

Dexcom & Other Continuous Glucose Monitors Impact Toward Diabetic Care Management & Convenience

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Introduction

Orange City Area Health System (OCAHS) serves over a thousand diabetic patients including those with Type I, Type II, and Gestational Diabetes. This inspired our PICOT question to investigate the convenience of continuous glucose monitoring devices (CGM), like Dexcom towards patients on quality of life during their span of diagnosis.

Priority

- To assist providers on educating the benefits and convenience of using a CGM, specifically the Dexcom. The Dexcom aids in individual patient care management and allows for providers to track and monitor the patterns of their glucose levels.

Definitions

- **Type 1 diabetes:** The exact cause of type I diabetes is unknown. Typically, the cause is linked to being an autoimmune disorder, where the insulin producing cells are destroyed. (Mayo Clinic, 2022).
- **Type 2 diabetes:** Cells in muscle, fat, and in the liver, become resistant to insulin inhibiting them to take in sugar. The pancreas can also fail to produce enough insulin to manage blood sugar levels. (Mayo Clinic, 2021).
- **Convenience:** for this topic, this is considered as the process where something is suitable for purposes, and causes no difficulty for schedule, or plans (Cambridge Dictionary, 2022). In return, this increases quality of life.
- **Quality of life:** an experience an individual has of his or her own life and to the living conditions in which individuals find themselves (Jenkinson, C., 2020).

Methodology

Literature Review including 10 Scholarly Resources

- Key Terms: *Continuous Glucose Monitor, Dexcom, Quality of Life, Type I & Type II Diabetes*
- Johns Hopkins Appraisal System (2022).
 - Evaluates the quality of evidence with High & Good quality
 - Six Level 1 articles
 - One Level 2 articles
 - One Level 3 article
 - One Level 4 article
 - Dexcom, as a non research article

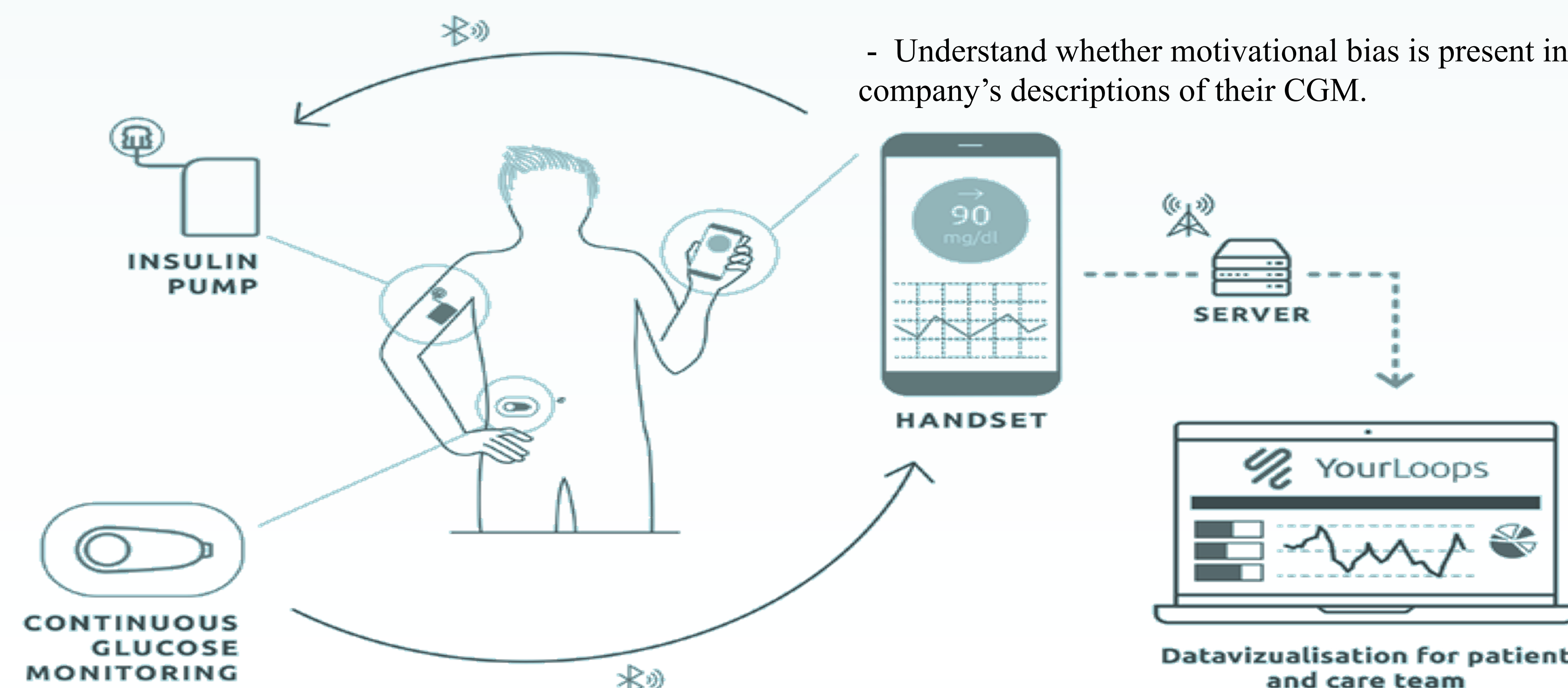
Results

Diabetic care management improves with the assistance of CGM by impacting

- Trends – regulates glucose/A1C levels
- Decreases diabetic crisis: Diabetic ketoacidosis & hypoglycemia due to alert system
- Improving quality of life

Statistics from our findings

- “HbA1c level baseline remained within the 7.5% - 9.9% within 24 weeks for the CGM participants and assisted in keeping the glucose concentrations between 70 – 180 mg/dL longer than the control group” (Beck, 2017).
- The mean number of hypoglycemic attacks every 28 days in the rtCGM group went from 10.8 to 3.5, decreasing by 72% overall (Heinemann, 2018).
- “The average baseline diabetic related health care resources costs decreased by \$424 for per-patient-per-month costs (PPPM) after real time continuous glucose monitoring (rtCGM) treatment occurred. Reduction in inpatient hospitalization admission occurred by \$358 with a 95% CI & p-value of 0.044. Similarly, seven inpatient [hospital] admissions [were] reduced per year per one-hundred patients” (Norman, 2022).



Gaps

The Dexcom CGM selection was not conducive to the results of what OCAHS Type I & Type II diabetic patients use – Libre (Meerdink, 2022).

Within the research studies:

- There were not large enough sample sizes.
- Motivational bias was present towards Dexcom
- The studies focused on evaluating how Dexcom impacted glucose levels and did not identify which brand of continuous glucose monitors they used.

Clinical Recommendations

Moving forward, further research analysis is encouraged to strengthen awareness, and to produce action steps towards supporting diabetic patients.

- Re-evaluate what CGM's are actively being utilized for patient diagnosis (Type I or Type II) within the target group being studied
- Observe whether switching or upgrading CGM is beneficial for the patient's diabetic care management.
- Ensure data reflects a range of patients with Type I & