European Journal of
Health Sciences
(EJHS)

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European Journal of Health Sciences
ISSN 2520-4645 (online)
Vol. 10 No 4, pp 40 - 50, 2024

www.ajpojournals.org

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Article history

Submitted 06.04.2024 Revised Version Received 15.05.2024 Accepted 21.06.2024

Abstract

Purpose: The aim of the study was to assess the effect of dietary habits on the prevalence of type 2 diabetes in adults in Uganda.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: The study indicated that a diet high in processed foods, sugars, and saturated fats has been consistently linked to an increased risk of developing Type 2 diabetes. These dietary patterns contribute to obesity, insulin resistance, and chronic inflammation, which are key risk factors for the disease. Conversely, diets rich in whole grains, fruits, vegetables, lean proteins, and healthy fats are associated with a lower risk of Type 2 diabetes. Such diets help in maintaining a healthy weight, improving insulin sensitivity, and reducing inflammation. Additionally, specific eating patterns like the Mediterranean diet and plant-based diets have shown protective effects against Type 2 diabetes. Regular consumption of fiber-rich foods, nuts, and legumes also contributes to better glycemic control and lower diabetes risk. The findings underscore the importance of dietary modifications as a preventative measure and a crucial component in the management of Type 2 diabetes among adults.

Implications to Theory, Practice and Policy: Social cognitive theory, health belief model and theory of planned behavior may be used to anchor future studies on assessing effect of dietary habits on the prevalence of type 2 diabetes in adults in Uganda. Healthcare providers should implement comprehensive nutrition education programs that emphasize the benefits of balanced diets rich in vegetables, whole grains, and fibers. Policymakers should implement regulations to limit the availability of unhealthy processed foods high in refined sugars and unhealthy fats.

Keywords: *Dietary Habits, Prevalence Type, Diabetes, Adults*

INTRODUCTION

The prevalence of Type 2 diabetes in developed economies has been on the rise, as evidenced by diagnosis records and fasting blood glucose levels. In the United States, the Centers for Disease Control and Prevention (CDC) reported that approximately 10.5% of the population had diabetes in 2020, with Type 2 diabetes accounting for about 90-95% of all diagnosed cases (CDC, 2022). Similarly, in Japan, the prevalence of Type 2 diabetes among adults was estimated to be 7.8% in 2020, showing a significant increase from previous decades (Nagai, 2019). These trends highlight the growing public health challenge posed by Type 2 diabetes in developed countries, driven by factors such as aging populations, sedentary lifestyles, and dietary habits. The need for effective prevention and management strategies is underscored by the increasing burden on healthcare systems (Nagai, 2019).

In developing economies, the prevalence of Type 2 diabetes is also on the rise, albeit with variations in the magnitude and pace of increase. For instance, in India, the International Diabetes Federation (IDF) estimated that the prevalence of diabetes was 8.9% among adults in 2019, with the majority being Type 2 diabetes cases (IDF, 2019). In Brazil, the prevalence was around 7.4% in 2019, reflecting significant urban-rural disparities and socioeconomic influences (Barreto, 2019). These trends are influenced by rapid urbanization, changes in dietary patterns, and increased sedentary behaviors. Developing countries face unique challenges in addressing diabetes due to limited healthcare infrastructure and resources (Barreto, 2019).

The prevalence of Type 2 diabetes in other developing economies is similarly increasing, presenting significant public health concerns. In China, the prevalence of diabetes among adults was estimated at 11.2% in 2019, with the majority being Type 2 diabetes cases (Wang, 2020). This rise is attributed to rapid economic growth, urbanization, and lifestyle changes leading to increased rates of obesity and physical inactivity. In Mexico, the prevalence of Type 2 diabetes was reported at 10.3% in 2018, reflecting the impact of dietary shifts towards high-calorie, low-nutrient foods and reduced physical activity (Barquera, 2018). These trends underscore the urgent need for comprehensive public health strategies, including prevention, early diagnosis, and effective management of Type 2 diabetes in developing economies (Barquera, 2018).

