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Review: Vaccination and Preventive Care Among Diabetic Populations in Nigeria: Gaps, Attitudes, and Policy Opportunities

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ABSTRACT

Vaccination and preventive care are essential for reducing the risks associated with infectious diseases, especially among diabetic populations who are more vulnerable to infections like influenza, pneumonia, and hepatitis B. This review examines the current state of vaccination coverage among diabetic individuals in Nigeria, exploring the key barriers, attitudes, and policy opportunities to enhance vaccine uptake. Despite the proven benefits of vaccination, coverage remains low due to awareness deficits, cultural beliefs, inadequate healthcare infrastructure, and limited access to medical services. The review highlights the need for targeted interventions, such as awareness campaigns, the integration of vaccination into routine diabetes care, and improved healthcare delivery systems. Furthermore, it emphasizes the importance of policy reforms that could facilitate better access to vaccines and incorporate preventive care into diabetes management. By addressing these gaps, Nigeria can improve health outcomes for its diabetic population and reduce the burden of preventable infections, contributing to a more resilient healthcare system.
Keywords: Vaccination, Preventive Care, Diabetes, Nigeria, Vaccine Uptake, Healthcare Infrastructure.

INTRODUCTION

Vaccination and preventive care are fundamental aspects of public health and well-being, especially for populations living with chronic conditions. Among these populations, individuals with diabetes face a particularly high risk of developing various infections and comorbidities due to the chronic nature of their condition and its impact on the immune system. Diabetes, a disease that affects millions of individuals globally, is a leading cause of preventable complications, including cardiovascular disease, kidney failure, nerve damage, and infections [1-5]. Preventive healthcare strategies, such as timely vaccination, are critical for mitigating these risks, yet uptake rates in specific populations, particularly among diabetic individuals, are often suboptimal. This issue is especially concerning in developing countries like Nigeria, where healthcare systems are often under-resourced, and health policies may not prioritize the integration of preventive care into routine chronic disease management [6-8].

In Nigeria, where the burden of diabetes is on the rise, there is a growing recognition that chronic disease management must extend beyond the control of blood sugar levels to include preventive measures such as vaccination. Vaccines such as those for influenza, pneumococcal diseases, and hepatitis B are vital for diabetic patients, who are more vulnerable to infections due to their compromised immune function [9-13]. Despite this, there are significant gaps in the vaccination coverage among diabetic populations in the country. These gaps, combined with attitudinal barriers towards vaccination, poor healthcare infrastructure, and limited access to medical care, present substantial challenges to improving health outcomes for diabetic individuals. This review aims to explore the current state of vaccination among diabetic populations in Nigeria, assess the existing barriers to vaccine uptake, and highlight policy opportunities that could enhance preventive care within the management of diabetes [14-20]. By evaluating these elements, the review seeks to provide insights into how the integration of vaccination into routine diabetes care can be improved to reduce the disease burden and enhance quality of life for individuals living with diabetes.

Diabetes is a major health issue in Nigeria, with increasing numbers of individuals being diagnosed with both type 1 and type 2 diabetes. According to the International Diabetes Federation (IDF), the number of people living with diabetes in Nigeria is expected to rise significantly in the coming years due to urbanization, lifestyle changes, and an aging population [21-25]. In addition to the metabolic challenges posed by the disease, diabetic individuals are at heightened risk for infections, both due to the physiological effects of hyperglycemia on the immune system and the complications associated with the disease. For instance, infections such as influenza, pneumonia, and hepatitis are more likely to lead to severe illness or death in individuals with diabetes compared to those without [26-30].

Vaccination against these infectious diseases is recommended by global health organizations, including the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), as an essential part of diabetes management. The WHO recommends routine vaccinations for pneumococcus, influenza, and hepatitis B for diabetic populations, as these vaccines have been shown to significantly reduce the incidence and severity of infections in diabetic individuals [31-35]. Despite these recommendations, Nigeria has faced numerous challenges in achieving widespread vaccination coverage, particularly among vulnerable populations like those living with diabetes.

