

ABSTRACTS PRESENTED AT THE 3RD ANNUAL MULTIDISCIPLINARY CONFERENCE OF THE AFRICAN SCIENCE FRONTIERS INITIATIVES, 25TH-27TH NOVEMBER 2025

Baseline satisfaction in African Science Frontiers Initiative's (ASFI) Collaborative Research Groups

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Background: The ASFI Collaborative Research Groups (CRGs) are designed to enhance research collaboration, facilitate knowledge sharing, and promote team engagement. Bi-monthly assessments of group progress are conducted using the Tuckman Team Working Questionnaire (TTWQ) and the Team Development Measure (TDM). This study measured baseline satisfaction and identified key factors underlying group differences to inform strategies for improvement and sustainability.

Methods: In April 2025, an online questionnaire combining the TTWQ, TDM, and additional demographic questions was conducted among 85 members of the 12 CRGs, measuring satisfaction with teamwork quality, goal clarity, meaningfulness, recognition, and skill utilization. The data were analyzed using descriptive statistics, cross-tabulations, and chi-square tests to compare satisfaction across groups and demographic categories.

Results: CRG members reported high levels of satisfaction, with 78.8% enjoying collaboration with teammates and 79% finding the experience meaningful. Approximately 75.3% of respondents felt that their contributions were valued, and 83.5% reported effective utilization of their skills. Satisfaction with team outcomes was moderate at 60%. CRG-level

differences were moderate in magnitude for collaboration enjoyment ($p=0.019$) and enjoyment of teammates' company ($p=0.025$). Two additional domains—use of unique skills and feeling valued—showed trends toward CRG differences ($p = 0.058-0.068$). Satisfaction and personal meaningfulness were more uniform across CRGs ($p>.17$).

Conclusion: At baseline, CRG members expressed high satisfaction with interpersonal relationships and the meaningfulness of participation, but only moderate satisfaction with group outcomes. *ASFI Research Journal. 2026; S3(1): e13381.*

Aspirin's therapeutic potential in lung cancer: integrative analysis of PTGS2 expression and molecular interactions

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Background: Lung cancer is a leading cause of cancer-related death, with a poor prognosis due to late diagnosis and limited treatments. Inflammation, especially via the PTGS2/COX-2 pathway, drives lung tumorigenesis. Aspirin, a common NSAID, inhibits PTGS2 and shows anticancer effects, but it is unclear if this is solely through COX-2 or other targets. This study combines transcriptomics, immune profiling, and molecular docking to investigate the role of PTGS2 and aspirin's potential targets in lung cancer.

Methods: The gene expression analysis of PTGS2 in lung adenocarcinoma (LUAD) and squamous cell carcinoma (LUSC) has been identified by TCGA samples using TIMER, GEPIA, and UALCAN databases. Kaplan–Meier and GEPIA were performed to assess prognostic value. Immune cell infiltration was

evaluated via TIMER. The variations in PTGS2 were investigated using the PreMedKB database. To identify the profile, structure, and mechanism of action of aspirin, the DrugBank database was used. Finally, Molecular docking was conducted using PyRx and AutoDock Vina to evaluate aspirin's binding affinity to PTGS2 and ten other cancer-related proteins.

Results: According to the TIMER database, PTGS2 was significantly downregulated in LUAD and LUSC, while LUSC shows its significant downregulation based on UCLAN (p-value < 0.05). Its high expression was associated with poor prognosis in LUAD (p-value 0.00981) but not in LUSC. Immune infiltration analysis revealed that LUAD has weak negative correlations with CD4+ (-0.117) and LUSC has weak positive correlations with (0.091) CD8+ T cells. A PTGS2 SNP (rs186674818) was identified that may alter aspirin response. Docking analysis confirmed considerable binding affinity of aspirin not only to COX-2 (-7.0 kcal/mol), but also to MyD88/IRAK (-6.6 kcal/mol), Bcl-2 (-6.4 kcal/mol), and NLRP3 (-6.4 kcal/mol).

Conclusion: While COX-2 remains aspirin's primary target, the drug may also have anticancer effects in lung cancer through modulation of apoptotic and inflammatory pathways. These findings support the repurposing of aspirin as a multi-target therapeutic agent in lung cancer treatment. *ASFI Research Journal. 2026; S3(1): e13382.*

Solid dispersion of Ibuprofen using modified gaur gum

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Background: Improving the oral bioavailability for poorly water-soluble drugs remains a significant challenge for formulation scientists due to solubility problems. This difficulty often complicates the development of effective oral solid dosage forms. Various techniques have been employed to improve the oral bioavailability of these drugs, with solid dispersion emerging as a prominent method in recent years.

Ibuprofen represents an ideal example of those types of drugs. In this study, we aimed to improve the solubility of ibuprofen by using two types of polymers, guar gum (GG) and modified guar gum (MGG) as drug carriers.

Methods: These solid dispersions were prepared using the kneading method. Heating GG at different temperatures leads to changes in its properties, such as viscosity and water holding capacity, potentially optimizing it as an ideal carrier for the preparation of solid dispersion.

Results: Our results demonstrated that as the polymer-to-drug ratio increases, significantly enhanced ibuprofen solubility and dissolution characteristics and therefore potential a higher oral bioavailability. Promising results were achieved with MGG. As ibuprofen solubility was improved by 93-fold in the formula MGG: IBU (1:1.2) compared with pure ibuprofen, with more than 111% release of the medicament. Other formulas IBU: MGG (1:1 and 1:1.5) also showed substantial solubility enhancements of approximately 79-fold and 68-fold, respectively. In contrast, GG yielded a much lower solubility level compared to MGG solid dispersion but is higher than pure ibuprofen, as the ratios (1:1, 1:1.2, and 1:1.5) have an increase of 55, 37, and 30-fold, respectively.

Conclusion: These findings indicate that modified guar gum is a promising, effective, and economical natural polymeric carrier for improving the solubility of poorly water-soluble drugs through solid dispersion technology. *ASFI Research Journal. 2026; S3(1): e13383.*

Knowledge, attitudes, and preventive practices regarding child sexual abuse among adolescent university students in Ogun State

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Background: Child sexual abuse (CSA) constitutes a significant public health concern with psychosocial consequences for survivors. Within Nigerian tertiary institutions, limited empirical evidence exists regarding students' CSA awareness and attitudinal orientations, hindering the development of targeted prevention strategies. This study assessed the knowledge, attitudes and preventive practices regarding CSA among adolescents in the Federal University of Agriculture, Abeokuta and Chrisland University, Abeokuta, Ogun State, Nigeria.

Methods: A descriptive cross-sectional survey was conducted over 8 days in August 2025 among 369 adolescents selected through multistage cluster sampling from Chrisland University and the Federal University of Agriculture, Abeokuta. Data were collected using a structured questionnaire and analyzed using descriptive statistics and chi-square tests ($\alpha = 0.05$). Knowledge, attitudes, and preventive practices served as primary outcome variables, while gender, age, ethnicity, level of study, religion, and school were explanatory variables.

Results: Knowledge of CSA was generally high, with over 90% answering most items correctly; however, misconceptions persisted regarding perpetrators and warning signs. Significant associations were found between knowledge and gender ($\chi^2 = 11.78$, $df = 2$, $p = 0.0028$), age ($\chi^2 = 34.60$, $df = 5$, $p < 0.001$), level of study ($\chi^2 = 14.29$, $df = 4$, $p = 0.0064$), and ethnicity ($\chi^2 = 8.62$, $df = 3$, $p = 0.0348$). No significant associations were found with school ($p = 0.6944$) or religion ($p = 0.0783$). Attitudes toward CSA were largely positive, with strong support for victim protection and curriculum integration. Gender was significantly associated with attitudes ($\chi^2 = 13.65$, $df = 2$, $p = 0.0011$). Preventive practices showed near-universal endorsement, with 100% supporting body-boundary education.

Conclusion: Adolescents demonstrated substantial knowledge and positive attitudes toward CSA prevention; however, persistent misconceptions highlight the need for targeted, culturally sensitive educational interventions. Demographic factors significantly influence both knowledge and attitudes, warranting gender-responsive and age-specific programming. *ASFI Research Journal*. 2026; S3(1): e13394.

In silico characterization of PHOX2B gene variants: functional and structural insights into congenital central hypoventilation syndrome

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Objective: Congenital Central Hypoventilation Syndrome (CCHS) is a rare genetic disorder marked by impaired autonomic regulation of breathing. It is most commonly caused by polyalanine repeat expansions in the PHOX2B gene; however, nonsynonymous single nucleotide polymorphisms (nsSNPs) may also contribute to disease onset and variability. This study aimed to identify and characterize potentially deleterious nsSNPs in PHOX2B using in silico approaches.

Methods: The PHOX2B gene sequence and SNP data were retrieved from NCBI and UniProt databases. Multiple bioinformatics tools—including SIFT, PROVEAN, PolyPhen-2, PANTHER, PhD-SNP, SNPs&GO, I-Mutant2.0, MUpro, Project HOPE, and GeneMANIA—were used to evaluate the functional impact, disease association, protein stability, structural alterations, and gene-gene interactions of nsSNPs.

Results: From 3,901 total SNPs, 451 were identified as missense variants. Of these, five were predicted as deleterious by SIFT and PROVEAN, and four were classified as probably damaging by PolyPhen-2. Cross-validation with disease-association predictors consistently highlighted three high-risk variants (R100L, E114D, R141G). Structural analyses revealed that these mutations destabilized the protein, disrupted hydrophobic interactions, and altered residue size and charge. Conservation analysis confirmed their location in highly conserved regions, while GeneMANIA indicated interactions with 20 related genes important for neural development.

Conclusion: This study demonstrates that specific nsSNPs in PHOX2B (R100L, E114D, R141G) likely play a

pathogenic role in CCHS by impairing protein stability and function. These computational insights provide a foundation for experimental validation and could inform future diagnostic and therapeutic strategies for CCHS. *ASFI Research Journal*. 2026; S3(1): e13385.

Constellations of work environment factors influencing research misconduct in Africa

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Objectives: Little is known about how the constellations of factors in the immediate institutional environment contribute to research misconduct in Africa. This study used principal component analysis (PCA) to characterize patterns of immediate environment factors contributing to research misconduct as perceived by African scientists.

Methods: This study is part of the African Science Frontiers Initiatives' Research Misconduct in Africa (RAMIFY) project. An online questionnaire, adapted from the Critical Analysis of the Scientific Misconduct Questionnaire-Revised, was distributed to African scholars between March and June 2024. We received 560 respondents. Part of the questions asked respondents to rate the presence of several factors in their immediate work environment that have been linked to research misconduct, including pressures to publish, promotion, and win grants, competitiveness, and institutional safeguards and their levels of implementation. These factors were subjected to PCA to characterized patterns of work environment factors influencing research misconduct. Pearson Chi-square was used to examine the relationships between the PCA-derived patterns and research misconduct.

Results: Results from the PCA analysis showed that two components characterized researchers' perception of work environment-related factors, described as: (1) competitive and high-pressured environment; and (2) level of severity and penalty

towards misconduct. By relating the derived components to the research misconduct outcomes, while the first component (representing high competitive and pressured environment) did not statistically significantly influence the rate of misconduct in the researchers' immediate work environment or researchers' own misconduct behaviours, higher scores in the second component (representing the level of severity and penalty meted on misconduct) was associated with increased likelihood of perceived misconduct in the immediate environment, particularly misconduct related research authorship malpractices. The second component was statistically significantly associated with researchers' own misconduct behaviours.

Conclusion: Research misconduct in the immediate work environment is often induced by the rates of competitiveness among researchers, rate of pressure for productivity and promotion and weak institutional safeguards and their implementation. Further research is needed to assess how generalizable these findings are across the continent. *ASFI Research Journal*. 2026; S3(1): e13386.

Post-kidnap trauma and access to mental health support in Nigeria: social workers response

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Objective: Kidnapping has become a major security concern in Nigeria, often leaving victims deeply traumatized and in urgent need of psychological care. This study examines the mental health impacts of kidnapping and explores how survivors in Nigeria seek and access mental health services following their traumatic experiences.

Methods: Based on in-depth qualitative interviews with five survivors, two senior police officers, and a social work practitioner, this study brings to light the deep psychological impact that kidnapping has on individuals. Survivors often experience symptoms such as post-traumatic stress disorder (PTSD), anxiety,

depression, and a tendency to withdraw socially, underscoring the urgent need for targeted mental health support.

Results: The findings show that survivors face significant challenges in accessing mental health services, largely due to systemic barriers such as inadequate care pathways, limited awareness of available support, and societal attitudes toward mental illness further hinder recovery. Social workers remain well-positioned to support survivors by leveraging their specialized skills and adaptable approaches to care. Their commitment and resourcefulness play a critical role in bridging gaps in mental health services, especially when access to other professionals is limited.

Conclusion: The paper concludes with a call for a trauma-informed, approach to mental health care that respects Nigeria's unique socio-cultural context. It underscores the importance of policy reform and increasing public awareness to improve access and acceptance of mental health services. Collaborative efforts between social workers and government agencies are essential to establishing a resilient system that offers accessible support for victims and their families affected by post-kidnapping trauma. By empowering survivors to confront and process their traumatic experiences and equipping them with adaptive coping strategies, social workers can play a vital role in delivering interventions that are sensitive to the specific needs and circumstances of each individual. *ASFI Research Journal. 2026; S3(1): e13387.*

Baseline characteristics of African Science Frontiers Initiative Collaborative Research Groups

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Objective: The African Science Frontiers Initiative (ASFI) created the Collaborative Research Groups (CRGs) at the beginning of the year 2025, creating a collaborative space of members across disciplines to build and nurture research collaborations. The objective of this paper was to describe the baseline characteristics of the CRGs and understand their composition at formation.

Methods: The Tuckman and Team Development Measure questionnaires were administered to 12 CRGs at formation, with additional demographic questions included.

Results: A total of 85 participants distributed among 12 CRGs completed the baseline questionnaire of which 63.5% were females. Females were mostly represented in CRG5 (87.5%), CRG8 (83.3%) and CRG10 (83.3%). Regarding age, 40.0% of the participants were <40 years (early career), 35.3% were 40-49 years (mid-career) and 24.7% were ≥50 (senior career). Of all the participants, 58.8% were from West-Central Africa, 29.4% from North-East Africa and 11.8% from Southern Africa. In terms of the highest degree earned, 54.1% had less than a doctoral degree. Furthermore, 43.5% were from the field of medicine and health; 30.6% from the arts, humanities, social sciences, and information technology; and 25.9% from agriculture, biology, and physical sciences. Of the participants, 75.3% work in public institutions, while 24.7% in private institutions.

Conclusion: ASFI has succeeded in forming CRGs with diverse demographic characteristics. The over-representation of females, young career researchers, those from the field of medicine and health, scholars from West-Central Africa, and those working at public institutions may highlight greater motivation of these groups in this type of program than their respective demographic counterparts. *ASFI Research Journal. 2026; S3(1): e13388.*

The ethical considerations in accounting and auditing practices in Nigeria

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Objective: The study examines the ethical considerations in accounting and auditing practices in Nigeria. It highlights the importance of professional ethics in maintaining public trust, auditor independence, integrity, fair judgment and credibility in financial reporting.

Methods: The research underscores the regulatory framework guiding audit practices, the challenges and dilemmas auditors face, and the influence of technology on ethical standards.