The increasing prevalence of Type 2 diabetes in developing economies also extends to countries such as Egypt and Indonesia. In Egypt, the prevalence of Type 2 diabetes was approximately 15.6% in 2019, influenced by high rates of obesity and genetic predisposition (Shawky, 2019). In Indonesia, the prevalence was around 6.2% in 2018, with significant regional disparities and challenges in healthcare access (Soewondo, 2018). These trends highlight the complex interplay of genetic, environmental, and socioeconomic factors in the rising incidence of Type 2 diabetes. Effective public health interventions in these countries must address these multifaceted challenges through targeted education, healthcare access improvement, and lifestyle modification programs (Soewondo, 2018).

The prevalence of Type 2 diabetes in sub-Saharan Africa has seen a worrying increase, signaling a growing public health crisis. In Kenya, the prevalence of diabetes was estimated at 3.3% in 2019, with a significant proportion being Type 2 diabetes cases (Mbanya, 2019). This rise is driven by urbanization, lifestyle changes, and increasing obesity rates. Similarly, in Tanzania, the prevalence of Type 2 diabetes among adults was around 5.7% in 2018, reflecting a shift towards more sedentary lifestyles and dietary changes (Stanifer, 2018). These trends emphasize the need for

improved diabetes awareness, early diagnosis, and robust management strategies in sub-Saharan Africa, where healthcare infrastructure often struggles to keep pace with rising demand (Stanifer, 2018).

In Ethiopia, the prevalence of Type 2 diabetes has also been increasing, with estimates suggesting a prevalence rate of 4.8% in 2019 (Gebreyesus, 2019). The urbanization and transition from traditional to more westernized diets have significantly contributed to this rise. Nigeria faces similar challenges, with a diabetes prevalence rate of 4.3% in 2019, further compounded by limited access to healthcare and diabetes education (Uloko, 2019). These statistics highlight the pressing need for comprehensive diabetes prevention and management programs tailored to the unique socioeconomic and cultural contexts of sub-Saharan Africa. Effective strategies must include public health campaigns, improved healthcare access, and policies promoting healthier lifestyles (Gebreyesus, 2019).

In Ghana, the prevalence of Type 2 diabetes among adults was estimated at 4.2% in 2019, with urbanization, dietary changes, and reduced physical activity being significant contributors (Amoah, 2019). In Uganda, the prevalence was around 3.3% in 2018, driven by similar factors such as urban migration and lifestyle changes (Mayega, 2018). These trends indicate a growing public health challenge in sub-Saharan Africa, necessitating improved diabetes awareness, early diagnosis, and robust management strategies. Addressing these challenges requires enhancing healthcare infrastructure, increasing public health education, and promoting healthier lifestyles through policy initiatives (Mayega, 2018).

In Mozambique, the prevalence of Type 2 diabetes was approximately 3.0% in 2019, reflecting the impact of urbanization and changes in dietary patterns (Damasceno, 2019). In Zambia, the prevalence was around 3.5% in 2019, with significant regional disparities and healthcare access challenges (Muzala, 2019). These statistics highlight the pressing need for comprehensive diabetes prevention and management programs tailored to the unique socioeconomic and cultural contexts of sub-Saharan Africa. Effective strategies must include public health campaigns, improved healthcare access, and policies promoting healthier lifestyles (Muzala, 2019).

The prevalence of Type 2 diabetes in sub-Saharan Africa is increasing, posing significant public health challenges. In South Africa, the prevalence of diabetes among adults was estimated to be 12.7% in 2019, with Type 2 diabetes being predominant (Motala, 2019). In Nigeria, the prevalence was around 4.3% in 2019, reflecting both urbanization and lifestyle changes (Uloko, 2019). These trends highlight the urgent need for improved diabetes awareness, early diagnosis, and effective management strategies. Sub-Saharan Africa faces additional challenges, such as limited access to healthcare services and medications, which complicate diabetes management (Uloko, 2019).

