

SOROTI UNIVERSITY
A University of Professionals and Innovators

BOOK OF RESEARCH ABSTRACTS

1st Edition 2025

TABLE OF CONTENTS

1. Preface

2. Forward

3. Publication Committee

4. Research and Development Partners

5. Synopsis of Research and Innovations Agenda 2025-2030

6. Milestone

7. Research Abstracts

8. Central Administration Abstracts

9. School of Applied Sciences and Science Education Abstracts

10. School Of Engineering and Technology Abstracts

11. School Of Health Sciences Abstracts

12. Department Of Graduate Studies, Research and Innovations Abstracts

13. Patents at Soroti University

14. Pictorial Outlook of Soroti University

15. The Proposed University Tower

16. The Proposed University Library

17. The Proposed School Of Engineering and Technology

18. The Proposed Soroti University Sports.

19. Proposed Soroti University Undergraduate Student Hostel

20. Proposed Soroti University Main Gate

Preface

Soroti University is deeply committed to promoting research throughout its domains of higher and community education. Our central aim is to nurture a research-based perspective to all our members be this academic or administrative, as well as promote public awareness on social values in our country.
I am therefore conveying my sincere gratitude to all individuals who submitted abstracts that have been published in this Book of Abstracts. The Abstracts presented illustrate our commitment to the culture of research at our University.

I commend our researchers for their dedication to scientific inquiry and pursuance of excellence which is an essential element towards generating new knowledge and solutions to problems affecting our communities. I urge them to remain steadfast in this journey. I am, however, reminding them to do impactful research that should see change in whatever problem exists in the communities. My assurance is that the University will continue to support this effort to enable you to continue with this noble journey.

The University has a Research and Innovation Directorate that provides overall guidance to our research efforts and strategic direction. The research activities, and those of our collaborators, are expected to align with this agenda. However, novel research areas not explicitly included may also be considered, provided they demonstrate significant social impact and value to the country.

My gratitude is extended to our partners for their Commitment to strengthening the University through the kind of research it conducts.

I acknowledge the work of the committee responsible for publishing this first edition of abstracts from Soroti University. I encourage you to do the same in the future.

I also extend my appreciation to the School of Graduate Studies, Research and Innovations in particular, and the University at large for this initiative of publishing inaugural abstracts of Soroti University.

Finally, to our partners and stakeholders, we encourage you to read and support the University in its maiden journey in research and other areas that are essential to the development of our country.

Thank you for your contribution and support.

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Forward

At Soroti University, we envision a future driven by professionals who not only respond to society's challenges but also shape them into opportunities for sustainable growth and transformation. Our mandate in Graduate Studies, Research and Innovations is anchored in this vision - to nurture a generation of thought leaders, solution-seekers, and forward-thinking innovators who will influence policy, industry, academia, and communities at both national and global levels.

This vision reflects Uganda's aspirations for inclusive and knowledge-based development. As a public university located in the heart of the Teso sub-region, Soroti University is uniquely positioned to address regional and national priorities through research that is contextually relevant, ethically grounded, and socially impactful. Our commitment is to provide graduate students with a dynamic learning environment enriched with rigorous academic training, interdisciplinary research opportunities, and strategic mentorship.

We are investing in partnerships that amplify our capacity - with local communities, academic institutions, industries, and international collaborators - to ensure that our graduates and researchers not only generate knowledge, but also translate it into innovations that improve lives and livelihoods. This preface introduces a collective journey toward excellence, relevance, and resilience - one that reflects our values of teamwork, integrity, inclusiveness, responsiveness, and creativity.

To our current and prospective graduate students, academic staff, and research partners: welcome to a space where ambition meets purpose, and where knowledge becomes a tool for transformation.

Professor Francis Ejobi
Director,
Department of Graduate Studies,
Research, and Innovations.

Publication Committee

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RESEARCH AND DEVELOPMENT PARTNERS

Government of the Republic of Uganda	
Government of India	
International Atomic Energy Agency	IAEA
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Jena Herbals/Prof. Patrick Ogwang Engeu	JENA HERBALS LIMITED
Ministry of ICT and National Guidance	MINISTRY OF ICT & NATIONAL GUIDANCE A Knowledge and Productive Society driven by ICT & National Ideology
Ministry of Science, Technology, and Innovation	Ministry of Science, Technology and Innovation

Synopsis of Research and Innovations Agenda 2025-2030

Context
The Soroti University Research Agenda guides the direction of focus for research and innovations for the period from 2025 to 2030, puts in place research management framework, and research resource mobilization avenues

Goal
To position Soroti University to effectively contribute to accelerated socio-economic transformation, prosperity and well-being of Ugandans, and humankind in general, through research and innovations

Objectives
a) To guide overall research planning and research funds allocation in the University
b) To inform stakeholders (government, development partners, Soroti University staff and students, the public, etc.) on the priority areas of research at Soroti University
c) To foster collaboration with national and international partners; and
d) To delineate priority areas for building capacity of University researchers and innovators

Priority Areas for Research and Innovations
a) Health and allied health systems research
i. Infectious diseases
ii. Non–communicable diseases, including lifestyle diseases, cancers, injuries and mental health
iii. Nursing and midwifery service provisioning
iv. Public health and population education models
v. Health services provisioning, including health financing
vi. Rapid diagnostics and forensics
vii.One Health approach, including antimicrobial resistance, nutraceuticals, food safety and zoonoses
viii. Child, adolescent and reproductive health
ix. Geriatrics
x. Indigenous knowledge systems in healthcare, including herbal

medicines and traditional animal-derived medicines
xi. Climate change and health nexus

b) Engineering and technology research

i. Artificial intelligence, robotics and machine learning technologies
ii. Nuclear science and engineering
iii. Humanitarian engineering
iv. Design and road works
v. Food processing and industrial technology
vi. Geo-technical and foundation engineering
vii. Renewable energy
viii. Material science
ix. Precision manufacturing
x. Geo-science and space science
xi. Big data science

c) Management sciences research

i. Green accounting
ii. Corporate governance
iii. Blockchain
iv. Digital transformation
v. Mobile banking
vi. Financial inclusion
vii. Financial crime
viii. Capital markets

d) Institutional development research

i. University governance, administration and leadership models
ii. University community outreach models
iii. Data use in university education system
iv. Education management and education technologies
v. Diversity in contemporary higher education
vi. University policies

e) Crosscutting areas of research

i. ICT
ii. Gender
iii. Knowledge unpackaging and translation models
iv. Environment

For more information, please contact the Office of the Director of Graduate Studies, Research and Innovations, Telephone: +256-772-492236, E-mail: francis.ejobi@sun.ac.ug

MILESTONE



H. E. the Vice President Rtd. Maj. Hon. Jesca Alupo Epel Officially Commissioned Soroti University on 11th August 2022

RESEARCH ABSTRACT

ADMINISTRATION ABSTRACTS

Genesis, Evolution And Current Thrusts Of Soroti University

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Soroti University

Abstracts

Elders from Teso sub region in Eastern Uganda nursed a dream that one day, they would have a University in their area. This dream came true on 11th December 2011 when Uganda Government decided to set up a Public University known as Soroti University, located in Teso sub-region. The University was established by Statutory Instrument No. 34 of July 2015 as the 9th Public University under the Universities and Other Tertiary Institutions Act of 2001 as amended. Soroti University is governed by the University Council and Council Committees and Senate and its Committees as stated by the Act. Based on its Vision of being an institution of Professionals and Innovators, the Niche of Soroti University is to provide knowledge, skills and innovations in Applied Sciences. The University's thematic areas are:-Health Sciences; Engineering and Technology; Renewable Energy; Applied Science and Science Education; Value addition courses and Food Science and Technology and currently has a population of 931 students.

Key words
Applied Sciences, Energy, Innovators, Nuclear Science, Soroti University, Tropical Medicine, Uganda

Citation
Ikoja, O. J. R., Okello, J. G., & Too-Okema, L. Genesis, evolution and current thrusts of Soroti University; Source: **http://repository.ruforum.org**

Information Needs and Uses of the Informal Sector Entrepreneurs: A Conceptual, Contextual and Historiographic Review

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Abstract

This chapter reviews the extant literature on information needs and uses of the informal sector entrepreneurs of Uganda. The review is based on the study conducted from 1999 to 2002. By this time, studies on information needs were already forty years old since the early writing and exposition by Taylor in 1962, 1968. Motivation to the study is that the informal sector whose entrepreneurs were studied, had during this time relatively few studies of information needs and uses undertaken in developing Africa and within Uganda there was no empirical evidence to rely on to the size, nature, range, and activities of the sector. There is also a wide information gap in government, NGOs and other stakeholders on the sector regarding what they do and yet the sector contributes to the national economy. However the sector is part of the Ugandan economy that is deeply rooted in the history, customs and culture of the country. It is the second economy that has demonstrated remarkable ability to survive and expand in recent years. To understand the information needs and uses of entrepreneurs, their demographic and business characteristics are highlighted and empirically tested. Qualitative research methodologies, applying critical incidence technique for interviews of informal entrepreneurs from various trades was employed. Observations of entrepreneurs' work environments and historical methods were engaged. Results suggest modern/exotic models of information transfer based on textual media and ICT, exhibit less impact on the entrepreneurs' information needs and use at macro levels because of illiteracy, low levels of education and poor information infrastructure. Most 'elite' models share a platform with information behaviour of entrepreneurs at the micro levels. The conclusion is drawn that an appropriate model for information behaviour for information poor communities like the informal entrepreneurs must be grounded on oral traditions and indigenous

knowledge and should be sensitive to poverty, infrastructure and illiteracy. There is need for information repackaging and use of appropriate media for information provision.

Keywords
Information behaviour, information seeking, informal sector

Description
This is a book chapter published in a book titled Information, Knowledge, and Technology for Teaching and Research in Africa: Information Behaviour in Knowledge and Economy, 23-52.

Citation
Ikoja Odongo, J.R. (2025). Information Needs and Uses of the Informal Sector Entrepreneurs: A Conceptual, Contextual and Historiographic Review. In: Ocholla, D., Onyancha, O.B., Adesina, A.O. (eds) Information, Knowledge, and Technology for Teaching and Research in Africa. Synthesis Lectures on Information Concepts, Retrieval, and Services. Springer, Cham. **https://doi.org/10.1007/978-3-031-65745-0_2 .**

SCHOOL OF APPLIED SCIENCES AND SCIENCE EDUCATION ABSTRACT

Internal Corporate Governance Mechanisms and Financial Performance of Listed Financial Institutions at the Uganda Securities Exchange.

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3. Department of Commerce and Business Management, Lira City-Uganda.
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Abstracts

This study examined the effect of internal corporate governance mechanisms on the financial performance of listed financial institutions on the Uganda Securities Exchange.

We collected secondary data from a census of all the financial institutions from 2014 to 2023. In addition, primary data on governance and financial performance was obtained through interviews to supplement the secondary data. We employed both accounting-based (ROE) and market-based (Tobin's Q) proxies to measure firm-financial performance.

Based on the results, the agency theory fails to illustrate that the board of directors (BoDs) and the audit committee (AC) are effective in improving financial performance. However, ownership structure (OS) has a notably positive and significant effect on financial performance, highlighting the importance of different forms of ownership in a firm.

Our study adds to the literature by demonstrating that the application of agency theory doesn't have a significant effect on firm-financial performance in the Ugandan context. Moreover, it contributes to the present body of knowledge on ICGMs and firm-financial performance literature, particularly in the context of an emerging economy.

Keywords:
Internal corporate governance mechanisms, financial performance,

listed commercial banks, Uganda Securities Exchange.

Citation
Etengu, R. O., Oder, J., Opio, P. P., Odongo P. & Ebwonyu, R. (2024). Internal Corporate Governance Mechanisms and Financial Performance of Listed Financial Institutions at the Uganda Securities Exchange. Hong Kong Journal of Health Sciences.
https://doi.org/10.55463/hkjss.issn.1021-3619.64.42

Corporate Disclosure and Earnings Management: The Moderating Role of Corporate Governance Mechanisms

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Abstracts

Notwithstanding the enormous amount of regulation and standards governing the financial reporting process, corporate failures and prior research have strongly indicated that earnings management (EM) is becoming a regular business practice in most firms today. Although this practice is more common in developed economies, there is limited research on corporate governance (CG) failures that have occurred in East Africa's emerging economies.

In this study, therefore, we examine whether corporate governance mechanisms (CGM) moderate the association between corporate disclosure (CD) and EM using evidence from listed firms at the Uganda Securities Exchange (USE). We employ disclosure and corporate governance indices to measure the extent of CD and corporate governance.

Additionally, we use the magnitude of discretionary accruals (DACC) obtained from the modified Jones model as a proxy for EM. We find that audit committee (AC) characteristics have a negative and significant moderating effect on the association between CD and EM. Our study contributes to the growing strand of literature on the moderating or complimentary effect of CGM in constraining EM in the context of an emerging economy.

Keywords
Corporate Disclosure, Corporate Governance, Earnings Management

Citation

Etengu, R. O., Opio, B., & Oder, J. (2024). Corporate disclosure and earnings management: The moderating role of corporate governance mechanisms. Reporting and Accountability Review, 1(1), 8–17. **https://doi.org/10.22495/rarv1i1p1.**

The influence of corporate social responsibility on financial performance: Evidence from listed firms

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Abstracts

This paper examines the impact of corporate social responsibility (CSR) disclosure choices on firms' financial performance in a non-mandatory environment. The authors employed an ex-post facto research design using cross-sectional and time series data.

The data were collected over a seven-year period (2016–2022) from firms listed on the Uganda Securities Exchange (USE). The analysis was conducted in the form of descriptive statistics, correlations, and regressions using STATA 14.

The independent variable is the CSR score, and the dependent variable is the firm's financial performance. Based on the panel data model, it was found that governance disclosure (GOV) and environmental disclosure (ENV) have no significant impact on the firm's financial performance. On the other hand, the regression results based on social disclosure (SOC) indicate either a statistically significant negative impact or no impact at all on the financial performance. The stakeholder theory's assertion that satisfying the needs of all stakeholders inevitably leads to a firm's financial success is largely refuted by the data presented in this article. The authors recommend that listed firms conduct a thorough assessment of their social initiatives, especially those that affect financial performance, to help allocate resources more efficiently. Moreover, it is critical for listed firms to support their environmental initiatives for ethical and sustainable reasons.

Keywords
Corporate Social Responsibility, Financial Performance, Listed Firms, Uganda Securities Exchange

Citation
Antorine, C., Etengu, R. O., Opio, B. (2024). The influence of corporate

social responsibility on financial performance: Evidence from listed firms. Business Performance Review, 2(2), 48–57.
https://doi.org/10.22495/bprv2i2p4

Unveiling factors influencing choice of clean cooking solutions among households: a systematic review of literature

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Abstracts

Nearly half of the global population rely on solid polluting fuels such as firewood, charcoal, animal and plant wastes for cooking. Continued reliance on such fuels and technologies has severe negative health, environmental, and development impacts. Using a systematic literature review methodology, this study sought to unveil factors influencing choice of clean cooking solutions among households. This study adopted a systematic literature review approach to systematically identify, evaluate and synthesize articles in the field of clean cooking solutions.

Systematic literature review is a rigorous and replicable methodology that is designed to identify, appraise and synthesize already existing literature on specific question or sub questions. In this study, the procedures suggested by Liberati et al. and Moher et al. based on preferred reporting items for systematic reviews and meta-analysis (PRISMA) approach. Seventy-four articles were synthesized and many factors influencing the choice of cooking solutions were identified alongside the existing gaps.

Keywords
energy choice, cooking solutions, households, systematic review, determinants

Citation
Ocen, S., Nkurunziza, G., Bagire, V., Echegu, S., Ssekakubo, J., Atukunda,

R. (2024). Unveiling factors influencing choice of clean cooking solutions among households: a systematic review of literature. Front. Sustain. 5(). **p1452900. doi: 10.3389/frsus.2024.1452900.**

SCHOOL OF ENGINEERING AND TECHNOLOGY ABSTRACT

Correlation between Ultimate Strength and Martensite Annulus in TMT Bars

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Abstracts

Following the rolling and heat treatment processes, TMT bars have a tempered martensite outer with a ferrite pearlite core. The martensite zone is at least twice the tensile strength of the pearlite. This research was aimed at establishing the regression between the thickness of the outer layer and the overall ultimate strength of the steel bar.

Thirty bars of TMT were selected and subjected to tensile testing. Polished sections of these bars were subjected to surface micro-hardness tests. A plot of hardness against the radial displacement along the section of the bar was made to enable determination of the 50% position. The thickness of the martensite zone up to the 50% position was made against the ultimate strength of the bar in each case. A direct proportionality in y=438.36 X +104.3 resulted at 0.9278 determination to show that the martensite ring thickness is directly proportional to the ultimate strength of the thermo mechanically treated bar.

Keywords
steel; thermo mechanical treatment; martensite; ultimate strength; annulus

Citation
Senfuka, C., Nalubowa, M. (2025). Correlation between ultimate strength and martensite annulus in TMT bars. *International Journal of Multidisciplinary Research and Growth Evaluation, 6(1), pp.1500-503.*

An Image-Based Sickle Cell Detection Method

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Abstracts

This article presents a method of sickle cell detection from microscopic images. We extract five attribute values from the connected components of an image, and train machine learning classifiers to recognize the sickle cells. Four classifiers were experimented with and the vest one was the K-Nearest neighbour classifier with 97.3% accuracy. The other classifiers are the Neutral network, Decision tree and Naïve Bayesian classifiers which resulted in accuracy rates of between 89-96.3%. This method is applicable for use in low-cost computers since it is computationally cheap. The findings of this research can be considered as a screening method for diagnosing sickle cell anaemia.

Keywords
Sickle Cell, Sickle Cell Detection, Anaemia Diagnosis, AI for Sickle Cell, Machine Learning in Health, SCD App

Citation
Tushabe, F., Mwesige, S., Kasule, V., Nsiimire, E., Musani, S. C., Areu, D., & Othieno, E. (2024). An Image-based Sickle Cell Detection Method. Authorea Preprints. ***Engineering and Applied Sciences Journal***

Performance of the Elabscience Lateral Flow Immuno Assay in Aflatoxin Detection in Uganda

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Abstracts

Maize and groundnuts are staple foods in Uganda. These foods are prone to aflatoxin contamination during pre-harvest and post-harvest stages. However, there is a shortage of screening tests that can be used to routinely detect for presence or absence aflatoxins which are a hazard to human health. The available aflatoxin tests in the market have no established validity.