Results: Case studies reveal notable breaches of ethical conduct in Nigerian firms, which undermine transparency and stakeholder confidence.

Conclusion: The study further proposes best practices, including strengthening professional codes of ethics, promoting ethical culture, and training accountants for ethical decision-making. The findings suggest that ethical behavior among auditors directly affects the quality of audit services, while also calling for reforms to address emerging technological and professional challenges. Future research is recommended to explore auditor independence in the context of economic pressures and small business audits. *ASFI Research Journal. 2026; S3(1): e13389.*

Building collaborative careers for professional success: evidence from agricultural researchers

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Background: Collaboration has become a cornerstone of impactful research and sustainable career development in the 21st century. Building collaborative careers requires researchers to look beyond individual achievements and embrace networks that foster shared learning, mentorship, and innovation.

Objective: This study explores strategies for leveraging collaborative platforms to strengthen both scientific impact and professional growth.

Methods: An exploratory-critical review methodology would determine the inclusion of the role of interdisciplinary partnerships in expanding research boundaries.

Results: Drawing from practical experiences in academia and agricultural research, the study highlights how intentional collaborations create opportunities for capacity building, knowledge exchange, and leadership development. The importance of professional societies and conferences in nurturing early-career researchers, and the value of joint supervision, co-authorship, and grant applications in enhancing visibility and resource access, for professional success. Emphasis is placed on actionable tools such as mentorship frameworks, networking practices, and project management approaches that align personal career goals with broader research agendas.

Conclusion: Breaking collaborative boundaries empowers researchers not only to contribute meaningfully to global challenges but also to cultivate resilient, impactful, and future-ready careers. *ASFI Research Journal. 2026; S3(1): e13390.*

The impact of economic globalization and renewable energy consumption on environmental sustainability in Nigeria

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Background: With increasing concerns about climate change, developing countries like Nigeria face the challenge of balancing economic globalization with environmental sustainability. Globalization may contribute to environmental degradation, but renewable energy has the potential to mitigate these effects.

Objectives: This study examines the impact of economic globalization and renewable energy consumption on environmental sustainability in Nigeria from 1990 to 2023. It also explores whether renewable energy acts as a mediating factor in this relationship.

Methods: The study employs a quantitative approach using time-series data for CO₂ emissions per capita, the KOF Economic Globalization Index, and renewable energy consumption. Econometric techniques applied include the Johansen cointegration test, Vector Error Correction Model (VECM), and Granger causality analysis.

Results: Findings show that economic globalization significantly increases CO₂ emissions in the long run, supporting the Pollution Haven Hypothesis in Nigeria. Renewable energy consumption, however, demonstrates a mitigating effect on emissions, though this effect is only statistically significant over the long term.

Conclusion: The study emphasizes the need for policy reforms that encourage green investment, strengthen environmental regulations, and improve access to renewable energy technologies. These measures are essential to achieving a balance between economic integration and environmental sustainability in Nigeria and other developing economies. *ASFI Research Journal. 2026; S3(1): e13391.*

Modelling the association between maternal syphilis and risk of preterm outcome in Botswana

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Background: Syphilis remains one of the most prevalent sexually transmitted infections globally, with Sub-Saharan Africa carrying the largest share. Millions of new cases are reported annually. Despite the integration of routine screening and treatment in antenatal care, maternal syphilis continues to contribute to adverse perinatal outcomes, including preterm birth.

Objective: This study investigated the impact of treatment and contextual factors on reducing preterm risk to improve maternal and neonatal health outcomes among pregnant women in Botswana.

Methods: This retrospective cohort study analysed medical records of 660 syphilis-seropositive pregnant women between 2020 and 2023. Data were structured at two levels, with individuals nested within health districts. Preterm birth was defined as delivery before 37 weeks of gestation. Multilevel logistic regression was employed to model the association between maternal syphilis exposure, treatment, and risk of preterm birth.

Results: Women who received at least one dose of penicillin had a 64% lower likelihood of preterm birth (OR = 0.36; p = 0.009), while those who received two or three doses experienced a 74% reduction (OR = 0.26; p = 0.005). Women with high titer level had 81% lower risk of preterm birth compared to those with the lowest titer level (OR = 0.19; p = 0.000). Women residing in rural areas had a 57% lower risk of preterm birth compared to their urban counterparts (OR = 0.43). Variation in preterm birth risk was observed across districts, suggesting contextual influences on maternal outcomes.

Conclusion: Maternal syphilis treatment with penicillin significantly reduces the risk of preterm birth. These findings underscore the urgent need for timely detection, equitable access to treatment, and person-centred care strategies. Strengthening early intervention programs can mitigate the burden of congenital syphilis while advancing maternal and child health targets in Botswana and similar contexts. *ASFI Research Journal. 2026; S3(1): e13392.*

The impact of financial inclusion on labour productivity in West Africa

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Background: This study examines the impact of financial inclusion on labor productivity in West Africa, a region characterized by considerable economic diversity and abundant natural resources. Despite these inherent advantages, many countries in the region continue to face significant structural challenges that constrain economic advancement and limit workforce efficiency. This research investigates

how access to financial services shapes labor productivity outcomes across West African countries, with a view to identifying pathways for sustainable economic development.

Methods: The study employs a panel random effects model, selected on the basis of the Hausman test, to analyze cross-country data from the region.

Results: Key findings indicate that financial inclusion exerts a positive and statistically significant effect on labor productivity. Greater access to banking services, credit facilities, and savings instruments is associated with enhanced workforce efficiency and overall economic performance.

Conclusion: Based on these findings, the study offers actionable policy recommendations for governments, policymakers, and relevant stakeholders. These recommendations aim to foster enabling environments for financial inclusion, with the ultimate goal of boosting labor productivity and driving sustainable economic growth across West Africa. *ASFI Research Journal. 2026; S3(1): e13393.*

Beyond symptomatic relief: the promise of *Caralluma dalzielii* in Alzheimer's disease

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Objective: Alzheimer's disease (AD) is a major neurodegenerative disorder and a global health challenge, characterised by progressive cognitive decline and memory loss. Despite extensive research, existing treatments primarily offer symptomatic relief, without altering the disease's underlying progression. This has created an urgent need for novel therapeutic agents that can address the root causes of the disease. This study explores the potential of *Caralluma dalzielii*, a plant widely used in traditional medicine, as a promising new therapeutic approach for AD. The study aimed to evaluate the biochemical effects of the n-butanol fraction of *Caralluma dalzielii* in a transgenic *Drosophila melanogaster* model of AD. Specifically, the study assessed:

- Acetylcholinesterase (AChE) activity
- Antioxidant enzymes: Glutathione (GSH) and Superoxide Dismutase (SOD)
- Lipid peroxidation via Malondialdehyde (MDA)
- Altered lipid metabolism via Triacylglycerol (TAG)

Methods: The n-butanol fraction was obtained from methanol extracts through fractionation. A transgenic *Drosophila* model expressing the human A β -42 peptide was employed. Flies were fed diets containing varying concentrations of the extract for 14 days, with Donepezil hydrochloride serving as a positive control. After treatment, fly head homogenates were subjected to biochemical assays to evaluate the parameters outlined.

Results: Phytochemical screening revealed alkaloids, flavonoids, and saponins in the n-butanol fraction. Administration of the extract significantly reduced AChE activity, suggesting improved cholinergic neurotransmission. Elevated GSH levels demonstrated antioxidant activity, enhanced SOD activity, and decreased MDA, indicating a reduction in lipid peroxidation. Additionally, the extract favourably modulated TAG levels, reflecting an improvement in altered lipid metabolism associated with AD pathology.

Conclusion: The n-butanol extract of *Caralluma dalzielii* exhibited neuroprotective effects in the AD *Drosophila* model by targeting multiple pathological mechanisms. These included enhancing cholinergic function, mitigating oxidative stress, and regulating lipid metabolism. The findings highlight its potential as a multi-target therapeutic candidate, offering a holistic strategy for neuroprotection in Alzheimer's disease. *ASFI Research Journal. 2026; S3(1): e13394.*

The leaf that prevents and heals: the promise of *Ocimum gratissimum* for kidney stones

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Objective: *Ocimum gratissimum* L., commonly known as scent leaf or clove basil, is a perennial herb with a rich history in traditional medicine for treating various ailments, including respiratory infections. This plant, valued for its healing properties, also shows potential in managing urolithiasis, a global health concern characterised by kidney stone formation. This study investigates the potential of the plant's aqueous extract (AEOG) to both prevent and cure this condition.

Methods: To understand the plant's effectiveness, a series of experiments was conducted. The phytochemical composition of the AEOG was analysed using HPLC, and acute toxicity was assessed in male Wistar rats to ensure safety. Urolithiasis was then induced using a hyperoxaluria model. The rats were divided into groups for a 28-day treatment period, including a normal (untreated) control, a urolithiasis-induced group, and groups treated with AEOG for either prophylactic (preventive) or curative purposes. Urine, blood, and kidney tissue samples were then analysed.

Results: Phytochemical analysis revealed a rich composition, including flavonoids, tannins, and beneficial compounds like kaempferol and naringenin. Acute toxicity studies confirmed that the extract is safe for use up to 5000 mg/kg. In the prophylactic groups, AEOG significantly reduced urinary calcium, uric acid, and phosphate, while increasing beneficial magnesium levels. Histological examination showed that the extract completely prevented crystal formation. In the curative groups, AEOG effectively reduced urinary and serum factors that contribute to stone formation, leading to a noticeable reduction or complete elimination of pre-formed crystals.

Conclusion: These findings validate the traditional use of *O. gratissimum* for kidney-related ailments. The study demonstrates the promising therapeutic potential of this agent as both a preventive and a curative treatment for urolithiasis, likely due to its rich phytochemical composition. *ASFI Research Journal*. 2026; S3(1): e13395.

Does the type of school affect the use of substance among secondary school students in Nigeria?

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Objective: Adolescent substance use is shaped by their social environment. This study investigated the associations between school type (residential status, funding type, and gender composition) and substance use among secondary school students in Nasarawa State, Nigeria.

Methods: A cross-sectional survey of 1,518 students from 26 randomly selected schools in Nasarawa State (April–July 2023) assessed substance use using standardized questionnaires. Adjusted logistic regression analyzed associations between school characteristics and substance use.

Results: Non-residential students had significantly higher odds of marijuana (aOR: 3.06–3.55) and inhalant use (aOR: 5.01–10.38) compared to residential students. Private schools showed protective effects, with 58–62% lower odds of cigarette use and 60% lower odds of marijuana use ($p < 0.005$) versus government schools. Mixed-sex schools had elevated substance use compared to single-sex schools. Girls-only schools exhibited 70–84% lower odds of cigarette use (aOR: 0.16–0.17; $p < 0.01$) and 70% lower odds of any substance use (aOR: 0.30; $p < 0.001$), while boys-only schools had higher inhalant use risk (aOR: 9.45; $p < 0.01$).

Conclusion: School type significantly influences adolescent substance use in Nigeria, with non-residential, government-funded, and mixed-sex students at higher risk. Key systemic factors include supervision gaps, resource disparities, and gendered behavioral norms. Targeted interventions—enhanced monitoring, equitable resource allocation, and gender sensitive prevention—are recommended to mitigate these risks. *ASFI Research Journal*. 2026; S3(1): e13396.

Collaborative international research projects: a reflective perspective from the actors

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Objective: Collaborative International Research Projects (CIRPs) constitute one of the defining features of knowledge production in the contemporary era. However, there is limited research documenting how such projects are effectively implemented from the perspective of participants. This paper seeks to assess the actors' experiences about their involvement in the CIRPs as organised by the African Sciences Frontiers Initiatives (ASFI). This paper delves into the structural mechanisms that generated their involvement in the CIRPs over time. Structural mechanism refers to not just the roles, functions, and responsibilities that the actors played in the project, but the disciplinary knowledge they had to draw upon to fulfil these roles, and further, the decisions made, and constraints faced they had to make in completing the CIRPs.

Methods: Questionnaire surveys, desk top research, and participant observations are used, targeting a good sample of CIRP actors. Data analysis will entail thematic and content analysis, by basically following the established conventions of critical discourse analysis. While this is still work-in-progress, the research methods will allow for triangulation in the sense of data completion, confirmation, and retrodution.

Results: It is envisaged that the results will shed light on the enabling and constraining factors that the participants involved face in CIRPs.

Conclusion: Findings are expected to inform strategies for enhancing research capacity and fostering impactful collaboration in international research settings. *ASFI Research Journal*. 2026; S3(1): e13397.

Health narratives, pedagogical methodologies, and community engagement for transformative impact

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Background: Health narratives are powerful tools for understanding and addressing complex health challenges within communities. However, traditional health education often remains confined within disciplinary and institutional boundaries, limiting its transformative potential. This study advances a classroom-to-community pedagogical methodology that re-enacts health narratives through innovative literary performances, bridging the gap between academic learning and community engagement.

Objective: This research aims to develop and implement pedagogical methodologies that utilise literary narratives and performances to: 1) enhance students' critical engagement with health-related themes; 2) enact health narratives in classroom settings; 3) extend these performances as participatory health dialogues in local communities; and 4) contribute to innovative, collaborative frameworks for transformative health education and community impact in African and global contexts.

Methods: The methodology involves a participatory action research approach where students engage with curated literary narratives addressing health issues pertinent to their communities. These narratives are adapted into performative scripts enacted in classrooms and subsequently taken to community venues for interactive performances and discussions. Qualitative data will be collected through participant observation, reflective journals, focus group discussions, and community feedback to evaluate the impact and transformative potential of these performances.

Results: Preliminary findings suggest that reenacting health narratives through literary performance cultivates deeper critical awareness among students and stimulates community dialogue on health challenges. The process encourages collaborative knowledge creation between students and community

members, enhancing mutual understanding and collective empowerment. Furthermore, this pedagogical model demonstrates potential to disrupt traditional boundaries between education and community health advocacy for sustained impact.

Conclusion: The classroom-to-community reenactment of health narratives via innovative literary performances presents a promising pedagogical methodology for fostering critical engagement and transformative change on health issues. By breaking disciplinary, institutional, and social boundaries, this approach offers a replicable framework for collaborative, impactful research and career pathways that contribute to African and global health transformations. *ASFI Research Journal. 2026; S3(1): e13398.*

Assessment of some heavy metals (lead, cadmium and zinc) in water used in poultry farms in Wukari Taraba state Nigeria

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This study assessed the concentrations of selected heavy metals—lead (Pb), cadmium (Cd), and zinc (Zn)—in water sources used for poultry farming within Wukari LGA, Taraba State, Nigeria. Given the environmental and public health implications of heavy metal contamination, water samples were collected from three poultry farms across the Avyi, Hospital, and Puje wards. Analytical procedures involved Atomic Absorption Spectrophotometry (AAS), and data were subjected to statistical analysis to identify variations in metal concentrations and their significance. The results revealed the presence of all three metals in the sampled water sources. Lead concentrations exceeded the World Health Organization (WHO) permissible limit in all locations, posing a considerable health risk to both poultry and consumers of poultry products. Cadmium levels were above the recommended threshold in certain samples, while zinc concentrations, although elevated in Puje, remained

within acceptable limits. However, statistical analyses showed no significant differences in the concentrations of the metals across the sampling sites. The findings highlight the potential hazards associated with the use of contaminated water in poultry farming, with implications for animal health, food safety, and human well-being. The study emphasises the need for regular monitoring of water quality, improved environmental management practices, and the enforcement of relevant regulatory standards. This research contributes to the growing body of knowledge on water pollution, sustainable livestock production, and environmental health in developing regions. *ASFI Research Journal. 2026; S3(1): e13399.*

Prevalence of allergic conditions among governmental basic school pupils in Elhasahissa, Gezira State, Sudan

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Background: Allergic conditions are important public health problem worldwide and it takes place in the developing countries.

