Teaching Hospital, was as a result of substance abuse, the patients made it known that they didn't know substances abuse could lead to kidney damage. The lack of knowledge on effects of substances abuse on the kidney shown by the patients captured the mind of the researcher to find out the knowledge and perception of the youths on the effect of substance abuse on the kidney in selected Tertiary institution in Ilorin metropolis

AIM

To determine the knowledge and perception of youth on the effects of substance abuse on the kidney in selected Tertiary institution in Ilorin metropolis. This will be achieved through the following **specific objectives**;

1. To determine the knowledge of youth in selected Tertiary institution in Ilorin metropolis on substance abuse.
2. To determine the perception of youth in selected Tertiary institution in Ilorin metropolis on the effect of substance abuse on the kidney.
3. To identify the types of substance commonly abused by youths in selected Tertiary institution in Ilorin metropolis that could lead to kidney disease.

RESEARCH METHODOLOGY

Design: The study utilizes quantitative research design adopting descriptive method.

Study setting: The selected Tertiary institution in Ilorin metropolis are located in the premises of the old Maternity of UITH Amilegbe, Ilorin, Kwara state, Nigeria. Tertiary institution called School Complex, University of Ilorin Teaching Hospital has several institutions of learning such as School of basic nursing, Post basic Nephrology Nursing, Post basic Accident and

emergency Nursing, Post Basic Paediatric Nursing, Post basic Ophthalmic Nursing, School of Health Information Management, School of Orthopedic Cast Technology.

Study population: Male and female youths between the age of 16 and 29 years of age in a

tertiary institution. A total of 663 make up the population.

Sample Size: 96 youths were selected from the target population at the school complex using Fischer's exact sample size formula as shown in distribution table below.

School of Nursing	Population size	Calculation	Sample Size
Year 1	45	$45/651 \times 92 = 6.3$	6
Year 2	59	$59/651 \times 92 = 8.3$	8
Year 3	33	$33/651 \times 92 = 4.9$	5

School of Post Basic Nursing	Population size	Calculation	Sample Size
School of Post Basic Nephrology Nursing	28	$28/651 \times 92 = 3.9$	4
School of Post Basic Accident and Emergency	26	$26/651 \times 92 = 3.6$	4
School of Post Basic Ophthalmic Nursing	19	$19/651 \times 92 = 2.6$	3
School of Post Basic Pediatrics Nursing	25	$25/651 \times 92 = 3.5$	4

School of Health Information Management	Population size	Calculation	Sample size
ND 1	54	$54/651 \times 92 = 7.6$	8
ND 2	43	$43/651 \times 92 = 7.3$	7
HND 1	108	$108/651 \times 92 = 15.5$	16
HND 2	120	$120/651 \times 92 = 16.9$	17

School of Orthopedic Cast Technology	Population size	Calculation	Sample size
ND 1	38	$38/651 \times 92 = 5.3$	5
ND 2	35	$35/651 \times 92 = 4.9$	5
HNDI	28	$28/651 \times 92 = 3.9$	4

Sampling Techniques: Stratified sampling technique was used to select 96 students from the total population.

Instrument: Instrument that was used for this study was a structured Questionnaire with 38 closed ended questions. 8 respondents from Kwara State College of Nursing, Ilorin, Kwara State with similar characteristics with the target population was used for pilot study. The reliability test used was test retest and the reliability score of 0.73 was obtained.

Data analysis: The statistical software SPSS version 23 was used to compute the data. Analysis done include; frequencies, tables, percentages and charts was used for better illustrations.

Ethics: Informed consent duly obtained from participants, who were duly briefed about the purpose of the study. In addition, all relevant data about the participants have been de-identified such that it cannot be traced to any individual.

ANALYSIS AND PRESENTATION OF RESULTS

96 questionnaires were given to respondents but only 83 were retrieved

The demographic data:

The table 1 above shows the demographic data of the respondents, 13.3% of the respondents were between 16 to 18 years of age, 22.9% were between 19 to 21 years of age, 34.9% were between 23 to 24 years of age, while 28.9% were between 25 to 29 years of age. 59% of the respondents in the study are female, while 41% are male. 73.5% of the respondents are from Yoruba ethnic group, 19.3% from Igbo ethnic group, while 7.2% are from Hausa ethnic group; 24.1% are from basic school of nursing, 43.4% from School of health information management, 15.7% from orthopaedics and cast technology, while 14.9% are from post basic nursing; 8.4% are year 1 students, 14.5% are year 2 students, 4.8% are year 3 students, 14.5% are ND 1 students, 7.2% are ND 2 students, 27.7% are HND 1 students, 8.4% are HND 2 students, while 14.5% are post basic students; 18.1% are married, while 81.9% are single. The socio-demographic data of this study shows that majority of the respondents are within the ages of 22 -24 years (34.9%), females (59%), from Yoruba ethnic group (73.5%) and attended School of health information (43.4%). Further findings indicated that majority of the respondents are in Year 2, ND1 and Post basic nursing (14.5%). Lastly, majority are single (81.9%).