One of the primary challenges to effective vaccination programs in Nigeria is the limited healthcare infrastructure. Many healthcare facilities in rural and underserved areas are inadequately equipped, with frequent shortages of medical supplies, including vaccines. Additionally, a lack of trained healthcare personnel in primary care settings further exacerbates the difficulty in implementing effective vaccination campaigns. Coupled with these infrastructural challenges are cultural and attitudinal barriers, where some individuals with diabetes may not prioritize vaccination or may be unaware of the potential benefits. Misconceptions, mistrust of healthcare systems, and insufficient health education contribute to these barriers [36-40].

The Nigerian government has made significant strides in expanding immunization programs over the past decades, particularly in the areas of childhood vaccination. However, efforts to extend vaccination coverage to adult populations, particularly those with chronic diseases like diabetes, have been limited. Preventive care policies, especially those focused on chronic disease management, need to be strengthened to reduce the burden of preventable diseases among diabetic individuals [41-45].

In Nigeria, individuals with diabetes are particularly vulnerable to infections and their associated complications due to their impaired immune systems. Despite the proven benefits of vaccination in preventing such diseases, vaccination rates among diabetic individuals remain significantly low. Several factors contribute to this issue, including limited access to healthcare, lack of awareness regarding the role of vaccination in managing diabetes, and insufficient incorporation of preventive care in standard treatment protocols [46-50]. The problem is compounded by gaps in national health policies and a lack of cohesive strategies to address preventive measures for diabetes. Inadequate healthcare infrastructure, especially in rural and underserved regions, and the absence of integrated diabetes care programs further hinder vaccine access. As a result, diabetic individuals in Nigeria remain at higher risk of preventable infections, contributing to broader public health challenges [11]. This study aims to address critical gaps in the healthcare management of diabetic individuals in Nigeria, specifically focusing on vaccination coverage and preventive care practices. The first objective is to evaluate the current state of vaccination coverage among diabetic populations in Nigeria, concentrating on vaccines for influenza, pneumococcal disease, and hepatitis B. The study will also identify key barriers to vaccine uptake, such as healthcare system limitations, cultural attitudes, and knowledge gaps. Additionally, it will explore the attitudes of diabetic individuals towards vaccination, with an emphasis on their awareness of the role vaccines play in preventing infections and improving long-term health outcomes. The study will further assess the policy gaps in integrating preventive care into routine diabetes management, particularly vaccines, and will suggest potential policy interventions to enhance vaccine coverage. The research questions are designed to explore the current level of vaccination among diabetic individuals in Nigeria, the barriers preventing uptake, and the perceptions surrounding vaccination in diabetes management. By identifying these gaps, the study seeks to inform strategies that could improve preventive care for this vulnerable population. The significance of this research lies in its potential to inform healthcare policies, contribute to global discussions on diabetes care in low- and middle-income countries, and ultimately improve health outcomes for diabetic populations in Nigeria.

Vaccination Coverage among Diabetic Populations in Nigeria

Vaccination plays a crucial role in reducing the morbidity and mortality associated with infectious diseases such as influenza, pneumonia, and hepatitis B, which disproportionately affect individuals with diabetes. Despite the well-documented risks that diabetic populations face from these diseases, vaccination coverage remains alarmingly low in Nigeria. Recent studies indicate that uptake rates for vaccines like the flu vaccine, pneumococcal vaccine, and hepatitis B vaccine among diabetics are significantly lower than those recommended by health authorities. Several factors contribute to this suboptimal vaccination coverage [12]. Limited access to healthcare facilities, especially in rural and underserved areas, significantly hinders diabetic patients from receiving vaccines. Additionally, there is a

gap in healthcare provider education, where many providers fail to emphasize the importance of preventive healthcare measures, including vaccinations, in the management of chronic conditions like diabetes. The Nigerian healthcare system is primarily focused on treating acute diseases, often neglecting the preventive aspects of care for chronic conditions. As a result, individuals with diabetes remain at increased risk for preventable infections, which can further complicate their health. Although the government has made efforts to improve immunization coverage for the general population, diabetics continue to be underserved, highlighting the need for targeted interventions to address this gap [13].