Objective: To study the prevalence of allergic conditions among basic school pupils (asthma, eczema, food allergy, drug allergy and allergic rhinitis) classify the prevalence of allergic conditions according to sex as well as to investigate the factor associated with those allergic conditions.

Methods: A descriptive cross-sectional school-based study was conducted at Elhasahissa Governmental basic schools, Gezira State, Sudan. A Sample size of 392 were determined. Data was collected using a questioner-quidded interview directed to pupils regarding their demographic and allergic conditions and analyzed using statistical package for the social sciences (SPSS) version 21.0. A chi-square test was used to evaluate the association between allergic conditions and different risk factors.

Results: The prevalence of allergic conditions was 14.7%. The prevalence according to the type of allergic

conditions were 10.5%, 2.6%, 1.3 %, 0.5 % and 0 % for asthma, eczema, food allergy, drug allergy and allergic rhinitis respectively, with higher prevalence in males 8.1% than in females 6.6% in the most cases. Allergic conditions show positive links with school attendance, age, family history, and environmental factors (dust, cold, plants). Asthma is strongly associated with dust, cold weather, and plants. Eczema correlates with cold weather. Food and drug allergies are linked to specific triggers. No significant associations found with sex or housing.

Conclusion: The prevalence of allergic conditions was 14.7% at Elhasahissa governmental basic schools, Gezira State, Sudan, and the prevalence of allergic conditions according to sex was 8.1% in males and 6.6% in females. *ASFI Research Journal. 2026; S3(1): e133100.*

Vitamin D deficiency, dyslipidemia, and deep vein thrombosis susceptibility in Sudanese women: a case-control study

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Background: Deep vein thrombosis (DVT) is a major contributor to maternal morbidity and mortality, particularly in developing countries. While classical risk factors are well established, emerging evidence suggests a potential role of biochemical markers such as vitamin D deficiency and lipid abnormalities in the pathogenesis of DVT. However, these associations remain underexplored in African populations, especially among Sudanese women.

Objective: This study aimed to evaluate the levels of serum vitamin D and lipid profile components in Sudanese women with DVT compared to healthy pregnant and non-pregnant controls, and to investigate their potential association with thrombotic risk.

Methods: A hospital-based case-control study was conducted between May 2022 and May 2024. The study involved 165 Sudanese women divided into three groups: DVT patients (pregnant and postpartum

women), healthy pregnant women, and healthy non-pregnant women. Blood samples were analyzed for serum vitamin D and lipid profile. Data were statistically analyzed using SPSS version 24. T-tests, ANOVA, Pearson correlation, and binary logistic regression were applied, with significance set at $p \leq 0.05$.

Results: Both pregnant groups with and without DVT, exhibited significantly lower vitamin D levels and higher triglycerides and VLDL compared to healthy non-pregnant woman, however low level of HDL is found solely in the pregnant group with DVT. Moreover, no significant differences were observed in lipid or vitamin D levels based on contraceptive use, anticoagulant therapy, or prior DVT history, except for lower vitamin D in DVT patients with previous thrombotic episodes.

Conclusion: Pregnancy, regardless of the presence of DVT, is associated with reduced vitamin D levels and unfavorable lipid changes. However, the additional reduction in HDL observed only in pregnant women with DVT suggests a more pronounced lipid disturbance in this group. These findings support the multifactorial nature of DVT and highlight the need for comprehensive risk assessment tailored to local contexts. *ASFI Research Journal. 2026; S3(1): e133101.*

Attitudes and perceptions of undergraduate nursing students toward responsible social media use as an educational tool in Abeokuta, Ogun state Nigeria

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Objective: The proliferation of social media has transformed pedagogical approaches across healthcare, particularly nursing education. However, empirical evidence regarding nursing students' attitudes and perceptions toward responsible social media utilization as educational tools remains limited, especially within Nigerian nursing institutions. This

study addresses this gap in selected nursing institutions in Ogun State.

Methods: A descriptive cross-sectional investigation was conducted in September 2024 among undergraduate nursing students from Sacred Heart College of Nursing Sciences, Lantoro, and the College of Nursing, Idi Aba, Abeokuta, Ogun State. Sample size determination employed Yamane's formula with $N=212$ and margin of error $e=0.05$, yielding 200 participants (response rate = 94.3%). Data collection utilized a structured questionnaire with established psychometric properties (Cronbach's $\hat{\alpha} = 0.87$ for attitudes scale, $\hat{\alpha} = 0.82$ for perceptions scale). Statistical analysis was performed using SPSS version 25, incorporating descriptive statistics, Pearson product-moment correlations, and one-way analysis of variance ($\hat{\alpha} = 0.05$).

Results: Among 200 participants, 170 (85.0%) demonstrated positive attitudes toward responsible social media use ($M = 3.74$, $SD = 0.68$), while 190 (95.0%) exhibited favorable perceptions ($M = 4.12$, $SD = 0.54$). Pearson correlation analysis revealed no significant association between attitudes toward responsible social media use and self-reported academic performance ($r = 0.023$, $p = 0.748$, 95% CI: -0.117 to 0.162). One-way ANOVA indicated no statistically significant differences in social media perceptions across academic progression levels [$F(2,197) = 0.016$, $p = 0.984$, $\hat{\alpha} < 0.001$], with consistent mean scores among Year 1 ($M = 4.11$, $SD = 0.52$), Year 2 ($M = 4.13$, $SD = 0.57$), and Year 3 students ($M = 4.12$, $SD = 0.53$).

Conclusion: Undergraduate nursing students exhibited positive attitudes and perceptions toward responsible social media use in education across academic levels. Findings support the need for structured institutional frameworks promoting educational integration, professional boundaries, and digital literacy competencies. *ASFI Research Journal*. 2026; S3(1): e133102.

The impact of climate change exposures on postpartum psychosis in African low-and

middle-income countries: a systematic review

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Climate change is a growing threat to global health, disproportionately affecting populations in low- and middle-income countries (LMICs). While the impact on physical health such as malnutrition and infectious diseases is well-documented, little is known about the effects on maternal mental health. Postpartum (PP) psychosis, a severe psychiatric condition with an estimated incidence of 2–3 per 1,000 deliveries and suspected higher rates in some African countries, may be exacerbated by climate-related stressors. This study is expected to examine how climate change contributes to the incidence and severity of postpartum psychosis among women of childbearing age in LMICs within Africa, focusing on both direct and indirect environmental and social stressors. A systematic review protocol was employed to guide article selection and analysis. Scientific publications addressing the intersections of climate change, and mental health were identified, screened, and synthesized to extract relevant findings on risk factors for PP psychosis. The review suggests that climate change contributes to PP psychosis through multiple pathways. Direct stressors include extreme heat, floods, and droughts that increase physiological and psychological distress. Indirect pathways include food and water insecurity, economic displacement, migration, and breakdown of community support systems, all of which heighten postpartum vulnerability. Climate-related factors such as intimate partner violence during heat waves and trauma among displaced populations were also found to increase PP psychosis risk. Climate change intensifies existing risk factors for postpartum

psychosis by compounding environmental, social, and health system stressors in vulnerable African populations. Addressing these challenges requires integrating maternal mental health support into climate adaptation and public health strategies, with a focus on resilience-building for at-risk women, especially those of childbearing age. *ASFI Research Journal. 2026; S3(1): e133103.*

Impact of housing type on Vitamin D levels: a cross-sectional study in Sudan

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Background: Vitamin D deficiency is a growing global health concern, especially in regions with ample sunlight like Sudan. Various socio-demographic and environmental factors influence serum Vitamin D levels, including housing type, lifestyle, and gender.

Objective: To assess the impact of housing type on serum Vitamin D levels among adults in Sudan, and to explore the association between Vitamin D and socio-demographic factors.

Methods: A cross-sectional study was conducted between 2022 and 2024 across three urban areas in Sudan: Bahri, Omdurman, and Khartoum. A total of 234 participants aged 19–79 years were enrolled. Data were collected using structured questionnaires and blood sampling. Vitamin D levels were measured and analyzed in relation to participants' housing type (open vs closed), gender, marital status, employment, and other variables.

Results: The mean age of participants was 47.8 years. Most participants (74.8%) were female and 65.8% resided in Bahri. Vitamin D levels were significantly higher in individuals living in open houses compared to those in closed houses (24.6 ± 15.1 vs. 18.7 ± 9.3 ng/mL, $p=0.004$). Females had significantly lower Vitamin D levels than males (21.3 ± 11.2 vs. 31 ± 19.8 ng/mL, $p=0.001$). Marital status showed a significant association with Vitamin D levels ($p=0.03$), while occupation did not.

Conclusion: Housing type significantly affects Vitamin D levels among Sudanese adults. Public health interventions should consider environmental and demographic factors in mitigating Vitamin D deficiency. *ASFI Research Journal. 2026; S3(1): e133104.*

African youth: the challenges of science and innovation

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Background: Africa is experiencing a demographic dividend, with more than 60% of its population under 25. This youthful population represents significant potential for advancing science, technology, and innovation (STI). However, structural barriers, including limited research funding, weak STEM education, inadequate infrastructure, gender disparities, and brain drain, continue to limit meaningful youth participation. Without targeted interventions, these challenges threaten Africa's transition to a knowledge-based economy and its ability to achieve the African Union's Agenda 2063 and the UN Sustainable Development Goals.

Objective: This study aims to explore the key barriers preventing African youth from engaging in STI, analyses socio-economic, educational, and institutional constraints, identify lessons from successful youth-led innovation initiatives, and propose evidence-based strategies to foster a supportive innovation ecosystem.

Methods: A qualitative or mixed-methods design will be employed. Data collection will include key informant interviews with young scientists, innovators, and policymakers; focus group discussions with students, entrepreneurs, and tech innovators; and a review of secondary sources such as AU, UN, and World Bank reports. Thematic analysis will be applied to identify recurring barriers and policy gaps.

Results: The expected outcomes include a deeper understanding of the challenges limiting youth engagement in STI, practical recommendations for improving STEM education and research funding, and the development of a policy brief to guide governments,

universities, and private stakeholders. The study also seeks to enhance the visibility and participation of youth in Africa's innovation ecosystem.

Conclusion: Empowering African youth in STI is essential for unlocking the continent's demographic dividend, reducing unemployment, and addressing pressing challenges such as food insecurity, climate change, and health crises. In sum, strengthening youth participation in STI is key to Africa's sustainable development and long-term prosperity. *ASFI Research Journal. 2026; S3(1): e133105.*

Racial disparities and diverse health outcomes: an umbrella review

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Background: As part of a broader umbrella review project, our group analyzed 18 systematic reviews investigating racial disparities in 75 health outcomes, including anti HCV prevalence, Survival of lung cancer, Melanoma overall and specific mortality, Control of Hb1Ac, Death from COVID-19, Somatic symptoms frequency in women with depression, Insulin sensitivity index, Acute Insulin response to glucose, Incidence of IgA nephropathy, Prevalence of primary open glaucoma, Prevalence of burnout, Consequence of burnout, Anthropometric characteristics (e.g Mean BMI and Mean Waist circumference), Markers of pancreatic B-cell function, Lower extremity amputation and Nephropathy and ESRD.

Objectives: To synthesize evidence on racial and ethnic disparities across diverse health outcomes.

Methods: We searched seven databases to identify articles published from inception until June 2025 with no language restrictions. Two reviewers independently screened titles, abstracts, and full-text articles; extracted study data; and assessed risk of bias using the AMSTAR (A Measurement Tool to Assess systematic Reviews) tool. Data were synthesized

narratively to identify patterns in the association between race/ethnicity and the considered health outcomes.

Results: Our database searches identified 63,699 papers. Of these, 33,681 papers were screened after de-duplication, and 18 systematic reviews contained data on the outcomes included in this abstract. The majority of reviews reported significant disparities in the relationship between race/ethnicity and respective health outcomes. However, those from Black, Hispanic/Latino, Indigenous, and Asian populations were most likely to have adverse outcomes across multiple conditions, including cardiovascular disease, diabetes, cancer, and mental health than their White/Caucasian counterparts. These disparities persisted even after adjusting for clinical and socioeconomic factors. Common themes included unequal access to care, differences in disease manifestation, and underrepresentation in research. Methodological limitations included inconsistent use of race/ethnicity categories and poor demographic reporting. Quality Appraisal The overall methodological quality of the included reviews ranged from low to critically low: four reviews were rated low quality (one critical flaw each), and 14 were critically low quality (more than one critical flaw each). Several reviews lacked standardized reporting of protocol registration or justification for deviations, inadequate justification for excluded studies, and failure to investigate risk of bias assessments. Heterogeneity in definitions and study populations was a recurring limitation. These limitations suggest caution in interpreting synthesized evidence, with sensitivity analyses recommended to prioritize higher-quality reviews.

Conclusion: Racial and ethnic disparities in health outcomes are persistent and multifactorial, but compared to White/Caucasian population, Blacks, Hispanic/Latino, Indigenous, and Asian populations were most adversely affected. *ASFI Research Journal. 2026; S3(1): e133106.*

Adaptive processing technology: the panacea for food security and sustainable value chain

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In many regions of the world, food products: grains, fruits, vegetables and perishables are central to economic development, nutritional and cultural identity. However, its susceptibility to post-harvest losses, accounting for 20 to 40%, due to short shelf life, inadequate or rigid processing methods, and disruptive distribution continues to deplete farmer/processor incomes, constrain availability and weaken value chain performance. Conventional processing technologies often fail to account for variable crop characteristics, value chain bottlenecks and diverse end-user demands, leading to significant food losses, poor quality products and reduced market value. Addressing these losses and inefficiencies requires innovative approach; incorporating adaptive processing technologies that ensure dynamic response to variation in crop characteristics, processing techniques, product quality, environmental conditions, and market demand in the food value chain. Such technologies understudy the traditional approaches of handling, processing and preservation with product-based advanced flexible methods, automated modular equipment designs for quality delivery and real-time decision-making. These innovations offer transformative potential to reduce losses, lower energy use, promote value addition and enhance product quality. The multiplier effects include enhanced rural livelihoods, job creation, and empowerment of small and medium enterprises. By integrating innovation with sustainability principles, adaptive processing technologies not only reduce post-harvest losses but also reinforce the resiliency in food value chains, strengthen foreign exchange earnings, and contribute directly to global food security. *ASFI Research Journal*. 2026; S3(1): e133107.