Table 1: Sociodemographic Results

Variable	Frequency	Percentage
Age		
16-18 years	11	13.3
19-21 years	19	22.9
22-24 years	29	34.9
25-29 years	24	28.9
Total	83	100
Gender		
Male	34	41
Female	39	59
Total	83	100
Ethnicity		
Yoruba	61	73.5
Igbo	16	19.3
Hausa	6	7.2
Total	83	100
School		
School of basic nursing	20	24.1
School of health information Management	36	43.4
Orthopedic and Cast technology	13	15.7
Total	14	16.9
Total	83	100
Level of training Post/basic nursing		
Year 1	7	8.4
Year 2	12	14.5
Year 3	4	4.8
ND 1	12	14.5
ND 2	6	7.2
HND 1	23	27.7
HND 2	7	8.4
Post basic nursing	12	14.5
Total	83	100
Marital status		
Married	15	18.1
Single	68	81.9
Total	83	100

Substance Commonly Abused

The knowledge of Youth on substance abuse impact on kidney:

In the study, table 2 showed the knowledge of youth of UITH schools complex on substance abuse, majority of the respondents know that substance abuse can lead to kidney damage or kidney failure(91.6%),that alcohol can have harmful effects on the kidney(96.4%),tobacco can have harmful effects on the kidney(91.6%),that cannabis(Marijuana) can have harmful effects on the kidney(95.2%),that stimulant drug(cocaine, amphetamines)can

have harmful effects on the kidney(90.4%),that opioids (heroin, prescribed painkillers)can have harmful effects on the kidney (88%),that kidney inflammation is an effect of substance abuse on the kidney(69.9%),that decreased kidney function is an effect of substance abuse on the kidney (69.9%)and that kidney stones is an effect of substance abuse on the kidney(47%). Findings of this study shows that the knowledge of youth of UITH schools complex on the effect of substance abuse is very high (82.2%)

Table 2: Knowledge of Youth on the effect of Substance Abuse of Selected Tertiary Institution In Ilorin Metropolis

Practice	Frequency			Percentage		
	Yes	No	Total	Yes	No	Total
Substance abuse can lead to kidney damage or kidney failure.	76	7	83	91.6	8.4	100
Alcohol can have harmful effects on the Kidney	80	3	83	96.4	3.6	100
Tobacco can have harmful effects on the Kidney	76	7	83	91.6	8.4	100
Cannabis (Marijuana) can have harmful effects on the kidney	79	4	83	95.2	4.8	100
Stimulant drug (cocaine ,amphetamines)can have harmful effects on the kidney	75	8	83	90.4	9.6	100
Opioids (heroin, prescribed painkillers)can have harmful effects on the kidney	73	10	83	88	12	100
Kidney inflammation is an effect of substance abuse on the kidney	58	25	83	69.9	30.1	100
Decreased kidney function is an effect of substance abuse on the kidney	58	25	83	69.9	30.1	100
Kidney stones is an effect of substance abuse on the kidney	39	44	83	47	53	100
82.2%						

The Perception of Youth On The Effect Of Substance Use On The Kidney:

The results of this study from table 3 revealed that majority of the youths accepted that substance abuse can have serious consequences on kidney health with mean value of 4.31, the youths also accepted that the effects of substance abuse on the kidneys are reversible with mean value of 3.36, they also accepted the statement that substance abuse is a major risk factor for developing kidney diseases with mean value of 4.05, they accepted that youth who engage in substance abuse are aware of the potential harm

it can cause to their kidneys with mean value of 3.59, and that youth who engage in substance abuse are more likely to seek medical help for kidney-related problems with mean value of 3.72. However, the youths in this study rejected the statement that substance abuse has no impact on kidney function with mean value of 2.43, which implies that they are aware that substance abuse have impact on kidney function. Findings of this study reveals that the perception of youth towards the effect of substance abuse of the kidneys is positive ($\bar{\chi}=3.58$)

Table 3: The Perception of Youth on The Effects of Substance Abuse on The Kidney in Selected Tertiary Institution In Ilorin Metropolis