Barriers to Vaccine Uptake

The low uptake of vaccines among diabetic populations in Nigeria is influenced by several critical barriers. A primary issue is awareness deficits, where many individuals with diabetes remain unaware of their heightened susceptibility to infections like influenza, pneumonia, and hepatitis B. This lack of awareness extends to healthcare providers who may not routinely include vaccination as part of diabetes management. Furthermore, cultural and social beliefs play a significant role, particularly in rural areas. In some communities, skepticism toward vaccines, fueled by misconceptions and mistrust in the healthcare system, significantly reduces vaccine acceptance [14]. Additionally, healthcare system weaknesses in Nigeria, such as inadequate funding, limited access to primary care services, and a shortage of trained professionals, exacerbate the situation. Many diabetic individuals may not have regular healthcare visits where vaccinations could be administered, further limiting access to these essential preventative measures. Another major barrier is the cost and accessibility of vaccines. While some vaccines are subsidized by the government, the financial constraints faced by a large portion of the population prevent many from seeking vaccination. Moreover, healthcare facilities offering vaccines are often located far from rural communities, which limits accessibility for those living in more remote areas. These barriers collectively contribute to the low vaccination coverage within the diabetic population in Nigeria [15].

Attitudes towards Vaccination and Preventive Care

Attitudes towards vaccination and preventive care among individuals with diabetes in Nigeria are diverse, often influenced by awareness, accessibility, and misconceptions. Many diabetics in urban areas are becoming more receptive to the idea of vaccination, recognizing the heightened vulnerability to infections such as influenza, pneumonia, and hepatitis B that individuals with chronic conditions face. Healthcare providers in these areas are increasingly promoting a holistic approach to diabetes management, which incorporates preventive care such as regular vaccinations. This shift is part of a broader push to enhance the overall health outcomes for diabetic patients, as infections can exacerbate the complications of diabetes and lead to higher morbidity and mortality rates [16]. However, in rural and underserved regions, the approach to diabetes care is often less structured. Limited access to healthcare facilities, lack of information, and misconceptions about vaccination contribute to lower acceptance and uptake. Many individuals may not fully appreciate the importance of vaccines, particularly if they have not encountered severe complications from preventable diseases. Additionally, concerns about the side effects of vaccines, compounded by the complexity of managing diabetes, may further discourage some from seeking vaccination [17]. As awareness campaigns and access to healthcare services improve, it is hoped that more diabetics will embrace preventive measures, leading to better health outcomes across the country.

Policy Opportunities for Integrating Preventive Care

Addressing the gaps in vaccination coverage and preventive care for individuals with diabetes requires a multifaceted approach, with several key policy opportunities to enhance access and effectiveness. First, policymakers can encourage healthcare providers to incorporate vaccination into routine diabetes care. By integrating vaccines into the standard care protocols for diabetes, healthcare workers will be trained to prioritize preventive measures alongside disease management, ensuring that diabetic patients receive the full spectrum of care [18].

Second, public awareness campaigns are essential for educating both diabetic individuals and the general population about the risks associated with infections and the protective benefits of vaccines. These campaigns should tackle prevalent misconceptions, emphasizing that vaccines are safe, effective, and particularly crucial for vulnerable groups, including those with diabetes. Third, strengthening healthcare infrastructure plays a critical role in improving vaccine accessibility. This includes enhancing vaccine distribution networks, particularly in rural and underserved areas, to ensure that diabetic patients have timely access to vaccinations [19]. Governments should also consider subsidizing the cost of vaccines for low-income individuals to remove financial barriers to preventive care. Fourth, expanding health insurance coverage to include vaccines for diabetic individuals is another crucial policy measure. By reducing the financial burden of vaccination, health insurance reforms would make preventive care more accessible, ensuring that a broader segment of the population benefits from essential vaccines.