Pandemic preparedness: emergency response capabilities and sustainability of universities in Kenya

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The outbreak of the Corona Virus Disease in the late 2019 (COVID 19) and the subsequent declaration of the virus as a global pandemic by the World Health Organization (WHO) in March 2020, affected all the sectors of human life. This is especially so because of the implementation of a combination of measures touted as international best practice: lockdowns, quarantines, curfews, and social distancing (de Figueiredo et al. 2020; UNDP, 2020) “combined with public health advice to frequently wash hands with soap or alcohol-based sanitizers, to wear face masks, and to avoid touching one’s face” (Nderitu et al, 2000). These measures restricted movement and interaction of humanity all over the world, and in return resulted into enormous disruption of social and public services including education. Research has shown the world should expect pandemics the magnitude of COVID 19 every ten years. The aim of the paper is to examine the implications of emergency response capabilities on sustainability of universities in Kenya; and, exploring policy gaps through an analysis of what policies supported or hindered sustainability of university in Kenya during pandemic and future potential pandemics. Through a cross-sectional descriptive design that employed an explanatory sequential mixed methods approach, the study utilized a survey to generate statistics that can show the level of emergency response capabilities on sustainability of universities in Kenya. Analyzed data from the quantitative phase informed the qualitative approach selection of participants for key informant interviews and FGDs in order to explain the extreme cases and those that showed mixed results. Findings reveal that while over half of respondents agreed their universities have reliable mechanisms for detecting early health threats (51.8%) and employ real-time data analytics (51.8%), significant concerns remain, with nearly one-third expressing doubts about outbreak monitoring

teams (27.4%) and collaborations with public health authorities (23.2%). Similarly, although 59.2% acknowledged the existence of clear protocols for reporting health concerns, a sizeable share remained neutral or disagreed, reflecting institutional gaps in communication and system updates. On supply chain management, results show relative strengths, particularly in long-term supplier contracts (57.8%), quick procurement processes (59.7%), and collaboration with external partners (56.5%). However, challenges persist in maintaining adequate stockpiles (28.2% disagreement) and fully integrating digital tools for inventory tracking (22.6% disagreement). The study concludes that Kenyan universities demonstrate moderate preparedness, with more robust systems for supply chain resilience. Nevertheless, persistent neutrality and disagreement rates signal uneven implementation and awareness of protocols among staff. Strengthening pandemic preparedness requires investment in surveillance technologies, improved communication systems, stronger collaborations with public health authorities, and digital transformation of supply chains. Such capabilities are critical not only for effective emergency response but also for sustaining the teaching, research, and community service functions of universities during future health crises. *ASFI Research Journal. 2026; S3(1): e133108.*

Rethinking leadership and transformation in African science: ASFI's five years

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Objective: In breaking barriers and building bridges, this paper's objective is to rethink leadership and transformation in African science. Specifically, this paper explores rethinking leadership in transforming African science from the perspective of ASFI's five years.

Methods: The methodology adopted for this paper is four Foundations of being a leader and also a Scholarly Personal Narrative (SPN) in order to obtain African scholars' experiences of ASFI's Five Years. This study gathered testimonies from 7 African scholars. Content analysis is used to present the emerged themes.

Results: The findings have shown that the emerged themes confirm the ASFI's Five Years leadership path in terms of integrity, authenticity, being a cause in the Matter, and living for a dream bigger than Self.

Conclusion: This paper's outcome shows that in rethinking leadership and transformation in ASFI's Five Years, it is important to continue to embrace the emerged themes that constitute integrity, authenticity, a cause in the Matter, and living for a dream bigger than Self. *ASFI Research Journal. 2026; S3(1): e133109.*

Solar and self-empowerment in collaborative research: scholars' experiences

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Objective: In building bridges, the issue of solar usage is key given the fact that power cuts or load shedding is been experienced in the continent of Africa. Collaborative research requires good communication and therefore, this paper explores solar and self-empowerment in collaborative research and specifically this paper explores solar usage and self-empowerment in collaborative research communication from the scholars' experiences.

Methods: The adopted research methodology deemed fit for this paper is the Scholarly Personal Narrative (SPN) so as to gather experiences from scholars in Africa. Hence, 5 scholars share their experiences which are analyzed using content analysis.

Results: Findings show that there are varying experiences in terms of solar usage, for example, scholars stating that they have not yet invested in mini solar panels in case of power cuts or load shedding

when communicating during collaborative research activities like zoom sessions. Other scholars confirmed not using solar personally due to solar panels being expensive. Some scholars used solar from alternative sources such as from hotel accommodations or neighbours who have installed solar panels but even this is an issue due to wearing of batteries and low voltage to support gadgets like computers.

Conclusion: The scholars' have commonly agreed that it is important to invest in solar panel for usage during power cuts or load shedding so as to have minimum disruptions when communicating during collaborative research activities or projects as a way of self-empowering researchers. *ASFI Research Journal. 2026; S3(1): e133110.*

Breaking barriers: overview of collaboration paths in celebrating five years of ASFI

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Objective: Collaboration is key in developing African Scholars. This paper explores breaking barriers with an overview of collaboration paths in celebrating five years of African Science Frontiers Initiatives (ASFI).

Methods: This paper uses literature review and specifically an integrative literature review as a research methodology. The application of content analysis deemed fit to provide the emerged themes.

Results: The findings reveal that there are more than seven collaboration paths. Some of the collaboration paths are country collaboration path, discipline collaboration path, concept note collaboration path and discussion collaboration path.

Conclusion: There are more than seven collaboration paths that exist in celebrating 5 years of ASFI. This implies that African Scholars are collaborating through different paths within ASFI. Therefore, in breaking more barriers, ASFI may wish to capitalize on these existing collaboration paths but also work towards introducing other collaboration paths such as the policy collaboration path. *ASFI Research Journal. 2026; S3(1): e133111.*

Goals achievement during 3-6 months and determinants in the African Science Frontiers Initiative (ASFI) Collaborative Research Groups

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Background: The ASFI CRG program assigned members into 12 CRG groups, which were designed to enhance researchers' collaboration and group achievements. The Tuckman Team Working Questionnaire (TTWQ) and Team Development Measure (TDM) are used to undertake bi-monthly assessments of the program. This study aims to measure and evaluate the goal achievement and anticipated progress of the CRGs during the first 3-6 months.

Method: During the second bi-monthly survey, two questions assessed group's progress and achievement of set goals: (1) In a scale of 1 to 10, to what extent do you think that your CRG achieved the goals it set to achieve during the previous two months?; and (2) In a scale of 1 to 10, to what extent do you think that your CRG made anticipated progress during the previous two months? In both questions, a score of ≥ 7 was taken as adequate expectation. Data were analyzed using descriptive statistics and Chi-square, which tested differences in goals achievement and progress by demographic factors.

Result: Overall, 53.2% indicated that their CRG achieved its goal, while 56.5% reported anticipated progress. Region of origin and the highest degree earned were significant determinants of goal achievement and group progress. By highest degree, 66.7% of less than a doctoral degree versus 42.3% of doctoral degree reported achievement; this association did not reach statistical significance ($X^2(2)=3.68, p=159$). By region, achievement was 50% in North East, 69% in Southern Africa, and 42.1% in West

Central; the association was not statistically significant ($X^2(1)=3.64, p=0.056$).

Conclusion: The ASFI CRGs achieved only moderate progress in the first 3-6 months. Region of origin and participants' highest academic degree emerged as key determinants of goal attainment and group progress. Larger future studies will help clarify how these factors shape research group dynamics and progress. *ASFI Research Journal. 2026; S3(1): e133112.*

ASFI Collaborative Research Groups' perceived Tuckman team stage at baseline

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Background: Collaboration is essential for research, as it leads to more significant findings and a broader societal impact. Collaborative Research Groups (CRGs) play a critical role in advancing interdisciplinary scholarship. The African Science Frontiers Initiatives (ASFI) established 12 CRGs in January 2025 to connect African scholars to work together throughout the year.

Objective: This study explored the Tuckman team stage at baseline, the ASFI CRGs perceived themselves to be.

Methods: A survey was conducted at baseline with 85 respondents. Guided by Tuckman's model of group development, participants answered four sections corresponding to each stage of the model: forming, storming, norming, and performing.

Results: The mean scores for all CRGs were 20.76 (Forming), 18.29 (Storming), 22.25 (Norming), and 24.46 (Performing). Although elements of the Forming and Storming stages were evident, CRGs reported higher scores in the Norming and Performing stages. This meant that the groups were successfully transitioning from a stage of conflict and role ambiguity to one of collaboration and high performance. They

were becoming increasingly cohesive, organized, autonomous, and productive.

Conclusion: The results suggest that the CRGs had emerging cohesion and functional collaboration. The CRGs appear to generally value clear procedures and leadership in group work, demonstrating that newly constituted research groups may exhibit characteristics beyond the initial Forming stage. *ASFI Research Journal. 2026; S3(1): e133113.*

Urban malaria and associated risk factors including invasive anopheles stephensi malaria vector, environment and socioeconomics in El Kalakla, Khartoum City

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Objectives: To assess the prevalence of Plasmodium falciparum and Plasmodium vivax malaria parasites using Rapid Diagnostic Test (RDTs), Microscopy, and Polymerase Chain Reaction (PCR) Techniques. To identify the Anopheline species; An. arabiensis and An. stephensi morphologically using dissecting microscope. To estimate the relative density of An. arabiensis and An. stephensi mosquito vectors in the area.

Methods: Adult and larval/pupal collections were conducted at two sites in Elkalakla study area and Anopheles specimens were identified using standard morphological keys. Blood samples were also collected from each patient suspected with malaria by finger prick for the three methods; Rapid Diagnostic (RDTs), Microscopy Diagnostic (thick and thin blood films) and Polymerase Chain Reaction (PCR) (filter papers spotted with blood) techniques. Additionally, weather parameters and rainfall were measured and socioeconomic status were assessed using a designed questionnaire.

Results: Among 194 collected blood samples for malaria parasites detection, 80 (41.24) were positive for P. falciparum, 34 (17.52) for P. vivax, and including 3 (1.55) P. falciparum/P. vivax double infections.

Pyrethrum Spray Sheet Collections and active search using manual aspirators resulting in a collection of 194 adult Anopheles. Of the 194 adults Anopheles 98.5% (N = 191) were classified as *An. gambiae* and the remaining 1.5 % (N = 3) as *An. stephensi*. larval and pupal collections yielded 47 adult *An. stephensi* and 315 *An. gambiae*

Conclusions: *Anopheles stephensi* was emerged in different regions of Sudan in alarmingly way. The relatively high *P. falciparum* and *P. vivax* reported malaria cases in Al- Kalakla study area, may be is linked with the presence of this vector; which is a well-known in transmitting efficiently both malaria parasites (*P. falciparum* and *P. vivax*). A countrywide surveillance for distribution of this vector in Khartoum state and countrywide is highly needed to inform malaria control program for timely immediate actions. *ASFI Research Journal. 2026; S3(1): e133114.*

Virtual academic supervision in Africa — opportunities, challenges and future directions: a narrative review

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Objective: The adoption of virtual academic supervision has become a focal point of interest all across the globe, particularly in African higher education, driven by the need to increase access to digital tools for the supervisor and the students, manage growing enrolments, and address infrastructural limitations. This shift, engineered by the COVID-19 pandemic, presents a unique set of opportunities and challenges across the continent. This study aims to focus on exploring and compiling existing research in order to examine opportunities, analyze the challenges, identify gaps in the literature, and propose directions for future research on virtual academic supervision in Africa.

Methods: A systematic web search was conducted across Google Scholar, Scopus, and ERIC databases for studies published up to August 2025. This review study included 17 qualitative, mixed-method, and

cross-sectional studies from seven African countries that focused on virtual academic supervision.

Results: The analysis identified significant challenges, including infrastructural barriers and access issues such as poor internet connectivity, high costs, and power outages; human capacity problems like digital literacy gaps and resistance to change; and psychosocial concerns including student isolation and weakened supervisory relationships. At the same time, notable opportunities were identified, such as increased accessibility and educational democratization, improved communication and feedback mechanisms, and scalable, cost-effective solutions. The review also highlighted critical gaps in the literature, particularly a geographic bias toward Western and Southern Africa, a focus on crisis-driven adoption, and a lack of longitudinal studies.

Conclusion: Virtual academic supervision has great potential to change higher education in Africa by increasing access and flexibility, but its effective implementation depends on overcoming significant infrastructural and digital literacy challenges. Future research should focus on comparative regional studies, long-term analyses, and economic evaluations to support evidence-based policies and sustainable practices. *ASFI Research Journal. 2026; S3(1): e133115.*

Trade openness and institutional quality on income inequality in Nigeria

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Objectives: The increasing globalization of the world economy necessitates a critical analysis of its effect on key domestic issues, particularly income inequality, a persistent challenge for governments aiming for equitable resource distribution. Despite being Africa's largest economy, Nigeria faces significant and acute income inequality, evidenced by its high Gini coefficient and extreme wealth concentration. Given this context, the aim of this study is to empirically examine the

complex nexus between trade openness, institutional quality, and income inequality specifically in Nigeria.

Methods: This examination was carried out with data from 1990 to 2023. Secondary data was utilised in this study and obtained from the United Nations University World Institute for Development Economics Research (UNU-WIDER), Freedom House and World Bank World Development Indicators. The study used the Augmented Dickey Fuller (ADF) unit root test, followed by Autoregressive Distributed Lag (ARDL) estimation.

Results: The study found that while trade openness (TO) initially has a beneficial, negative impact on income inequality consistent with the Stolper-Samuelson theorem and suggesting immediate gains for the poor this is a time-delayed and complex relationship. The direct effect of Institutional Quality (IQ) on inequality was insignificant in the current period; however, its lagged effect suggests that weaknesses in institutions may temporarily allow citizens to bypass financial regulations. Most crucially, the interaction between TO and IQ, evident in the one-period lagged results, shows a significant negative coefficient. This implies that the initial benefits of trade are undermined by poor institutional quality over time, leading to higher inequality.

Conclusions: Trade openness and institutional quality are significant predictors of income inequality, yet their combined effect presents a crucial intertemporal dynamic. While trade openness initially offers a short-term alleviatory effect on inequality, the longer-term reality is more challenging: the interaction between trade liberalization and weak institutional quality exacerbates income disparity over time. This complexity highlights the critical necessity of institutional reform in Nigeria, as the quality of institutions ultimately determines whether the benefits of global integration leads to sustained, equitable development or increased inequality. *ASFI Research Journal. 2026; S3(1): e133116.*

A systematic review exploring the use of strategic management interventions on achieving sustainable inclusive economies in low- and middle-income countries

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Objectives: The 17 UNESCO 2030 goals aim to create a more sustainable, inclusive, and equitable future for all. The study was based on selected strategic interventions which include Human Capital Development (HCD), Governance, and Data Management Systems (DMS) on achieving Sustainable Inclusive Economies in Low and Middle Income Countries (LMICs). It may be of vital use to Policy Makers, Academicians, and Researchers. It focuses on Sustainable Inclusive Economies while analyzing the various ex-ante components using a growth diagnostic approach. The study analyzed the applicability and relevance of Strategic Management Interventions. These are considered to be important tools when included in the policy mix to achieve sustainable inclusive development to current and future generations. The paper indicated the major challenges and solutions to achieve sustainable inclusive economies in LMIC.

Methods: A cross-sectional design with Systematic Review (SR) and an Auto Regressive Integrated Moving Average Model (ARIMA) for time series were used from 1990 to 2024. Google Scholars database and AI ChatGPT were used to explore the study variables. The search terms used include “Strategy” “Governance” “Data Management” “Human Resources” “Sustainability” and “Inclusivity”.

Results: The study results show that though strategic management has been widely accepted by scholars as the intervention that can facilitate the realization of institutional goals, its appreciation and practical applicability has been mainly at the firm level.

Conclusion: The study concludes that governance plays a central role as a strategic tool to promote the realization of Sustainable Inclusive Economies in LMICs. Governance empowers communities with the required skills, produce accountable responsible leaders, and helps to build DMS to facilitate decision making to achieve social, economic, and environmental sustainability goals. *ASFI Research Journal. 2026; S3(1): e133118.*

Baseline perceptions of leadership styles and members' roles across ASFI 2025 collaborative research groups

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Background: Effective leadership and clearly defined members' roles are essential for the success of collaborative research groups (CRGs).