Variables	Strongly	Agree	Neutral	Disagree	Strongly	Mean
					Disagree	
Substance abuse can have serious consequences on	33	44	5	1	0	4.31
The effects of substance abuse on the kidneys are reversible.	5	41	19	15	3	3.36
Substance abuse is a major risk factor for developing kidney diseases	29	37	9	8	0	4.05
Substance abuse has no impact on kidney function	2	10	17	44	10	2.43
Youth who engage in substance abuse are aware of the potential harm it can cause to their kidneys.	19	22	31	11	0	3.59
Youth who engage in substance abuse are more likely to seek medical help for kidney-related problems.	17	39	15	11	1	3.72

($\bar{X}=3.58$)

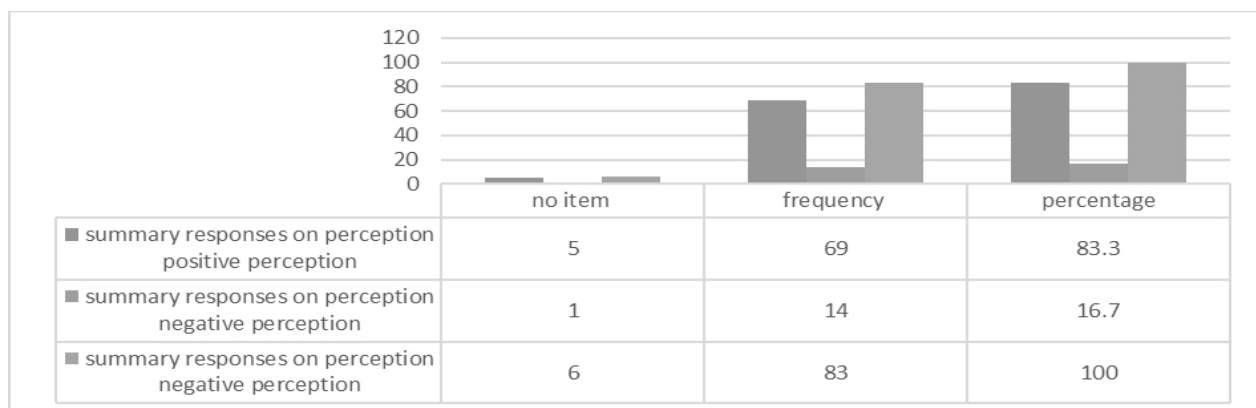


Figure 3: Shows the perception of youth of selected Tertiary institution in Ilorin metropolis on the effects of substance abuse on the kidney

From the result obtained on From tabl-2 you of the study, it was revealed that the types of substance commonly abused among youths include alcohol(97.6%),tobacco (cigarettes, vaping) (90.4%), cannabis (marijuana, hashish) (91.6%), prescription drugs e.g., Tramadol, morphine)

(89.4%), cocaine (77.1%) and MDMA (ecstasy) (61.4%). This study indicate that the types of substance commonly abused among youths in selected Tertiary institution in Ilorin metropolis are Alcohol (97.6%), Tobacco (cigarettes, vaping) (90.4%), Cannabis (marijuana, hashish) (91.6%), Prescription drugs (e.g., Tramadol, morphine) (89.2%), Cocaine (77.1%) and MDMA (ecstasy) (61.4%).

Table 3: Shows the Types of Substance Commonly Abused Among Youths in Selected Tertiary Institution in Ilorin Metropolis

	Response	Frequency	Percentage
Alcohol is a commonly abuse substance among youths	Yes	81	97.6
	No	2	2.4
Total		83	100
Tobacco (cigarettes, vaping) is commonly abuse	Yes	75	90.4
	No	8	9.6
Total		83	100
Cannabis (marijuana, hashish) is commonly abuse	Yes	76	91.6
	No	7	8.4
Total		83	100
Prescription drugs (e.g., Tramadol, morphine) are commonly abuse	Yes	74	89.2
	NO	9	10.8
Total		83	100
Cocaine is commonly abuse substance	Yes	64	77.1
	NO	19	22.9
Total		83	100
MDMA (ecstasy) is commonly abuse	Yes	51	61.4
	NO	32	38.6
Total		83	100
Have you ever used or experimented with any of the substances mentioned above?	Yes	30	36.1
	No	53	63.9
Total		83	100

DISCUSSION OF FINDINGS

To determine the knowledge and perception of youth on the effects of substance abuse on the kidney in selected Tertiary institution in Ilorin metropolis. The socio-demographic data of this study shows that majority of the respondents are within the ages of 22 -24years, females, from Yoruba ethnic group and attended School of health information. Further findings indicated that majority of the respondents are in Year 2, ND1 and Post basic nursing. Lastly, majority are single.