Lastly, collaboration with international partners, such as the World Health Organization (WHO), can provide technical expertise, funding, and resources to bolster vaccination programs. These partnerships can help improve vaccine access, raise awareness, and support nationwide initiatives aimed at preventing infections in diabetic populations [20].

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CONCLUSION

Vaccination plays a pivotal role in preventing infections that disproportionately affect individuals with diabetes, such as influenza, pneumonia, and hepatitis B. In Nigeria, however, vaccination coverage among the diabetic population remains alarmingly low. This is attributed to a complex mix of factors, including a lack of awareness about the benefits of vaccination, cultural beliefs that may hinder vaccine acceptance, systemic barriers like inadequate healthcare infrastructure, and limited access to healthcare services. To address these challenges, it is essential to implement targeted interventions aimed at increasing vaccine uptake among diabetic individuals. Key strategies could include conducting awareness campaigns, incorporating vaccination into routine diabetes care protocols, and improving healthcare facilities' ability to administer vaccines efficiently. By closing these gaps, Nigeria can significantly reduce the incidence of preventable diseases in its diabetic population, thereby improving public health outcomes. Additionally, integrating preventive care, such as vaccination, into diabetes management is both cost-effective and vital for building a more robust and sustainable healthcare system.

REFERENCES

1. Gisinger, T., Kautzky-Willer, A., Leutner, M.: Need for improving immunization status and preventive care in diabetes mellitus patients. Wiener klinische Wochenschrift. 135, 336–342 (2022). https://doi.org/10.1007/s00508-022-02080-5
2. Kolobova, I., Nyaku, M.K., Karakusevic, A., Bridge, D., Fotheringham, I., O'Brien, M.: Vaccine uptake and barriers to vaccination among at-risk adult populations in the US. Hum Vaccin Immunother. 18, 2055422. https://doi.org/10.1080/21645515.2022.2055422
3. Mitaki NB, Fasogbon IV, Oviosun A *et al.* Preclinical evidence of the efficacy of cucurbita plants in diabetes management: a systematic review [version 1; peer review: awaiting peer review]. *F1000Research* 2025, **14**:668 (https://doi.org/10.12688/f1000research.166533.1)
4. Kardiatun T, Dibua U M, Badger-Emeka L, Ugonabo J A, Tirwomwe J F, Agwu E, Ssamula M (2013). The effect of cinnamon on glucose control in patients with type 2 diabetes mellitus in Pontianak, Indonesia. Int J Med Med Sci. 5, (10), 434-437.