Objective: This study aimed to assess baseline perceptions of leadership styles and members' roles in ASFI CRGs in 2025, to examine patterns and potential influences on team functioning.

Methods: A baseline survey was conducted in 2025 among 85 participants across 12 CRGs. Data were collected using the Tuckman Team Working and the Team Development Measure (TDM) questionnaires. Responses on leadership styles and members' roles were recorded on 5-point Likert scales. Descriptive statistics summarized patterns, and chi-square tests assessed associations with participants' gender, highest degree earned, and academic discipline.

Results: Participants perceived leadership styles positively, encompassing order, collaboration, participatory decision-making, and open discussion. Members demonstrated role clarity, shared responsibilities, and opportunities to apply their skills, although some variability was noted in task-based role assignments and goal definition. There were no statistically significant differences by gender and academic discipline in perceived leadership styles and members' role assignment. Highest degree earned was significantly associated with members' roles, including role assignment, role clarity, understanding of expectations, and utilization of individual skills.

Conclusion: Findings indicate that participants generally perceived leadership positively and

demonstrated role clarity, with variability in task-based assignments. Highest degree earned was associated with leadership styles and members' roles items, while no significant gender or academic discipline differences were observed. Trends toward gender-related differences warrant further investigation. *ASFI Research Journal. 2026; S3(1): e133119.*

Purple-leaf tea foods and beverages: innovations, health benefits and scaling-up to international markets through African-led solutions, quality function deployment model and green economy

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Although Kenya is one of the world's leading exporters of Crush, Tear and Curl (CTC) black tea (*Camellia sinensis*), producing about 450 thousand tonnes annually, the sales are slowly declining due to the increasing demand by the food consumers of specialty teas with extra health benefits. The CTC black tea is facing challenges in price fluctuations, rising cost of production and climate related issues due to the processing technology that require high energy of aeration technology by burning wood or fossils fuel. Among the specialty teas which accounts for only 10 % of production is the purple-leaf tea (TRFK 306/1) that has extra healthful bioactive antioxidant and appealing purple polyphenols called anthocyanin. In addition, the processing of purple-leaf tea by orthodox technology does not require the high energy aeration unlike the black CTT tea that generates a lot of carbon emissions of the greenhouse gases. A cross-disciplinary collaborative project of 3 partner institutions with Karatina University conducted research that formulated four purple tea food products. However, in order to scale up the production of this high value processed purple tea food products to international market there is need for comprehensive research using African-led solutions through collaborations with global partners. The proposed approach strategy is the

quality function deployment (QFD) Model that capture the different international market food consumer preferences in terms of the sensory attributes (flavor, appearance, texture etc.), dietary needs, culture, and economic power. The benefits would not only enhance global market of purple tea but provide a sustainable food system of green-economy with potential to improve the livelihoods of small-scale purple tea farmers and SMEs in Kenya. *ASFI Research Journal. 2026; S3(1): e133120.*

Assessing the role of financial inclusion in enhancing welfare in West Africa

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Objective: The present study is aimed at contributing to the discourse on the role of financial inclusion in enhancing welfare in West Africa in the context of the Sustainable Development Goals (SDGs), specifically SDG 1 (No Poverty), SDG 2 (Zero hunger), SDG 8 (Decent work and economic growth), SDG 10 (Reduced inequalities), and SDG 17 (Partnership for development).

Methods: The analysis of the study is based on panel data from the period of 2008-2023 and uses the (Account ownership, commercial bank branches and Number of ATMs) as a proxy for financial inclusion and consumption per capita (expressed as final consumption expenditure as a percentage of GDP). Other variables such as, official exchange rates, and inflation are also included in the study to account for the macroeconomic factors that may affect the relationship between financial inclusion and welfare. The data used in this project work was sourced from World Development Indicators (WDI) and Financial Access Survey (FAS). The estimation techniques used are fixed and random effects models and the fixed effects were selected based on the Hausman test.

Results: The findings show that financial inclusion has both positive and negative effects based on the proxy variable and significant impact on welfare. GDP per capita has a negative but significant impact on welfare,

and inflation has a negative and insignificant impact as theory predicts. The findings further support the role of financial inclusion policies as a means of achieving the SDGs through promoting sustainable economic growth, equity, and welfare in the region. These results support the importance of policies promoting financial inclusion to help achieve the SDGs through fostering sustainable economic development, inequality reduction, and welfare outcomes in the region.

Conclusion: This study provides actionable insights for policymakers, and it advocates investments in inclusive financial systems and mobile technology to drive progress toward the SDGs in West Africa. *ASFI Research Journal. 2026; S3(1): e133121.*

The first steps in the ASFI CRG journey in Tuckman stages during the first 3 months

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Objectives: The African Science Frontiers Initiatives established 12 Collaborative Research Groups (CRGs) in January 2025, providing opportunity for African scholars to build and nurture research groups. To follow up, bi-monthly questionnaires are completed by members of the CRGs based on the Tuckman Team Working Questionnaire (TTWQ) and the Team Development Measure (TDM). This paper examined changes in group's Tuckman stages during first the 3 months.

Methods: TTWQ describes four stages a team will go through: Forming, Storming, Norming and Performing. The lowest score possible for a stage is 8, the highest is 40. The stage having the highest represent which of the four stages a team is, two stages with similar scores indicate that the team is on a transition phase, and similar scores in more than two stages mean team members have no clear perception of how the team is operating. Descriptive analyses were performed to

determine the mean score of each CRG across the Tuckman stages at baseline and follow-up.

Results: A total of 83 and 62 CRG members completed the questionnaires at baseline and follow-up, respectively. CRGs 2, 6, 7, 8, 9, and 12 made clear progress between baseline and follow-up, remaining at the performing stage at both instances. Contrary, CRGs 3, 4, 5, 10, and 11, appeared to have regressed, given the lower mean scores at follow-up than at baseline, and, in some cases, an increase in their Storming or Forming scores. For CRG 1, the scores indicated no clear dominant stage at baseline and follow-up.

Conclusion: Within the first 3-6 months, ASFI CRGs experienced varied and complex staging based on the Tuckman team development. While some groups showed progress and improved teamwork, others experienced regression and stagnation. The teams that regressed or stagnated may have encountered a breakdown in communication that disrupted their progress. *ASFI Research Journal. 2026; S3(1): e133122.*

Is vitamin D the culprit?

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Background: Prostate cancer is the most common visceral malignancy and the second leading cause of death from cancer in men. Presently, Androgen deprivation therapy (ADT) is increasingly prescribed both for men with locally advanced or high-risk non-metastatic prostate cancer and for those with recurrent disease. Although it has been demonstrated that this form of therapy improves survival, accelerated bone loss and osteoporosis is an unintended consequence of ADT, therefore maintenance of bone health becomes a critical issue. Vitamin D however, has been shown to protect against bone loss and is essential for the maintenance of good bone health.

Objective: This study was carried out to describe the relationship between Vitamin D status, and biochemical markers of bone turnover in men with prostate cancer on ADT.

Method: This is a cross-sectional study. Vitamin D status and concentration of biochemical markers of bone turnover- procollagen 1 N-terminal propeptide (PINP) and C-terminal telopeptide of type 1 collagen (CTX) were determined in 80 patients with prostate cancer on ADT and 40 patients with no prostate cancer and not on ADT.

Result: Six out of the eighty (7.5%) prostate cancer patients on ADT had Vitamin D insufficiency and none of those without prostate cancer (not on ADT/controls) were Vitamin D insufficient. Vitamin D was significantly higher in those not on ADT compared with the group on ADT, 178.6 ± 57 and 109.6 ± 35 respectively, ($p < 0.001$). Those on ADT (PINP = 49 ± 9 ng/ml, CTX = 0.5 ± 0.2 ng/ml) had a higher bone turnover rate compared with the controls (PINP 36 ± 7 ng/ml, CTX 0.2 ± 0.06 ng/ml), $p < 0.001$. Vitamin D had an inverse relationship with bone turnover markers ($p < 0.001$) and no association with duration of ADT.

Conclusion: There was a higher significant difference in the Vitamin D levels in the apparently healthy not on ADT and may confer a protective effect against osteoporosis. *ASFI Research Journal. 2026; S3(1): e133123.*

Determination of lead and cadmium levels in edible organs of marketed chickens in Wukari LGA Taraba State, Nigeria

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Objectives: This study assessed the concentrations of lead (Pb) and cadmium (Cd) in local and broiler chicken liver in Wukari LGA. Twenty (20) chicken liver samples comprising of ten (10) local chicken samples and ten (10) broiler chicken samples were collected from the slaughter slab in Wukari. The concentrations of Pb and Cd were analyzed using atomic absorption spectrophotometry. The data obtained were analysed using GraphPad Prism 5.0.3, values of mean at $P < 0.05$ were considered significant. The results indicated that the concentrations of Pb in local chicken ($0.2161 \pm$

0.038mg/kg) and broiler chicken (0.1605± 0.0359 mg/kg) were not significantly ($P < 0.05$) different. However, both did not exceed the international maximum residue limit of 0.5 ppm. The concentrations of Cd in local chicken (0.0055 ± 0.001 mg/kg) and broiler chicken (0.0125 ± 0.006 mg/kg) also showed no significant difference ($P < 0.05$). The determination of Pb in local chicken and broiler chicken samples did not exceed the safety threshold, likewise Cd contamination also falls within the maximum permissible limit of 0.05 mg/kg. The study concludes that while both types of chicken meats in Wukari LGA exhibit detectable levels of Pb and Cd contamination, they meet safety standards for both. Recommendations include implementing measures to mitigate heavy metal exposure in poultry farming and conducting regular monitoring to ensure compliance with safety standards.

Methods: Liver samples of 20 chickens of both broiler and local chicken were randomly collected on the 2nd March, 2024 from Ambassador Slaughter slab Wukari local government area. The liver samples were taken from each of chicken, were packed individually in plastic bags and transported and stored in a refrigerator at -20 0C for one month in Federal University Wukari Central Laboratory for analysis. 1g of each of the chicken liver samples were weighed using analytical weighing balance and transferred into 250 ml Kjeldahl digestion flask. 2mL of perchloric acid and 10mL of Nitric was added into the liver sample. The mixture was swirled gently and heated at 120°C for 1hour 20minutes in a digestion block. The samples were dissolved and filtered using Whatman filter papers into a 100mL of volumetric flasks and made up to mark with distilled water. The filtrates were then ready for analysis. The filtrates were poured individually into 100mL prewashed sample bottles followed by analysis of the sample solutions for lead and cadmium at the peculiar wavelength for each element using atomic absorption spectrophotometer, and average values recorded. All data obtained during the experiment were analysed using descriptive statistics to obtain the mean. T-test was carried out to compare the mean at $P < 0.05$ for level of significance. All the statistical analyses were done using GraphPad Prism 5.0.3.

Results: For the concentration of lead in the liver of local and broiler chicken the result shows that there is no significant ($p > 0.05$) difference the concentration in local and broiler chicken. The concentration of 0.2161mg/kg was obtained for local chicken which is higher than 0.1605mg/kg obtained in broiler chicken. The minimum and maximum lead concentration obtained were 0.0617 and 0.3704 mg/kg respectively in local chicken and 0.0617 and 0.2469 respectively in broiler chicken. As for the concentration of cadmium, there was no significant ($p > 0.05$) difference between the mean concentration. The result shows that mean concentration of 0.0051mg/kg of cadmium was obtained from the ten (10) samples for local chicken while 0.01247mg/kg was obtained for broiler chickens. The minimum and maximum cadmium concentration obtained were 0.0018 and 0.0092 mg/kg respectively in local chicken and 0.0037 mg/kg and 0.0696 mg/kg respectively in broiler chicken. *ASFI Research Journal. 2026; S3(1): e133124.*

Perceived effect of the brain drain syndrome among nurses on quality of health care delivery at Federal Medical Center, Abeokuta, Ogun-State

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Objective: Nurse migration, also referred to as brain drain, is a growing challenge in Nigeria's healthcare system, resulting in staff shortages and declining quality of care. This study assessed the perceived effects of brain drain on healthcare delivery at Federal Medical Center, Abeokuta.

Methods: A descriptive cross-sectional design was employed among 156 nurses, selected using multistage sampling. The sample size was determined using the Yamane formula. Data were collected using structured questionnaires and analyzed with SPSS version 27.0, employing descriptive statistics and chi-

square tests. Ethical approval was obtained, and informed consent was secured from participants.

Results: Findings showed that 69.2% of respondents reported increased workload due to migration, leading to burnout and reduced quality of care. A majority (67.9%) acknowledged shortages linked to brain drain, and 85.9% agreed that migration negatively affected patient care. Chi-square analysis confirmed significant associations between brain drain and healthcare quality ($\chi^2 = 12.667$, $p = 0.013$), and between sociodemographic factors and workload ($\chi^2 = 21.720$, $p = 0.041$).

Conclusion: Brain drain adversely affects staffing, workload, and healthcare delivery at FMC Abeokuta. Retention strategies, including better remuneration, professional development, and supportive work policies, are essential to mitigate migration. *ASFI Research Journal. 2026; S3(1): e133125.*

Assessment of the nutritional status of children (6-10 years old) attending Altaity Primary School, North State, Sudan (2021)

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The objectives of this study are to assess the nutritional status of school children in Dongola locality, the Northern State, Sudan, and to investigate some socio-demographic/economic factors influencing nutritional status of these school children. It is a cross-sectional school-based study that included 160 children, males and females, of ages between 6-10 years old. Data collection tools included questionnaires about the socio-demographic characteristics of the children and their families, their physical activities, dietary pattern, and their health status. In addition to anthropometric measurements (weight and height), and accordingly WHO's Z scores were calculated. The results revealed that the prevalence rate of under-weight, and stunting were 60.6% and 36.8%, respectively. Stunting was found to be significantly ($P=0.002$) higher among younger children (6-8 years old) compared to older children (9-10 years old). Parents education, father

profession, father existing with the family, living condition, and family size were all found to be strong determinants ($P<0.05$). of these children's nutritional status. Therefore, to reduce this high prevalence of malnutrition among these children, nutritional awareness programs are urgently needed to lessen this major child health problem. *ASFI Research Journal. 2026; S3(1): e133126.*

The impact of consecutive examinations on mental health, well-being and academic performance of pharmacy students at Sudan University of Science and Technology

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Background: Examinations are a significant source of anxiety for students, particularly in demanding fields like medical sciences. The war and instability in Sudan severely disrupted university education, forcing pharmacy students to face exam overload due to back-to-back exams approach, which can adversely affect their academic performance and mental well-being. While previous studies have extensively explored the relationship between exam stress and academic performance, the impact of conflicted examinations schedule remains largely unexplored.

Objective: This study aims to bridge this gap by assessing the effects of consecutive two semester's exams on pharmacy students.

Method: A retrospective cross-sectional cohort study where 77 of fourth-year pharmacy students Sudan University of Science and Technology were met inclusion criteria and self-reported their mental health status in an online questionnaire, while, the academic performance data retrieved from university records. Data will be analyzed using SPSS.

Results: It observed during exams that pharmacy students were experiencing burnout and it is hypothesized to be linked to overload of such unusual experience which potentially led to compromised academic performance.