It is, therefore, important to determine the extent to which these tests are able to identify the likely presence or absence of a condition of interest so that their findings encourage appropriate decision making. This study compared the diagnostic performance of the Elabscience Lateral Flow Immuno Assay in detecting aflatoxins between maize and ground nuts samples.

We also determined discordances of aflatoxin contamination between maize and ground nut sample compositions using ELISA assay. Lateral Flow Immuno Assay showed aflatoxin diagnostic sensitivity of 11.1%, specificity of 85%, PPV of 25% and NPV of 68% in ground nut samples compared to diagnostic sensitivity of 0%, specificity of 85%, PPV; 0% and NPV of 51.5% in maize samples.

Maize whole seeds and homogenized/ crushed foods were more contaminated with aflatoxins than ground whole seeds and homogenized/crushed foods. The difference in aflatoxin contamination between maize and groundnut foods was not statistically significant (p=0.23). Conclusion: Lateral Flow Immuno

Assay has a low aflatoxin diagnostic power with sensitivity ranging from 0-11% and specificity of 85%.

Keywords
Aflatoxins, AF, ELISA, LFIA, Rapid Test, Groundnuts, Maize, Diagnosis, Uganda, Elabscience

Citation
Tushabe, F., Mwesige, S., Thomas, O., Kasamba, I. (2025). Performance of the Elabscience Lateral Flow Immuno Assay in Aflatoxin Detection in Uganda. Journal of Probiotics and Food Sciences, 2(1). pp. 1-7.

Motion Prediction with Gaussian Processes for Safe Human–Robot Interaction in Virtual Environments

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Abstracts

Humans use collaborative robots as tools for accomplishing various tasks. The interaction between humans and robots happens in tight shared workspaces. However, these machines must be safe to operate alongside humans to minimize the risk of accidental collisions. Ensuring safety imposes many constraints, such as reduced torque and velocity limits during operation, thus increasing the time to accomplish many tasks. However, for applications such as using collaborative robots as haptic interfaces with intermittent contacts for virtual reality applications, speed limitations result in poor user experiences. This research aims to improve the efficiency of a collaborative robot while improving the safety of the human user. We used Gaussian process models to predict human hand motion and developed strategies for human intention detection based on hand motion and gaze to improve the time for the robot and human security in a virtual environment. We then studied the effect of prediction. Results from comparisons show that the prediction models improved the robot time by 3% and safety by 17%. When used alongside gaze, prediction with Gaussian process models resulted in an improvement of the robot time by 2% and the safety by 13%.

Keywords
Gaussian Process models, Prediction, Virtual reality, Collaborative robot, Human-robot interaction, Human safety.

Citation
Mugisha, S., Guda, V.K., Chevallereau, C., Chablat, D., Zoppi, M. (2024). Motion Prediction with Gaussian Processes for Safe Human–Robot Interaction in Virtual Environments. in IEEE Access, vol. 12, pp.67470-67485. **https://hal.science/hal-04637167v1.**

Fretting Wear, a Tribological Factor in Catastrophic Failure of Metallic Surfaces

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2. Kyambogo University, Kampala, Uganda

Abstracts

Fretting wear plays a crucial role in many cases where failure is observed. Cyclic motion between contacting surfaces is the essential ingredient in all varieties of fretting wear. It is a surface-to-surface form of wear mainly determined by parameters such as displacement amplitude, normal loading, material properties, number of cycles, humidity, lubrication and a few other less common factors. In this paper, we examine the manner and extent to which certain geometrical forms and engagements are subjected to fretting wear often with cracks initiated in the damaged region and the incidence of catastrophic failure. Methods and equipment used in determining the various parameters affecting fretting as a factor in catastrophic failure are discussed. A series of measures to prevent fretting wear have been treated.

Keywords
Fretting wear, Cyclic motion, Catastrophic failure, Material properties, Lubrication

Citation
Senfuka, C., Nalubowa, M. (2024). Fretting wear, a tribological factor in catastrophic failure of metallic surfaces. International Journal of Multidisciplinary Research and Growth Evaluation, 6(1), pp.437-444.

A Dataset of Microscopic Images of Sickle and Normal Red Blood Cells

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Abstracts

The World Health Organization (WHO) estimates that about 5% of the world's population carries genes responsible for sickle cell trait and each year about 300 000 infants are born with sickle cell disease (SCD). SCD is a lifelong condition where sickled red blood cells block perfusion, leading to several complications such as anaemia, pain, swelling, organ damage, blindness, stroke and premature death. Artificial intelligence techniques could lead to more insights to understanding SCD including improved testing and treatment options.

This necessitates the use of as much data about SCD as possible, including image data. However, there are few available image datasets that depict microscopic images of sickled and normal red blood cells. There are even fewer datasets whose images were captured using non-professional cameras like those in mobile phones. In this work, we present a 569-image dataset of sickled and normal red blood cells, well-labelled and publicly available freely. The images were captured using mobile phone cameras which are widely used even in resource constrained places like in Africa. The blood samples were collected from hospitals in Soroti and Kumi districts in Uganda, Africa.

They were analysed using Leichman and field stains and labelled by qualified Laboratory scientists. This dataset is useful for mobile applications that apply computer vision, deep learning, data science, artificial intelligence or machine learning techniques for medical diagnosis, health research, pharmaceutics and blood banks.

Keywords
Red Blood Cells; Sickle Cell Disease; Sickle Cell Anaemia Images; Sickle Cells Database; Microscopic Images

Citation
Tushabe, F., et al. (2024). A Dataset of Microscopic Images of Sickle and Normal Red Blood Cells. Acta Scientific Microbiology 7(12). pp. 23-29.

Prevalence of Aflatoxin Contamination Across the Food Value Chain for Maize and Groundnuts in Uganda

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3. Uganda Industrial Research Institute, Uganda
4. Medical Research Council/Uganda Virus Research Institute and London School of Hygiene and Tropical Medicine, Uganda
5Soroti University, Uganda

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Abstracts

Maize and groundnuts are some of the most highly contaminated foods on the Ugandan market. Since 2006 there have been some scattered studies on the prevalence of aflatoxin contamination among these grains. However, there were no recent studies of 2022 to highlight the status of aflatoxin contamination.

Grain samples were collected from two highest producing districts that is Masindi and Soroti districts; and across the value chain, from farmers to wholesalers, retailers, processors and restaurants/homes. The samples were tested using ELISA method and the prevalence calculated. Aflatoxins were detected in 45% and 30% of maize and groundnuts, respectively. Contamination increases over the value chain from 31% at farm level, to 42% at table level. In general, contamination was highest among processors at 43%, followed by restaurants (42%), wholesalers (40%), farmers (31%) and retailers at 29%.

Keywords
Aflatoxins; Prevalence; Maize; Corn; Groundnuts; Gnuts; Uganda; Value Chain

Citation
Tushabe, F., et al. (2023). Prevalence of Aflatoxin Contamination

Across the Food Value Chain for Maize and Groundnuts in Uganda. Acta Scientific Agriculture. 7(5). pp. 22-27. URL: **https://actascientific.com/ASAG/ASAG-07-1262.php**

Comparison of COVID-19 Severity between Tropical and Non-Tropical Countries

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Abstracts
Coronavirus disease 2019 (COVID-19) has affected the whole world. However, it is not clear whether the disease affects all countries equally. This paper analyzes the severity of COVID-19 in tropical and temperate countries by comparing the data of infections and deaths registered four months after the onset of the disease. Data were segregated, summarized, visualized, and interpreted. The severity of the disease was quantified in each country and recommendations were made for both categories of countries. The research found that the severity of the disease in terms of infection or death was six times more in countries located in the temperate region.

Keywords
Coronavirus, COVID-19, Tropics, Tropical Countries, Temperate, Temperate Countries

Citation
Tushabe, F. (2020), Comparison of Covid-19 Severity between Tropical and Non-Tropical Countries. International Journal of infection, 7(3), pp. **doi:10.5812/iji.104142.**

Structural and topological guided GCN for link prediction in temporal networks

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Abstracts

The rapid expansion of social network data presents new challenges in predicting interactions within complex, evolving graphs. Traditional approaches primarily focus on local connectivity, often overlooking crucial network-wide properties such as hierarchical structures and node centrality roles.

Additionally, many models assume static graphs, which limits their applicability in dynamic social networks. To address these gaps, we propose the Structural and Topological aware Graph Convolutional Network (STP-GCN), which integrates structural and temporal features into link prediction tasks.

Our method extracts topological similarity-based features from adjacency matrices and incorporates node strength centrality, a robust alternative to node degree, to preserve structural connectivity information. Furthermore, we employ an LSTM layer to capture temporal dependencies, ensuring adaptability to evolving network states. STP-GCN is evaluated on five diverse datasets (UCI, AS, Math Overflow, Facebook, and Enron) and demonstrates a 3% improvement in link prediction AUC, alongside a 2.5-point reduction in Mean Squared Error (MSE) for structural centrality prediction compared to leading benchmarks.

The model maintains competitive training efficiency while significantly enhancing predictive performance. Future research will focus on integrating additional network properties, including community structure, global centrality metrics, and diffusion-based similarity measures, to further improve link prediction accuracy in dynamic social graphs. By systematically preserving centrality and topology information within an end-to-end framework, STP-GCN sets

a new standard for robust, scalable predictions in evolving network environments.

Keywords
Link prediction, centrality, topological similarity, structural role, temporal networks, geometric deep learning.

Citation
Sserwadda, A., Ozcan, A., & Yaslan, Y. (2023). Structural and topological guided GCN for link prediction in temporal networks. Journal of Ambient Intelligence and Humanized Computing, 14(7), 9667-9675. **https://doi.org/10.1007/s12652-023-04639-0**

Hierarchical and Centrality driven Polypharmacy Side Effect Prediction Model

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Abstracts

Polypharmacy Side Effect (POSE) prediction plays a critical role in ensuring drug safety and patient well-being. Traditional graph-based methods for POSE prediction primarily emphasize local neighborhood structures, often overlooking richer network properties such as hierarchical organization and node centrality. In this study, we propose HC-POSE, a novel Hierarchical and Centrality-driven POSE prediction model, that addresses these limitations by integrating underutilized graph information into the embedding learning process. First, we exploit the network's hierarchical structure using k-core decomposition, capturing the layered importance of nodes.

Second, we incorporate node strength-based features to preserve centrality roles and network topology. These enhancements are embedded within an end-to-end architecture that unifies diverse structural features, enabling more robust and interpretable predictions. Using adjacency matrices from drug-drug and protein-protein interactions and leveraging a relational graph convolutional network (R-GCN) for multi-relational embedding, HC-POSE demonstrated superior performance across multiple metrics. It achieved an AUPRC of 0.902 and AUROC of 0.928, marking a 3% improvement over the best existing baseline models such as Decagon and R-GCN.

These results highlight the value of incorporating hierarchical and centrality-based information in POSE prediction. In future work, we aim to further improve prediction accuracy by integrating additional network properties, including community structures, into the embedding process. The HC-POSE framework not only enhances predictive performance but also presents a scalable and com-

putationally efficient approach for managing large and complex interaction networks in pharmacological research.

Keywords
K-core decomposition, Hierarchical Information, Node Strength, Centrality.

Citation
Sserwadda, A., Ozcan, A., & Yaslan, Y. (2022). Hierarchical and centrality-driven polypharmacy side effect prediction model. In 2022 7th International Conference on Computer Science and Engineering (UBMK) (pp. 384-387).
IEEE. https://doi.org/10.1109/UBMK55850.2022.9919451

Topological Similarity and Centrality Driven Hybrid Deep Learning for Temporal Link Prediction

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Abstracts

Many real-world networks-including social, communication, transportation, and biological systems-can be efficiently modeled as graphs. Graph algorithms enable accurate predictions for applications such as link prediction, node classification, and clustering. However, the large and complex nature of network data restricts learning models from efficiently extracting meaningful insights. To address this challenge, graph embedding techniques are used, but many existing approaches assume static networks and overlook topological and centrality-based information crucial for network analysis.

To overcome these limitations, we propose the Topological Similarity and Centrality driven Hybrid Deep Learning model for Temporal Link Prediction (TSC-TLP). This model systematically extracts topological similarity and centrality-based features from raw networks and integrates them into the learning process. The framework employs a long short-term memory (LSTM) layer to capture temporal dynamics, and constraints are imposed to ensure the preservation of topological structure and centrality roles in embeddings.

The proposed TSC-TLP model is evaluated on three real-world temporal social networks, achieving a 4% improvement in link prediction accuracy and a 37% reduction in mean squared error (MSE) for centrality prediction, outperforming benchmarks. Future research will extend the model by incorporating global topological similarity measures and fine-tuning hyperparameters to enhance optimization. Additionally, studies will explore community and hierarchical structures to further improve network embeddings. The proposed approach contributes to better temporal network analysis and prediction, offering more accurate and efficient graph-based applications.

Keywords
Topological similarity, centrality, embedding learning, link prediction, deep geometric learning

Citation
Sserwadda, A., Ozcan, A., & Yaslan, Y. (2023). Topological similarity and centrality driven hybrid deep learning for temporal link prediction. Journal of Universal Computer Science, 29(5), 470. DOI:10.3897/jucs.99169

Artificial Intelligence in higher education institutions: review of innovations, opportunities and challenges

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Abstracts

Artificial intelligence is revolutionizing industries including institutions of higher learning as it enhances teaching and learning processes, streamline administrative tasks and drive innovations. Despite the unprecedented opportunities, AI tools if not used correctly, can be challenging in education institutions. The purpose of this study was to comprehensively review the AI innovations, opportunities and challenges associated with the use of AI in higher Education of learning.

A systematic literature review methodology was adopted and used to locate and select existing studies, analyze and synthesize the evidence to arrive at clear conclusion about the current debate in the area of study. Following the PRISMA, the study analyzed a total of 54 documents that met the inclusion and exclusion criteria set for selection of the documents. The review unveiled many opportunities including enhanced research capabilities, automation of administrative tasks among others. Artificial Intelligence tools are found to refine and streamline the administrative tasks in different units in higher institutions of learning. The challenges include ethical concerns, integrity issues and data fabrication issues. With the challenges notwithstanding, the benefits of Artificial Intelligence cannot be over emphasized. Artificial intelligence remains a powerful tool for research, automation of administrative tasked, personalized learning, inclusivity and accessibility of educational content for all. Emphasis should be put in regulatory frameworks detailing how such tools can be used while maintaining the level of ethical standards required.

Keywords

Artificial intelligence, innovations, opportunities, challenges, literature

Citation

Ocen, S., Elasu, J., Aarakit, S. M., & Olupot, C. (2025). Artificial intelligence in higher education institutions: review of innovations, opportunities and challenges. In Frontiers in Education (Vol. 10, p. 1530247). Frontiers Media SA. **https://doi.org/10.3389/feduc.2025.1530247**

Unveiling factors influencing choice of clean cooking solutions among households: a systematic review of literature

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Abstracts

Nearly half of the global population rely on solid polluting fuels such as firewood, charcoal, animal and plant wastes for cooking. Continued reliance on such fuels and technologies has severe negative health, environmental, and development impacts. Using a systematic literature review methodology, this study sought to unveil factors influencing choice of clean cooking solutions among households. This study adopted a systematically literature review approach to systematically identify, evaluate and synthesize articles in the field of clean cooking solutions. Systematic literature review is a rigorous and replicable methodology that is designed to identify, appraise and synthesize already existing literature on specific question or sub questions. In this study, the procedures suggested by Liberati et al. and Moher et al. based on preferred reporting items for systematic reviews and meta-analysis (PRISMA) approach. Seventy-four articles were synthesized and many factors influencing the choice of cooking solutions were identified alongside the existing gaps.

Keywords
energy choice, cooking solutions, households, systematic review, determinants

Citation
Ocen, S., Nkurunziza, G., Bagire, V., Echegu, S., Ssekakubo, J., Atukunda, R., (2024). Unveiling factors influencing choice of clean cooking solutions among households: a systematic review of literature. Front. Sustain. 5:1452900. doi: 10.3389/frsus.2024.1452900.

SCHOOL OF HEALTH SCIENCES ABSTRACT

Applying Learning Theories to Clinical Teaching in Contemporary Settings: A Conceptual Analysis

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Abstracts

Learning theories play a crucial role in shaping clinical instructional strategies, materials, and activities. By applying these theories, clinical teachers can create engaging, interactive, and student-centred learning experiences. However, some theories are complex and require time and adequate training to fully understand and implement. This study presents a theoretical concept analysis aimed at identifying clear and readily applicable concepts from well-known learning theories to enhance clinical teaching and learning in contemporary settings.

A search for published articles on well-known learning theories was conducted. Articles were retrieved from Google Scholar and PubMed using search terms such as 'learning theories,' 'learning theories and clinical teaching,' 'applying learning theories to clinical teaching,' and 'learning theories in clinical instruction.' The principal investigator screened articles at the title, abstract, and full-text levels. Selected articles were thoroughly reviewed to identify relevant learning theories, from which key concepts underpinning clinical teaching and learning in contemporary settings were extracted and described. We retrieved 625 articles, removed 38 duplicates, and screened the remaining articles at the title, abstract, and full-text levels. Ultimately, 23 articles were included in the study.

The documented learning theories included behaviorism, social learning, constructivism, social constructivism, discovery learning, meaningful learning, experiential learning, humanistic theory, self-determination theory, and expectancy-value theory. Conclusion: Guiding clinical teaching sessions with well-established learning theories can significantly enhance learning outcomes in

contemporary settings. Therefore, we recommend the intentional application of learning theories in clinical education to improve student engagement, knowledge retention, and skill acquisition. Additionally, policymakers should integrate evidence-based learning theories into clinical teaching guidelines and training programs to standardize and enhance the quality of education in healthcare settings.

Keywords
Learning, Theories, Clinical, Teaching, Contemporary, Concepts.

Citation
Munguiko, C., Mirembe, M. E., Sang, C. (2025). Implications of Learning Theories on Contemporary Clinical Teaching and Learning in the 21st Century: Theoretical Review. South Asian Res J Med Sci, 7(1). DOI: **https://doi.org/10.36346/sarjms.2025.v07i02.001**

Multiple antimicrobial resistance indices of Staphylococcus aureus from the nares of goats and slaughterhouse attendants in Kampala city, Uganda– a cross sectional study

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Abstracts

The emergence of antimicrobial resistance (AMR) is a global menace to both public and animal health sectors with devastating effects in developing countries. Indiscriminate use of antibiotics in human health and livestock management contributes to development and rapid spread of AMR. Staphylococcus aureus is a major opportunistic zoonotic pathogen that colonises the skin and nostrils of human beings and animals and continues to develop antimicrobial resistance against different agents. The study aimed to determine multiple antibiotic resistance indices of S. aureus isolates from healthy domestic goats and slaughterhouse attendants in Kampala, Uganda. Demographic characteristics of consenting slaughterhouse attendants and goat keepers were recorded through a questionnaire.

