Research Output Journal of Biological and Applied Science 3(3):50-53, 2024

ROJBAS Publications ONLINE ISSN: 1115-9200

https://rojournals.org/roj-biological-and-applied-science/ PRINT ISSN: 1115-6120

The Impact of Urbanization on Diabetes Prevalence and Management in Sub-Saharan Africa

Irakoze Mukamana S.

School of Applied Health Sciences Kampala International University Uganda

ABSTRACT

Urbanization in Sub-Saharan Africa is a transformative process that significantly impacts the region's socio-economic and health landscapes. This review examines the relationship between urbanization and diabetes prevalence and management in Sub-Saharan Africa, focusing on how urban growth influences diabetes risk factors, healthcare access, and treatment outcomes. Urbanization is associated with lifestyle changes such as increased sedentary behavior and dietary shifts, which contribute to rising diabetes prevalence. Simultaneously, urban areas often exhibit improved healthcare infrastructure, though disparities remain. This review utilized a comprehensive analysis of recent epidemiological studies, healthcare reports, and policy documents to assess the impact of urbanization on diabetes prevalence and management in Sub-Saharan Africa. Data were synthesized from various sources, including peer-reviewed journals, government health reports, and case studies, to provide a nuanced understanding of the relationship between urbanization and diabetes outcomes. By providing insights into the complex interactions between urbanization and diabetes, the review aims to inform targeted interventions and policy strategies to address the growing burden of diabetes in Sub-Saharan Africa.

Keywords: Urbanization, Diabetes Mellitus, Sub-Saharan Africa, Healthcare Infrastructure, Lifestyle Changes

INTRODUCTION

Urbanization in Sub-Saharan Africa is a rapidly evolving phenomenon, significantly transforming the socio-economic and health landscapes of the region [1,2]. As cities expand and populations migrate from rural to urban areas, the prevalence and management of chronic diseases, particularly diabetes mellitus, are being profoundly affected. Diabetes, once considered a disease of affluent societies, is increasingly becoming a major public health concern in the urban settings of Sub-Saharan Africa. This shift is driven by a combination of lifestyle changes associated with urban living, including decreased physical activity, dietary shifts towards high-calorie processed foods, and increased stress levels [3,4,5]. The burgeoning urban population faces unique challenges in diabetes management, exacerbated by the economic constraints and often limited healthcare infrastructure characteristic of many African cities [6]. While urban areas tend to have better healthcare facilities and greater access to medical services compared to rural regions, the distribution of these resources is often uneven, leading to significant health disparities within urban populations [7,8]. Moreover, the high cost of diabetes care, including medications and regular monitoring, poses a significant barrier to effective disease management for many individuals [9,10]. Compounding these issues are the gaps in health education and awareness about diabetes. In many urban settings, there is a lack of targeted public health campaigns and educational programs to inform people about the risks, prevention, and management of diabetes [11,12]. This lack of awareness often leads to delayed diagnosis and poor disease management practices, contributing to higher rates of complications and mortality. This review aims to explore the multifaceted impact of urbanization on diabetes prevalence and management in Sub-Saharan Africa. It will examine how urban growth influences diabetes risk factors, healthcare access, and treatment outcomes. By synthesizing current research and highlighting successful interventions, the review seeks to provide a comprehensive understanding of the challenges and opportunities presented by urbanization in the context of

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

diabetes care. This knowledge is crucial for developing effective public health strategies and policies to address the rising burden of diabetes in the rapidly urbanizing regions of Sub-Saharan Africa.

URBANIZATION AND DIABETES PREVALENCE

Lifestyle Changes

Urbanization often leads to lifestyle changes that increase diabetes risk. In urban environments, sedentary behaviors are more prevalent due to sedentary jobs and the widespread use of motorized transportation. Additionally, urban residents frequently have greater access to fast food and processed foods high in sugars and fats, contributing to higher rates of obesity—a significant risk factor for type 2 diabetes [13,14,15].

Epidemiological Trends

Recent epidemiological studies have shown a marked increase in diabetes prevalence in urban areas of Sub-Saharan Africa. For instance, data from major cities such as Lagos, Nairobi, and Johannesburg reveal higher diabetes rates compared to rural regions. This urban-rural disparity is attributed to both lifestyle factors and the increased availability of diagnostic services, which may lead to higher detection rates in urban areas [16].

IMPACT OF URBANIZATION ON DIABETES MANAGEMENT

Healthcare Infrastructure

Urban areas generally offer better healthcare infrastructure compared to rural regions, including more specialized diabetes care facilities and access to advanced diagnostic and treatment options. However, the distribution of these resources can be uneven, with affluent urban neighborhoods benefiting more from high-quality care than lower-income areas [17,18].

Access and Affordability

While urban residents may have better access to healthcare services, the affordability of diabetes medications and care remains a significant issue. High costs of insulin and other diabetes management supplies can limit access for economically disadvantaged urban populations, exacerbating health disparities [19,20].

