Diabetes and Adverse Mental Health Among African Americans

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This article reviews the connection between diabetes and adverse mental health among African Americans. Concern about safe insulin prescribing and administration is raised, and the importance of integrated physical and mental health care in the prevention and control of diabetes is highlighted.

North Carolina stands in the eye of a storm for type 2 diabetes and associated complications, such as chronic kidney disease, stroke, and neurocognitive diseases, with annual health care costs estimated to be $100 billion [1]. North Carolina has the 14th worst health status among US states, a ranking heavily influenced by the relatively poor quality of health among African Americans and individuals in other minority populations [2]. A 2009 report from the North Carolina Office of Minority Health and Health Disparities and State Center for Health Statistics [2] found that, among deaths due to diabetes, stroke, and kidney disease, African Americans had a higher burden than any other racial/ethnic group [2].

Although North Carolina law requires that diabetes supplies and education be covered by insurance [3], integrated programs on neurocognitive health promotion, screening, monitoring, risk reduction, and treatment for adults with type 2 diabetes are often inaccessible. Lack of access to medical care has been linked to the prevalence of dementia in the African American community [4]. Chances are that African Americans will receive critical neurological attention too late and miss the window for therapeutic interventions. Moreover, compared with other groups, African Americans have a higher rate of vascular diseases such as type 2 diabetes, a condition thought to increase brain dysfunction in higher cortical abilities. In addition, African Americans with Alzheimer disease receive a diagnosis in later stages of the disease, demonstrate greater cognitive impairment at the time of diagnosis, and receive less adequate treatment following diagnosis, compared with other individuals [5, 6]. As the major public health emphasis for African Americans with diabetes remains focused around physical diseases (eg, heart disease, lower limb amputation, and kidney disease), there is growing concern that health care professionals and the patients for whom they provide care may be missing opportunities for connecting integrative programs that concurrently address mental and physical health.

The social realities for the growing population of individuals with type 2 diabetes are informed through the structure and function of the built environments in which they live, which often involve problematic housing conditions with poor indoor air quality, unsafe neighborhoods with excessive noise, overcrowding, poverty, poor proximity to grocery stores and nutritious food options, and inadequate amounts of physical activity. It is generally accepted that chronic stress and physical disease accelerate physiological changes in multiple organ systems, including the brain, independent of age [7, 8]. Although more-systemic research has elucidated the relationship between type 2 diabetes management and social markers, there is a growing body of knowledge showing that emotional instability stimulates the release of various hormones that can alter metabolic activity, affects blood pressure control, increases cardiovascular symptoms, and increases the risk for elevated blood glucose levels.

Brain health and psychosocial function can also negatively influence medication adherence among individuals with type 2 diabetes [9]. The use of medication, particularly insulin, as the primary intervention in type 2 diabetes care is increasing, and self-management of medication can be disrupted in persons with adverse neurocognitive health [10, 11]. The morbidity associated with insulin therapy is multifactorial, with contributions from health professionals and patients. Accurate prescribing of insulin and education of patients about its use is required among health professionals, whereas comprehension of the mechanism of insulin activity, appropriate administration (via syringe or pen), and knowledge of signs, symptoms, and treatment of hypoglycemia is required among patients. For patients with neurocognitive deficits, navigation of these components can not only be challenging but also dangerous. Agencies such as the Institute for Safe Medication Practices have repeatedly ranked insulin therapy among the top 5 causes of near fatal/fatal medical events and associated health care costs [12].
With the advent of new insulin preparations, health professionals have a larger selection of agents to choose from and may need to be more deliberate about which medication will be best for the patient. Although the more physiologic preparations are intended to improve glycemic control, the increased number of required injections associated with such preparations can present serious dangers to cognitively impaired patients. One of the most important adverse consequences of more-frequent injections is an increased risk of hypoglycemia. Although this marked increase in risk is seen among all patients regardless of cognitive status, patients with standing cognitive impairment and decreased neurological reserve are at even greater risk because of the additional functional loss due to neuroglycopenia. To effectively minimize the millions of dollars spent and lives affected by insulin-related errors, future regulations should focus on the competency of the patient in addition to that of the health professional.

Development of drug therapies is essential, but drugs will not achieve their therapeutic intent if patients are not able to take them as prescribed. As the inordinate number of deaths among African Americans with type 2 diabetes is exacerbated by unmet mental health needs, it is critical that we address the factors associated with adverse mental health in this population. With an eye toward protection, prevention, and neurocognitive promotion, we must start to unpack the biopsychosocial dimension of health that increases the risk for adverse neurocognitive health and provides clues to potential strategies for risk-factor modification.

Our research team is focused on developing, testing, and implementing community outreach and health-promotion activities. This work addresses the underrepresentation of African Americans in dementia-related clinical research in urban and rural communities. Some of our objectives include identifying barriers to recruitment and addressing factors associated with lower participation rates in clinical research. The use of community-based participatory engagement as a strategy for addressing barriers to recruitment and retention is at the heart of our work.

We hope that this commentary is a vehicle for the exploration and discussion of integrated diabetes-mental health policy issues by stakeholders concerned with developing, implementing, and analyzing health policy to reduce and/or eliminate brain health disparities among persons living with type 2 diabetes and its associated complications. In particular, we hope to heighten public health urgency to secure funds for supporting research, treatment, education, and community outreach to reduce the risk of adverse mental health among African Americans.

**References**