Exploring Effects of Continuous Glucose Monitoring for Patients with Type II Diabetes Mellitus

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Structured Abstract

PROBLEM/BACKGROUND

Type II diabetes mellitus (T2DM) is a non-communicable disease that places a hardship on the health care industry because of its related comorbidities (Chen et al., 2021). The Centers for Disease Control and Prevention (CDC) expressed that more than 32 million Americans have diabetes mellitus (DM), about one in ten, and 90-95% of the patients diagnosed with DM have T2DM (2021). The American Diabetes Association (ADA) shows that there are about 500,000 people diagnosed with DM in Alabama, this approximation is 14.6% of the adult population (ADA, 2020). Because of the profound negative impact T2DM has on health and the healthcare system innovations, DM management implementation is needed in the primary care clinic setting.

PROJECT PURPOSE

The purpose of this project is to evaluate effectiveness of glucose control in patients with T2DM using continuous glucose monitoring (CGM).

THEORETICAL FRAMEWORK

The theoretical framework of Dorothea Orem's Universal Self-Care Requisite was used to support this doctor of nursing practice (DNP) project. The DNP project was guided by the third element of Self-Care Requisite, which is health deviation requisite that includes the needs that are brought about based on the patient's condition.

METHODOLOGY

This quality improvement project was designed to improve patient management of T2DM. The project focused on evaluating the effectiveness of CGM. The program was specifically designed for managing patients with DM at an internal medicine clinic through collaboration with stakeholders.

IMPLEMENTATION COMPONENTS/PROCESS

The DNP project began by gathering data from an internal medicine clinic in central Alabama. Data were gathered on patients with T2DM using CGM devices. The retrospective chart review included patients with complicated T2DM whose primary care provider has implemented a CGM device. The data were gathered from the electronic health record system's diagnoses report. Patients with a diagnosis of T2DM using CGM were analyzed. Patients that used CGM during the project's timeframe were entered into an Excel spreadsheet. The author randomly selected twenty patients from the list of patients with CGM. The HgbA1C prior to CGM was used and the HgbA1C three months or longer after implementing the CGM. Using Excel's descriptive statistics data analysis tool, the mean, median, and mode of each data set were obtained.

EVALUATION

After analyzing the data, 13 out of 20 patients showed improved HgbA1C. The results of patients prior to CGM implementation had a HgbA1C of ($\bar{x}$=9.025), (M=8.75), and (Mo=8.3) while patients after three months of CGM use had a HgbA1C of ($\bar{x}$=8.5), (M=8.15) and (Mo=8). Patients showed a 5% improvement of their HgbA1C after CGM implementation.

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