Conclusion: This research offers evidence-based guidance for university strategic planning, academic transformation, and institutional accountability. It identifies discipline-specific stress sources among pharmacy students, facilitating the delivery of targeted support and improved assessment methods. *ASFI Research Journal. 2026; S3(1): e133127.*

Race and ethnic disparities in multiple health outcomes: an umbrella review of the global Literature

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Background: Race and ethnicity have long been recognized as determinants of health, influencing risks, access to care, and overall health outcomes. While many systematic reviews and meta-analyses have addressed race and ethnicity related outcomes within specific health domains, findings remain fragmented and sometimes contradictory. An umbrella review can provide a higher-level synthesis of this evidence, offering a comprehensive understanding of how race and ethnicity are determinants of multiple health conditions.

Objective: This umbrella review aimed to synthesize and critically appraise the global evidence on race and ethnicity as determinants of diverse health outcomes.

Methods: A systematic search was conducted in seven databases to identify eligible systematic reviews and meta-analyses studies that examined associations between race or ethnicity and health outcomes and published until June 2025. Two reviewers independently screened titles, abstracts, and full-text articles; extracted study data; and assessed risk of bias

using the AMSTAR (A Measurement Tool to Assess systematic Reviews) tool.

Results: Our database searches identified 63,699 papers. Of these, 33,681 papers were screened after de-duplication, and 15 systematic reviews and meta-analyses met the inclusion criteria, encompassing a total of 30 health outcomes reported in this abstract, including infections, mental health, surgical outcomes, chronic diseases, fractures, osteoporosis, cancer and other health indicators. The preliminary synthesis indicates consistent evidence of racial and ethnic disparities in health outcomes, suggesting that findings are likely to vary across populations and health domains. Quality appraisal revealed that included reviews were of low to moderate quality and the ongoing data analysis of specific associations and effect estimates for these outcomes are aimed to be reported at the conference.

Conclusion: This umbrella review highlights consistent disparities, methodological challenges in the literature, and gaps that warrant further high-quality research. Findings may inform clinical practice and policy efforts to reduce racial health inequities. *ASFI Research Journal. 2026; S3(1): e133128.*

Combating criminality for sustainable food security through a decolonised agricultural education curriculum: Insights from faculty staffs in selected Nigerian universities

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The education curriculum in any milieu is dynamic and a continuous process, consistently evolving. However, the influence of Western philosophy on educational curricula raises concerns about the harmful impact of crime and food insecurity on Nigeria's food sustainability. This study employed a mixed research technique to investigate insights of staffs in selected Nigerian universities on perceptions of decolonising educational curricula in Nigeria to reduce crime and

food insecurity. Quantitative data were obtained virtually on Google Forms from 165 faculty staff in Nigerian universities. An explorative review of literature indexed in Scopus, Google Scholar, and ResearchGate, as well as local and international organisation reports, was used to synthesise qualitative data for the study. Key themes include colonialism, decolonisation, curriculum, indigenous knowledge, sustainability, criminology, food insecurity, and teaching and research staff. For the quantitative data, we used percentages, mean scores, and a linear regression model, while the qualitative data was analysed thematically. Findings suggested the adoption of an African-driven epistemology education curriculum to curb crime and reduce food insecurity. Thematic analysis suggests a curriculum that incorporates traditional farming techniques to enhance youth and women's empowerment, thereby fostering social cohesion and discourage feelings of criminality. Moreover, the study proposed incorporating local languages and cultural practices into the teaching curriculum to help mitigate feelings of marginalisation and criminal behaviour tendency. The study advocates for a holistic approach to mitigating crime and food insecurity in Nigeria, emphasising an ongoing process of reflection, adaptation, and stakeholder collaboration in the decolonisation of the agricultural education curriculum to foster a sustainable economy. *ASFI Research Journal*. 2026; S3(1): e133129.

Enhancing research supervision: an intervention study on supervisory training among medical professionals, Sudan 2025-2027

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Background: Effective academic supervision is essential for producing high-quality research. However, most supervisors rely solely on their prior experience, with little or no formal training in supervision. In Sudan,

Medical Professionals working within the Sudan Medical Specialization Board (SMSB) face specific challenges: heavy clinical workloads, the absence of recognition or incentives for supervisory roles, and a lack of structured mentoring skills. These factors contribute to limited supervision time, inconsistent guidance, and suboptimal research outputs.

Objective: To evaluate the impact of a structured supervisory training course on improving supervisory skills and enhancing the quality of postgraduate research among doctors affiliated with the SMSB.

Methods: A single-group pre-post (before-after) quasi-experimental design will be employed. The intervention consists of a 3-day training course addressing the importance of supervision, mentorship challenges and solutions, strategies for effective guidance, building professional relationships, and experience sharing. Data will be collected using a self-administered questionnaire assessing supervisory competencies at baseline, 6 months, and 9 months post-training. The sample size was calculated for a paired pre-post continuous outcome, assuming a medium effect size (Cohen's $d = 0.5$), $\alpha = 0.05$, and 80% power, yielding 32 paired observations; allowing 15% attrition, 38 participants will be recruited. Planned Analysis: Pre-post data will be analysed using paired t-tests for continuous variables and paired linear mixed models for repeated measures, adjusting for covariates such as supervisory experience and workload.

Results and Conclusion: The training is expected to enhance supervisory competencies, strengthen mentor-student relationships, and improve postgraduate research quality. The study's findings may encourage institutional adoption of this course as a mandatory requirement for supervisors, strengthening research capacity across Sudan's medical education system. *ASFI Research Journal*. 2026; S3(1): e133130.

Beyond blended learning: a visionary framework for sustainable hybrid education in universities

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During the COVID-19 pandemic, a new civilian crisis demanded an obvious change in education methods and channels, through which online or distance education came as an alternative solution to traditional education. Despite its High quality, availability of resources, and low cost, online education performed poorly compared to its traditional counterpart. Throughout this poster, we would like to approach the problem from different perspectives: first, teachers, second, students, third, curricula, and fourth, methods. The study details an overall education process solution which covers all possible weak points which are facing high education students and teachers via reasonable and applicable solutions by proposing a hybrid education methodology which combines online and on Campus education Reinforced with training programs to convoy the global development with improved performance compared to the current educational systems. As a case study we introduced an educational process experience of Sudan University of Science & Technology for the graduates' years of 2022 and 2023. The experiment is strengthened by the results extracted from a questionnaire presented to a group of teachers and students within the scope of the research. Also, we present a case study of a corporate mentorship program implemented by Zain Sudan, demonstrating its efficacy in enhancing educational outcomes. *ASFI Research Journal. 2026; S3(1): e133131.*

Knowledge, attitude, and practice of Sudanese clinicians regarding leukopenia and arthritis as early indicators for differentiating systemic lupus erythematosus (2025)

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Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder that presents with

variable early symptoms. Leukopenia and non-erosive arthritis are two important early features that can guide timely diagnosis, but they are often underrecognized, particularly in resource-limited countries such as Sudan. Evaluating clinicians' knowledge and practices is essential for improving early detection.

Objective: To assess the knowledge, attitudes, and clinical practices of Sudanese clinicians regarding leukopenia and non-erosive arthritis as early signs of systemic lupus erythematosus (SLE), aiming to support timely diagnosis and improved patient management. **Methods:** A descriptive cross-sectional study was conducted from May to September 2025 among 348 Sudanese clinicians. Participants completed a structured, self-administered questionnaire assessing knowledge, attitudes, and practices related to early SLE recognition, along with demographic and professional characteristics. Data were analyzed using Chi-square tests, t-tests, ANOVA, and Pearson's correlation, with a significance threshold of $p < 0.05$.

Results: Among 348 clinicians (53% female; mean age 30.2 years), only 6.6% were rheumatologists and 33% had received formal rheumatology or autoimmune training. Overall knowledge of early SLE features was moderate (mean 4.1/7), with higher scores among rheumatologists ($p < 0.021$) and trained clinicians ($p < 0.036$). Attitudes were positive (mean 21.5/25), particularly among trained clinicians ($p < 0.038$). In practice, 70% ordered CBCs and 60% ordered ANA/dsDNA or referred appropriately, with higher rates among specialists ($p < 0.017$) and trained clinicians ($p < 0.028$). Main barriers included overlapping symptoms (33%) and limited access to diagnostic tests (30%). Knowledge correlated positively with attitude ($p < 0.023$) and practice ($p < 0.004$), and attitude correlated with practice ($p < 0.003$).

Conclusion: Sudanese clinicians are generally aware of early SLE features, but confirmatory diagnostic steps remain inconsistent. Expanding rheumatology training and improving access to specialized tests could enhance early diagnosis and patient outcomes. *ASFI Research Journal. 2026; S3(1): e133132.*

Prevalence of depression and associated factors among adults with type II diabetes mellitus at Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu, Kenya

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Background: Type II Diabetes Mellitus (T2DM) and depression are among the leading global contributors to morbidity and mortality. Their co-occurrence worsens clinical outcomes, reduces adherence to treatment, and increases healthcare costs. In sub-Saharan Africa, particularly Kenya, there is limited data on the prevalence and drivers of depression among patients with T2DM, despite its significant impact on quality of life and disease management.

Objective: To determine the prevalence of depression and identify socio-demographic and clinical factors associated with its occurrence among adult T2DM patients attending the diabetic outpatient clinic at Jaramogi Oginga Odinga Teaching and Referral Hospital (JOTRH), Kisumu.

Methods: A descriptive cross-sectional study was conducted among 334 adult patients diagnosed with T2DM for at least three months. Participants were recruited using convenience sampling. Data on socio-demographic and clinical variables were collected through a structured questionnaire. Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9). Data were analyzed using SPSS v22, with descriptive statistics summarizing prevalence and logistic regression identifying significant correlates. A p-value ≤ 0.05 was considered statistically significant.

Results: The prevalence of depression among participants was 62.5%, with mild (37.4%), moderate (17.5%), and severe (10.1%) levels documented. Female gender ($p=0.000$), older age ($p=0.029$), lower educational attainment ($p=0.034$), and lack of financial or social support ($p=0.000$) were significantly associated with depression. Marital status showed no statistical significance.

Conclusion: Depression is highly prevalent among adults living with T2DM in western Kenya, driven largely by socio-demographic vulnerabilities. Integrating routine depression screening and mental health interventions within diabetic care is critical for holistic disease management and improved outcomes. *ASFI Research Journal. 2026; S3(1): e133133.*

Food consumption patterns in relation to adolescent overweight and obesity in schools in a semi urban area of southwestern Nigeria

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Objectives: Adolescent overweight/obesity is increasing globally and in Nigeria, with dietary patterns playing a major role. Local evidence on the relationship between food consumption and weight status in Ikenne Local Government (IKLG), Ogun State, is non-existent.

Methods: A cross-sectional study was conducted among 1,929 adolescents (10–19 years) from 15 randomly selected public and private secondary schools in IKLG. A validated, interviewer-administered questionnaire captured socio-demographics and food consumption patterns. Anthropometric measurements were taken and BMI-for-age was classified per WHO Growth Reference (2007). Data were analyzed using descriptive statistics, Chi-square tests, and logistic regression, with significance set at $p < 0.05$. Principal component analysis (PCA) was used to derive food consumption patterns.

Results: Ten food consumption patterns were derived from the PCA and the scores were categorized into tertiles. Low consumption of traditional leafy vegetables and carbohydrate foods was associated with higher odds of being overweight (AOR: 2.27, 95%CI: 1.62–3.18; AOR: 1.71, 95%CI: 1.23–2.37) and obese (AOR: 2.62, 95%CI: 1.53–4.50; AOR: 3.10, 95%CI: 1.78–5.40) respectively. Higher grain consumption decreased the odds of obesity (AOR:

0.59; 95%CI: 0.36–0.96). Private, but not public-school students with low fruit, dairy, or leafy vegetable intake had significantly higher odds of obesity than those with higher consumption.

Conclusion: Low consumption of traditional vegetables and carbohydrates appear to contribute to increased risk of overweight and obesity among adolescents in semi-urban areas of southwestern Nigeria. School-type differences highlight the need for targeted nutrition interventions promoting healthy foods and dietary diversity to curb adolescent overweight/obesity. *ASFI Research Journal. 2026; S3(1): e133134.*

Challenges to progress of groups participating in ASFI Collaborative Research Group project

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Background: Collaborative Research Groups (CRGs) are vital for advancing research, yet sustaining progress can be difficult. To support African scholars, the African Science Frontiers Initiatives (ASFI) launched the CRG program in 2025, designed for year-round collaboration with bi-monthly progress reviews using the Tuckman Team Working Questionnaire (TTWQ) and Team Development Measure (TDM). This paper examines early challenges faced by CRGs in their first 3–6 months, focusing on how trust, help-seeking, goal clarity, harmony, fulfilment, membership, and region relate to perceived success.

Methods: Twelve CRGs were established in January 2025. A combined TTWQ–TDM questionnaire with demographic and progress items was administered online from April, then bi-monthly. At the second survey, 62 participants responded. Frequencies and Chi-square tests assessed team dynamics,

demographic factors, and associations with perceived progress and goal achievement.

Results: Overall, 53–56% of participants across the CRGs reported that their CRG achieved anticipated progress and goals, with progress ratings clustering at 6–7 on a 10-point scale. Females (61%) were more likely than males (42%) to report progress, which also varied by region of origin ($p = .019$). Team dynamics showed varied links to progress. Help-seeking was nonsignificant, while trust deficits reduced goal achievement. Goal clarity strongly predicted progress, though constant redefinition did not. Harmony and fulfilment measures were nonsignificant. In contrast, group membership and region significantly influenced outcomes, suggesting structural and contextual factors outweighed individual team behaviors in shaping CRG success.

Conclusion: Overall, CRGs made moderate progress in the first 3–6 months. Progress depended less on individual effort than on building trust, achieving shared clarity, and addressing group-level differences. Targeted interventions may strengthen these dynamics, helping CRGs move beyond storming and transition more rapidly toward performing. *ASFI Research Journal. 2026; S3(1): e133135.*

In silico prediction of deleterious single nucleotide polymorphisms (SNPs) in human phenylalanine hydroxylase (PAH) gene

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Objectives: To analyze the genetic variation of SNPs in PAH gene using computational tools to highlight mutations underlying phenotypic variations and to predict the structural and functional consequences of these polymorphisms.

Methods: The synonymous SNPs (sSNPs) were analyzed by SIFT, PolyPhen, PROVEAN, SNP&GO. The SNPs predicted to be deleterious by all of the software tools used were selected for further analysis. The effect of these SNPs on the protein stabilization was

determined via I-Mutant 2.0, MURPO. Three-dimensional modeling of mutant proteins was performed with the Project HOPE software tool. The Non-coding SNPs (ncSNPs) were also analyzed by PolymiRTS server, SNPinfo and RegulomeDB tools.

Results: Out of the total 27412 SNPs in Homo sapiens, 653 were missense SNPs .184 in 3 UTR and 35 5utr regions. 223 SNPs were found to be highly damaging for the protein by SIFT. PROVEAN and Polyphen. and the further analyzed by MURPO, and I-Mutant revealed that all SNPs have functional effect on protein function and stability. SNP&Go software revealed that out of 202 SNPs were predicted to have disease causing ability. To reassure the accuracy of the work we submitted 202 SNPs to the Clin Var Database, and we found that most of them are not provided or not reported. Project HOPE showed that mutant located in a domain, that is important for the activity of the protein and disrupted the interaction between that is also important for the activity. Regarding the non-coding region, out of 183 in 3' UTR 27 SNPs were predicted by PolymiRTs to induce disruption or creation of miRNA binding sites while one SNP was predicted by SNP Function Prediction to be functionally significant in the 5' UTR and 184 in 3 UTR and 36 in 5 UTR were divided by Regulome DB database into six broad categories.