Antibiotics use among slaughterhouse workers and domestic goats and skin infections in the past twelve months were recorded. Nasal swabs were collected from healthy domestic goats at household level (n = 378) and slaughterhouse attendants (n = 131). Isolates were obtained on mannitol salt agar (MSA) upon incubation at 35°C for 24 h. The Kirby-Bauer disc diffusion method was used to determine antimicrobial susceptibility to penicillin, gentamycin, erythromycin, tetracycline, ciprofloxacin, clindamycin, trimethoprim-sulfamethoxazole, linezolid, amoxicillin, ceftriaxone and cefoxitin.

In this study, the participating slaughterhouse workers were predominantly male (79%) while does (90%) were the majority of the goats sampled. S. aureus carriage was 32% and 43% among slaughterhouse workers and goats, respectively. Methicillin resistant S. aureus carriage was 12% and 11% among slaughterhouse attendants and goats, respectively. There was a high level of exposure to antibiotics among S. aureus carriers (62%) and goats (41%) in the past one year, including use of critically important antimicrobials in human medicine for livestock disease management.

Amoxicillin (17%) and ciprofloxacin (12%) were the most used antibiotics among the S. aureus carriers. Oxytetracycline (33%) and Penicillin-streptomycin combination (21%) were the most used antimicrobials in goat keeping. Close to a quarter of the human participants reported having suffered probable staphylococcal related infections like pustules in the previous months. With the exception of gentamycin and linezolid, all the S. aureus isolates from human nasal swabs were resistant to at least one of the antibiotics used. S. aureus isolates from goats' nasal swabs were resistant to at least one of the antibiotics studied.

The multiple antibiotic resistance (MAR) index of 41% of S. aureus isolates from slaughterhouse attendants was greater than 0.2 (mean = 0.2 ± 0.2, range 0.1 to 0.7). The MAR index of 22% of S. aureus isolates from goats was greater than 0.2 (mean = 0.2 ± 0.1, range = 0 to 0.7). The most frequent multidrug resistance (MDR) pattern was FOX, CIP, E, TE, SXT, CRO, and CD among S. aureus isolates from slaughterhouse attendants. The most frequent MDR patterns for the isolates from goats were E, TE, CRO, CD and TE, CRO, CD. Healthy domestic goats and slaughterhouse workers are carriers of multidrug resistant S. aureus strains in Kampala city.

Keywords
Antimicrobial, Susceptibility, Staphylococcus aureus, Nasal, Domestic goats, Human, Slaughterhouses

Citation
Muwonge, K.M., Ndagire, H., Mulindwa, J., Twesigye, C.K. (2025). Multiple antimicrobial resistance indices of Staphylococcus aureus from the nares of goats and slaughterhouse attendants in Kampala city, Uganda– a cross-sectional study. BMC Microbiology, 25, pp.1-15, **https://doi.org/10.1186/s12866-025-03891-y.**

Uptake and Completion of Human Papilloma Virus Vaccination by Adolescent Girls Attending Primary Healthcare Facilities in Soroti City, Northeastern Uganda; A Cross-Sectional Study

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Abstracts
Uganda adopted and implemented Human Papilloma Virus (HPV) vaccination since 2015 for adolescent girls aged 9-13 years for primary prevention of cervical cancer. However, the vaccine uptake and dose completion have remained relatively low national wide. Therefore, this study aimed at determining the uptake and dose completion of HPV vaccination and associated factors in Soroti city, Northeastern Uganda. This was a cross-sectional study that employed quantitative methods of data collection and analysis. A sample of 287 adolescent girls aged 10-19 years were selected consecutively from four health centers in Soroti City between March and April 2024. Data was analyzed using Stata statistical software, version 15.0. Descriptive statistical analysis was performed to determine the level of HPV vaccine uptake and dose completion. Bivariate and multivariate analyzes were performed using modified Poisson regression with robust error estimates to determine association between independent factors and uptake and dose completion.

Results were reported with a 95% confidence interval (CI) and factors whose P-Values were less than 0.05 were considered statistically significant. Of the 287 adolescent girls, their mean age was 14 years (SD=2.9). Most of the participants were in school, 231(80.5%). Majority, 79 % (n=228) had never heard about HPV Vaccination. HPV Vaccination uptake among the study participants was suboptimal as only 58.8% (n=166) had received at least one dose whereas only 30% (n=86) had completed the two doses of the vaccine.

The factors that were significantly associated with vaccination uptake were school enrolment status (P=0.022), religion (P=0.010), and awareness about HPV vaccine (P<0.001), while factors that were significantly associated with completion of HPV vaccination were: School enrolment status (P=0.046) and awareness about HPV vaccine (P=0.007). The uptake and completion of HPV vaccination in Soroti was suboptimal compared to WHO target of 90%. School enrolment status and awareness about HPV vaccine were factors significantly associated with HPV uptake and dose completion. Strengthening the school-based HPV vaccination program and creating awareness about HPV vaccination, in schools, at the health facilities and in the community may significantly improve the HPV vaccination and dose completion in the region.

Keywords
Human Papilloma Virus, Adolescents, Cervical Cancer, Vaccination, Uganda

Citation
Nagudi, L.D., Kateregga, J., Munguiko, C., Akurut, H., Namujju, J., Esabu, M. and Opito, R. (2025). Uptake and completion of human papilloma virus vaccination by adolescent girls attending primary healthcare facilities in Soroti City, Northeastern Uganda: A cross-sectional study. Journal of Nursing and Healthcare, 10(1), pp.1-8.

Haematological profiles and screening for selected haemoparasites among goats free of overt disease in Kassanda District, Uganda

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Abstracts
Haematological evaluations are essential in the assessment of the physiological and health status of livestock like goats and cattle. Goats in this study, which appeared free of overt disease were found with circulating pathogens and deviating haematological profiles. The study aimed at detection of selected pathogens in goats free of overt disease. Blood samples were collected between June and November, 2023. Theileria, and babesia parasites, anaplasma and brucella species were screened for. Over 17.7% (n=28) of the goats presented with a disease causing organism while one doe had a mixed infection, although babesia parasites were not detected.

Associations between the presence of the selected pathogens and haematological profiles were conducted using Fishers' exact test. The study found a statistically significant association between reduced levels of lymphoctyes and brucellosis (p = 0.018, 95% CI). A significant relationship was also found with increasing eosinophil levels in the presence of anaplasmosis (p= 0.024, 95% CI). There was no significant relationship between low MCH and brucellosis (p= 0.077, 95% CI). There was still no relationship between brucellosis and anaplasma infections with low HB (p= 0.079, 95% CI) and (p = 1, 95% CI), respectively. Similarly, there was no statistically significant relationship between brucellosis and anaplasma infections with PCV levels (p = 1, 95% CI), and (p= 1, (95% CI), respectively.

MCV, MCH, and MCHC too had no significant differences in comparison with the reference. Being free of overt disease did not guarantee absence of circulating disease causing organisms and further still, being free of overt disease did not dictate normal ranges of haematological parameters. Furthermore, the presence of the pathogens detected did not statistically determine the haematological profile in the samples.

Key words
Goats, Haematological profiles, Haemoparasites, Kassanda District, overt disease,

Citation
Ndagire, H., Muwonge, K.M., Twesigye, C.K. (2025). Haematological profiles and screening for selected haemoparasites among goats free of overt disease in Kassanda District, Uganda. **Uganda Journal, 54(1). https://ugst.nicepage.io/.**

Low Aspartate Aminotransferase/Alanine Aminotransferase Ratio as an Indicator of Metabolic Syndrome Among HIV Patients on Dolutegravir Therapy in Southwestern Uganda

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Abstracts

This study aimed to investigate the association between the aspartate aminotransferase-to-alanine aminotransferase (AST/ALT) ratio and metabolic syndrome (MetS) among HIV-infected patients on dolutegravir-based antiretroviral therapy (ART). Patients and methods: A cross-sectional study was conducted on 377 adults on dolutegravir-based ART for at least one year. Data were collected from July 1 to August 15, 2024. Participants were systematically sampled, data were collected using a pre-tested questionnaire, anthropometric measurements were taken, and blood samples were collected for biochemical analysis. A low AST/ALT ratio was defined as ≤ 1 and MetS as the presence of at least three of the following: central obesity, fasting hyperglycemia, elevated triglycerides, low HDL-C, and hypertension (International Diabetes Federation (IDF) Consensus worldwide definition, 2006). Logistic regression was used to assess the association between low AST/ALT ratio and MetS, and receiver operating curve (ROC) analysis was conducted to evaluate its predictive performance. The median age of the participants was 44 years (interquartile range (IQR): 30-59), with 56.2% being female. The prevalence of MetS was 35.3% (133/377, 95%CI: 30.6-40.3). A significant association was found between low AST/ALT ratio and MetS (aOR: 2.19, 95% CI: 1.28-3.73, p = 0.004).

Female gender (adjusted odds ratio (aOR): 3.68, 95% CI: 2.07-6.55, p

< 0.001) and smoking (aOR: 3.96, 95% CI: 1.77-8.86, p < 0.001) were also significantly associated with MetS. The ALT/AST ratio had a significant predictive power for MetS (AUC = 0.583, 95% CI: 0.523-0.643). The prevalence of MetS is high. A low AST/ALT ratio is significantly associated with MetS, making it a potential biomarker among HIV patients on ART.

Keywords
metabolic syndrome (mets), predictive power, proportion, ratio, serum transaminases

Citation
Nzaramba, D., Bagenda, C.N., Mudondo, H., Tumusiime, J., Ssemwanga, E., Muhwezi, D., Achieng, S.L., Kiconco, R., Rugera, S.P., Mudondo S.H. (2025). Low Aspartate Aminotransferase/Alanine Aminotransferase Ratio as an Indicator of Metabolic Syndrome Among HIV Patients on Dolutegravir Therapy in Southwestern Uganda. Cureus 17(1): **e77166. DOI: 10.7759/cureus.77166.**

Knowledge, attitudes, perceptions and reported uptake of COVID-19 vaccines among adults in Tanzania: a mid-pandemic population-based cross-sectional survey

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Abstracts

Background. SARS-CoV-2 and the COVID-19 vaccines became subjects of conspiratorial thinking and widespread misinformation, which fueled vaccine hesitancy worldwide. This study investigated the levels of knowledge, attitudes, and perceptions regarding the COVID-19 vaccine and its uptake. Additionally, we assessed factors associated with the reported uptake of the COVID-19 vaccine among individuals aged 18 years and above in four regions of Tanzania.

An interview form with structured questions was used to collect data on sociodemographic characteristics, reported COVID-19 vaccine uptake, knowledge, attitudes, and perceptions from adults aged 18 years and above across the four study sites, between August and September 2022. Multivariable binary logistic regression analysis was employed to identify factors associated with the uptake of the COVID-19 vaccine.

A two-tailed p-value of < 0.05 was considered statistically significant. A total of 22,910 study participants were interviewed, and 19.1% reported having received the COVID-19 vaccine. Factors significantly associated with reported vaccine uptake included having good knowledge about the vaccine (aOR = 2.4, 95% CI: 2.21–2.69), a positive attitude towards the vaccine (aOR = 9.1, 95% CI: 8.00–10.38),

presence of a chronic disease (aOR = 2.0, 95% CI: 1.81–2.27), being aged 50 years or older (aOR = 8.8, 95% CI: 6.21–12.47), and living with a partner (aOR = 1.2, 95% CI: 1.12–1.25). By the mid of the pandemic and nearly a year after the COVID-19 vaccine rollout in Tanzania, fewer than one in five adults had been vaccinated. This low uptake was unexpected given the generally good knowledge, attitudes, and perceptions observed. Uptake was influenced by multiple sociodemographic and clinical factors in a context-specific manner. These findings highlight the importance of continued, tailored health education to address emerging infectious diseases like COVID-19 and promote acceptance of related public health interventions.

Keywords
COVID-19 vaccines, Knowledge Attitude; Perception Reported uptakeTanzania

Citation
Matovelo, S., Bintabara, D., Nyundo, A., Yahaya, J. J. (2025). Knowledge, attitudes, perceptions and reported uptake of COVID-19 vaccines among adults in Tanzania: a mid-pandemic population-based cross-sectional survey. Discover Public Health, 22 (). p208 | **https://doi.org/10.1186/s12982-025-00606-6.**

Factors associated with uptake and acceptability of cervical cancer screening among female sex workers in Northeastern Uganda: A cross-sectional study

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Abstracts
Cervical cancer screening program in Uganda is opportunistic and focuses mainly on women aged 25–49 years. Female sex workers (FSWs) are at increased risk of developing invasive cervical cancer. There is limited data regarding the uptake and acceptability of cervical cancer screening among FSWs in Uganda. This study aimed at identifying factors associated with uptake and acceptability of cervical cancer screening among FSWs in Eastern Uganda.

This was a cross-sectional study conducted among 423 FSWs aged 18–49 years attending care at six health facilities serving Key Populations (FSWs, Men who have sex with men, transgender people, people who inject drugs and people in prisons) in the Teso sub-region. Data was collected using structured investigator administered questionnaire and analyzed using Stata statistical

software version 15.0 (Stata Corp, Texas, USA).

The primary outcome was uptake of cervical cancer screening measured as the proportion of female sex workers who have ever been screened for cervical cancer. Chi-square test was used to compare the differences in uptake of cervical cancer screening by HIV status. Modified Poisson regression model with a robust variance estimator was used to determine association between the outcome variables and selected independent variables including demographic characteristics. Prevalence ratios (PR) with accompanying 95% confidence intervals have been reported. Statistical significance was considered at two-sided p-values ≤ 0.05.

The mean age of the participants was 28.1 (±SD = 6.6) years. The self-reported HIV prevalence was 21.5% (n = 91). There were 138 (32.6%) participants who had ever been screened for cervical cancer (uptake), while 397 (93.9%) were willing to be screened (acceptability). There was a significant difference in cervical cancer screening uptake between women living with HIV (WLHIV) and those who were HIV negative, 59.3% vs 26.9% respectively (P < 0.001). The significant factors associated with uptake of cervical cancer screening included living with HIV, adjusted prevalence ratio (aPR) = 1.53 (95%CI: 1.15–2.07), increasing number of biological children, aPR = 1.14 (1.06–1.24) living near a private not for profit (PNFP) facility, aPR = 2.84 (95% CI; 1.68–4.80) and availability of screening services at the nearest health facility, aPR = 1.83 (95% CI, 1.30–2.57).

Factors significantly associated with acceptability of cervical cancer screening included being 40 years or older, aPR = 1.22 (95%CI: 1.01–1.47), having a family history of cervical cancer, aPR = 1.05 (1.01–1.10), and living near a PNFP facility, aPR = 1.17 (95% CI, 1.09–1.27) and having ever screened before, aPR = 0.92 (0.86–0.98). Female sex workers living with HIV are more likely to screen for cervical cancer than the HIV negative clients. Cervical cancer screening uptake is relatively low among the female sex workers. However, majority of the FSWs are willing to be screened for cervical cancer if the services are provided in the nearby healthcare facilities. There is need to make cervical cancer screening services available to all eligible women especially the female sex workers and integrate the services with sexual reproductive health services in general and not just HIV/ART clinics services.

Keywords
Cervical cancer screening uptake, Acceptability, Female sex workers

(FSWs), HIV status, Health facility accessibility

Abbreviations
AIDS, Acquired immunodeficiency syndrome; CaCx, Cervical cancer; CDC, Centre for Disease Control and Prevention; FSWs, Female Sex Workers; HIV, Human Immunodeficiency virus; HPV, Human Papilloma Virus; KP, Key Populations; REC, Research Ethics Committee; TASO, The AIDS Support Organization; STI, Sexually transmitted infection; VIA, Visual Inspection with acetic acid; WLHIV, Women living with HIV; RRH, Regional Referral Hospital; HC, Health Centre; PEPFAR, President's Emergency Plan for AIDS Relief.

Citation
Opito, R., Ayikobua, E.T., Akurut, H., Alwedo, S., Ssentongo, S.M., Erabu, W.D. et al. (2025). Factors associated with uptake and acceptability of cervical cancer screening among female sex workers in Northeastern Uganda: A cross-sectional study. PLoS ONE, 20(1), p.e0312988. **https://doi.org/10.1371/journal.pone.0312988.**

Association of obesity with hyperuricaemia among HIV-positive patients on antiretroviral therapy in South-Western Uganda

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Abstracts

Hyperuricaemia is a risk factor for gout and independently predicts hypertension, diabetes, and chronic kidney disease development. While elevated uric acid levels occur in HIV patients, and weight gain is linked to dolutegravir-based therapy, data on the obesity-hyperuricaemia relationship in this population remain limited. The objective of our study was to evaluate the association between obesity and hyperuricaemia among HIV-positive patients on antiretroviral therapy in South-Western Uganda.

Between April 2024 and June 2024, this study conducted a secondary analysis of data on uric acid level and factors associated with obesity from a 2023 cross-sectional study of HIV-positive participants. We used logistic regression to assess the factors associated with hyperuricaemia, and receiver operating characteristic curve analysis to assess the predictive performance of body mass index for hyperuricaemia.

Among 328 participants, hyperuricaemia prevalence was 23.48% (95% confidence interval [CI]: 19.19–28.39%) higher in male participants (31.6%) than female participants (20.0%, p = 0.023). Overweight (adjusted odds ratio [aOR]: 2.01; 95% CI: 1.01–4.00; p = 0.046), obesity (aOR: 2.50; 95% CI: 1.09–5.73, p = 0.030), and male gender (aOR: 2.31; 95% CI: 1.07–5.01, p = 0.033) were significantly associated with hyperuricaemia. Our findings indicate a relationship

between hyperuricaemia and obesity in HIV patients on antiretroviral therapy in Uganda. Nationwide studies using primary data are needed to better understand this relationship's epidemiological spread. What this study adds: This study is the first to link obesity with hyperuricaemia among HIV-positive Ugandans on antiretroviral therapy, highlighting obesity as a key metabolic complication of HIV treatment.

Keywords:
Hyperuricemia; obesity; human immunodeficiency virus; antiretroviral therapy; dolutegravir.