Dietary habits significantly influence the prevalence of Type 2 diabetes, as measured by diagnosis records and fasting blood glucose levels. The first dietary habit is high consumption of refined carbohydrates and sugary foods, which leads to rapid spikes in blood glucose levels and increased insulin resistance, contributing to a higher incidence of Type 2 diabetes (Wang, 2020). The second habit involves frequent intake of processed foods high in saturated fats and low in fiber, which exacerbates insulin resistance and obesity, key risk factors for Type 2 diabetes (Barquera, 2018). Thirdly, a low frequency of consuming fruits and vegetables, which are rich in antioxidants and fiber, is linked to poor glycemic control and increased diabetes risk (Akter, 2018). Lastly, non-adherence to dietary guidelines, such as the Mediterranean diet that emphasizes whole grains,

healthy fats, and lean proteins, correlates with higher prevalence rates of Type 2 diabetes (Esteghamati, 2019).

In contrast, adherence to dietary guidelines that promote balanced and nutrient-rich diets can mitigate the risk of developing Type 2 diabetes. Regular consumption of whole grains, lean proteins, and healthy fats helps maintain stable blood glucose levels and enhances insulin sensitivity (Amoah, 2019). A diet high in fiber from fruits, vegetables, and legumes is associated with lower fasting blood glucose levels and reduced diabetes incidence (Mayega, 2018). Reducing the intake of red and processed meats, which are linked to increased Type 2 diabetes risk, and substituting with plant-based proteins can improve metabolic health (Muzala, 2019). These dietary habits underline the critical role of nutrition in diabetes prevention and management, emphasizing the need for public health interventions that promote adherence to healthy dietary patterns (Damasceno, 2019).

Problem Statement

The prevalence of Type 2 diabetes among adults has been escalating globally, with dietary habits playing a crucial role in this increase. Poor dietary choices, such as high consumption of refined sugars, processed foods, and saturated fats, have been linked to higher rates of Type 2 diabetes, exacerbating the burden on healthcare systems (Wang, 2020). Despite extensive research, there remains a significant gap in understanding how specific dietary patterns and adherence to dietary guidelines influence the prevalence of Type 2 diabetes across different populations. This lack of detailed knowledge impedes the development of targeted nutritional interventions and public health policies aimed at reducing diabetes incidence (Akter, 2018). Therefore, it is imperative to investigate the relationship between dietary habits and the prevalence of Type 2 diabetes in adults to inform effective prevention and management strategies (Amoah, 2019; Mayega, 2018).

Theoretical Framework

Social Cognitive Theory

Social Cognitive Theory, developed by Albert Bandura, emphasizes the role of observational learning, social experiences, and reciprocal determinism in behavior change. The theory posits that individuals acquire and maintain behaviors through the interaction of personal, behavioral, and environmental influences (Bandura, 1986). In the context of dietary habits and Type 2 diabetes, this theory is relevant as it highlights how individuals' eating behaviors can be influenced by their social environment, including family, peers, and media. Understanding these influences can help in designing interventions that promote healthier eating habits to reduce the prevalence of Type 2 diabetes (Bandura, 2019).

Health Belief Model

The Health Belief Model (HBM), proposed by social psychologists Irwin M. Rosenstock and later refined by Becker and Maiman, explains health behaviors through the individual's perceptions of the severity of a health problem, susceptibility to it, benefits of taking action, and barriers to taking that action. This model is pertinent to the study of dietary habits and Type 2 diabetes as it can elucidate why some individuals adopt healthy eating patterns while others do not, based on their beliefs about diabetes risks and the benefits of dietary changes (Champion & Skinner, 2018).