Conclusion: The PAH gene shows great allelic variation and pathogenic mutations, most of these variations are missense mutations. These mutations delete parts of the gene or disrupt the instructions and change a single amino acid in the phenylalanine hydroxylase protein, also leading to reduced enzyme activity. The most interesting things that we found our results that were in a good agreement with the previous research done by in vitro approach. *ASFI Research Journal. 2026; S3(1): e133136.*

Paternal unemployment as a critical social determinant of depression in Nigerian children with intellectual disability

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Background: The economic stability of the family unit is a cornerstone of child well-being, a factor that becomes critically important for children with intellectual disability (ID) who require significant material and psychosocial support. In patriarchal societies, paternal employment is a primary determinant of a family's economic security.

Objectives: To investigate the association between paternal unemployment and the risk of depressive disorder in children and adolescents with intellectual disability.

Methods: A cross-sectional study was conducted among 87 child-father dyads at a special school in Sokoto, Nigeria. Children were assessed for depression using the Kiddie-SADS-PL. Paternal employment was categorized as "Unemployed/Self-employed" (informal sector) or "Employed/Salary earner" (formal sector). The association was analyzed using chi-square tests and multiple logistic regression to control for confounders.

Results: Depression prevalence was significantly higher in children of unemployed/self-employed fathers (28.3%, 15/53) compared to children of employed fathers (5.9%, 2/34) ($\chi^2=6.622$, $p=0.010$). Logistic regression confirmed paternal unemployment as a powerful independent predictor of depression after controlling for paternal education, child's age, and gender (Adjusted Odds Ratio (AOR) = 21.64, 95% CI: 1.218–384.366, $p=0.036$).

Conclusion: Paternal unemployment is a potent, independent risk factor for depression in children with ID, increasing the odds of depression by more than 21 times. This finding underscores the profound impact of macroeconomic factors on child mental health and argues for economic interventions targeting fathers as a crucial component of mental health promotion strategies for vulnerable children in low-resource settings. *ASFI Research Journal. 2026; S3(1): e133137.*

Closing the detection gap: the critical need for specialized depression screening tools for intellectually disabled populations in Sub-Saharan Africa

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Background: Accurate detection of depression in individuals with intellectual disability (ID) is challenging due to the limitations of standard diagnostic tools. Sub-Saharan Africa faces a critical gap in culturally appropriate screening instruments.

Objectives: To propose a framework for developing specialized depression screening tools for individuals with ID in Sub-Saharan Africa.

Methods: This review synthesizes findings from a study of 87 children with ID in Nigeria, coupled with a literature review. The framework was developed by analyzing diagnostic challenges, existing adaptations, and cultural considerations.

Results: Challenges in depression screening for ID populations include cognitive barriers, diagnostic overshadowing, and cultural inappropriateness. The proposed framework includes a multi-informant approach, behavioral emphasis, and cultural contextualization.

Conclusion: Developing culturally adapted, psychometrically validated screening tools for depression in ID populations is essential for improving detection and intervention in Sub-Saharan Africa. *ASFI Research Journal. 2026; S3(1): e133138.*

Significant gender disparity in the prevalence of depressive disorder among children and adolescents with intellectual disability in Northern Nigeria

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Background: Gender differences in depression are well-established in the general population, but their role in children with intellectual disability (ID) remains underexplored, particularly in low-resource settings.

Objectives: To investigate gender differences in the prevalence of depression among children and adolescents with ID in Northern Nigeria.

Methods: A cross-sectional study of 87 students (58 males, 29 females) with ID was conducted. Depression was assessed using the Kiddie-SADS-PL.

Results: The prevalence of depressive disorder was significantly higher in females (34.5%) compared to males (12.1%), with a 2.85-fold increased risk for females.

Conclusion: This study highlights a significant gender disparity in depression among children with ID. Gender-sensitive mental health interventions are critical for addressing the unique needs of girls with ID. *ASFI Research Journal. 2026; S3(1): e133139.*

A non-linear Relationship: the distribution of depressive disorder across levels of intellectual disability in a Nigerian cohort of children and adolescents

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Background: The relationship between intellectual disability (ID) severity and the risk of depression is complex and remains poorly understood in low-resource settings.

Objectives: To investigate the prevalence of depression across different levels of ID severity (mild, moderate, severe, profound) in children and adolescents in Nigeria.

Methods: A cross-sectional study of 87 children with ID was conducted. ID severity was assessed using

Raven's Progressive Matrices, and depression was diagnosed using the Kiddie-SADS-PL.

Results: The highest prevalence of depression was observed in the moderate ID group (28.6%). However, the overall association between ID severity and depression did not reach statistical significance.

Conclusion: Depression is prevalent across the spectrum of ID, but the relationship between severity and depression is non-linear. Mental health assessments should be conducted for all individuals with ID, regardless of severity. *ASFI Research Journal. 2026; S3(1): e133140.*

The primacy of economics over structure: socioeconomic status and family type as correlates of depression in children with intellectual disability in Nigeria

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Background: The family environment is a critical determinant of mental health in children with intellectual disability (ID). Two key aspects of this environment are its economic capacity (socioeconomic status - SES) and its structural configuration (monogamous vs. polygamous). Understanding which factor exerts a greater influence is vital for tailoring effective interventions.

Objectives: To explore the relationship between family socioeconomic status (SES), family type (monogamous vs. polygamous), and depressive disorder in children and adolescents with ID.

Methods: A cross-sectional study was conducted with 87 children with ID from a special school in Sokoto, Nigeria. Family SES was classified using the Olusanya method, and family type was recorded. The K-SADS-PL was used to diagnose depression. Associations were tested using chi-square tests and the findings were contextualized within a multivariate analysis of other factors.

Results: A substantial proportion of children from lower SES backgrounds were represented in the depressed group (45.7% of depressed children were from lower SES vs. 82.4% of non-depressed children, $\chi^2=8.312$, $p=0.016$ in bivariate analysis). However, this relationship was mediated by other socioeconomic variables in multivariate analysis. No significant association was found between family type (monogamous vs. polygamous) and depression ($\chi^2 = 0.039$, $p = 0.843$).

Conclusions: The economic environment of the family, rather than its structure, is the salient correlate of depression risk in children with ID in this context. While lower SES is linked to depression, this effect is complex and likely operates through intermediary factors like paternal education and employment. Family structure itself (monogamy vs. polygamy) does not appear to be a direct determinant of child depression. *ASFI Research Journal. 2026; S3(1): e133141.*

Beyond univariate associations: identifying independent determinants of depression in children with intellectual disability in Nigeria through multivariate analysis

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Background: The socio-demographic determinants of depression in children with intellectual disability (ID) are multifactorial, but understanding which factors remain significant after controlling for confounders is crucial.

Objectives: To identify the independent socio-demographic determinants of depression in children with ID using multivariate analysis.

Methods: A cross-sectional study of 87 children with ID was conducted. Socio-demographic data were collected, and significant factors from bivariate analysis were analyzed using multiple logistic regression.

Results: Female gender (AOR = 15.432), paternal unemployment (AOR = 21.639), and low paternal education (AOR = 0.045) were identified as independent predictors of depression.

Conclusions: This study highlights the importance of addressing economic and gender-specific factors in interventions for children with ID. Focused mental health support is necessary for girls and children with unemployed fathers. *ASFI Research Journal. 2026; S3(1): e133142.*

The invisible burden: stigma, social exclusion, and depressive disorder in children with intellectual disability in Northern Nigeria

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Background: Stigma and social exclusion significantly impact the mental health of individuals with intellectual disability (ID), especially in Sub-Saharan Africa where cultural and religious beliefs can exacerbate these issues.

Objectives: To investigate the role of stigma and social exclusion as contributors to depression in children with ID in Northern Nigeria.

Methods: A mixed-methods study of 87 children with ID was conducted. Depression was diagnosed using the K-SADS-PL. Qualitative data on stigma and exclusion were collected through ethnographic observations and interviews.

Results: Qualitative data revealed experiences of religious stigma, social isolation, and limited future opportunities, all of which were linked to depression. The prevalence of depressive disorder was 19.5%.

Conclusions: Stigma and exclusion are major contributors to depression in children with ID. Multi-level interventions addressing stigma and promoting social inclusion are needed to mitigate the mental

health burden. *ASFI Research Journal. 2026; S3(1): e133143.*

Assessing the challenges and coping strategies of parents of children with sickle cell disease in Federal Medical Centre, Abeokuta, Ogun State

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Objective: Sickle cell anemia, also called sickle cell disease, is a group of disorders that cause red blood cells to become misshapen and break down. This study investigates the challenges faced by Parents of children with sickle cell disease (SCD) at the Federal Medical Centre, Abeokuta, Ogun State, Nigeria, and explores their coping strategies.

Methods: A quantitative cross-sectional design was utilized as well as convenience sampling technique, the sample size was determined using the Yamane formula. and data was collected from 102 parents through a structured questionnaire, with the analysis performed using SPSS version 25, employing descriptive statistics and chi-square tests.

Results: The findings showed that the majority of respondents (55.9%) are aged between 20-35 years, with a predominance of females (82.4%). Awareness of SCD is high, with 92.2% of parents familiar with the disease. Emotional challenges are significant, with 80.4% of parents reporting an emotional impact from their child's condition. Financial stress is also evident, affecting 62.7% of respondents. The study identifies key coping strategies, such as discussing feelings with spouses (56.9%) and seeking religious solace (46.1%). Notably, the results indicate a significant association between parents' knowledge of SCD and their coping strategies, particularly in terms of positive thinking and religious practices.

Conclusion: This study underscores the importance of comprehensive support systems for parents managing the complexities of raising children with sickle cell disease, promoting better health outcomes and

emotional well-being. Additionally, establishing support groups and providing emotional and transportation assistance can greatly benefit these families. *ASFI Research Journal. 2026; S3(1): e133144.*

The effects of climate change on cattle production: a case of central province, Zambia

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Background: Climate change is an increasingly significant global issue, with widespread consequences for agriculture, particularly in regions where farming practices heavily depend on the natural environment.

Objectives: This study's objective was to assess the effects of climate change on cattle production in selected districts of Central Province, Zambia.

Methods: This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of the effects of climate change on cattle production in central Province. The quantitative component involved collecting and analysing numerical data related to climate change variables, cattle health, and productivity metrics. The qualitative component gathered in-depth insights from farmers and other stakeholders through interviews and focus group discussions, providing context to the quantitative findings.

Results: The study has revealed that both extreme increase and decrease in temperature negatively affect production of cattle, including their health, growth and reproduction and milk production, with 90% of the respondents agreeing that it affects milk quality and quantity produced and 60% indicating that climate change negatively affects the weight of cattle.

Conclusion: The study concludes that the effects of climate change on cattle production are mostly indirect as they affect the availability of certain resources required by cattle, the health and mortality of cattle as

well as the economics surrounding cattle production. *ASFI Research Journal. 2026; S3(1): e133145.*

Diagnostic value of leukocyte count and neutrophil-to-lymphocyte ratio in patients with acute appendicitis at Hasahiesa Emergency Hospital, Gezira State, Sudan

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Acute appendicitis remains one of the most frequent causes of emergency abdominal surgery worldwide, yet its diagnosis is often challenging, particularly in resource-limited settings where advanced imaging techniques are unavailable. This study aimed to evaluate the diagnostic value of leukocyte count and neutrophil-to-lymphocyte ratio (NLR) as accessible laboratory markers for acute appendicitis at Hasahiesa Emergency Hospital, Gezira State, Sudan. A prospective cross-sectional study was conducted among 100 patients presenting with suspected acute appendicitis between October 2022 and March 2023. Demographic and clinical data were collected using a structured questionnaire, and peripheral venous blood samples were analyzed using an automated hematology analyzer (Sysmex XP-300) to determine leukocyte counts and NLR values. Intraoperative findings were used to classify patients as having uncomplicated or complicated appendicitis. Data were analyzed using SPSS version 25, with a significance level of $p < 0.05$. Among the 100 participants (44% male, 56% female; mean age 22.3 ± 6.8 years), 55% showed leukocytosis. The mean NLR was significantly higher in patients with complicated appendicitis (6.2 ± 1.5) than in those with uncomplicated disease (4.1 ± 1.2) ($p < 0.05$). Both leukocyte count and NLR were strongly associated with the severity of appendicitis. These results align with previous studies reporting NLR cut-off values between 3.5–4.7 for acute appendicitis and 5.7–8.8 for complicated cases, demonstrating good diagnostic sensitivity and specificity. In conclusion, leukocyte count and NLR are simple, cost-effective,

and reliable diagnostic tools for evaluating both the presence and severity of acute appendicitis. Their integration into clinical practice, particularly in low-resource settings, can enhance diagnostic accuracy, guide timely surgical intervention, and improve patient outcomes where advanced imaging modalities are limited. *ASFI Research Journal*. 2026; S3(1): e133146.

Invitro study of antimicrobial activity, phytochemical screening, antioxidant and cytotoxicity activity of *Ganoderma lucidum*

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Background: This current study assessed the antimicrobial, antioxidant, phytochemical, and cytotoxic properties of *Ganoderma lucidum* extracts, a fungus that has long been known in traditional medicine to possess various health benefits. The research aimed to scientifically confirm the claimed properties, identify the primary bioactive compounds, and assess its suitability as a source of a therapeutic agent for combating pathogenic microorganisms and free radicals.

Methods: Fruiting bodies of *Ganoderma lucidum* were dissolved with ethanol, hot water, and chloroform in Soxhlet apparatus. Antibacterial activity was evaluated using the cup-plate method against pathogens *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and methicillin-resistant *Staphylococcus aureus* (MRSA). Phytochemical screening was used to find major constituent groups. Antioxidant activity was also evaluated using the DPPH radical scavenging assay, and cytotoxicity was evaluated by the brine shrimp lethality test.

Results: The ethanolic extract showed highest antibacterial activity, with maximum inhibition zone of 25mm against MRSA, and was highly active in antioxidants (84%). The aqueous extract also showed strong antibacterial activities, with maximum inhibition

zone of 19mm against MRSA, and a moderate antioxidant capacity (38%). In contrast, the chloroform extract showed zero antibacterial activity against the tested strains and lowest antioxidant activity (27%). Phytochemical screening had shown terpenoids, alkaloids, flavonoids, tannins, saponins, steroids, and anthraquinones, with disparity in the different extracts. Cytotoxicity activity showed a moderate activity, wherein ethanolic and aqueous extracts had shown approximately 40-50% and 50-67% survivor shrimps, respectively, at higher concentration.

Conclusion: The findings show that *Ganoderma lucidum* extracts, particularly those obtained by using ethanol and hot water, have a high content of antimicrobial and antioxidant. *ASFI Research Journal*. 2026; S3(1): e133147.