Health Education and Awareness

Urban settings often provide greater opportunities for health education and awareness programs. However, the effectiveness of these programs can vary based on socio-economic factors and cultural attitudes towards diabetes. Urban health education initiatives need to be tailored to address diverse populations and bridge gaps in knowledge and self-management practices [21,22,23].

CHALLENGES AND OPPORTUNITIES

Disparities within Urban Areas

Urbanization has led to increased health disparities within cities, with poorer neighborhoods experiencing higher diabetes prevalence and worse management outcomes. Addressing these disparities requires targeted interventions that improve access to affordable care and preventive services in underserved urban areas [24,25].

Policy and Programmatic Responses

Effective policy responses are crucial for managing the impact of urbanization on diabetes. Policies that promote healthy urban environments, such as improved access to recreational facilities and healthier food options, can mitigate some of the negative health impacts of urbanization. Additionally, strengthening primary healthcare systems and integrating diabetes care into broader health programs can enhance management and prevention efforts [26,27].

CONCLUSION

Urbanization in Sub-Saharan Africa presents both challenges and opportunities for diabetes prevalence and management. While urban environments offer improved healthcare infrastructure and access, lifestyle changes associated with urban living contribute to rising diabetes rates. Addressing these issues requires a multifaceted approach that includes improving healthcare access and affordability, enhancing health education, and implementing policies that promote healthier urban environments. By understanding the dynamics of urbanization and its impact on diabetes, stakeholders can develop targeted strategies to address the growing burden of diabetes in Sub-Saharan Africa.

REFERENCES

1. Ambe J. Njoh, Urbanization and development in sub-Saharan Africa, Cities, 2003; 20(3): 167-174 https://doi.org/10.1016/S0264-2751(03)00010-6.
2. Tekalign Gutu Sakketa, Urbanisation and rural development in sub-Saharan Africa: A review of pathways and impacts, Research in Globalization, 2023; 6, 100133. https://doi.org/10.1016/j.resglo.2023.100133.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

3. Alum EU, Ugwu OPC, Obeagu EI. Beyond Pregnancy: Understanding the Long-Term Implications of Gestational Diabetes Mellitus. *INOSR Scientific Research.* 2024; 11(1):63-71. https://doi.org/10.59298/INOSRSR/2024/1.1.16371
4. Egwu CO, Offor CE, Alum EU. Anti-diabetic effects of *Buchholzia coriacea* ethanol seed Extract and Vildagliptin on Alloxan-induced diabetic albino Rats. *International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS).* 2017; **6 (6):** 1304-1314. www.ijbpas.com. https://ijbpas.com/pdf/2017/June/1497506120MS%20IJBPAS%202017%204202.pdf
5. 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 Veterinaria.* 2015; 14(3): 439-447. DOI: 10.5829/idosi.gv.2015.14.03.93129.
6. Alum EU, Umoru GU, Uti DE, Aja PM, Ugwu OP, Orji OU, Nwali BU, Ezeani N, Edwin N, Orinya FO. Hepato-protective effect of Ethanol Leaf Extract of *Datura stramonium* in Alloxan-induced Diabetic Albino Rats. *Journal of Chemical Society of Nigeria.* 2022; 47 (3): 1165 – 1176. https://doi.org/10.46602/jcsn.v47i5.819.
7. Ugwu OPC, Alum EU, Okon MB, Aja PM, Obeagu EI, Onyeneke EC. Ethanol root extract and fractions of *Sphenocentrum jollyanum* abrogate hyperglycemia and low body weight in Streptozotocin-induced diabetic Wistar albino Rats, *RPS Pharmacy and Pharmacology Reports.* 2023; 2,1-6. https://doi.org/10.1093/rpsppr/rqad010.
8. Uti DE, Igile GO, Omang WA, Umoru GU, Udeozor PA, Obeten UN, Ogbonna ON, Ibiam UA, Alum EU, Ohunene OR, Chukwufumnanya MJ, Oplekwu RI, Obio WA. Anti-Diabetic Potentials of Vernonioside E Saponin; A Biochemical Study. *Natural Volatiles and Essential Oils.* 2021; 8(4): 14234-14254.
9. Ugwu OPC, Kungu E, Inyangat R, Obeagu EI, Alum EU, Okon MB, Subbarayan S, Sankarapandiyan V. 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.
10. Ugwu OPC, Alum EU. and Uhama KC. (2024). Dual Burden of Diabetes Mellitus and Malaria: Exploring the Role of Phytochemicals and Vitamins in Disease Management. Research Invention Journal of Research in Medical Sciences. 3(2):38-49.
11. Aja PM, Ani OG, Offor CE, Orji UO, Alum EU. Evaluation of Anti-Diabetic Effect and Liver Enzymes Activity of Ethanol Extract of *Pterocarpus santalinoides* in Alloxan Induced Diabetic Albino Rats. *Global Journal of Biotechnology & Biochemistry.* 2015; 10 (2): 77-83. DOI: 10.5829/idosi.gjbb.2015.10.02.93128.
12. Alum EU, Ugwu OPC, Obeagu EI, Aja PM, Ugwu CN, Okon MB. Nutritional Care in Diabetes Mellitus: A Comprehensive Guide**.** *International Journal of Innovative and Applied Research.* 2023; 11(12):16-25. **Article DOI:** 10.58538/IJIAR/2057 **DOI URL:** http://dx.doi.org/10.58538/IJIAR/2057
13. Agbafor KN, Onuoha SC, Ominyi MC, Orinya OF, Ezeani N, Alum EU. Antidiabetic, Hypolipidemic and Antiathrogenic Properties of Leaf Extracts of Ageratum conyzoides in Streptozotocin-Induced diabetic rats. *International Journal of Current Microbiology and Applied Sciences.* 2015; 4 (11): 816-824. http://www.ijcmas.com. https://www.ijcmas.com/vol-4-11/Agbafor,%20K.%20N,%20et%20al.pdf
14. Offor CE, Ugwu OPC, Alum EU. The Anti-Diabetic Effect of Ethanol Leaf-Extract of *Allium sativum* on Albino Rats. *International Journal of Pharmacy and Medical Sciences.* 2014; **4 (1):** 01-03. DOI: 10.5829/idosi.ijpms.2014.4.1.1103.
15. Obeagu EI, Scott GY, Amekpor F, Ugwu OPC, Alum EU. 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.
16. Egwu CO, Offor CE, Alum EU. Anti-diabetic effects of *Buchholzia coriacea* ethanol seed Extract and Vildagliptin on Alloxan-induced diabetic albino Rats. *International Journal of Biology, Pharmacy and Allied Sciences (IJBPAS).* 2017; **6 (6):** 1304-1314. www.ijbpas.com. https://ijbpas.com/pdf/2017/June/1497506120MS%20IJBPAS%202017%204202.pdf
17. Obeagu EI, Ugwu OPC, Alum EU. Poor glycaemic control among diabetic patients; A review on associated factors. *Newport International Journal of Research in Medical Sciences (NIJRMS).* 2023; 3(1):30-33. https://nijournals.org/newport-international-journal-of-research-in-medical-sciences-nijrms-volume-3-issue-1-2023/.
18. Riley WJ. Health disparities: gaps in access, quality and affordability of medical care. Trans Am Clin Climatol Assoc. 2012; 123:167-72; discussion 172-4.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