Citation
Rugera, S.P., Mudondo, H., Tumusiime, J., Udu, R., Kiconco, R., Acheng, S. L., Bagenda, C. N. (2025). Association of obesity with hyperuricaemia among HIV-positive patients on antiretroviral therapy in South-Western Uganda. Afr J Lab Med.14(1), a2565.
https://doi.org/10.4102/ajlm.v14i1.2565.

Incidental Primary Angiomyolipoma of Ovary: A Rare Case Report and Literature Review

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Abstracts

Primary angiomyolipomas of the ovary which are not associated with genetical systemic diseases, particularly tuberous sclerosis, are extremely rare and are more likely to pose diagnostic challenges. This tumour, particularly of epithelioid variant, is more likely to be malignant and can carry a high possibility of metastasizing. Use of immunohistochemistry consisting of melanocytic biomarkers (HMB45 and Melan A) helps to ascertain their presence.

Keywords
angiomyolipoma, incidental, mesenchymal tumour, ovary

Citation
Yahaya, J. J., Morgan T. E. D., Nyakato, V., Othieno, E. (2025). Incidental Primary Angiomyolipoma of Ovary: A Rare Case Report and Literature Review. Clinical Case Report, 13() p e70278.
https://doi.org/10.1002/ccr3.70278.

Missed Diagnosis of Gestational Diabetes Mellitus Due to Selective Screening: Evidence from a Cross-Sectional Study in the West Nile Sub-Region, Uganda

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Abstracts
To ascertain the prevalence and risk factors of gestational diabetes mellitus (GDM) in pregnant women receiving antenatal care (ANC) services within the West Nile subregion of Uganda. An analytical cross-sectional study was conducted on 233 pregnant women who are within 24– 28 weeks of gestation and are receiving ANC services in selected hospitals. GDM was diagnosed according to the World Health Organization (WHO) criteria (2013). A questionnaire and anthropometric measurements were used to obtain relevant data. The chi-square test and logistic regression were used to determine the association between GDM and the study variables, including participants' sociodemographic and medical characteristics.

The prevalence of hyperglycemia first detected in pregnancy among the participants tested was 8%. Overall, 7.45% had GDM and 0.53% had diabetes mellitus in pregnancy. The fasting plasma glucose test alone was positive in 86.7% of the GDM cases. The factors that were significantly associated with GDM included age ≥ 25 years (p = 0.017, AOR = 3.51) and body mass index (BMI) ≥ 25 kg/m2 (p = 0.024, AOR = 2.67). Out of the participants diagnosed with GDM, 28.6% did not have a known risk factor. Of the pregnant women with GDM, 57% would have been missed if the selective screening in the national clinical guidelines had been followed. Urinary tract infection (UTI) and Candida were detected in 36.36% and 13.85% of the participants, respectively.

The study provides new data on the prevalence of GDM in rural settings in the West Nile subregion of Uganda. Of the participants, 7.5% were diagnosed with GDM, of which 57% would have been missed based on the selective screening of the national clinical guidelines. The study findings support the universal screening of GDM in pregnant women.

Keywords
Prevalence, gestational diabetes mellitus, risk factors, selective screening

Citation
Abindu, V., Hope, D., Aleni, M., Andru, M., Ayiasi, R.M., Afayo, V., Oyet, C., Kiconco, R. (2024). Missed diagnosis of gestational diabetes mellitus due to selective screening: Evidence from a cross-sectional study in the West Nile Sub-Region, Uganda. Diabetes, Metabolic Syndrome and Obesity, 17. pp.1309-1319. **https://doi.org/10.2147/DMSO.S447855.**

Adequacy of haemodialysis and associated factors among patients with end-stage kidney disease in Tanzania

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Abstracts

Adequate haemodialysis helps maintain normal renal function by removing toxins and other waste products in patients with end-stage kidney disease. This study was aimed at determining the prevalence and predictors of adequacy of haemodialysis and outcomes in patients with end-stage kidney disease. Methods: This longitudinal analytical hospital-based study was conducted at two dialysis centres in Dodoma city, Tanzania, between February and July of 2020.

Adequacy of haemodialysis was measured with single-pool (sp) Kt/V and urea reduction rate (URR) formulae. Binary logistic regression and multivariable analysis were used to assess the independent predictors of adequacy of haemodialysis. The analysis included 100 patients with a mean age of 50.6 ± 15.0 years. The prevalence of adequacy of haemodialysis according to URR and sp-Kt/V was 72 % and 75 %, respectively.

Having <12 months since dialysis initiation (AOR ¼ 7.3, 95 % CI ¼ 0.11e0.90, p ¼ 0.032), fewer than three dialysis sessions per week (AOR

¼ 6.9, 95 % CI ¼ 1.52e31.49, p ¼ 0.013) and severe anaemia (AOR ¼ 2.2, 95 % CI ¼ 0.26e0.93, p ¼ 0.033) were predictors of inadequate haemodialysis, according to the URR formula. Having fewer than three dialysis sessions per week was significantly associated with inadequate haemodialysis (AOR ¼ 5.6, 95 % CI ¼ 1.47e19.66, p ¼ 0.011), according to the sp-Kt/V formula.

The mortality rate was 11.2 %, and cardiovascular disease and uremic syndrome were responsible for most deaths. This study indicated a high percentage of adequacy of haemodialysis among patients with end-stage kidney disease. Having fewer than three dialysis sessions per week, late initiation of dialysis after diagnosis of end-stage kidney disease and severe anaemia were predictors of inadequate haemodialysis among patients.

Keywords
Adequacy; Chronic kidney disease; Clinical outcome; Factors associated; Haemodialysis

Citation
Bakari, A.I., Yahaya, J. J., Matobogolo, B.M., Abraham, S.A., Mpondo, B. (2024). Adequacy of haemodialysis and associated factors among patients with end-stage kidney disease in Tanzania. Journal of Taibah University Medical Sciences, 19(2). pp 287-295.
https://doi.org/10.1016/j.jtumed.2023.12.008

Prevalence and predictors of iron deficiency anaemia among children with sickle cell disease in Dodoma, Tanzania: a cross-sectional study

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Abstracts

Patients with sickle cell disease (SCD) are prone to iron profile derangements. This study aimed to determine the prevalence of iron deficiency anaemia (IDA) and their predictors among children with SCD aged between 6 months and 14 years. Assessment of the prevalence of IDA and its predictors helps to understand ways of alleviating the magnitude of the problem so as to prevent possible complications such as shortness of breath and chest pain.

This was a cross-sectional analytical hospital-based study which included 174 patients with SCD attending SCD clinics at St. Gema hospital and Dodoma regional referral hospital in Dodoma city from October 2020 to March 2021.

The cut-off points for detection of IDA was serum ferritin level < 30 µg/L and low mean corpuscular volume (MCV) for age. Data were analyzed using SPSS software version 25.0. Multivariate logistic regression analysis was used to determine the predictors of IDA. P-value less than 0.05 was considered significant.
Results. The prevalence of IDA in this study was (16.1%, n = 28). Family income of less than 70,000/= TZS/month (AOR = 2.2, 95% CI = 1.07–2.49, p = 0.023), being transfused with blood less than 3 times from the time of being diagnosed with SCD (AOR = 5.5, 95% CI = 1.03–8.91, p

= 0.046), and eating red meat at least once per month (AOR = 3.60, 95% CI = 1.37–9.46, p = 0.010) remained the independent predictors of IDA in multivariate regression analysis. The findings of this study have shown that, support of families with children suffering from SCD in terms of financial support for improving medical services including optimal blood transfusion and affordability of diet which is rich in iron such as red meat is imperative.

Keywords
Sickle cell disease, Iron deficiency anaemia, Predictors

Citation
Bossy, A.O., Yahaya, J. J., Jumanne, S. (2024). Prevalence and predictors of iron deficiency anaemia among children with sickle cell disease in Dodoma, Tanzania: a cross-sectional study. **BMC Public Health, 24(), p1026. doi.org/10.1186/s12889-024-18438-5.**

Low medication adherence and its associated factors among patients with type 2 diabetes mellitus attending Amana Hospital in Dar es Salaam, Tanzania: a cross-sectional study

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Abstracts

Low medication adherence among patients with type 2 diabetes mellitus (T2DM) is associated
with significant morbidity and mortality globally. We investigated the prevalence of low medication adherence and its associated factors among patients with T2DM. We used the Bengali version of the 8-item Morisky Medication Adherence Scale (MMAS-8) in measuring medication adherence among patients with T2DM who were attending the diabetes clinic at Amana Regional Referral Hospital in Dar es Salaam, Tanzania, from December 2021 to May 2022. Binary logistic regression analysis under multivariate analysis was used to determine the predictors of low medication adherence after controlling for confounders.

A two-tailed p-value <0.05 was considered significant. The prevalence of low medication adherence was 36.7% (91/248) of the subjects included in the study. Lack of formal education (adjusted odds ratio [AOR] 5.3 [95% confidence interval {CI} 1.717 to 16.312], p=0.004), having comorbidities (AOR 2.1 [95% CI 1.134

to 3.949], p=0.019) and drinking alcohol (AOR 3.5 [95% CI 1.603 to 7.650], p=0.031) were the independent predictors of low medication adherence. More than one-third of the patients with T2DM in this study had low medication adherence. Our study also showed that a lack of formal education, having comorbidities and drinking alcohol were significantly associated with low medication adherence.

Keywords
low medication adherence, risk factors, type 2 diabetes mellitus.

Citation
Doya, I.F., Yahaya, J. J., Ngaiza, A.I., Bintabara, D. (2024). Low medication adherence and its associated factors among patients with type 2 diabetes mellitus attending Amana Hospital in Dar es Salaam, Tanzania: a cross-sectional study. International Health, 16(2). **pp. 200–207. https://doi.org/10.1093/inthealth/ihad042.**

Perceived barriers and factors influencing uptake of breast cancer screening among women: a population-based cross-sectional study

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Abstracts

Breast cancer (BC) screening plays a major role in the prevention of BC through early detection and timely treatment. This study aims to determine the level of uptake of BC screening and associated factors. A community-based analytical cross-sectional study was conducted in Dodoma City, Tanzania from July to December 2020. The study included women aged 8 years and above without a known history of breast cancer. Multivariable logistic regression was used to determine the socio-demographic factors associated with BC screening. P value < 0.05 was considered significant.

A total of 354 study participants were included in the present study. The mean age of participants was 31.0 ± 11.8 years. The majority of study participants (67.5%, n = 239) were aware of BC screening. However, only (35.3%, n = 125) reported to have ever practised BC screening. Breast self-examination was the most (16.4%, n = 58) frequently used method for BC screening among study participants.

Lack of knowledge of all methods of BC screening was the barrier that was perceived by the vast majority (60.2%, n = 213) of the study participants. Having low family income was the only predictor of failure to practice BC screening. In this study, most of the women were aware of BC, however, few of them had undergone breast cancer

(BC) screening at the time of the interview. The study also found that the main barrier to BC screening was the lack of knowledge about BC among the study participants. Immediate measures are necessary to increase women's awareness of BC. Such as community sensitization on the importance of screening, can help improve the uptake of BC screening and the early detection of BC.

Keywords
Breast cancer screening, Barriers, Uptake

Citation
Joho, A.A., Mdoe, M.B., Masoi, T.J., Yahaya, J. J. (2024). Perceived barriers and factors influencing uptake of breast cancer screening among women: a population-based cross-sectional study. Scientific Reports,14(). p12291. **https://doi.org/10.1038/s41598-024-62218-5.**

Prevalence and risk factors associated with hypopharyngo-esophageal foreign bodies impaction: a cross-sectional study

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Abstracts

Ingestion of foreign bodies (FBs) is an emergency condition which may be associated with challenges for their removal. We aimed to assess the prevalence and factors associated with hypopharyngo-esophageal foreign bodies (HP-EFBs) impaction. A cross-sectional study was conducted at Mulago national referral hospital in Uganda from August 2018 to May 2019. The study consisted of 150 patients aged 6 months to 49 years with suspicion of HP-EFBs impaction. Binary logistic regression analysis was applied to determine factors associated with HP-EFBs.

Statistical significance was set at $P < 0.05$. The median age of the patients was 7.1 (4.3–16.4) years, and males accounted for the majority (64%, n = 96) of the patients. Clinically, majority (62.0%, n = 93) of the patients had dysphagia. The prevalence of HP-EFBs was (33.3%, n = 50). Majority (76.0%, n = 38) of the FBs were coins. Being aged ≤5 years (aOR = 1.47, 95% CI = 2.18–3.39, P = 0.043), being a

child attending school (aOR = 2.03, 95% CI = 1.56–4.92, P = 0.037), and being under caretakers aged ≤25 years (aOR = 6.83, 95% CI = 1.88–24.79), P = 0.003) were associated with increased risk of HP-EFBs impaction. This study has shown increased risk of HP-EFBs impaction particularly in male children and those attending school. Also, patients who were under younger caretakers had increased odds of HP-EFBs impaction. There is a need for caretakers and teachers at school to provide emphasis for children to always have precaution to avoid impaction of FBs.

Keywords
foreign bodies, hypopharyngo-esophageal, risk factors

Citation
Kabazzi, E., Namwagala, J., Alunga, J.R., Byaruhanga, R., Okecha, T., Yahaya, J. J. (2025). Prevalence and risk factors associated with hypopharyngo-esophageal foreign bodies impaction: a cross-sectional study. International Journal of Surgery Open, 63(2). **pp 120-126. DOI: 10.1097/IO9.0000000000000272.**

Histopathological characteristics of Epstein-Barr virus (EBV)–associated encephalitis and colitis in chronic active EBV infection

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Abstracts

Chronic active Epstein-Barr virus (CAEBV) can induce complications in various organs, including the brain and gastrointestinal tract. A 3-year-old boy was referred to the hospital with a history of fever and seizures for 15 days. A diagnosis of encephalitis based on computed tomography (CT) and magnetic resonance imaging findings and clinical correlation was made. Laboratory tests showed positive serology for Epstein-Barr virus (EBV) and negative for Rotavirus antigen and IgG and IgM antibodies for cytomegalovirus, herpes simplex virus, and varicella zoster virus, respectively.

Abdominal CT showed diffuse wall thickening with fluid distension of small bowel loops, lower abdomen wall thickening, and a small amount of ascites. The biopsy demonstrated positive Epstein-Barr encoding region in situ hybridization in cells within the crypts and lamina propria. The patient was managed with steroids and hematopoietic stem cell transplantation (HSCT).

This case showed histopathological characteristics of concurrent EBV-associated encephalitis and colitis in CAEBV infection. The

three-step strategy of immunosuppressive therapy, chemotherapy, and allogeneic HSCT should be always be considered for prevention of disease progression.

Keywords
Epstein-Barr virus infections; Lymphoproliferative disorders; Colitis; Encephalitis, viral

Citation
Kasimo, B.A., Yahaya, J. J., Yoon, S.O., Kim, S.H., Jung, M. (2025). Histopathological characteristics of Epstein-Barr virus (EBV)–associated encephalitis and colitis in chronic active EBV infection. Journal of Pathology and Translational Medicine [Epub ahead of print]
https://doi.org/10.4132/jptm.2025.02.21.

Distribution of the ACE Gene Polymorphisms in Type 2 Diabetes Mellitus Patients, Their Associations with Nephropathy Biomarkers and Metabolic Indicators at a Tertiary Hospital in Uganda

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Abstracts

We aimed at determining the distribution of the ACE insertion/deletion gene polymorphisms among type 2 diabetic patients and their association with the nephropathy biomarkers and the metabolic indicators. Data were collected from 237 adult type 2 diabetes mellitus patients receiving healthcare at the diabetic clinic of Mbarara Regional Referral Hospital. Peripheral blood genomic DNA was amplified using a conventional PCR technique and analyzed for the ACE homozygous forms of the insertion (II), deletion (DD) and heterozygous insertion deletion (ID) genotypes as well as their respective allele counts. Biomarkers of nephropathy were analyzed on a Beckman coulter AU480 chemistry analyzer using system compatible reagents.

Results: Majority of the participants were older persons (Median = 57, IQR = 49–64) and female 171 (72.2%). Most of them had the Deletion allele 198 (83.5%) and DD genotype 116 (48.9%). At multivariate logistic regression, the nephropathy biomarkers that is microalbuminuria, serum creatinine, urea, eGFR and electrolytes had no association with the ACE I/D alleles or genotypes ($p > 0.05$).

On the other hand, selected metabolic indicators had a positive relationship. The insertion allele was associated with increasing glycated hemoglobin (OR = 1.082, $p = 0.019$) and decreasing serum

glucose levels (OR = 0.891, p = 0.001). Deletion allele was associated with decreasing glycated hemoglobin (OR = 0.924, p = 0.047) and increasing serum glucose levels (OR = 1.208, p = 0.001). ACE II genotype was associated with decreasing serum glucose levels (OR = 0.873, p = 0.029). ACE DD genotype was associated with decreasing glycated hemoglobin (OR = 0.917, p = 0.010) and increasing serum glucose levels (OR = 1.132, p = 0.001). ACE ID genotype was associated with increasing glycated hemoglobin (OR = 1.077, p = 0.022), triglyceride levels (OR = 1.316, p = 0.031) and decreasing serum glucose levels (OR = 0.933, p = 0.038). The presence or absence of the ACE I/D alleles and genotypes affects the ultimate increase or decrease in the serum glucose, glycated hemoglobin and triglyceride levels.

Although there was no significant association between the biomarkers of nephropathy and the ACE I/D alleles or genotypes, the above implicated metabolic indicators should be included in healthcare
guidelines used when attending to type 2 diabetic patients.

Keywords:
angiotensin converting enzyme gene, insertion, deletion, polymorphism, biomarkers, type 2 diabetes mellitus, diabetic nephropathy, Uganda

Citation
Kiconco, R., Kalyesubula, R., Kiwanuka, G. N. (2024). Distribution of the ACE Gene Polymorphisms in Type 2 Diabetes Mellitus Patients, Their Associations with Nephropathy Biomarkers and Metabolic Indicators at a Tertiary Hospital in Uganda. Diabetes, Metabolic Syndrome and Obesity, 17. pp.2211-2220. **https://doi.org/10.2147/DMSO.S462740.**

Proteinuria as a Critical Indicator of Kidney Dysfunction in Type 2 Diabetes Patients: Insights From a Cross-Sectional Study

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Abstracts

Kidney dysfunction is a common finding among patients with diabetes mellitus. We sought to determine the prevalence and contributors to kidney dysfunction among type 2 diabetes mellitus (T2D) patients. In this descriptive and analytical cross-sectional study, we received consent and enrolled 148 T2D patients attending the diabetic clinic of Soroti Regional Referral Hospital in eastern Uganda from May 2023 to July 2023. We used questionnaires to obtain participants' socio-demographic and behavioral characteristics.