Findings of this study shows that the knowledge of youth of UITH schools complex on substance abuse is very high that is prevalent. This findings is in alignment with Soremekun et al., (2021) who stated that Substance use disorders (SUDs) are prevalent among youth in Nigeria, with alcohol being the most commonly abused substance .However Adesida et al., (2022) Studies have reported varying prevalence rates of substance use among Nigerian students, ranging from 10-35% for alcohol and 10-16% for other substances like marijuana and opioids.

Findings of this study reveals that the perception of youth towards the effect of substance abuse of the kidneys is positive. This agrees with the qualitative study, conducted by Althobaiti et al., (2020) who showed that the majority exhibited a high level of awareness regarding its health effects, including renal complications as part of broader organ damage from substances like alcohol and tobacco. This aligns with a positive perception, emphasizing recognition of risks despite influences like peer pressure that may still lead to use. Recent studies(Adesida et al., 2022., Silva et al., 2022) highlight by Mutiso et al., (2022) revealed that there is complex relationship between substance abuse knowledge, risk perception, and behavior among young adults. Adesida et al., (2022) emphasized that despite many have positive perception and the level of awareness of the risks associated with substance abuse was high, a significant portion still engage in these behaviors. According Silva et al., (2022),

perception doesn't always translate to abstinence, as some users continue despite understanding the adverse effects on organs like the kidneys.

This study indicate that the types of substance commonly abused among youths in selected Tertiary institution in Ilorin metropolis are Alcohol, Tobacco (cigarettes, vaping), Cannabis (marijuana, hashish), Prescription drugs (e.g., Tramadol, morphine), Cocaine and MDMA (ecstasy). This is in tandem with the findings of Adesida et al., (2022) who reported alcohol (10-35%), marijuana and opioids (10-16%) as common substance abuse among Nigerian students. Similarly Blackard & Sherman, (2021) stated that commonly abused substances among students are alcohol, cocaine, heroin, and opioids which can suppress immune responses and impact viral pathogenesis, potentially accelerating disease progression and increasing transmission risk.

IMPLICATION TO THE FINDINGS.

A positive perception of substance abuse among youths has significant implications across various sectors, including nursing, public health, education, administration, and research. Nurses play a critical role in patient care and health education, and understanding youths' perceptions allows them to tailor interventions and address misconceptions among youth of tertiary institutions.

Nurses must also act as role models, demonstrating healthy behaviors and advocating for substance-free lifestyles. Early identification and intervention are essential for nurses, and holistic care is crucial for building trust with youths. Public health initiatives must counter positive perceptions of substance abuse through targeted campaigns, community engagement, access to resources, and policy advocacy.

Education plays a pivotal role in shaping youths' knowledge and attitudes toward substance abuse, with curriculum integration, teacher training, parental involvement, and youth empowerment. Administrators play a

key role in creating systems to address substance abuse and its health impacts, including policy development, resource allocation, interdisciplinary collaboration, and monitoring and evaluation.

Research is essential for understanding and addressing the link between positive perceptions of substance abuse and kidney disease. Perception studies should explore cultural, social, and media influences, epidemiological studies should quantify the prevalence of substance abuse among youths, intervention effectiveness should be evaluated, and innovative approaches should be explored to deliver kidney health education and prevention messages to youths.

Conclusion

The positive perception of substance abuse among youths, despite its risks to kidney health, requires a multifaceted response. Nurses must leverage their proximity to patients to provide targeted education and early interventions. Public health initiatives should focus on awareness and access to care, while educational systems should integrate substance abuse prevention into curricula. Administrators need to support these efforts with policies and resources, and researchers must provide evidence to guide interventions. By addressing these implications collaboratively, stakeholders can reduce substance abuse and its impact on kidney disease among youths.

RECOMMENDATION

Nurses and other health care personnel should health educate their teenagers about the need to avoid substance abuse because it is a risk factor to kidney disease and also teach them about Compliance to their drug regimen. Government and other relevant stakeholder can use the media (since it's a source of information and modeling to the populace) to educate youths on the effect of substance abuse on kidney. Government and other relevant stakeholders should establish awareness programme on predisposing factors

of kidney diseases.

Based on the findings of this study, a further study is recommended on the impact of behavioral change communications in reducing the effect of substance use on the kidney among youth.

LIMITATIONS OF THE STUDY: The following were the limitations experienced during the course of the study. The study is limited by time and financial constraints. Unavailability of enough literatures and previous work on similar scope focusing on ward attendant is another limitation.