19. Eseadi C, Amedu AN, Ilechukwu LC, Ngwu MO, Ossai OV. Accessibility and utilization of healthcare services among diabetic patients: Is diabetes a poor man's ailment? World J Diabetes. 2023; 14(10):1493-1501. doi: 10.4239/wjd. v14.i10.1493.
20. Godfrey Ogochukwu Ezema, Ndukaku Yusuf Omeh, Egba Simeon Ikechukwu, Ejiofor C Agbo, Adachukwu Ada Ikeyiand Emmanuel Ifeanyi Obeagu (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
21. Karran EL, Grant AR, Lee H, Kamper SJ, Williams CM, Wiles LK, Shala R, Poddar CV, Astill T, Moseley GL. Do health education initiatives assist socioeconomically disadvantaged populations? A systematic review and meta-analyses. BMC Public Health. 2023; 23(1):453. doi: 10.1186/s12889-023-15329-z.
22. Mazzucca S, Arredondo EM, Hoelscher DM, Haire-Joshu D, Tabak RG, Kumanyika SK, Brownson RC. Expanding Implementation Research to Prevent Chronic Diseases in Community Settings. Annu Rev Public Health. 2021; 42:135-158. doi: 10.1146/annurev-publhealth-090419-102547.
23. Golden SD, Earp JAL. Social Ecological Approaches to Individuals and Their Contexts: Twenty Years of Health Education & Behavior Health Promotion Interventions. *Health Education & Behavior*. 2012;39(3):364-372. doi:10.1177/1090198111418634
24. Rahaman MA, Kalam A, Al-Mamun M. Unplanned urbanization and health risks of Dhaka City in Bangladesh: uncovering the associations between urban environment and public health. Front Public Health. 2023; 11:1269362. doi: 10.3389/fpubh.2023.1269362.
25. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Population Health and Public Health Practice; Committee on Community-Based Solutions to Promote Health Equity in the United States; Baciu A, Negussie Y, Geller A, et al., editors. Communities in Action: Pathways to Health Equity. Washington (DC): National Academies Press (US); 2017 Jan 11. 3, The Root Causes of Health Inequity. Available from: https://www.ncbi.nlm.nih.gov/books/NBK425845/
26. Alum EU, Ugwu OPC, Obeagu EI, Uti DE, Egba SI, Alum BN. Managing the Dual Burden: Addressing Mental Health in Diabetes Care. Elite Journal of Medical Sciences, 2024; 2(6):1-9.
27. Rahaman MA, Kalam A, Al-Mamun M. Unplanned urbanization and health risks of Dhaka City in Bangladesh: uncovering the associations between urban environment and public health. Front Public Health. 2023; 11:1269362. doi: 10.3389/fpubh.2023.1269362.

CITATION: Irakoze Mukamana S. The Impact of Urbanization on Diabetes Prevalence and Management in Sub-Saharan Africa. Research Output Journal of Biological and Applied Science, 2024 3(3):50-53.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.