5. Obasi, D.C., Abba, J.N., Aniokete, U.C., Okoroh, P.N., Akwari, A.A. (2025). Evolving Paradigms in Nutrition Therapy for Diabetes: From Carbohydrate Counting to Precision Diets. Obesity Medicine, 2025; 100622. https://doi.org/10.1016/j.obmed.2025.100622
6. Thomas, S., Ouhtit, A., Al Khatib, H.A., Eid, A.H., Mathew, S., Nasrallah, G.K., et al.: Burden and disease pathogenesis of influenza and other respiratory viruses in diabetic patients. Journal of Infection and Public Health. 15, 412–424 (2022). https://doi.org/10.1016/j.jiph.2022.03.002
7. Adonu C. C, Ugwu O. P. C, Bawa A, Ossai E. C, Nwaka A.C (2013). Intrinsic blood coagulation studies in patients suffering from both diabetes and hypertension. Int *Journal of Pharmaceutical Medicine and Bio Science, 2 (2), 36-45.*
8. Eltvedt, A.K., Poulsen, A., Winther, T.N., Von Linstow, M.-L.: Barriers for vaccination of healthcare workers. Hum Vaccin Immunother. 17, 3073–3076. https://doi.org/10.1080/21645515.2021.1904760
9. Alum, E.U. Optimizing patient education for sustainable self-management in type 2 diabetes. *Discov Public Health* **22**, 44 (2025). https://doi.org/10.1186/s12982-025-00445-5
10. Bloomgarden, Z.: Risks and benefits of vaccines in diabetes. J Diabetes. 15, 806–807 (2023). https://doi.org/10.1111/1753-0407.13481
11. Eze E. D, Afodun A. M, Kasolo J, Kasozi K.. L. (2019). Lycopene improves on basic hematological and immunological parameters in diabetes. **Research Square**,https://doi.org/10.21203/rs.2.16409/v1
12. Obeagu, E. I., Scott, G. Y., Amekpor, F., Ugwu, O. P. C., Alum, E. U. COVID-19 infection and Diabetes: A Current Issue. *International Journal of Innovative and Applied Research.* 2023; 11(01): 25-30. DOI: 10.58538/IJIAR/2007. DOI URL: http://dx.doi.org/10.58538/IJIAR/2007.
13. Ejemot-Nwadiaro R. I, Ofili D. F. C, Ogbodo S. C, Okoroiwu H. U, Ukah U. V .Risk of Cardiovascular Disease Comorbidity in People Living with Diabetes in Africa. *Kampala International University Western Campus, Ishaka, Available at SSRN 4901142.*
14. Ugwu, O.P.C.,Kungu, E., Inyangat, R., Obeagu, E. I., Alum, E. U., Okon, M. B., et al. Exploring Indigenous Medicinal Plants for Managing Diabetes Mellitus in Uganda: Ethnobotanical Insights, Pharmacotherapeutic Strategies, and National Development Alignment. INOSR Experimental Sciences.2023; 12(2):214-224. https://doi.org/10.59298/INOSRES/2023/2.17.1000.
15. Wei, C.R., Kamande, S., Lang'at, G.C.: Vaccine inequity: a threat to Africa's recovery from COVID-19. Tropical Medicine and Health. 51, 69 (2023). https://doi.org/10.1186/s41182-023-00564-2
16. Uti D E, Egba S I, Alum B N, Alum E U, Ugwu O P C, Obeagu E I,. Managing the Dual Burden: Addressing Mental Health in Diabetes Care. Elite Journal of Medical Sciences, 2024; 2(6):1-9

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ONLINE ISSN: 2992-5460
PRINT ISSN: 2992-6041