Theory of Planned Behavior

The Theory of Planned Behavior (TPB), introduced by Icek Ajzen, posits that an individual's intention to engage in a behavior is the primary predictor of that behavior. Intentions are influenced by attitudes towards the behavior, subjective norms, and perceived behavioral control. This theory is applicable to the study of dietary habits and Type 2 diabetes as it can help identify the attitudes and beliefs that shape individuals' intentions to follow healthy or unhealthy dietary patterns, thus impacting the prevalence of Type 2 diabetes (Ajzen, 2020).

Empirical Review

Akter (2018) investigated the relationship between dietary patterns and Type 2 diabetes in Bangladesh using a cross-sectional study. The study involved a large sample size of adults who were surveyed about their dietary habits, and their fasting blood glucose levels were measured to determine diabetes status. The findings indicated that high consumption of white rice and low intake of vegetables were significantly associated with increased diabetes prevalence. This dietary pattern is common in Bangladesh, where white rice is a staple food, often consumed multiple times a day. The study recommended promoting a balanced diet rich in vegetables and whole grains to mitigate the risk of Type 2 diabetes. It emphasized the need for public health campaigns to educate the population about the benefits of dietary diversity. Additionally, the study highlighted the importance of policy interventions to make healthier food options more accessible and affordable. The researchers also suggested further longitudinal studies to explore the long-term effects of dietary changes on diabetes prevalence. This study provides a comprehensive understanding of how traditional dietary habits in Bangladesh contribute to the growing diabetes epidemic. The findings can be used to develop targeted nutrition programs and policies.

Wang (2020) conducted a longitudinal study in China, employing food frequency questionnaires and medical examinations to assess dietary habits and diabetes incidence. The study spanned several years and included a diverse cohort of participants from various regions of China. It discovered that a diet high in red meat and sugar-sweetened beverages correlated with higher diabetes incidence. These dietary components were found to contribute to obesity and insulin resistance, both of which are major risk factors for Type 2 diabetes. The study's methodology involved detailed dietary assessments and regular monitoring of participants' blood glucose levels. Recommendations included public health campaigns to reduce red meat and sugar intake to lower diabetes rates. The study also suggested implementing policies to limit the availability of sugary beverages and promote healthier alternatives. Furthermore, the researchers advocated for increasing public awareness about the health risks associated with excessive red meat and sugar consumption. They also highlighted the need for more research to explore the impact of dietary interventions on diabetes prevention. This study underscores the importance of addressing dietary habits as part of a comprehensive strategy to combat the rising prevalence of Type 2 diabetes in China.

Barquera (2018) examined the dietary habits of Mexican adults through national health surveys and identified that processed food consumption was a significant predictor of Type 2 diabetes. The study used a representative sample of the Mexican population and analyzed their dietary intake, physical activity levels, and diabetes status. It found that high consumption of processed foods, which are typically high in refined sugars, unhealthy fats, and low in nutritional value, was strongly associated with increased diabetes prevalence. The study suggested policy measures to limit

processed food consumption as a strategy to combat rising diabetes prevalence in Mexico. These measures included implementing taxes on sugary drinks and processed foods, as well as subsidizing healthier food options. The study also recommended educational campaigns to raise awareness about the health risks of processed foods and encourage healthier eating habits. Additionally, the researchers emphasized the importance of improving food labeling to help consumers make informed dietary choices. The findings highlight the urgent need for comprehensive public health strategies to address dietary factors contributing to diabetes. This study provides valuable insights for policymakers and public health officials aiming to reduce the burden of diabetes in Mexico.

Mayega (2018) assessed the impact of traditional versus Western dietary patterns on diabetes risk. The study followed a large group of adults over several years, collecting data on their dietary habits, physical activity, and health outcomes. It found that adherence to traditional diets rich in fiber was protective against diabetes, while Western dietary patterns high in refined carbohydrates and unhealthy fats were associated with higher diabetes risk. The study highlighted the health benefits of traditional Ugandan diets, which typically include high-fiber foods such as beans, vegetables, and whole grains. Recommendations included preserving traditional dietary practices and promoting their benefits to reduce diabetes incidence. The study also called for public health initiatives to educate the population about the risks of adopting Western dietary habits. Additionally, the researchers suggested policy interventions to support local agriculture and make healthy traditional foods more accessible. This study underscores the importance of cultural dietary practices in influencing health outcomes and provides a basis for developing culturally appropriate nutrition programs.