Blood and urine samples were collected and analyzed for kidney dysfunction and other metabolic biomarkers, which included serum glucose, creatinine, estimated glomerular filtration rate (eGFR), blood urea nitrogen (BUN), uric acid, triglycerides, total cholesterol, low and high-density lipoprotein cholesterol, and urinalysis. We performed blood tests using an automated chemistry analyzer. Of the 148 participants with T2D, 71 (47.97%) had kidney dysfunction (95% CI: 39.98-56.07). Bivariate and multivariate logistic regression analysis revealed only total proteinuria (OR 1.046; 95% CI: 1.014-1.079; P = 0.004) as a significant factor contributing to the observed kidney dysfunction in T2D patients. Kidney dysfunction is a common occurrence among T2D patients in our study setting. The presence of proteins in urine contributes immensely to the observed kidney status in our study population. Total proteinuria should be frequently

screened in the routine care of T2D patients in eastern Uganda to curb kidney dysfunction at an early stage. Also, a larger study is recommended to validate these findings and inform screening programs in the study area.

Keywords
Urinalysis, screening tests, biomarkers, hyperuricemia, proteinuria

Citation
Kiconco, R., Okoboi, J., Mwesige, S., Muwonge, K., Kinobe, R., Kalyesubula, R., Kiwanuka, G.N. (2024). Proteinuria as a Critical Indicator of Kidney Dysfunction in Type 2 Diabetes Patients: Insights From a Cross-Sectional Study. Cureus 16(9). DOI: **https://doi.org/10.7759/cureus.69946.**

Insulin therapy among diabetic patients in rural communities of Sub-Saharan Africa: a perspective review

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Abstracts
In this perspective review, we describe a brief background on the status quo of diabetes mellitus-related therapies and glycemic control among patients in rural communities in sub-Saharan Africa. The article discusses insulin therapy as well as the difficulties in obtaining insulin and oral hypoglycemic medications for diabetic patients living in sub-Saharan Africa.

We wrap up our discussion with suggestions on solutions and opportunities for future research to tackle this health challenge in these impoverished communities. We conducted a literature search from PubMed and Google Scholar up until August 2023. Key words were used to generate search terms used to retrieve the required information. All types of literature with pertinent information on the current topic were included in the study.

Diabetes mellitus is on the rise in sub-Saharan Africa. Several studies have reported poor glycemic control, low screening rates for diabetes mellitus, cigarette smoking, high alcohol consumption, prescription of antidiabetic therapy, and associated costs as contributors to the uptake of antidiabetic treatment. Although there is paucity of data on the extent of insulin therapy uptake and its possible modifiable contributors among the diabetic patients in the region, the anticipated increase in the number of people with diabetes on the continent makes it critical for global leaders to address the research gaps in insulin therapy among rural communities of sub-Saharan Africa, thus reducing the burden of diabetes in these populations.

Keywords:
glucagon, glycated hemoglobin, hyperglycemia, hypoglycemia, insulin, oral hypoglycemics, sub-Saharan Africa

Citation
Kiconco, R., Achieng L.S., Bagenda, C.N., Atwine, R., Ndarubweine, J., Rugera, S.P. (2024). Insulin therapy among diabetic patients in rural communities of Sub-Saharan Africa: a perspective review. Therapeutic Advances in Endocrinology and Metabolism, 15(). **pp 1-14. DOI: 10.1177/20420188241232280.**

Factors Associated with Cervical Cancer Screening Uptake Among Women Attending Outpatient Department in a Rural District Hospital in Uganda. A Cross-Sectional Study

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Background: Sub-Saharan Africa (SSA) faces persistently low cervical cancer screening uptake, averaging only 13% over the past five years, with Uganda reporting less than 5%. This study aimed to assess the factors influencing cervical cancer screening uptake in a rural district hospital to inform targeted interventions that enhance screening coverage for the rural community.

Methods: This was a cross-sectional study conducted at Kaberamaido General Hospital (KGH) outpatient department. A total of 422 participants aged between 25 and 49 years were interviewed and data analyzed using STATA version 16.0. Bivariate and multivariate analyses were performed using modified Poisson regression with robust error estimates to identify key factors associated with cervical cancer screening uptake. Variables with P-value < 0.05 were considered statistically significant.

Results: The average age of participants was 32 (SD ± 7) years. 77.5% (n=327) of participants were married, had primary level of education, 69.2% (n=292), and were unemployed, 89.3% (n=377). Awareness about screening was high as 85.5% (n=360) of respondents had heard about cervical cancer screening.

Cervical cancer screening uptake was low, as only 20.4% (n=86) had been screened in the past five years. Factors significantly associated with increased screening uptake, including age older than 35 years, adjusted Prevalence Ratio [aPR]= 1.7 (95% CI: 1.08– 2.69), availability of free government screening services, aPR = 1.6 (95% CI: 1.09– 2.38), provision of screening service at the nearest health facility, aPR = 2.1 (95% CI: 1.09– 3.97), and a positive family history of cervical cancer, aPR = 1.7 (95% CI: 1.14– 2.65).

Conclusion: Our study confirms that cervical cancer screening uptake in Kaberamaido District remains low, highlighting the need for enhanced awareness campaigns and improved access to screening services. Our findings emphasize the need for policies that strengthen community outreach programs and expand cervical cancer screening services at primary healthcare facilities.

Keywords
Uterine cervical neoplasms, cervical cancer screening, women, cervical cancer awareness

Citation
Ekinu, J., Ayikobua, E. T., Icodu, E., Akurut, H., Akot, O. O., Oder, S., ... & Opito, R. (2025). Factors Associated with Cervical Cancer Screening Uptake Among Women Attending Outpatient Department in a Rural District Hospital in Uganda. A Cross-Sectional Study. International Journal of Women's Health, 2603-2611.

A-058 Biomarkers of Nephropathy and the Angiotensin Converting Enzyme Insertion and Deletion Gene Polymorphisms Among Type 2 Diabetes Mellitus Patients at a Tertiary Hospital in Uganda

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Abstracts

In this cross-sectional study, we aimed at determining the association between the biomarkers of nephropathy and the ACE insertion/deletion gene polymorphisms among type 2 diabetic patients. Data were collected from 237 adult type 2 diabetes mellitus patients receiving healthcare at the diabetic clinic of Mbarara Regional Referral Hospital. Peripheral blood genomic DNA was amplified using a conventional PCR technique and analyzed for the ACE homozygous forms of the insertion (II), deletion (DD) and heterozygous insertion deletion (ID) genotypes as well as their respective allele counts.

Biomarkers of nephropathy were analyzed on a Beckman coulter AU480 chemistry analyzer using system compatible reagents. Majority of the participants were older persons (Median = 57, IQR = 49-64) and female 171 (72.2%). Most of them had the Deletion allele 198 (83.5%) and DD genotype 116 (48.9%). At multivariate logistic regression, Insertion allele was associated with increasing glycated hemoglobin (OR =1.082, p = 0.019) and decreasing serum glucose levels (OR = 0.891, p = 0.001). Deletion allele was associated with decreasing glycated hemoglobin (OR = 0.924, p = 0.047) and increasing serum glucose levels (OR= 1.208, p = 0.001).

ACE II genotype was associated with decreasing serum glucose levels (OR = 0.873, p = 0.029). ACE DD genotype was associated with decreasing glycated hemoglobin (OR = 0.917, p = 0.010) and increasing serum glucose levels (OR = 1.132, p = 0.001). ACE ID genotype was associated with increasing glycated hemoglobin (OR =1.077, p = 0.022), triglycerides levels (OR = 1.316, p = 0.031) and decreasing serum glucose levels (OR = 0.933, p = 0.038). See Table 1. There was

no association between the ACE I/D alleles or genotypes with microalbuminuria and eGFR. ACE polymorphisms affect the ultimate increase or decrease in the serum glucose, glycated hemoglobin and triglycerides levels.

Keywords
ACE polymorphisms, Type 2 diabetes, Nephropathy biomarkers, Glycated hemoglobin, Serum glucose levels

Citation
Kiconco, R., Kalyesubula, R., Kiwanuka, G. (2024). A-058 Biomarkers of Nephropathy and the Angiotensin Converting Enzyme Insertion and Deletion Gene Polymorphisms Among Type 2 Diabetes Mellitus Patients at a Tertiary Hospital in Uganda. Clinical Chemistry, 70(1). **https://doi.org/10.1093/clinchem/hvae106.057.**

A cross-sectional study of ERG expression and the relationship with clinicopathological features of Prostate cancer in Southwestern Uganda

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Abstracts
Prostate cancer is the leading cause of cancer-related death and the second most commonly diagnosed cancer among men in Uganda and most countries in Sub-Saharan Africa (SSA). The TMPRSS2-ERG fusion gene is the most common genetic alteration seen among prostate cancer patients. There are several contradicting reports about the association of ERG protein with poor prognosis, high PSA, and Gleason score. This study determined the prevalence of ERG expression and the relationship with PSA, Gleason score, and Age of prostate cancer patients in Southwestern Uganda. We reviewed 130 archived prostate biopsy (needle and TURP) specimens from patients of age ≥ 50 years who had a histological diagnosis of prostate cancer.

We obtained their biodata, and preoperative PSA, from the archived records. We did Immunohistochemistry (IHC) to determine the prevalence of ERG expression. The mean patient age in our study was 74.64 ± 10.19 years. Pre-operative PSA levels had been done for 79.2% of the participants. Most cancers (58.46%) were of high grade (grade group 3–5). ERG expression prevalence was 75.4% and its expression was independent of age, re-operative PSA, and Gleason score. There is a significantly higher prevalence of ERG expression

in our study compared to what is reported in other African-based studies. The expression of the ERG is independent of age, Gleason score, and serum PSA levels. A high proportion of our prostate cancer has high-grade disease at the time of diagnosis.

Keywords
ERG, Immunohistochemistry, Prostate cancer, Uganda

Citation
Mitala, Y., Ssenkumba, B., Birungi, A., Kiconco, R., Mutakooha, M.M., Atwine, R. (2024). A cross-sectional study of ERG expression and the relationship with clinicopathological features of Prostate cancer in Southwestern Uganda. Diagnostic Pathology, 19(1). Pg.8.
https://doi.org/10.1186/s13000-024-01494-1.

Isoniazid preventive therapy completion between July-September 2019: A comparison across HIV differentiated service delivery models in Uganda

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Abstracts

Tuberculosis (TB) remains the leading cause of death among people living with HIV (PLHIV). To prevent TB among PLHIV, the Ugandan national guidelines recommend Isonia-zid Preventive Therapy (IPT) across differentiated service delivery (DSD) models, an effective way of delivering ART. DSD models include Community Drug Distribution Point (CDDP), Community Client-led ART Delivery (CCLAD), Facility-Based Individual Management (FBIM), Facility-Based Group (FBG), and Fast Track Drug Refill (FTDR). Little is known about the impact of delivering IPT through DSD. We reviewed medical records of PLHIV who initiated IPT between June-September 2019 at TASO Soroti (TS), Katakwi Hospital (KH) and Soroti Regional Referral Hospital (SRRH). We defined IPT completion as completing a course of isoniazid within 6–9 months. We utilized a modified Poisson regression to compare IPT completion across DSD models and determine factors associated with IPT completion in each DSD model. Data from 2968 PLHIV were

reviewed (SRRH: 50.2%, TS: 25.8%, KH: 24.0%); females: 60.7%; first-line ART: 91.7%; and Integrase Strand Transfer Inhibitor (INSTI)-based regimen: 61.9%. At IPT initiation, the median age and duration on ART were 41.5 (interquartile range [IQR]; 32.3–50.2) and 6.0 (IQR: 3.7–8.6) years, respectively.

IPT completion overall was 92.8% (95%CI: 91.8–93.7%); highest in CDDP (98.1%, 95%CI: 95.0–99.3%) and lowest in FBG (85.8%, 95%CI: 79.0–90.7%). Compared to FBIM, IPT completion was significantly higher in CDDP (adjusted rate ratio [aRR] = 1.15, 95%CI: 1.09–1.22) and CCLAD (aRR = 1.09, 95% CI 1.02–1.16). In facility-based models, IPT completion differed between sites ($p<0.001$). IPT completion increased with age for FBIM and CCLAD and was lower among female participants in the CCLAD (aRR = 0.82, 95%CI 0.67–0.97). IPT completion was high overall but highest in community-based models. Our findings provide evidence that supports integration of IPT within DSD models for ART delivery in Uganda and similar settings.

Keywords
ACE polymorphisms, Nephropathy biomarkers, Glycated hemoglobin (HbA1c), Serum glucose levels, Insertion/deletion allele (ACE I/D).

Abbreviations:
DSD, Differentiated Services Delivery (model); CCLAD, Community Client-Led ART Delivery (model); CDDP, Community Drug Distribution Point (model); FTDR, Fast Track Drug Refill (model); FBG, Facility Based Group (model); TPT, TB Preventive Therapy; HIV, Human Immunodeficiency Virus; IQR, Interquartile range.

Citation
Mugenyi, L., Namuwenge, P.M., Ouma, S., Bakashaba, B., Opito, R., Nanfuka, M., Zech, J. et al. (2024). Isoniazid preventive therapy completion between July–September 2019: A comparison across HIV differentiated service delivery models in Uganda. PLoS ONE, 19(1), p.e0296239. **https://doi.org/10.1371/journal.pone.0296239.**

Smallholder farmers' knowledge, attitude and practices towards use and disposal of veterinary antibiotics in Kassanda District, Uganda - A cross sectional survey

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Abstracts
Global health is threatened with a potential post-antibiotic era due to antimicrobial resistance with a raging pandemic by 2050. Misuse and over use of antimicrobial agents are the major selective pressures for antimicrobial resistance (AMR) in humans and animals. Inadequate knowledge, attitude and practices are the feed mills of misuse and overuse of antimicrobial agents.

The study aimed at assessing smallholder farmers' knowledge, attitude and practices towards antibiotic use and disposal in Kassanda District. A self-administered questionnaire was distributed among 378 respondents in Kassanda, a rural administrative District in Uganda. The study enrolled 378 respondents (female, n=205; male, n=173). Almost half of the population was between 25 and 45 years of age, 24% were between 45 and 65years, 16% were over 65 years old while 11% were between 18 and 24 years.

The levels of education were tertiary, advanced, ordinary, and primary distributed as 6%, 3%, 25%, 53%, and 13% illiterate respondents, respectively. Poor practice towards antibiotics use was noted among 21% of respondents yet 62% had administered antibiotics to their animals in the previous twelve months. The use of critically important antibiotics was noted in two chicken rearing households. Self-treatment was reported by 49% respondents, varying with level of education ($p = .017$). Many respondents sold the animals upon failure of antibiotics (46%) while others consumed the meat (32%)

among other behaviours. Inadequate awareness was noted about antibiotic withdraw messages on packaging materials (69%) varying with education level attained (p = 4.079e-06), withdraw periods upon administration of antibiotics (49%), poor drug disposal methods (77%) and poor antibiotic-use record keeping (95%) as contributors to the spread of AMR. Poor attitude towards consumption of animal products whilst the animals were on antibiotics, safe disposal of used and expired antibiotics, establishment of drug return programmes, administration of human antibiotics to animals, self-prescribing behaviour, and legal restriction of the purchase of antibiotics was exhibited (73%). Some demographic characteristics were significantly associated with knowledge, attitude and practices.

Keywords:
Knowledge, attitude, practices, veterinary antibiotics, resistance, disposal, Kassanda

Citation
Muwonge, K.M., Ndagire, H., Twesigye, C.K. (2024). Smallholder farmers' knowledge, attitude and practices towards use and disposal of veterinary antibiotics in Kassanda District, Uganda - A cross-sectional survey. Uganda Journal, 54(1). **https://ugst.nicepage.io/.**

BRCA1 Protein Expression in Epithelial Ovarian Cancer and Associated Clinicopathological Factors in Uganda

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Background: BRCA1 gene dysfunction seen in epithelial ovarian carcinomas often results from germline mutations, somatic mutations, and promoter methylation. Identification of tumours with loss of BRCA1 protein expression has shown to have therapeutic and prognostic implications. The aim of this study was to determine the expression of BRCA1 protein in epithelial ovarian cancer (EOC) and the associated clinicopathological characteristics.

Methods and Results: Tis was a cross-sectional laboratory-based study that used paraffin-embedded tissue blocks of patients histologically diagnosed with EOC from January 2010 to August 2018. Tissue sections were stained with hematoxylin and eosin (H&E) for histological confirmation and with immunohistochemistry (IHC) using a mouse-derived monoclonal antibody MS110 for BRCA1 protein expression. The association between BRCA1 protein expression and independent variables was determined using Pearson's Chi-square test. A total of 104 tissue blocks from patients with EOC were included in the study with a mean age of 48.7 ± 12.8 years.

Serous tumours were the most common which comprised 74.0% (77/104) of all the tumours and majority of them 75.3% (58/77) were high grade. Loss of expression of BRCA1 protein expression was found in 33.7% (33/98) of all the cases. There was no statistically significant association between BRCA1 expression and age of patients, tumour grade, and histological subtype.
Conclusion: There is a high expression of altered BRCA1 expression in tissues of EOC. Although it has not shown association with age of patients, histology types, and tumour grade, further studies need to assess its influence of the survival of cancer patients with EOC.

Keywords
BRCA1gene; clinicopathological characteristics; epithelial ovarian cancer

Citation
Okecha, T., Abila, D.B., Nabbale, D.L., Katongole, F., Yahaya, J. J., Lukande, R., Kalungi, S., Nalwoga, H. (2024). BRCA1 Protein Expression in Epithelial Ovarian Cancer and Associated Clinicopathological Factors in Uganda. Obstetrics and Gynecology International. 1(). **p 9527113.**

Treatment success rate and associated factors among drug susceptible tuberculosis individuals in St. Kizito Hospital, Matany, Napak district, Karamoja region. A retrospective study

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Abstracts
Tuberculosis (TB) is the leading cause of death among infectious agents globally. An estimated 10million people are newly diagnosed and 1.5 million die of the disease annually. Uganda is amongthe-30highTB-burdenedd countries, with Karamoja having a significant contribution of the disease incidence in the country. Control of the disease in Karamoja is complex because a majority of the at-risk population remain mobile; partly because of the nomadic lifestyle.