Suggestions for further studies

Conflict of Interest

The authors declare that they have no competing interests.

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Reference

- Acevedo, A., Harvey, N., Kamanu, M., Tendulkar, S., and Fleary, S. 2020. Barriers, facilitators and disparities in retention for adolescents in treatment for substance use disorders: A qualitative study with treatment providers. *Substance Abuse Treatment, Prevention and Policy*; 15(42): 1-13. <https://ojjdp.ojp.gov/model-programs-guide/literature-reviews/substance-use-treatment-prgrams#References>
- Adesida, S. A., Quadri, M. O., & Adedeji, A. M. (2022). Use of psychoactive substances among students in a Nigerian University: An imperative for intervention programs. *Scientific African*, 16, e01139. <https://doi.org/10.1016/j.sciaf.2022.e01139>

- Akokuwebe, M. E., & Idemudia, E. S. (2022). Knowledge and Risk Perceptions of Chronic Kidney Disease Risk Factors among Women of Childbearing Age in Lagos State, Nigeria: From a Health Demography Approach. *International Journal of Nephrology*, 2022, 1–16. <https://doi.org/10.1155/2022/5511555>
- Althobaiti, Y. S., Alzahrani, M. A., Alsharif, N. A., Alrobaie, N. S., Alsaab, H. O., & Uddin, M. N. (2020). The Possible Relationship between the Abuse of Tobacco, Opioid, or Alcohol with COVID-19. *Healthcare*, 9(1), 2. <https://doi.org/10.3390/healthcare9010002>
- D'Errico, S., Zanon, M., Radaelli, D., Concato, M., Padovano, M., Scopetti, M., Frati, P., & Fineschi, V. (2022). Acute Kidney Injury (AKI) in Young Synthetic Cannabinoids Abusers. *Biomedicines*, 10(8), 1936. <https://doi.org/10.3390/biomedicines10081936>
- Ekpenyong, M. S., Halimat Jagun, Stephen, H. A., Bakre, A. T., Opeyemi Odejimi, Miller, E., Nyashanu, M., & Bosun-Arije, S. F. (2024). Investigation of the Prevalence and factors Influencing Tobacco and Alcohol use among Adolescents in Nigeria: A systematic literature review. *Drug and Alcohol Dependence*, 111091–111091. <https://doi.org/10.1016/j.drugalcdep.2024.111091>
- Kannan, L. (2022). Renal manifestations of recreational drugs: A narrative review of the literature. *Medicine*, 101. <https://doi.org/10.1097/MD.00000000000031888>
- Mutiso, V. N., Ndetei, D. M., N.Muia, E., Musyimi, C., Osborn, T. L., Kasike, R., Onsinyo, L., Mbijjiwe, J., Karambu, P., Sounders, A., Weisz, J. R., Swahn, M. H., & Mamah, D. (2022). Prevalence and perception of substance abuse and associated economic indicators and mental health disorders in a large cohort of Kenyan students: towards integrated public health approach and clinical management. *BMC Psychiatry*, 22(1). <https://doi.org/10.1186/s12888-022-03817-2>
- Olagunju, A. T. (2022). Substance Use Disorders and Antisocial Personality Disorder among a Sample of Incarcerated Individuals with Inadequate Health Care: Implications for Correctional Mental-Behavioural Health and Addiction Services. *Journal of Health Care for the Poor & Underserved*, 33(3), 1401–1418. <https://doi.org/10.1353/hpu.2022.0120>
- Shaikh, G. (2024). Hidden Harm: Detection of Abnormal Urinary Analysis in Alcohol and Polysubstance Abuse. *BJPsych Open*. <https://doi.org/10.1192/bjo.2024.247>
- Silva, J. P., Carmo, H., & Carvalho, F. (2022). Drugs of abuse and kidney toxicity. *Current Opinion in Toxicology*, 32, 100360. <https://doi.org/10.1016/j.cotox.2022.100360>
- Soremekun, R. O., Omole, O. E., Adeyemi, O. C., & Oshatimi, A. M. (2021). Assessment of use of psychoactive and other non-prescription drugs among students of selected tertiary institutions in Ekiti State South West Nigeria - A baseline study. *Heliyon*, 7(2), e06232. <https://doi.org/10.1016/j.heliyon.2021.e06232>
- Stolić, R., Milić, M., Mitrović, V., Karanović, A., Bulatovic, K., Rašić, D., Mirović, M., & Mitić, B. (2024). The influence of psychoactive substances on nephrotoxicity of the kidneys. *Acta Facultatis Medicae Naissensis*. <https://doi.org/10.5937/afmnai41-46097>