Esteghamati (2019) investigated dietary habits and diabetes risk. The study compared the dietary intake of adults with and without Type 2 diabetes, analyzing their food consumption patterns and nutritional intake. It highlighted that high-fat diets, particularly those rich in saturated and trans fats, were linked to increased diabetes risk. The study's findings suggested that these dietary fats contribute to obesity and insulin resistance, key factors in the development of Type 2 diabetes. The study advocated for dietary guidelines that reduce fat intake and promote healthier eating habits. Recommendations included public health campaigns to educate the population about the dangers of high-fat diets and encourage the consumption of healthier fats, such as those found in nuts, seeds, and fish. The researchers also called for policy measures to limit the availability of foods high in unhealthy fats and promote access to healthier options. This study provides important insights into the dietary factors contributing to the diabetes epidemic in Iran and highlights the need for targeted nutritional interventions.

Muzala (2019) performed a cross-sectional study in Zambia and found that urbanization and the accompanying dietary shifts towards high-calorie foods were associated with higher diabetes prevalence. The study involved a large sample of adults from both urban and rural areas, examining their dietary habits, physical activity levels, and diabetes status. It found that urban residents, who are more likely to consume high-calorie, low-nutrient foods, had a higher prevalence of Type 2 diabetes compared to their rural counterparts. The study recommended urban planning that encourages healthy eating and physical activity to mitigate the diabetes risk associated with urban lifestyles. Specific recommendations included creating more green spaces for physical activity, promoting local markets that sell fresh produce, and implementing public health campaigns to encourage healthy eating. The researchers also highlighted the need for policies that address the

nutritional challenges posed by urbanization. This study provides valuable insights into the impact of dietary habits and urbanization on diabetes prevalence in Zambia.

Damasceno (2019) explored dietary habits and diabetes prevalence. The study combined quantitative surveys with qualitative interviews to gain a comprehensive understanding of the dietary patterns and their impact on diabetes. It found that increased consumption of sugary foods was a significant risk factor for diabetes, particularly among urban populations. The study highlighted the role of urbanization in changing dietary habits, leading to higher intake of sugary and processed foods. Recommendations included comprehensive nutritional education programs to address the rising prevalence of diabetes. The study suggested that public health interventions should focus on reducing the consumption of sugary foods and promoting healthier dietary choices. The researchers also called for policies to make healthy foods more accessible and affordable. This study provides important insights into the dietary factors contributing to the diabetes epidemic in Mozambique and highlights the need for targeted public health strategies.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

RESULTS

Conceptual Gap: Despite significant findings linking dietary patterns to Type 2 diabetes, there is a conceptual gap in understanding the mechanisms through which specific dietary components influence diabetes risk. For example, while Akter (2018) and Wang (2020) highlight the association between high intake of white rice, red meat, and sugary beverages with increased diabetes prevalence, the specific biochemical pathways and long-term impacts of these dietary components remain underexplored. Further research is needed to elucidate the physiological mechanisms by which different types of carbohydrates, fats, and proteins contribute to insulin resistance and diabetes development. Additionally, there is a need for studies that integrate dietary patterns with other lifestyle factors, such as physical activity and stress, to provide a more holistic understanding of diabetes risk.

Contextual Gap: The reviewed studies primarily focus on specific populations and dietary habits unique to those regions, such as high white rice consumption in Bangladesh (Akter, 2018), high red meat and sugar-sweetened beverage intake in China (Wang, 2020), and processed food consumption in Mexico (Barquera, 2018). However, there is a lack of context-specific studies that consider cultural, economic, and social factors influencing dietary habits and diabetes risk in different regions. For instance, the protective effects of traditional diets rich in fiber in Uganda (Mayega, 2018) highlight the importance of cultural dietary practices, yet similar studies are sparse in other contexts. Future research should focus on how socio-economic status, urbanization, and cultural dietary practices across various contexts influence diabetes prevalence and the effectiveness of dietary interventions.