This study, therefore, aimed at describing the factors associated with drug-susceptible TB treatment success rate (TSR) in the Karamoja

region. This was a retrospective study on case notes of all individuals diagnosed with and treated for drug-susceptible TB at St. Kizito Hospital Matany, Napak district, Karamoja from 1 2020 to 31 st st Jan December2021. Data were abstracted using a customised data abstraction tool. Data analyses were done using Stata statistical software, version 15.0. Chi-square test was conducted to compare treatment success rates between years 2020 and 2021, while Modified Poisson regression analysis was performed at multivariable level to determine the factors associated with treatment success.

We studied records of 1234 participants whose median age was 31(IQR: 13–49) years. Children below 15 years of age accounted for 26.2% (n = 323). The overall treatment success rate for the study period was 79.3%(95%CI; 77.0%-81.5%), with a statistically significant variation in 2020 and 2021, 75.4% (422/560) vs 82.4% (557/674) respectively, (P = 0.002). The commonest reported treatment outcome was treatment completion at 52%(n = 647) and death wasat10.4%(n=129). Older age, undernutrition (Red MUAC), and HIV positive status were significantly associated with lower treatment success: aPR = 0.87(95% CI; 0.80–0.94), aPR = 0.91 (95%CI; 0.85–0.98) and aPR = 0.88 (95%CI; 0.78–0.98); respectively.

Patients who were enrolled in 2021 had a high prevalence of treatment success compared to those enrolled in 2020, aPR = 1.09 (95%CI; 1.03–1.16). TBTSR in Matany Hospital was suboptimal. Older age, poor nutrition, and being HIV-positive were negative predictors of treatment success. We propose integrating nutrition and HIV care into TB programming to improve treatment success.

Keywords
Tuberculosis, Treatment Success Rate, Karamoja, Risk Factors, HIV & Nutrition Integration

Abbreviations:
AIDS, Acquired Immune Deficiency Syndrome; aRR, Adjusted risk ratio; CDC, United States Centers for Disease Control and Prevention; DLG, District Local Government; EPTB, Extrapulmonary Tuberculosis; HC, Health Center; HIV, Human Immuno-deficiency Virus; LAM, Li-poarabinomannan; MoH, Ministry of Health; MUAC, Mid upper arm circumference; PBC, Pulmonary Bacteriologically Confirmed; PCD,

Pulmonary Clinically Diagnosed; PEPFAR, President's Emergency Plan for AIDS Relief; REC, Research Ethics Committee; TB, Tuberculosis; TSR, Treatment Success Rate.

Citation

Opito, R., Kwenya, K., Ssentongo, S.M., Kizito, M., Alwedo, S., Bakashaba, B., Miya, Y., Bukenya, L., Okwir, E., Onega, L.A., Kazibwe, A., Othieno, E., Kirya, F. and Olupot-Olupot, P. (2024). Treatment success rate and associated factors among drug-susceptible tuberculosis individuals in St. Kizito Hospital, Matany, Napak District, Karamoja region: A retrospective study. PLoS ONE, 19(5), **p.e0300916. https://doi.org/10.1371/journal.pone.0300916.**

Serum Uric Acid and Microalbuminuria: Predictors of Renal Dysfunction in Type 2 Diabetes Patients in South-Western Uganda

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Abstracts
Type 2 diabetes (T2D) is a chronic metabolic disorder characterized by insulin resistance and high blood glucose levels, which has become a global pandemic in recent decades and is associated with several health complications, including renal dysfunction. Serum uric acid levels are associated with kidney damage and have been linked to various health conditions.

Urine microalbumin is a sensitive marker of kidney damage and is commonly used to monitor renal dysfunction in diabetes. The study aimed to compare the predictive value of serum uric acid and urine microalbumin in detecting kidney damage among T2D patients. This secondary data analysis used a cross-sectional dataset of 140 diabetic patients from Mbarara Regional Referral Hospital (MRRH) in Mbarara, Uganda. The main outcome was renal dysfunction, defined as estimated glomerular filtration rate (eGFR) <60 mL/min/1.73m². Key variables included serum uric acid, urinary microalbumin, and various demographic and clinical factors.

Data were analyzed using logistic regression and receiver operating characteristic (ROC) curve analysis to evaluate predictive performance. Ethics approval was obtained from the Mbarara University Research Ethics Committee. This study involved 140 participants with a median age of 53 years (interquartile range (IQR) 44-60.5), predominantly females (95, 67.9%), primarily educated

(76, 54.3%), and mostly married (104, 74.3%). Participants with renal dysfunction were older (median age 61 years, IQR 52-69) compared to those without (median age 49, IQR 40-56), with significant differences in urinary microalbumin and serum uric acid levels ($p < 0.05$). Renal dysfunction prevalence was 33.6% (95% CI: 26.2-41.9), higher in participants with diabetes duration ≥5 years, microalbuminuria, certain marital statuses, and higher diastolic blood pressure. Microalbuminuria (adjusted odds ratio (aOR) 4.71, 95% CI: 1.27-17.50, P = 0.021) and serum uric acid (aOR 1.01, 95% CI: 1.0002-1.0153, P = 0.045) were significantly associated with renal dysfunction.

Other associated factors included age, female gender, and diastolic hypertension. Both biomarkers had significant predictive power for renal dysfunction (area under the curve (AUC) 0.62 and 0.65, respectively). This study confirms the high prevalence of renal dysfunction among T2D patients, with a finding of 33.6%. The significant association between microalbuminuria and renal dysfunction, as well as the predictive capacity of serum uric acid and urinary microalbumin, highlight the importance of these biomarkers in identifying individuals at risk of kidney complications.

Keywords
Biomarker, renal dysfunction, type 2 diabetes, uric acid, microalbuminuria

Citation
Rugera, S.P., Tumusiime, J., Mudondo, H., Naruhura, G., Kiconco, R., Bagenda, C.N., Mudondo J.H. (2024). Serum Uric Acid and Microalbuminuria: Predictors of Renal Dysfunction in Type 2 Diabetes Patients in South-Western Uganda. Cureus 16(9): **e69843. DOI 10.7759/cureus.69843.**

In Utero Mother-to-Child Transmission of HIV-1 and the Associated Factors in Rwanda, Africa

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Abstracts

Mother-to-child transmission (MTCT) of HIV-1 and associated mortality continue to occur at unacceptably high rates, despite the extensive rollout and implementation of Prevention of Mother-to-Child Transmission (PMTCT) Programs, including the modified versions of Option B and B+ in 2010 and 2012, respectively. Maternal HIV viral load (VL) and socio-behavioral factors sustaining MTCT in Rwanda remain largely unexplored. The study examined the effects of socio-behavioral factors on maternal VL and their contribution to in utero transmission of HIV-1 in the context of Rwanda's HIV epidemic. A prospective cohort study was conducted in 862 mother–baby pairs enrolled in 10 PMTCT clinics in Rwanda. VL was determined on plasma and Dried Blood Spots samples, whereas HIV DNA PCR

was performed to determine in utero MTCT of HIV of the babies immediately at birth and then at 3 weeks, 4 weeks, 6 months, and 18 months, together with HIV antibody testing to determine other forms of MTCT of HIV. Quantitative data on socio-behavioral factors were collected through a structured questionnaire.

Linear regression and univariate analysis of variances using SPSS 25.0 were used to test the hypotheses. We found 22/862 (2.55%) cases of in utero transmission and a total of 32/862 (3.7%) cases of MTCT of HIV-1 over 18 study months. Maternal VL at delivery was significantly associated with the risk of in utero transmission of HIV-1. Socio-behavioral factors associated with elevated maternal VL at delivery included alcohol, smoking, multiple sexual partners, mothers' income, being a casual laborer, and distance to health care services. We report an MTCT rate of 3.7% in our study population over the 18 months, higher than the national average of 1.5%, the majority of which occurred in utero. MTCT cases were attributable to failure to suppress maternal VL.

Keywords
Mother-to-Child Transmission (MTCT), HIV Viral Load (VL), Prevention of Mother-to-Child Transmission (PMTCT), Socio-Behavioral Factors, Rwanda HIV Epidemic

Citation
Rutayisire, G., Ssemwanga, E., Ntale, R., Grace, U.M., Gashema, J.P., Gasana, P., Wekia, E., Kiwanuka, N., Bagaya, B.S. (2024). In Utero Mother-to-Child Transmission of HIV-1 and the Associated Factors in Rwanda, Africa. AIDS Res Hum Retroviruses, 40(10). **pp575-580. doi: 10.1089/aid.2023.0117.**

Predictors of microvascular complications in patients with type 2 diabetes mellitus at regional referral hospitals in the central zone, Tanzania: a cross-sectional study

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Abstracts

Microvascular complications encompass a group of diseases which result from long standing chronic effect of diabetes mellitus (DM). We aimed to determine the prevalence of microvascular complications and associated risk factors among patients with type 2 diabetes mellitus (T2DM). A cross sectional analytical hospital based study was conducted at Singida and Dodoma regional referral hospitals in Tanzania from December 2021 to September 2022. A total of 422 patients with T2DM were included in the analysis by determining the prevalence of microvascular complications and their predictors using multivariable logistic regression analysis.

A two tailed p value less than 0.05 was considered statistically significant. The prevalence of microvascular complications was 57.6% (n = 243) and diabetic retinopathy was the most common microvascular complication which accounted for 21.1% (n = 89). Having irregular physical activity (AOR = 7.27, 95% CI = 2.98–17.71, p < 0.001), never having physical activity (AOR = 2.38, 95% CI = 1.4–4.01, p = 0.013), being hypertensive (AOR = 5.0, 95% CI = 2.14–11.68, p = 0.030), having T2DM for more than 5 years (AOR = 2.74, 95% CI = 1.42–5.26, p = 0.025), being obese (AOR = 2.63, 95% CI = 1.22–5.68, p = 0.010), and taking anti diabetic drugs irregularly (AOR = 1.94, 95% CI = 0.15–0.77, p < 0.001) were the predictors of microvascular complications. This study has revealed a significant proportion of microvascular complications in a cohort of patients with T2DM. Lack of regular

physical activity, being obese, taking anti diabetic drugs irregularly, presence of hypertension, and long standing duration of the disease, were significantly associated with microvascular complications.

Keywords
Type 2 diabetes mellitus, Microvascular complications, Predictors

Abbreviations
DM - Diabetes mellitus, T2DM - Type 2 diabetes mellitus, HbA1C - Glyated haemoglobin, BMI - Body mass index, BP - Blood pressure

Citation
Shillah, W.B., Yahaya, J. J., Morgan T.E.D., Bintabara, D. (2024). Predictors of microvascular complications in patients with type 2 diabetes mellitus at regional referral hospitals in the central zone, Tanzania: a cross-sectional study. Scientific Reports, 14(). **p 5035. https://doi.org/10.1038/s41598-024-55556-x.**

Factors associated with diagnostic and pre-treatment intervals among breast cancer patients attending care at the Uganda Cancer Institute: A cross-sectional study

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Abstracts
This study examined the diagnostic and pre-treatment intervals and factors associated with these intervals among BC patients attending care at the Uganda Cancer Institute (UCI). This was a cross-sectional, facility-based study. Data were collected using structured questionnaire administered by trained research assistants and analyzed using STATA version 14.0.

Modified Poisson regressions models were used to determine the strength of associations between independent variables and diagnostic and pre- treatment intervals. The mean age (±SD) of the 401 participants was 47.1 ± 11.7 years. Four in 10 participants had stage III (41.9%; n = 168) and over a third (34.7%; n = 140) stage IV cancers. The median interval from first consultation to diagnosis, i.e. di-agnostic interval (DI) was 5.6 months (IQR: 1.5–17.0), while the median interval from histological diagnosis to start of chemotherapy, i.e. pre-treatment interval (PTI) was 1.7 months (IQR: 0.7–4.5). Majority (85%, n = 341) of participants were diagnosed at ≥3 months from first consultation with clinicians. Participants with tertiary education and

those who lived within 100–199 km from the UCI were about four times and twice more likely to be diagnosed early (DI <3 months from first consultation) ([aPR = 3.88; 95% CI: 1.15–13.0] and [aPR = 2.19; 95% CI: 1.06–4.55]), respectively. About half (48.3%; n = 176) of participants started chemotherapy within 1 month of cancer diagnosis. Patients who lived more than 300 km from the UCI were less likely to start chemotherapy within 1 month of histology diagnosis of cancer. [Correction added on October 17, 2023, after first online publication. The term ', i.e. 'has been included in the results section in this version. Majority of breast cancer patients are diagnosed late and in advanced stages. There is need to promote all efforts toward timely diagnosis when cancers are still in early stages by identifying factors responsible for prolonged diagnostic intervals among breast cancer patients.

Keywords
Breast cancer, cancer stage, diagnosis, diagnostic interval, pre-treatment interval

Citation
Achan, J., Kasujja, F.X., Opito, R., Wabinga, H., Orach, C.G., Mwaka, A.D. (2023). Factors associated with diagnostic and pre-treatment intervals among breast cancer patients attending care at the Uganda Cancer Institute: A cross-sectional study. Cancer Medicine. **https://doi.org/10.1002/cam4.6618.**

Occurrence of Ocular Surface Squamous Neoplasia at a Teaching Hospital in Southwestern Uganda

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Abstracts
The most frequent non-pigmented malignancy of the ocular surface is ocular surface squamous neoplasia (OSSN), which has a frequency of 0.03 to 1.9 per 100,000 people per year. It can be diagnosed histologically as anything from mild dysplasia to aggressive squamous cell carcinoma that affects both the conjunctiva and the cornea. The purpose of this study is to determine the distribution of ocular surface squamous neoplasia at a teaching hospital in Southwestern Uganda.

In this retrospective study, we reviewed all records of patients with ocular surface squamous neoplasia from the Mbarara University of Science and Technology (MUST)/ Mbarara Regional Referral Hospital (MRRH) pathology laboratory in Southwestern Uganda, from January 2015- October 2021. Results: Of the 1,133 cases of ocular neoplasia seen during this time, OSSN composed of 26.7% (n=303). OSSN occurred mainly in females (59.1%). The most common OSSN was invasive squamous cell carcinoma (60.4%). The age range was 15-106 years while the mean was 39.99 years. The commonest affected age group was 30-44years (41.3%). Conclusion: The burden of OSSN is high. It primarily affects young adults and is frequently

found in women. Squamous cell carcinoma makes up the majority of the disease.

Keywords
Ocular surface squamous neoplasia; conjunctival intraepithelial neoplasia; squamous cell carcinoma

Citation
Atwine, R.; Yekos, M.; Birungi, A.; Kiconco, R., Drucilla, J.R. (2023). Occurrence of Ocular Surface Squamous Neoplasia at a Teaching Hospital in South Western Uganda. Therapeutic Advances in Endocrinology and Metabolism, Pg.8. **DOI:10.20944/preprints202309.0429.v1.**

Clinical and Histopathologic Predictors of Survival among Children With Retinoblastoma From Two Tertiary Health Facilities in Uganda

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Abstracts

Retinoblastoma (RB) is a malignant tumour that develops from the immature cells of the retina. It is the most frequent type of paediatric intraocular cancer and is curable. Clinical and histological findings after enucleation of the affected eye dictate not only the patient's secondary care but also their prognosis. We assessed the clinical and histopathologic predictors of survival among children with RB from two tertiary health facilities in Uganda.

This retrospective research utilized archived formalin fixed and paraffin-embedded blocks of eye specimens enucleated between 2014 and 2016 at Mbarara University of Science and Technology (MUST) Pathology Department and Ruharo Eye Centre (REC) in Mbarara, Uganda. The specimens were then processed and stained with haematoxylin and eosin. The confirmation of RB was made to include the histologic stage and features of the tumor.

Biographic data of the patients and clinical features, such as leukocoria, proptosis, phthisis, staphyloma and buphthalmos, were retrieved from the records. Males (55.1%, n=43) dominated the study population (N=78). The median age was 31 months. The most common clinical sign was leukocoria (69.2%, n=52), and the most predominant histopathological stage was stage 1 (41%, n=32). Optic nerve (ON) invasion was seen in 38.5% (n=30), choroidal invasion in

29.5% (n=23), scleral invasion in 7.7% (n=6) and orbital extension in 16.7% (n=13) of the cases. Flexner-Wintersteiner rosettes were seen in 34.6% (n=27). Necrosis was a prominent feature (71.8%, n=56). The two-year survival was estimated to be 61.5% (n=48). Leukocoria (risk ratio (RR) 1.1), female gender (RR 1.4), intralaminar ON invasion (RR 7.6) and a lack of orbital extension (RR 7) were significant predictors of survival. Leukocoria and proptosis are noticeable clinical signs of RB. Most patients present while in stage one although stage four presentation is also common. Leukocoria, ON invasion, orbital extension and gender are significant factors predictive of survival in patients with RB.

Keywords:
Children, survival, retinoblastoma, features, pathological, histology, clinical features, predictors, Uganda

Citation
Atwine, R., Laffita, D., Birungi, A., Kiconco, R., Waddell, K., (2023). Clinical and Histopathologic Predictors of Survival among Children With Retinoblastoma From Two Tertiary Health Facilities in Uganda. Cureus, 15(12). **doi: 10.20944/preprints202309.0429.v1.**

Frequency and distribution of ABO and Rh blood group systems among blood donors at the Northern Zone Blood Transfusion Center in Kilimanjaro, Tanzania: a retrospective cross- sectional

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Abstracts
ABO and Rh blood group systems are the major factors affecting the blood transfusion safety. The frequency and distribution of these blood group systems vary worldwide. We aimed to determine the frequency and distribution of ABO and Rh blood group systems among first- time blood donors at the Northern Zone Blood Transfusion Center in Kilimanjaro, Tanzania. Design Cross- sectional descriptive population- based study.

Setting Data on ABO and Rh blood group systems were obtained and analysed from the Northern Zone Blood Transfusion Center among first- time blood donors. Participants There were 65 535 first- time blood donors aged 15–55 years who donated at the Northern Zone Blood Transfusion Center from January 2017 to December 2019.

Outcome measures the percentage of ABO and Rh blood group systems among different categories of blood donors was calculated. Results Retrospective data from Blood Establishment Computer System of 65 535 first- time blood donors were analysed in the present study. The mean age of the blood donors was 30.6±11.2 years (range: 15–55 years). The vast majority of the blood donors 84.2% (n=55 210) were men. Also, the majority 69.6% (n=45 595)

were aged ≥35 years. Blood group O was the most common blood group which was found in over half 52.4% (n=34 333) of the blood donors and majority 95.3% (n=62 461) of the donors were Rh positive. Moreover, the majority 78.3% (n=51 336) were voluntary donors and the remaining 21.7% (n=14 199) were replacement donors. Conclusion Majority of the donors had blood group O and also the vast majority of the donors were Rh positive.

