Telehealth and its Impact on the Management of Type 2 Diabetes

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Significance of Problem

- The global prevalence of diabetes is estimated to affect 463 million people worldwide and DMT2 accounts for 95% of the population with diabetes and is estimated to rise to 578 million by the year 2030 (WHO, 2021; Robson & Hosseinzadeh, 2021).
- Traditional treatment or usual care of diabetes mellitus type 2 took place in the office as a face-to-face encounter.
- The recent COVID-19 pandemic has created many new challenges, including access to health care for treatment of chronic diseases, such as diabetes (Robson & Hosseinzadeh, 2021).
- Telehealth has offered some promising approach to improve the treatment and management of diabetes (Bellman, 2021)

PICOT Question

In patients with diabetes mellitus type 2 who have difficulty with medical visit compliance (P), will the telehealth platform (I), compared to patient's previous visit face-to-face HgbA1c (C) improve future HgbA1c diagnostic marker readings (O) over a 12-week period(T)?

Review of Literature

Evidence	Database	LOE	Quality/Tool
ADA(2022)	TRIP	I	High/John Hopkins
Agastiya et al., (2018)	PubMed	I	Good/John Hopkins
Bellman (2022)	JBI	I	High/John Hopkins
Eberle & Stichling (2021)	CINAHL	I	High/John Hopkins
Gupta et al.(2020)	PubMed	I	High/John Hopkins
Hanlon et al. (2017)	PubMed	I	Good/John Hopkins
Lee et al. (2020)	PubMed	II	Good/John Hopkins
Lee et al. (2020)	CINAHL	V	Good/ John Hopkins
McLendon (2017)	ADA	I	High/John Hopkins
Montero et al. (2021)	PubMed	Ii	Good/John Hopkins
Pamaiahgari (2018)	JBI	I	High/John Hopkins
Robson & Hosseinzadeh (2021)	CINAHL	I	High/John Hopkins
So & Chung (2018)	PubMed	I	High/John Hopkins
Storch et al. (2019)	PubMed	II	High/John Hopkins

Best Practice

- Telehealth intervention has proven to be an effective platform
- Reduction of the HgbA1c marker leads to decreased risk reduction, improved self-management, and promotes lifestyle changes (ADA, 2022; Agastiya et al., 2022; Bellman, 2022; Eberle & Stichling, 2021; Gupta et al., 2020; Hanlon et al., 2017; Lee et al., 2019; Mclendon, 2017; Pamaiahgari, 2018; Robson & Hosseinzadeh, 2021; Storch et al., 2019).
- It is recommended that Advanced Practice Nurses (APNs) and other health care providers implement telehealth into their current practice to improve gaps in care.
- Benefits of telehealth implementation has improved access to health care, and decreased health care disparities, especially in communities where care is limited.

Implementation

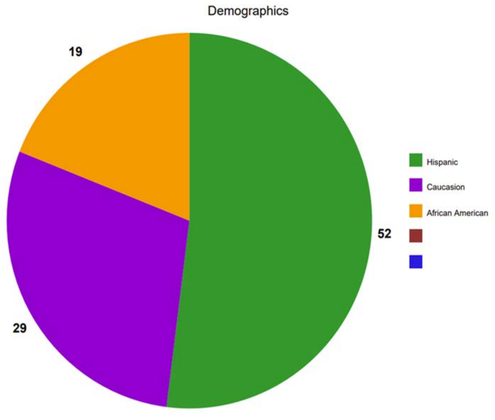
Setting:
- Private Family Practice in suburb of Cook County, Illinois

Key Stakeholders:
- A family physician, 2 family Nurse Practitioners, certified medical assistants, and patients

Participants:
- Eligibility: Type 2 Diabetic patients with a hemoglobin A1c of 6.7% or higher
- Total participants: 21
  - Attrition n=5
  - Self-identified female: 14 Self-identified male: 7

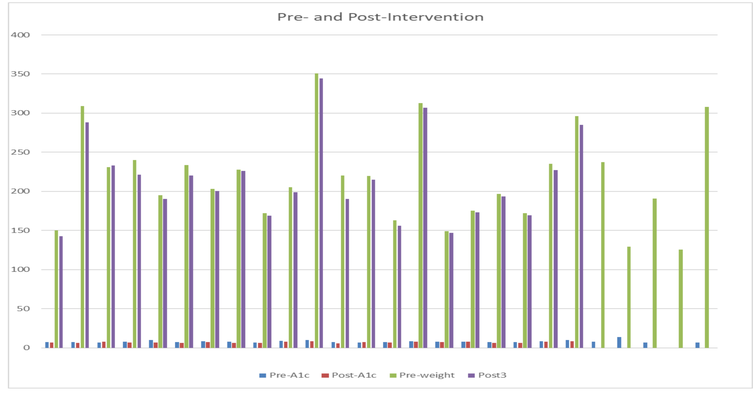
Intervention:
- Initial face-to-face session with FNP, that included initial collection of the HgbA1c and weight. A review of telehealth, use of the selected device of choice by the patient, and educational resources for lifestyle modifications. Participants goal from the EBP project was to decrease the HgbA1c, weight loss and lifestyle modifications.
- Participants were encouraged to change eating habits, by caloric reduction and increase physical activity or daily exercise.
- Two 6-week telehealth visits with FNP to review medication adherence, lifestyle modifications and education for diabetic self-care.
- A repeat HgbA1c and weight was collected at the 12-week time frame.

EBP Model:
- John Hopkins Nursing Evidence-Based Practice Model



Evaluation

- **A one-sided test Wilcoxon signed rank test was uses for analysis of data.**
- **Primary Outcome: HgbA1c**
  - **Pre-intervention mean 7.2% (SD=1.91%)**
  - **post-intervention mean 7.0% (SD=.79%)**
  - **Pre-intervention median value of 7.6% IQR=1.4%).**
- **Post-intervention median value of 6.9% (IQR=1.3%).**
- **HbA1c which was less then pre-intervention (p<0.001).**
- **Secondary Outcome: Body Weight**
  - **Pre-intervention mean: 217 pounds (SD=59.3 lbs).**
  - **post-intervention mean: 214 lbs. (SD=53.7 lbs.).**
  - **Median pre-intervention weight: 212.2 lbs. (IQR=63.9 lbs.)**
  - **Median post-intervention weight was 200.2 lbs. (IQR=54 lbs.).**
- **Weight was less than pre-intervention (p < 0.001).**



Conclusions and Recommendations

- Implementation of telehealth to treat and manage patients with T2DM, that includes lifestyle modifications, increase in physical activity and medication adherence was found to be effective in the treatment of patients with T2DM.
- The JHNEBP model was found to be a useful tool which guided the development, evidence selection, and evidence translation that was necessary to create an EBP practice change.
- Follow up with the participants over a 1-year time frame is further recommended to evaluate if continued efficacy is consistent.
- Outcomes from this EBP project demonstrated that telehealth was not only highly effective, it also proved to be favored among the patients that participated and was found to offer more patient centered care.