HIV-1 exposed uninfected newborns exhibit poorer clinical and biological outcomes with dysregulated inflammatory cytokines at birth in Yaounde-Cameroon, Central Africa

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Background: Human Immunodeficiency Virus (HIV) Exposed Uninfected Children (HEU) exhibit a threefold increase in morbidity and mortality, compared to their HIV-unexposed uninfected (HUU) counterparts. While this heightened vulnerability is attributed to multiple factors including bacterial, parasitic, viral, metabolic, and anatomical etiologies, among others, immune dysregulation has been implicated. But robust evidence substantiating this hypothesis and advocating targeted interventions remains scarce, particularly in Cameroon.

Objectives: This study aimed to determine whether maternal HIV-1 infection, even with an undetectable

viral load, influences the immune system of HEU newborns at birth in Yaoundé.

Methods: A case-control study was conducted across three hospitals in Yaoundé (Yaoundé Military Hospital, Saint Martin de Porres Dominican Health Center, and Cité Verte District Hospital). Peripheral blood samples of exposed newborns underwent HIV-1 early infants' diagnosis, and umbilical cord blood samples from HEU and HUU newborns were analysed for full blood immunophenotyping and quantification of inflammatory cytokines.

Results: All exposed neonates were HIV-1 RNA negative, indicating 0% prevalence of vertical transmission and 100% proportion of HEU. However, significant differences were observed in HEU newborns compared to HUU, including lower APGAR scores at 1 minute ($p=0.01$), low birth weight ($p=0.92$), severe leukocytosis ($p=0.008$), neutrocytosis ($p=0.01$), reduced hemoglobin levels ($p=0.02$), dysregulated cytokine production with elevated levels of pro-inflammatory IL-6 ($p=0.003$) and decreased levels of anti-inflammatory TGF- β 1 ($p=0.024$). Furthermore, strong negative correlations were observed between monocytes and pro-inflammatory cytokines IL-1 β ($r=-0.74$, $p<0.001$), IL-5 ($r=-0.75$, $p<0.001$), and IL-6 ($r=-0.75$, $p<0.001$); indicating a pro-inflammatory environment and an altered immunological profile in HEU neonates.

Conclusion: HEU newborns exhibited poorer clinical and biological outcomes compared to HUU newborns, highlighting immune dysregulation. These findings underscore the need for targeted interventions for HEU children in Cameroon to address their unique health challenges. *ASFI Research Journal*. 2026; S3(1): e133148.

Power to the patients: evidence from a standardized patient study on patients' expectations and satisfaction

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Objective: Patient satisfaction is an important indicator of healthcare quality, particularly in low-and middle-income countries where resource constraints may affect service delivery. Understanding how patients' knowledge of clinical care and provider-patient communication influences satisfaction can inform strategies to improve patient-centered care. This study examined the relationship between clinical processes, patient knowledge, and overall satisfaction using both standardized patient (SP) and real patient (RP) approaches in public primary healthcare facilities in South Africa.

Method: The study was conducted in public primary healthcare facilities across two metropolitan districts in South Africa. Data was collected using two complementary methods: trained standardized patients who simulated clinic visits to objectively assess care quality, and real patients who participated in exit interviews after their consultations. Bivariate and multivariate analyses were used to examine associations between specific clinical indicators, such as history-taking, counseling, and explanations of services, and overall patient satisfaction.

Findings: The results showed that standardized patients who were satisfied with the clinical aspects of care were significantly more likely to report overall satisfaction. In the SP model, overall satisfaction was positively associated with providers' inquiries about medical history and life circumstances, explanations of contraception options, and discussions of HIV testing. The real patient model showed similar associations, though they were generally weaker. In both models, older age was positively associated with higher overall satisfaction.

Conclusion: The findings highlight the critical role of effective communication and patient-centered clinical practices in enhancing patient satisfaction. Clear explanations of medical procedures, particularly regarding contraception and HIV testing, are especially important. The study also demonstrates the value of the standardized patient methodology in revealing strengths and gaps in healthcare quality that may be less apparent in patients' self-reports. Healthcare providers should adopt tailored communication strategies to address diverse patient needs and expectations, thereby improving satisfaction and the

overall quality of care. *ASFI Research Journal*. 2026; S3(1): e133149.

The impact of leadership development initiatives on collaborative practices in cancer research

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Background: Cancer research requires interdisciplinary collaboration to address the growing complexity of oncology prevention, diagnosis, treatment, and policy integration. However, in low- and middle-income countries (LMICs), such as Zambia, effective collaboration is hindered by limited research infrastructure, fragmented funding mechanisms, and insufficient leadership development programs. Transformational leadership, which emphasizes vision, mentorship, and intellectual stimulation, is essential in guiding research teams toward innovation, sustainability, and impactful policy engagement.

Objective: The study used the Transformational Leadership Theory (TLT) as an analytical framework to examine how leadership development fosters research productivity, strengthens mentorship networks, and enhances institutional support mechanisms.

Methodology: This research adopts a qualitative study design to explore leadership development initiatives on collaborative practices in cancer research. The interviews focused on understanding leadership development initiatives on interdisciplinary collaboration in cancer research.

Findings: The study focused on Zambia and identified key challenges to leadership development and proposed strategies to integrate leadership training into national and institutional research frameworks. Findings underscore the pivotal role of leadership in shaping research collaboration, improving mentorship networks, and ensuring alignment with national cancer control strategies.

Conclusion: The study contributes to the emerging body of evidence positioning leadership as a key determinant of success in cancer research

collaboration while offering practical recommendations for strengthening leadership capacity in LMICs. *ASFI Research Journal*. 2026; S3(1): e133150.

Enhancing tripartite symbiosis between soybean, rhizobia and arbuscular mycorrhiza fungi under contrasting farm management practices

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Background: Food insecurity remains a major concern due to declining soil fertility that lowers crop yields. While inorganic fertilizers provide quick nutrients, they can degrade soil structure and pose environmental risks. In contrast, organic and bio-fertilizers improve soil health, enhance microbial activity, and promote sustainable nutrient cycling. Soybeans, being rich in protein and fat, also contribute to food and nutrition security while improving soil fertility through nitrogen fixation. The objective was to evaluate the effects of organic farming and microbial inoculation on soybean nodulation, growth, yield, and the effectiveness of native *Bradyrhizobium* under different farm management practices.

Methods: Field experiments included treatments with native *Bradyrhizobium*, commercial *Bradyrhizobium japonicum*, a mixture of native and commercial strains, and a non-inoculated control. Promiscuous soybean varieties SB 19 and SC Squire, as well as the non-promiscuous Gazelle, were tested. In the greenhouse, soybeans were inoculated and co-inoculated with arbuscular mycorrhizal fungi (AMF) and *Bradyrhizobium*. The AMF inoculants used were *Funneliformis mosseae* and *Rhizophagus irregularis*, while the bacterial treatments included commercial and native *Bradyrhizobium*.

Results: Field experiment results revealed a significant improvement in soybean nodule dry weight (NDW), shoot dry weight (SDW), and seed dry weight (SEDW) following inoculation. Notably, organic farming

significantly outperformed conventional systems in all three parameters (SDW, NDW, and SEDW). Furthermore, the seed nutrient composition differed markedly between the two farming systems. These findings indicate that organic farming, when integrated with dual inoculation of *Bradyrhizobium* and AMF, substantially enhances soybean nodulation, growth, and yield.

Conclusion: Commercial *Bradyrhizobium* inoculation enhanced soybean production and yield quality. Furthermore, co-inoculation of soybean with arbuscular mycorrhizal fungi (AMF) and rhizobia promoted root colonization and nodulation. Notably, organic farms maintained a higher population of native rhizobia compared to conventional farms, and some of these native rhizobia were symbiotically effective. In addition, organic farming enhanced mycorrhizal density and activity more than conventional farming. *ASFI Research Journal. 2026; S3(1): e133151.*

Migration and mental health: biological and psychosocial predictors of depression in children with intellectual disabilities across Sudan, Nigeria, and U.S.A immigrant populations

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Background: This study aims to investigate the biological and psychosocial predictors of depression in children with intellectual disabilities across three distinct contexts: Sudan, Nigeria, and immigrant populations in the United States. Specifically, it explores how enriched environments, characterized by structured educational systems, healthcare access, and inclusive support, may influence cognitive and emotional development among children who migrate from low-resource settings to high-income countries.

Methods: A comparative cross-sectional design was employed, integrating data from global disability databases (World Bank, UNICEF), US-based child health surveys (NSCH, NHIS), and educational service records (IDEA Part B). Key variables included body mass index (BMI), IQ levels, depression indicators, and access to psychosocial support. Stratified analysis was conducted to compare pre- and post-migration cohorts, with attention to biological and environmental factors influencing developmental outcomes.

Results: Preliminary findings suggest that children with intellectual disabilities in Sudan and Nigeria face elevated risks of depression due to limited access to mental health services, poor nutritional status, and under-resourced educational environments. In contrast, immigrant children in the US show signs of cognitive and emotional improvement, with increased access to individualized education plans (IEPs), therapeutic interventions, and inclusive school settings. BMI and IQ scores also showed upward trends post-migration, indicating potential biological responsiveness to enriched environments.

Conclusions: Migration to high-resource settings may offer transformative opportunities for children with intellectual disabilities, particularly in mitigating depressive symptoms and enhancing cognitive function. These findings underscore the need for scalable, context-sensitive interventions in LMICs that replicate key elements of inclusive systems—such as early screening, caregiver support, and integrated mental health services. Future research should explore longitudinal outcomes and policy adaptations that bridge global disparities in disability care. *ASFI Research Journal. 2026; S3(1): e133152.*

Perceived effects of academic stress on psychological, physical, and social well-being among student nurses in Abeokuta South Local Government, Nigeria

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Background: Academic stress, conceptualized as psychological and physiological responses to educational demands exceeding students' adaptive capabilities, significantly impacts nursing students due to rigorous curricula, clinical responsibilities, and professional expectations. Within Nigerian nursing education contexts, empirical evidence regarding the multidimensional effects of academic stress on student nurses' holistic well-being remains limited, despite documented implications for academic performance and professional development. This study assessed the perceived effects of academic stress on psychological, physical, and social well-being among student nurses in selected nursing institutions within Abeokuta South Local Government, Ogun State.

Methods: A descriptive cross-sectional investigation was conducted over four days among student nurses from the College of Nursing, Idi-Aba, and Sacred Heart College of Nursing Sciences, Abeokuta. Using systematic random sampling with a sampling interval of $k=3$, 209 participants were recruited from a total population of 627 eligible students. Data collection employed a validated structured questionnaire with established psychometric properties (Cronbach's $\hat{\alpha} = 0.89$ for academic stress scale, $\hat{\alpha} = 0.84$ for well-being measures). Psychological health, physical health, and social well-being served as outcome variables, while academic stress levels constituted the primary explanatory variable. Statistical analysis utilized SPSS version 28, incorporating descriptive statistics and chi-square tests of independence ($\hat{\alpha} = 0.05$).

Results: Among 209 participants (response rate = 100%), 174 (83.2%) demonstrated high awareness of academic stress manifestations ($M = 4.18 \hat{\alpha} \pm 0.67$). Students reported moderate adverse impacts across all well-being domains: psychological well-being ($M = 3.65 \hat{\alpha} \pm 0.74$), physical well-being ($M = 3.86 \hat{\alpha} \pm 0.82$), and social relationships ($M = 3.60 \hat{\alpha} \pm 0.79$). Chi-square analysis revealed significant associations between academic stress awareness and physical well-being impacts ($\hat{\chi}^2 = 12.47$, $p = 0.014$, Cramer's $V = 0.244$). No statistically significant gender differences emerged in stress perception patterns ($\hat{\chi}^2 = 2.18$, $p = 0.336$),

indicating consistent experiences across demographic groups.

Conclusion: Student nurses demonstrated substantial awareness of academic stress while experiencing moderate adverse effects across psychological, physical, and social well-being dimensions. Significant associations between stress awareness and physical health impacts underscore the need for comprehensive institutional interventions targeting stress management and resilience building within nursing education programs. *ASFI Research Journal. 2026; S3(1): e133153.*

The misleading noise on twitter: how a few users skew perceived consensus and increase infodemics during pandemics

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Background: Social media platforms significantly shape the spread of conspiracy theories and misinformation during health crises, as their design encourages opinion-sharing over science-based information. This study examines how noise generated by a few users on X during pandemics such as COVID-19 and HIV/AIDS creates a false perception of widespread engagement and consensus.

Methods: 10 interviews were conducted with communication personnel from the Western Cape Department of Health and Wellness (WCDOHW) and the National Institute for Communicable Diseases (NICD), and three focus groups were conducted with 23 participants, both males and females, from the Klipfontein area, Cape Town. The data were analysed using thematic analysis.

Results: Findings from three focus group discussions with 23 young people (aged 18–27) in low-income communities such as Gugulethu and Philippi indicate that X is largely perceived as a platform for the elite and highly educated. Only four participants have inactive X accounts. By contrast, Facebook emerged as the preferred platform due to its free mode feature.

Affordability barriers were consistently cited as limiting X use, with participants emphasising that data expenses are not a priority in contexts where basic needs remain unmet. Interviews with 11 communication personnel from WCDOH and NICD reinforced these insights, emphasising that although influential individuals populate X, it creates a misleading impression of broad public participation. In practice, community-level engagement is far stronger on Facebook, which is considered more accessible and practical. However, Facebook's role in information sharing is accompanied by the circulation of misinformation and conspiracy theories, including tweets that are reshared through screenshots.

Conclusion: Facebook is the dominant and more inclusive platform for communication in low-income communities. To foster meaningful engagement, organisations should prioritise Facebook while also investing in digital literacy to curb misinformation. Making platforms like X more affordable and accessible could further bridge the digital divide and empower marginalised voices. *ASFI Research Journal. 2026; S3(1): e133154.*

Perceived risks and substance use among Nigerian secondary students

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Background Substance use among Nigerian adolescents is a growing public health problem, yet critical gaps remain in understanding the cognitive determinants of these behaviors.

Methods: A cross-sectional study using a multistage sampling approach was conducted among 1,518 secondary school students across Nasarawa State, Nigeria. Data were collected using an adapted version of the validated European Union Drug Addiction Prevention (EU-DAP) questionnaire. Principal component analysis derived four substance use risk perception components from 26 variables. Binary logistic regression was used to examine associations

between tertiles of the perception components and substance use, adjusting for demographic covariates.

Results: In-school adolescents perceiving least harm had markedly higher odds of using marijuana (OR=5.16, 95%CI: 3.31-8.03) and sniffing substance use (OR=4.80, 95%CI: 3.11-7.42) than students perceiving greater harm. We observed a clear dose-response relationship for perceived negative consequences, with the lowest tertile associated with significantly higher odds of ever trying cigarettes (OR=1.83, 95% CI: 1.26-2.66) and marijuana (OR=1.77, 95% CI: 1.17-2.68), and sniffing substance use (OR=2.83, 95% CI: 1.72-4.66). Notably, perceived positive effects showed an inverse relationship: adolescents who associated substances with least pleasure had elevated odds for ever trying cigarettes (OR=3.90, 95% CI: 2.51-6.07) and marijuana (OR=4.64, 95% CI: 2.84-7.56).

Conclusion: While low perceived harm is associated with high odds of substance use among Nigerian adolescents, a paradoxical inverse relationship with perceived pleasure challenges Western models. This suggests cultural stigma appears to shape naive anticipations of pleasure. Effective prevention requires a dual strategy: intensifying accurate harm messaging and deconstructing imagined benefits through culturally grounded programs that foster resilience and healthy alternatives, moving beyond mere translation of interventions. *ASFI Research Journal. 2026; S3(1): e133155.*