Considering the large size of our study population, this has provided a more comprehensive information regarding the frequency and patterns of ABO and Rh blood group systems in Tanzania. The observed association of blood group A with one of the regions from which donors were coming from, is intriguing and further studies may confirm possible related genetic evolution.

Keywords
ABO Blood Group System, Rh Blood Group System, Blood Transfusion Safety, First-Time Blood Donors, Kilimanjaro-Tanzania

Citation
Edda, A.M.V., Yahaya, J. J., Morgan T. E.D., Mremi, A. Bintabara, D. (2023). Frequency and distribution of ABO and Rh blood group systems among blood donors at the Northern Zone Blood Transfusion Center in Kilimanjaro, Tanzania: a retrospective cross-sectional study. BMJ Open, 13(e068984). Pages 7.

http://bmjopen.bmj.com/cgi/content/full/bmjopen-2022-068984.

Uptake of prostate cancer screening and associated factors among men aged 50 years and above in Lira city, Uganda: a cross-sectional study

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Abstracts

Prostate cancer is the most common cancer among men globally, with over 1.2 million cases reported in 2018. About 90% of men with prostate cancer are diagnosed when the disease is in an advanced stage. We assessed the factors associated with the uptake of prostate cancer screening among men aged ≥ 50 years in Lira city.

This was a cross-sectional study involving 400 men aged ≥ 50 years in Lira city who were sampled using multistage cluster sampling method. Uptake of prostate cancer screening was defined as the proportion of men who received prostate cancer screening in the past one year prior to the interview. Multivariable logistic regression analyses were performed to assess the factors associated with the uptake of prostate cancer screening. Data were analyzed using Stata version 14.0 statistical software. Of the 400 participants, only 18.5% (74/400) had ever been screened for prostate cancer. However, 70.7% (283/400) were willing to screen/rescreen if provided with the

opportunity. Majority of the study participants, 70.5% (282/400) had ever heard about prostate cancer, mostly from a health worker (40.8% (115/282)). Less than half of the participants had high knowledge of prostate cancer. The factors that were significantly associated with prostate cancer screening were age ≥ 70 years, Adjusted Odds Ratio (AOR) 3.29: 95% Confidence Interval (CI): 1.20-9.00) and having a family history of prostate cancer, AOR 2.48 (95%CI: 1.32–4.65).There was low uptake of prostate cancer screening among men in Lira City, but majority of men were willing to screen.

We encourage policymakers in Uganda to ensure prostate cancer screening services are readily available and accessible by men so as to improve on early identification and treatment of the disease.

Keywords
Prostate cancer, Men, Screening, Uganda

Citation
Ekwan, R., Bua, E., Nantale, R., Opito, R., Abingwa, P., Sserwanja, Q., Kuteesa, J., Mukunya, D. (2023). Uptake of prostate cancer screening and associated factors among men aged 50 years and above in Lira City, Uganda: A cross-sectional study. BMC Public Health.
https://doi.org/10.1186/s12889-023-15348-w

Determinants of knowledge, attitude, and practice among patients with type 2 diabetes mellitus: A cross-sectional multicenter study in Tanzania

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Abstracts
Improvement of primary care for patients with type 2 diabetes mellitus (T2DM) through the promotion of good knowledge, attitude, and practice is of paramount importance for preventing its related complications. This study aimed to assess the levels of knowledge, attitude, and practice and associated factors among patients with T2DM. This was a cross-sectional multicentre hospital-based study that included 979 patients from 8 health facilities in Tanzania.

A standardized semi-structured interviewer-administered questionnaire was used to extract the required data. Factor analysis was used to determine the level of knowledge, attitude, and practice. Multivariable analysis under binary logistic regression analysis was used to determine the predictors of knowledge, attitude, and practice. P<0.5 was considered significant. The levels of adequate knowledge, positive attitude, and appropriate practice were 62.1%, 54%, and30.9%, respectively.

Being self-employed (AOR = 1.74, 95% CI = 0.28 0.91, p = 0.040) predicted adequate knowledge. Being male (AOR = 1.46, 95% CI = 1.06 2.01, p = 0.021 and visiting regional hospitals (AOR = 2.17, 95% CI = 1.33–2.51, p = 0.013) were predictors of positive attitude. Residing in rural areas and not having adequate knowledge of diabetes were less likely associated with appropriate practice. This study has shown a significantly low level of appropriate practice among patients with

T2DM towards general issues on diabetes, risk factors, and related complications. Therefore, emphasis should be placed on improving good practices that can help prevent related complications.

Keywords
Type 2 Diabetes Mellitus (T2DM), Primary Care Improvement, Knowledge, Attitude, and Practice (KAP), Predictors of Diabetes Management, Tanzania Healthcare System.

Citation
Joho, A.A., Sandi, F., Yahaya, J. J. (2023). Determinants of knowledge, attitude, and practice among patients with type 2 diabetes mellitus: A cross-sectional multicenter study in Tanzania. PLOS Glob Public Health, 3(12). p e0001351. **https://doi.org/10.1371/journal.pgph.0001351**

Insulin therapy among diabetic patients in rural communities of Sub-Saharan Africa: a perspective review

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Abstract
In this perspective review, we describe a brief background on the status quo of diabetes mellitus-related therapies and glycemic control among patients in rural communities in sub-Saharan Africa. The article discusses insulin therapy as well as the difficulties in obtaining insulin and oral hypoglycemic medications for diabetic patients living in sub-Saharan Africa.

We wrap up our discussion with suggestions on solutions and opportunities for future research to tackle this health challenge in these impoverished communities. We conducted a literature search from PubMed and Google Scholar up until August 2023. Key words were used to generate search terms used to retrieve the required information. All types of literature with pertinent information on the

current topic were included in the study. Diabetes mellitus is on the rise in sub-Saharan Africa. Several studies have reported poor glycemic control, low screening rates for diabetes mellitus, cigarette smoking, high alcohol consumption, prescription of antidiabetic therapy, and associated costs as contributors to the uptake of antidiabetic treatment. Although there is paucity of data on the extent of insulin therapy uptake and its possible modifiable contributors among the diabetic patients in the region, the anticipated increase in the number of people with diabetes on the continent makes it critical for global leaders to address the research gaps in insulin therapy among rural communities of sub-Saharan Africa, thus reducing the burden of diabetes in these populations.

Keywords
Glucagon, glycated hemoglobin, hyperglycemia, hypoglycemia, insulin, oral hypoglycemics, sub-Saharan Africa

Citation
Kiconco, R., Lumumba, Acheng, S.L., Bagenda, C., Atwine, R., Ndarubwine, J., Rugera, S.P. (2023). Insulin Therapy among Diabetic Patients in Rural Communities of Sub-Saharan Africa: A Perspective. Therapeutic Advances in Endocrinology and Metabolism 15. pp.1-14. **https://doi.org/10.1177/20420188241232280**

Severe malaria burden, clinical spectrum and outcomes at Apac district hospital, Uganda: a retrospective study of routine health facility based data

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Abstracts

Background. Most data describing severe malaria (SM) in sub-Saharan Africa (SSA) are from research settings outside disease endemic areas. Using routinely collected data from Apac District Hospital, this study aimed at determining the burden and clinical spectrum of severe malaria.

Methods. This was a retrospective study that reviewed all paediatric admission records for malaria in the 24 months period from Jan 2019 to Dec 2020 at Apac District Hospital. Data on children aged 60 days to 12 years who at admission tested positive for malaria and fulfilled the World Health Organization clinical criteria for surveillance of severe malaria were abstracted using a customized proforma designed to capture variables on social demographic, clinical presentation, treatment, and outcomes. In addition, the tool included laboratory variables for complete blood counts, haemoglobin, and glucose levels. Data were analysed using STATA V15.0. The study had ethical approval from Mbale Regional Referral Hospital REC, Approval No. MRRH-REC 053/2019.

Results. A total of 5631 admission records were retrieved for this study period. Of these, 3649 (64.8%) were malaria admissions and

3422/3649 were children below 12years, with only 1864 (54.5%) of children having complete data. Of the 1864 children, 745 (40.0%) fulfilled the severe malaria inclusion criteria. Of the 745 children, 51.4% (n = 381) were males. The median age at admission was 31 months (IQR = 17–60). The most common clinical presentations among children with severe malaria were fever 722 (97.3%), cough 478 (64.2%), and difficulty in breathing 122 (17.9%). The median length of hospital stay was 2 (IQR; 2–4) days and 133 (17.9%) had prolonged hospital stay (> 4 days).

Factors independently associated with prolonged hospital stay were, presenting with difficulty in breathing, aOR 1.83 (95% CI 1.02–3.27, P = 0.042) and prostration aOR 8.47 (95% CI 1.94–36.99, P = 0.004). A majority of admitted children, 735 (98.7%) survived, while 10 (1.3%) died of SM.
Conclusion. A high proportion (40.0%) of malaria admissions were due to SM. Prolonged Hospital stay was associated with prostration and difficulty in breathing. Overall mortality was low, 1.3% compared to mortality in the previously reported series. This study was able to use routinely collected data to describe the burden and clinical spectrum of SM. Improvement in the quality of data from such settings would improve disease descriptions for policy, monitoring of epidemics, response to interventions and to inform research.

Keywords
Child, Malaria, Hospitalization, Survivors

Citation
Ocen, E., Opito, R., Tegu, C., Oula, A., & Olupot-Olupot, P. (2023). Severe malaria burden, clinical spectrum and outcomes at Apac district hospital, Uganda: a retrospective study of routine health facility-based data. Malaria Journal, 22(1), 325.
https://doi.org/10.1186/s12936-023-04761-6.

Diagnostic and pre-treatment intervals among patients with cervical cancer attending care at the Uganda Cancer Institute: a cross-sectional study

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Abstracts

Background. Majority of patients with cervical cancer in the low- and middle-income countries experience long diagnostic and pre-treatment intervals. This study sought to determine the factors associated with the diagnostic and pre-treatment intervals among patients with cervical cancer.

Methods. This was a cross-sectional study conducted at the Uganda Cancer Institute (UCI) during October 2019 to January 2020. Patients aged ≥ 18 years with histological diagnosis of cervical cancer were consecutively sampled. Data were collected using a pre-tested semi-structured questionnaire and a data abstraction form. Diagnostic intervals, defined as the time between first visit of a patient to a primary healthcare provider to time of getting confirmed diagnosis, of ≤ 3 months was defined as early & >3 months as late.

Pre-treatment intervals, which is the time from histological diagnosis to starting cancer chemo-radiotherapy of ≤ 1 month was defined as early and > 1 month as late. Data were analysed using STATA version 14.0. We used modified Poisson regression models with robust variance to determine socio-demographic and clinical factors associated with the intervals.

Results. The mean age of the participants was 50.0 ± 11.7 years. The median diagnostic and pre-treatment intervals were 3.1 (IQR: 1.4–8.2) months and 2.4 (IQR: 1.2–4.1) months respectively. Half of

the participants, 49.6% (200/403) were diagnosed early; one in 5 patients, 20.1% (81/403) promptly (within one month) initiated cancer chemoradiotherapy. Participants more likely to be diagnosed early included those referred from district hospitals (level 5) (aPR = 2.29; 95%CI: 1.60–3.26) and with squamous cell carcinomas (aPR = 1.55; 95%CI: 1.07–2.23). Participants more likely to be diagnosed late included those who first discussed their symptoms with relatives, (aPR = 0.77; 95%CI: (0.60–0.98), had > 2 pre-referral visits (aPR = 0.75; 95%CI (0.61–0.92), and had advanced stage (stages 3 or 4) (aPR = 0.68; 95%CI: 0.55–0.85). Participants more likely to initiate cancer chemo-radiotherapy early included older patients (≥ 60 years) (aPR = 2.44; 95%CI: 1.18–5.03).

Patients likely to start treatment late were those who had ≥2 pre-referral visits (aPR = 0.63; 95%CI: 0.41–0.98) and those that took 3 - 6 months with symptoms before seeking healthcare (aPR =0.52; 95%CI: 0.29 - 0.95).
Conclusion. Interventions to promote prompt health-seeking and early diagnosis of cervical cancer need to target primary healthcare facilities and aim to enhance capacity of primary healthcare professionals to promptly initiate diagnostic investigations. Patients aged < 60 years require targeted interventions to promote prompt initiation of chemo-radiation therapy.

Keywords
Cervical cancer, Diagnostic intervals, Pre-treatment intervals, advanced stage

Citation
Lacika, J. L., Wabinga, H., Kagaayi, J., Opito, R., Orach, C. G., & Mwaka, A. D. (2023). Diagnostic and pre-treatment intervals among patients with cervical cancer attending care at the Uganda Cancer Institute: a cross-sectional study. BMC Women's Health, 23(1), 633.
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Factors associated with retention of mother baby pairs in the elimination of mother-to-child transmission of HIV program in Kaberamaido district: A longitudinal analysis Kaberamaido

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Abstracts

Background. Retention along the elimination of Mother to Child Transmission (eMTCT) cascade in Uganda remains poor as only 62.7%-69.5% are followed up to 18months. The objective of this study was to determine the rates of retention of mother-baby pairs at two levels of the eMTCT cascade (12 and 18 months) and associated factors.

Methods. This was a longitudinal analysis of 368 mother-baby pairs who were enrolled into the eMTCT program in Kaberamaido district from January 2013 to December 2018. Data was extracted from early infant diagnosis (EID) and mothers' ART registers, entered into Microsoft Excel and then exported to Stata statistical software package version 14.0 for management and analysis.

Descriptive statistics such as mean and frequencies were computed at univariate level. At the bivariate level, Cox proportional hazard regression was performed to assess the level of association between the primary outcome and each independent variable, while Cox proportional hazard regression model was built at multivariate level to determine the factors independently associated with retention of mother-baby pairs in the eMTCT program.

Results. Of the 368 mothers enrolled into the study, their average age was 29.7years (SD = 6.6). Nearly two-thirds of the mothers were married/cohabiting, (n = 232, 63.0%). The 368 mother baby pairs were observed for a total time of 6340 person months, with majority, 349 (94.8%, 95%CI = 92.0–96.7) still active in eMTCT care, while 19(5.2%, 95%CI = 3.3–8.0) were lost to follow up at 12months.

At 18 months, 323 (87.8%, 95%CI = 84.0–90.8) were active in eMTCT program while 45(12.2%, 95 CI = 9.2–16.0) were lost to follow up. At bivariate level, marital status, health facility level of enrolment, mothers' ART treatment supporter, and mothers' ART enrolment time were significantly associated with survival/lost to follow up (LTFU) of mother-baby pairs along the eMTCT cascade. At multivariable level, the mothers' time of ART initiation was significantly associated with survival/lost to follow up (LTFU) of mother-baby pairs at along the eMTCT cascade, with mothers-baby pairs who were initiated during the antenatal/post-natal periods having higher hazards of LTFU compared to those who initiated ART before Antenatal period (before pregnancy), aHR = 4.37(95%CI, 1.62– 11.76, P = 0.003).

Mother-baby pairs who were enrolled into the eMTCT program after the implementation of HIV test and treat policy (year 2017 and 2018) had higher hazards of LTFU as compared to those enrolled before the implementation of test and treat policy in Uganda (year 2013–2016), aHR = 2.22(95% CI, 1.15–4.30, P = 0.017). All the other factors had no significant association with lost to follow up and cascade completion at multivariate level.

Conclusion.

There was high level of retention of mother-baby pairs in the eMTCT program in Kaberamaido at 12 months, but it was suboptimal at 18months. ART initiation during the antenatal and/or post-natal period was significantly associated with suboptimal retention of mother-baby pairs along the eMTCT cascade.

Citation

Odongo, J. D., Opito, R., Wanume, B., Bwayo, D., Mukunya, D., Okware, S., & Matovu, J. K. (2023). Factors associated with retention of mother-baby pairs in the elimination of mother-to-child transmission of HIV program in Kaberamaido district: A longitudinal analysis. PLoS ONE 18(7): **e0288562. https://doi.org/10.1371/journal.pone.0288562**

Factors Associated with Cervical Cancer Screening Uptake Among Women Attending Outpatient Department in a Rural District Hospital in Uganda. A Cross-Sectional Study

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Background: Sub-Saharan Africa (SSA) faces persistently low cervical cancer screening uptake, averaging only 13% over the past five years, with Uganda reporting less than 5%. This study aimed to assess the factors influencing cervical cancer screening uptake in a rural district hospital to inform targeted interventions that enhance screening coverage for the rural community.

Methods: This was a cross-sectional study conducted at Kaberamaido General Hospital (KGH) outpatient department. A total of 422 participants aged between 25 and 49 years were interviewed and data analyzed using STATA version 16.0. Bivariate and multivariate analyses were performed using modified Poisson regression with robust error estimates to identify key factors associated with cervical cancer screening uptake. Variables with P-value <0.05 were considered statistically significant.

Results: The average age of participants was 32 (SD ±7) years. 77.5% (n=327) of participants were married, had primary level of education, 69.2% (n=292), and were unemployed, 89.3% (n=377). Awareness about screening was high as 85.5% (n=360) of respondents had heard about cervical cancer screening. Cervical cancer screening

uptake was low, as only 20.4% (n=86) had been screened in the past five years. Factors significantly associated with increased screening uptake, including age older than 35 years, adjusted Prevalence Ratio [aPR]= 1.7 (95% CI: 1.08–2.69), availability of free government screening services, aPR = 1.6 (95% CI: 1.09–2.38), provision of screening service at the nearest health facility, aPR = 2.1 (95% CI: 1.09–3.97), and a positive family history of cervical cancer, aPR = 1.7 (95% CI: 1.14–2.65).

Conclusion: Our study confirms that cervical cancer screening uptake in Kaberamaido District remains low, highlighting the need for enhanced awareness campaigns and improved access to screening services. Our findings emphasize the need for policies that strengthen community outreach programs and expand cervical cancer screening services at primary healthcare facilities.