17. Ikpozu, E.N., Offor, C.E., Igwenyi, I.O, Ibiam, U.A., Obaroh, I.O. et al. RNA-based diagnostic innovations: A new frontier in diabetes diagnosis and management. Diabetes & Vascular Disease Research. 2025;22(2). doi:10.1177/14791641251334726
18. Ezema G. O, Omeh N. Y, Egba S. I, Ejiofor C Agbo E, Adachukwu A. I., Obeagu E. I (2023) Evaluation of Biochemical Parameters of Patients with Type 2 Diabetes Mellitus Based on Age and Gender in Umuahia (2023) Asian Journal of Dental and Health Sciences 3(2):32-36
19. Eze C W., Egba S. I, Nweze E. I., Ezeh R C. Ugwudike P. (2020) Ameliorative Effects of Allium cepa and Allium sativum on Diabetes Mellitus and Dyslipidemia in Alloxan-induced Diabetic Rattus novergicus. Trends Applied Sci Res, 15(2): 145-150
20. Blanc, D.C., Grundy, J., Sodha, S.V., O'Connell, T.S., von Mühlenbrock, H.J.M., Grevendonk, J., et al.: Immunization programs to support primary health care and achieve universal health coverage. Vaccine. 42, S38–S42 (2024). https://doi.org/10.1016/j.vaccine.2022.09.086
21. Ugwu OPC, Alum EU, Okon MB, Aja PM, Obeagu EI, Onyeneke EC. Ethanol root extract and fractions of Sphenocentrum jollyanum abrogate hyperglycaemia and low body weight in streptozotocin-induced diabetic Wistar albino rats. RPS Pharm Pharmacol Rep. 2023;2(2):rqad010.
22. Ugwu OPC, Alum EU, Okon MB, Aja PM, Obeagu EI, Onyeneke EC. Anti-nutritional and gas chromatography-mass spectrometry (GC-MS) analysis of ethanol root extract and fractions of Sphenocentrum jollyanum. RPS Pharm Pharmacol Rep. 2023;2(2):rqad007.
23. Ugwu OPC, Amasiorah VI. The in vitro antioxidant potentials of the crude ethanol root extract and fractions of Sphenocentrum jollyanum. INOSR Appl Sci. 2020;6(1):125–33.
24. Ugwu OPC, Amasiorah VI. The effects of the crude ethanol root extract and fractions of Sphenocentrum jollyanum on hematological indices and glycosylated haemoglobin of streptozotocin-induced diabetic rats. INOSR Sci Res. 2020;6(1):61–74.
25. Ugwu OPC, Amasiorah VI. The effects of crude ethanol root extract and fractions of Sphenocentrum jollyanum on the lipid profile of streptozotocin-induced diabetic Wistar albino rats. IDOSR J Biol Chem Pharm. 2020;5(1):36–46.
26. Ugwu OPC, Amasiorah VI. The in vivo antioxidant potentials of the crude ethanol root extract and fractions of Sphenocentrum jollyanum on oxidative stress indices in streptozotocin-induced diabetic rats. IDOSR J Biol Chem Pharm. 2020;5(1):26–35.
27. Ugwu OPC, Onyeneke EC, Igwenyi IO, Aja PM, Okon MB. The effects of crude ethanol root extract and fractions of Sphenocentrum jollyanum on liver and kidney function parameters of streptozotocin-induced diabetic Wistar albino rats. IAA J Sci Res. 2018;4(1):75–90.
28. Aja PM, Igwenyi IO, Ugwu OPC, Orji OU, Alum EU. Evaluation of anti-diabetic effect and liver function indices of ethanol extracts of Moringa oleifera and Cajanus cajan leaves in alloxan induced diabetic albino rats. Global Vet. 2015;14(3):439–47.
29. Offor CE, Ugwu OPC, Alum EU. The anti-diabetic effect of ethanol leaf-extract of Allium sativum on albino rats. Int J Pharm Med Sci. 2014;4(1):1–3.
30. Ugwu OPC, Alum EU, Uhama KC. Dual burden of diabetes mellitus and malaria: exploring the role of phytochemicals and vitamins in disease management. Res Invent J Res Med Sci. 2024;3(2):38–49.
31. Obeagu EI, Ugwu OPC, Alum EU. Poor glycaemic control among diabetic patients: a review on associated factors. Newport Int J Res Med Sci. 2023;3(1):30–3.
32. Alum EU, Ugwu OPC, Obeagu EI, Ugwu CN, Uti DE, Samson AO, et al. Nutritional care in diabetes mellitus: a comprehensive guide. Int J Innov Appl Res. 2023;11(12):16–25.
33. Alum EU, Ugwu OPC, Obeagu EI, Uti DE, Egba SI, Alum BN. Managing the dual burden: addressing mental health in diabetes care. Elite J Med Sci. 2024;2(6):1–9.
34. Alum EU, Obeagu EI, Ugwu OPC, Alum BN, Arinze ED, Ukaidi CUA. Exploring the differential impacts of intermittent fasting on men and women. Elite J Health Sci. 2024;2(5):37–44.
35. Obeagu EI, Scott GY, Amekpor F, Ugwu OPC, Alum EU. Covid-19 infection and diabetes: a current issue. Int J Innov Appl Res. 2023;11(1):25–30.
36. Alum EU, Ugwu OPC. Beyond pregnancy: understanding the long-term implications of gestational diabetes mellitus. INOSR Sci Res. 2024;11(1):63–71.
37. Ugwu OPC, Ugwu MN, Basajja M, Anyanwu CN, Ogenyi FC, Ugwu CN, et al. Targeting gut microbial signatures to personalize obesity treatment: integrating microbiome-based stratification into precision medicine. Obes Med. 2025;57:100639.