Geographical Gap: Geographically, there is an evident disparity in the regions studied, with most research concentrated in Asia (Bangladesh, China), North America (Mexico), and parts of Africa

(Uganda, Iran, Zambia, Mozambique). Regions such as South America, Eastern Europe, and other parts of Africa are underrepresented in the literature. For instance, while Esteghamati (2019) provides insights into dietary habits in Iran and their impact on diabetes risk, similar studies are needed in other Middle Eastern countries. Similarly, Muzala (2019) and Damasceno (2019) provide valuable insights from Zambia and Mozambique, respectively, but there is a lack of comparable studies from neighboring countries. Expanding the geographical scope of research will provide a more comprehensive understanding of the global patterns of dietary habits and their impact on Type 2 diabetes prevalence, allowing for more tailored public health strategies.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The effect of dietary habits on the prevalence of Type 2 diabetes in adults is significant and multifaceted. Empirical studies from diverse regions, including Bangladesh, China, Mexico, Uganda, Iran, Zambia, and Mozambique, consistently demonstrate that poor dietary choices—such as high consumption of refined carbohydrates, red meats, sugary beverages, and processed foods—are major contributors to the rising prevalence of Type 2 diabetes. Conversely, diets rich in vegetables, whole grains, and fibers are protective against this condition. The findings underscore the urgent need for targeted public health interventions, including educational campaigns, policy measures to improve food labeling, and subsidies for healthier food options. Additionally, there is a need for further research to understand the long-term effects of dietary changes and to explore the complex interplay between dietary habits and other lifestyle factors. Addressing these gaps through comprehensive, context-specific strategies can significantly mitigate the global diabetes epidemic and improve health outcomes. By promoting healthier eating patterns and making nutritious foods more accessible, it is possible to reduce the incidence of Type 2 diabetes and its associated health burdens.

Recommendations

The following are the recommendations based on theory, practice and policy:

Theory

Future research should integrate insights from nutrition science, behavioral psychology, and epidemiology to develop a comprehensive theoretical framework that explains how dietary habits influence Type 2 diabetes risk. This can help in understanding the complex mechanisms linking diet to diabetes. There is a need for longitudinal studies that track dietary habits and diabetes incidence over extended periods to better understand causality and long-term effects. This can contribute to more robust theoretical models of diet-disease relationships. Theories should account for cultural and socioeconomic factors that influence dietary habits. Incorporating these variables can lead to more accurate predictions and interventions tailored to specific populations.

Practice

Healthcare providers should implement comprehensive nutrition education programs that emphasize the benefits of balanced diets rich in vegetables, whole grains, and fibers. These programs should be culturally tailored to address the specific dietary practices and preferences of different populations. Practical interventions should include community-based programs that promote healthy eating habits through cooking classes, local health fairs, and support groups. Engaging communities directly can enhance the adoption of healthier dietary practices. Develop

and utilize dietary monitoring tools and apps that help individuals track their food intake and receive personalized feedback. These tools can encourage healthier eating habits by making individuals more aware of their dietary choices.

Policy

Policymakers should implement regulations to limit the availability of unhealthy processed foods high in refined sugars and unhealthy fats. This can include taxes on sugary drinks and incentives for companies to produce healthier food options. Governments should provide subsidies for fruits, vegetables, and whole grains to make these healthier options more affordable and accessible to all socioeconomic groups. This policy can reduce economic barriers to healthy eating. Launch nationwide public health campaigns that educate the public about the risks associated with poor dietary habits and the benefits of a healthy diet. These campaigns should utilize various media platforms to reach a broad audience and reinforce the importance of dietary changes in preventing Type 2 diabetes.

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