Keywords:
Uterine cervical neoplasms, cervical cancer screening, women, cervical cancer awareness

Citation
Jimmy Ekinu, Emmanuel Tiyo Ayikobua, Elizabeth Icodu, Hellen Akurut, Olympia Olivia Akot, Steven Oder, John Micheal Opinya, Tonny Egau, David Aderu, Moses Eremu, James Daniel Odongo, Walter Dreak Erabu & Ronald Opito (2025) Factors Associated with Cervical Cancer Screening Uptake Among Women Attending Outpatient Department in a Rural District Hospital in Uganda. A Cross-Sectional Study, International Journal of Women's Health, 2603-2611,
https://doi.org/10.2147/IJWH.S541935

Clinical, Sonographic and Biochemical Profiles of Patients with a Mainz II Pouch Urine Diversion in Rural Uganda. A Case Series

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Background: Mainz II pouch urinary diversion is an alternative surgery for patients with an incurable vesicovaginal fistula (VVF). We report six (6) cases of patients who had incurable VVF and were offered Mainz II pouch surgery at Soroti Regional Referral Hospital, between 2009 and 2018 and followed up in 2023.

Methods: A retrospective review of charts of 6 patients who were offered Mainz II pouch procedure and a cross-sectional assessment of their biochemical, sonographic and clinical profiles five (5) or more years after the procedure at Soroti Regional Referral Hospital were done. All case notes of patients who underwent the Mainz II procedure between 2009 and 2018 were retrieved from the registry and each patient profiled using a standard data abstraction tool.

Results: The ages of the six participants ranged between 16 and 65 years at the time of the procedure. Four of the 6 participants had

lived with the fistula for less than 10 years. Four participants had only one delivery and the other 2 had five and six deliveries. All the participants had lived with the Mainz II pouch urine diversion for at least five years (5–14 years). One participant (1/6) had hypertension (BP=161/101). Most participants reported nocturnal incontinence. Sonographic findings revealed one-sided mild vesicoureteral reflux with loss of corticomedullary differentiation in two participants (2/6). One of six (1/6) patients had severe vesicoureteral reflux grade 4. The commonest metabolic disorders were compensated metabolic acidosis (4/6).

Conclusion: The Mainz II pouch procedure remains a viable option for managing incurable obstetric fistulas. However, the prevalence of metabolic complications, including acidosis and renal impairment, underscores the need for routine biochemical and sonographic monitoring to ensure optimal long-term patient outcomes.

Keywords:

Mainz II pouch, vesicovaginal fistula, urinary diversion, acidosis

Citation

Kirya, F., Aderu, D., Epodoi, J., Apolot, D., Kiconco, R., Mpango, R., ... & Opito, R. (2025). Clinical, Sonographic and Biochemical Profiles of Patients with a Mainz II Pouch Urine Diversion in Rural Uganda. A Case Series. International Medical Case Reports Journal, 601-607.
https://doi.org/10.2147/IMCRJ.S515145.

Prevalence and factors associated with teenage pregnancy among girls aged 13 to 19 years in Atutur sub-county, Kumi district, Eastern Uganda: a community-based cross-sectional study

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Abstracts

Background. Teenage pregnancy remains a pressing public health issue with profound effects on health, education, and socio-economic outcomes. Rural areas, such as parts of Teso, often face higher prevalence of teenage pregnancy due to socioeconomic challenges. This study aimed at determining the prevalence of teenage pregnancy and associated factors in Atutur sub-county, Kumi district.

Methodology. The authors employed a cross-sectional study design and sampled 444 teenage girls aged 13–19 years from 12 randomly selected villages in Atutur sub-county, Kumi district in April 2024. They were interviewed using structured researcher administered questionnaire. Data was collected using kobo collect tool, downloaded, cleaned and exported to SPPS version 27.0 for further management and analysis. Descriptive statistics was conducted to determine the prevalence of teenage pregnancy. After adjusting for covariates, multivariate analysis was conducted using modified

Poisson regression to determine predictors of teenage pregnancy. Results were reported with a 95% confidence interval (CI) and factors whose CI did not contain a null (1.0), with p-value (P < 0.05) for adjusted PR, were considered statistically significant.

Results. Of the 444 teenage girls, the mean age was 17 (standard deviation = 1.9) years. About one third of the participants, 132(29.7%) had ever conceived. Teenage girls in cohabitation were 3.0 times more likely to have conceived (aPR = 3.0, 95% CI: 2.23–4.10, P < 0.001) compared to those staying with their parents. Teenagers with both parents deceased were 1.9 times more likely to conceive (aPR = 1.9, 95% CI: 1.15–3.31, P = 0.032) compared to those whose parents were both alive. Teenage girls who were not satisfied with basic needs provided by parents were 3.3 times more likely to conceive (aPR = 3.3, 95% CI: 2.26–4.85, P < 0.001) compared to those satisfied with the basic needs provided by their parents.

Conclusion. Teenage pregnancy rates in Atutur sub-county Kumi district was higher than the national average, due to adverse socio-economic situation. Strengthening parental support of the girl child, with legal and community measures to reduce early marriages in rural settings may reduce teenage pregnancy. There is need to make deliberate efforts to provide socio-economic strengthening for the teenage girls to reduce their vulnerability.

Keywords
Teenage pregnancy, Prevalence, Cross-sectional, Early marriage

Citation
Akol, M., Opito, R., Oryokot, B., Akurut, H., Kalema, J., Chekwoti, M., ... & Kabwigu, S. (2025). Prevalence and factors associated with teenage pregnancy among girls aged 13 to 19 years in Atutur sub-county, Kumi district, Eastern Uganda: a community-based cross-sectional study. Reproductive Health, 22(1), 101.
https://doi.org/10.1186/s12978-025-02058-2.

Return to care of children and adolescents living with HIV who missed their clinic visits or were lost to follow-up: a continuous quality improvement study in Uganda

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Abstracts
Background. While the UNAIDS 95-95-95targetshave been met among adults, those for children and adolescents remain suboptimal. This study aimed to improve the return-to-carerates among children and adolescents living with HIV (CALHIV) who missed clinic appointments at a county-level rural health facility in eastern Uganda.

Methods. Between January 2023 and January 2024, we conducted a continuous quality improvement (CQI) study. A CQI committee was established through entry meetings and training, and quality of care gaps were identified through data reviews. We prioritised one gap for CQI through ranking, performed a root-cause analysis using a fishbone diagram, and developed and ranked improvement changes using the impact-effort matrix. The improvement changes were implemented using Plan-Do-Study-Act cycles. The changes

included (1) line listing CALHIV with missed appointments and following up via phone calls; (2) weekly data reviews to harmonise missed appointments and (3) assigning community health workers (CHWs) to trace and return CALHIV to care. We tracked and plotted the proportion of CALHIV returning to care over time to assess improvements.

Results. Before the implementation of CQI initiatives (August 2022–January 2023), the average return-to-care rate was 35% (baseline). Following the initiation of CQI in February 2023, the average return-to-care rate increased to 59% from February to May 2023 with the introduction of line listing (phase 1), to 69% from June to September 2023 with the implementation of weekly data reviews (phase 2), and to 88% from October 2023 to January 2024 with the involvement of CHWs (phase 3), ultimately reaching a peak of 100% in January 2024.

Conclusion. The CQI approach improved the return to care of CALHIV who missed clinic appointments, allowing access to optimal care and better health outcomes. These findings should serve as preliminary data for larger randomised studies.

Citation

Saadick, S. M., Izudi, J., Oryokot, B., Opito, R., Bakashaba, B., Munina, A., & Mugisha, K. (2025). Return to care of children and adolescents living with HIV who missed their clinic visits or were lost to follow-up: a continuous quality improvement study in Uganda. BMJ Open Quality, 14(2).

Acceptability of pre-exposure prophylaxis and associated factors among HIV-negative young men in Kagwara fishing community-Serere district, Uganda: A cross-sectional study

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Abstracts

Background. Despite the potential efficacy of Pre-Exposure Prophylaxis (PrEP) in reducing HIV risk, Oral PrEP acceptability remains strikingly varied by populations and locations. We assessed PrEP acceptability and associated factors among at-risk HIV-negative young men.

Methods. A cross-sectional analytical study design was used. Data were collected among 409 at-risk HIV-negative young men aged 15–24 years living in Kagwara fishing community-Serere district, Uganda between August and October 2023.

Quantitative data were collected on socio-demographic characteristics, sexual risk behaviors and concerns about PrEP. Data was analyzed using Stata version 15.0 statistical software. Summary statistics were computed and presented as tables, frequencies and proportions. Bivariate analysis was conducted using binary logistic regression to identify independent factors associated with PrEP acceptability. All factors that had $p < 0.10$ at the bivariate analysis and confounders were entered into the final logistic regression model. All factors with $p < 0.05$ were considered significantly associated with the primary outcome.

Results. The average age of 409 respondents was 21.8 (Standard

Deviation [SD]=1.9) years. Majority, (97.8%, n = 393) had unprotected penetrative sex. PrEP acceptability was high as majority of the participants accepted to use PrEP based on the six constructs of acceptability (93.6%, n = 383). Participants with perceived risk of getting HIV infection had higher odds of PrEP acceptability, (adjusted odds ratio [aOR]=4.23, 95%CI = 1.05–17.04).

Participants who knew their partner's HIV status (aOR=0.25, 95%CI = 0.07–0.88), those who felt embarrassed to ask for PrEP from the facility (aOR=0.12, 95%CI = 0.04–0.39), and those who had stigma associated with use of PrEP (aOR=0.13, 95%CI = 0.04–0.41) had reduced odds of PrEP acceptability.
Conclusion. We found a high level of PrEP acceptability among young men at risk of HIV acqui¬sition in Kagwara fishing community. Improving access to PrEP services among high risk young men in the fishing communities may increase PrEP uptake in this population and across similar settings. The Ministry of health needs to use multiple approaches to provide PrEP such as peer-led models, drug distribution points, short message reminders for refills, pharmacies and retail drug shops.

Citation

Omoding A, Opito R, Oboth P, Okello F, Matovu JK (2025) Acceptability of preexposure prophylaxis and associated factors among HIV-negative young men in Kagwara fishing community-Serere district, Uganda: A cross-sectional study. PLoS One 20(6): e0317808. **https://doi.org/10.1371/journal. pone.0317808**

Symptom attributions by cervical cancer patients attending specialized care at the Uganda Cancer Institute: a cross-sectional study

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Abstracts

Background. Most women in the low- and middle-income countries who develop cervical cancer are diagnosed at advanced stages following symptomatic presentations to healthcare professionals. This study sought to describe the symptoms experi- enced, symptoms' attributions, and factors associated with the perceived causes of the symptoms among a cohort of cervical cancer patients.

Methods. This was a cross-sectional study conducted at the Uganda Cancer Institute (UCI) during October 2019 to January 2020. Data were collected using a pre-tested semi-structured questionnaire and a data abstraction form for clinical vari- ables in the patients' case notes and analyzed using STATA version 15.0. We used modified Poisson regression models with robust variance to determine socio-demographic and clinical characteristics associated with perceived causes of symptoms. We report prevalence ratios with accompanying 95% confidence intervals. Prevalence ratios were considered statistically significant when the two-sided p values < 0.05.

Results. We collected data from 449 participants, with a median age

of 49.0 (IQR = 42–58). More than half of the partici- pants, 59.2% (n = 266) were diagnosed with early-stage (stages 1/2) cancer. Most participants recognized risk factors for cervical cancer as using hormonal family planning 91.3% (n = 410) and having many sexual partners 89.1% (n = 400).

Initial symptoms experienced by the patients included vaginal discharge 78.6% (n = 353) and vaginal bleeding in between monthly periods, 48.3% (n = 217). More than half of the patients, 57.2% (n = 257) thought the symptoms experienced were due to sexually transmitted infections (STI), while only 5.6% (n = 25) of patients thought the initial symptoms were due to cancer.

The socio-demographic factors significantly associated with the perceptions that symptoms were due to STIs included hav- ing formal education, i.e., secondary and tertiary levels of education with adjusted prevalence ratios (aPR) = 1.84(95% CI: 1.38–2.47) and aPR = 1.71(95% CI: 1.20–2.42), respectively, and being formally employed aPR = 1.19 (95% CI: 1.00–1.40).

Conclusion. Women ought to be aware that cervical cancer may present as vaginal discharge or vaginal bleeding in between menstrual periods and should therefore seek care promptly when they develop such symptoms. Primary healthcare physi- cians need to avoid empirical treatment of every woman with vaginal discharge but rather conduct careful evaluations to properly assess the cervix for diagnoses.

Keywords
Cervical cancer· Symptoms at diagnosis· Symptoms attributions· Perceived causes

Citation
Opito, R., Lacika, J. L., Wabinga, H., Orach, C. G., & Mwaka, A. D. (2025). Symptom attributions by cervical cancer patients attending specialized care at the Uganda cancer institute: a cross-sectional study. Cancer Causes & Control, 1-10.
https://doi.org/10.1007/s10552-025-02062-8

The ongoing undergraduate Academic programmes at the School of Health Sciences are:

1) Bachelor of Medicine and Bachelor of Surgery,
2) Bachelor of Nursing Sciences
3) Bachelor of Medical Laboratory Technology (BLMS)
4) Bachelor of Science in Physiotherapy

The following undergraduate academic programmes are planned for the future:

1) Bachelor of Science in Biomedical Engineering
2) Bachelor of Dentistry
3) Bachelor of Pharmacy
4) Diploma in Pharmacy

DEPARTMENT OF GRADUATE STUDIES, RESEARCH AND INNOVATIONS ABSTRACT

Diatom and potentially toxigenic cyanobacteria dominate the phytoplankton community of Lake Kyoga Complex

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Abstracts
We investigated the composition and dominance of phytoplankton species in the Lake Kyoga Complex in Uganda, focusing on diatoms and potentially toxigenic cyanobacteria. Water quality sampling and analyses were done using standard quantitative methods while phytoplankton abundance and quantification was performed according to sedimentation method.

The diatoms, primarily Aulacoseira granulata, Cyclotella meneghiniana and Nitzschia acicularis were recovered. The toxin producing cyanobacteria too that included Dolichospermum circinalis, Dolichospermum planctonica, Cylindrospermopsis africana and Microcystis aeruginosa were present in this ecosystem. The occurrence of cyanobacteria raises concerns about potential harmful algal blooms (HABs) that could impact water quality and ecosystem health. This study provides an ecological baseline for monitoring shifts in community composition with the disappearance of keystone species that are not palatable to fish and potential threats to water safety within the Lake Kyoga catchment more especially River Awoja, the main water supply station for Soroti City.

Keywords
Eutrophication, Lake Kyoga complex, diatoms, toxigenic

cyanobacteria, water quality, Uganda.

Citation

Ejobi, F., Okello, W., Ocaya, H., Sasanya, J. J., & Olokotum, M. (2025). Diatom and Potentially Toxigenic Cyanobacteria Dominate the Phytoplankton Community of Lake Kyoga Complex, Uganda.

PATENTS AT SOROTI UNIVERSITY

Smart Solar Tracking System Utilizing IoT and Artificial Intelligence for Enhanced Energy Monitoring and Efficiency Improvement.

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Abstracts
The Smart Solar Tracking System Utilizing IoT and Artificial Intelligence is an advanced energy optimization solution designed to enhance the efficiency of solar power generation. This system integrates Artificial Intelligence (AI), the Internet of Things (IoT), and real-time energy monitoring to dynamically adjust the orientation of solar panels based on environmental conditions, maximizing solar energy absorption. The tracking mechanism is powered by dual-axis or single-axis motorized actuators, which are controlled using sensor feedback and AI-based optimization algorithms. A comprehensive sensor network, including light sensors, temperature sensors, weather sensors, and energy monitoring modules, continuously gathers

data to ensure optimal performance. An IoT-enabled ESP32 microcontroller processes sensor data and executes AI-driven tracking commands. The system leverages machine learning algorithms to predict solar movement patterns, minimize unnecessary motion, and adapt to changing weather conditions. Real-time data transmission via Wi-Fi allows remote monitoring and control through a cloud-based dashboard. Users can access real-time energy analytics, historical performance trends, fault detection alerts, and predictive maintenance insights via a mobile app or web interface.

Keywords
Artificial Intelligence (AI), Internet of Things (IoT), Solar Tracking, Machine Learning Algorithms, Energy Optimization.

Citation
Manoharan, K., Subramanian, P., Satheesh, R., Vijayalakshmi, A., Sunil, R. Y., Udhayamoorthi, M., Ramesh, M., & Govindaraj, V., (2025). Smart Solar Tracking System Utilizing IoT and Artificial Intelligence for Enhanced Energy Monitoring and Efficiency Improvement. The Patent Office Journal No. 16/2025. India.

Pictorial Outlook of Soroti University's upcoming Projects to Support Research/Teaching





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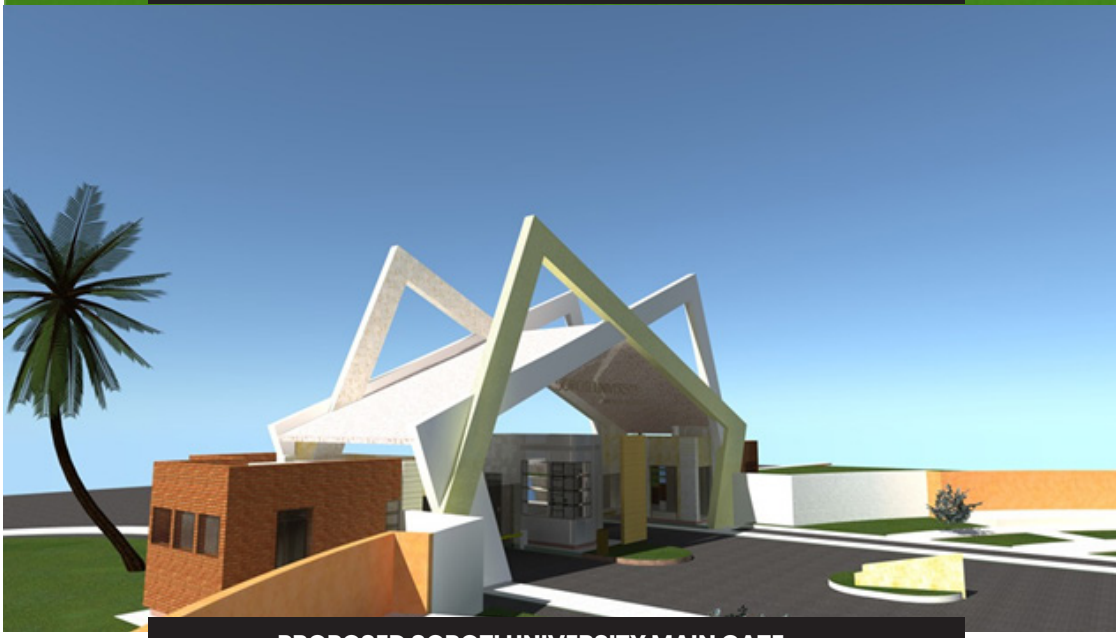

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