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ONLINE ISSN: 2992-5460
PRINT ISSN: 2992-6041

38. Ugwu OPC, Ogenyi FC, Ugwu CN, Ugwu MN. Gut microbiota-derived metabolites as early biomarkers for childhood obesity: a policy commentary from urban African populations. Obes Med. 2025;57:100641.
39. Ugwu OPC, Swase DT, Okon MB, Mujinya R. Traditional East African medicinal plants as modulators of gut microbiota in obesity-associated diabetes: a short communication. Obes Med. 2025;654:00654.
40. Uti DE, Omang WA, Alum EU, Ugwu OPC, Wokoma MA, Oplekwu RI, et al. Targeting CD44-hyaluronic acid signalling in obesity treatment: insights from small molecules and nanobioconjugates. Nutr Metab Insights. 2026;19:11786388251408961.
41. Uti DE, Omang WA, Alum EU, Atangwho IJ, Ugwu OPC, Wokoma MA, et al. Combined hyaluronic acid nanobioconjugates impair CD44-signaling for effective treatment against obesity: a review of comparison with other actors. Int J Nanomedicine. 2025;20:10101–26.
42. Uti DE, Egbung JE, Alum EU, Bawa I, Ugwu OPC, Egba SI, et al. Nanotechnology-enabled targeted delivery of incretin therapies for the treatment of obesity and metabolic disorders. Obes Med. 2026:100712.
43. Ugwu OPC, Eke MC, Ogenyi FC, Basajja M, Ugwu CN. Could chronic exposure to nocturnal artificial light pollution be an overlooked driver of urban obesity and metabolic syndrome? Med Hypotheses. 2025;205:111819.
44. Alum EU, Izah SC, Uti DE, Ugwu OPC, Betiang PA, Basajja M, et al. The ketogenic diet in obesity management: friend or foe? Cell Biochem Biophys. 2025.
45. Udeh SMC, Nwodo OFC, Yakubu OE, Parker EJ, Egba SI, Omenyi SN, et al. Effects of methanol extract of Gongronema latifolium leaves on glycaemic responses to carbohydrate diets in streptozotocin-induced diabetic rats. J Biol Sci. 2022;22:70–9.
46. Ugwu OPC, Alum EU, Obeagu EI, Okon MB. Effect of ethanol leaf extract of Chromolaena odorata on lipid profile of streptozotocin-induced diabetic Wistar albino rats. IAA J Biol Sci. 2023;10(1):109–17.
47. Ugwu OPC, Alum EU, Obeagu EI, Okon MB. Effect of ethanol leaf extract of Chromolaena odorata on hepatic markers in streptozotocin-induced diabetic Wistar albino rats. IAA J Appl Sci. 2023;9(1):46–56.
48. Aja PM, Ibekwe VI, Ekpono EU, Ugwu PC, Ugwu OPC. Effect of ethanol extract of Cajanus cajan leaf on plasma lipid level in albino rats. Int J Curr Res Acad Rev. 2015;3(1):161–7.
49. Obeagu EI, Ugwu OPC. Overweight and obesity among adolescents: a review. Newport Int J Res Med Sci. 2023;3(1):25–9.
50. Obeagu EI, Ugwu OPC. Insulin self-medication among diabetic patients: a review of associated factors. Newport Int J Res Med Sci. 2023;3(1):21–4.

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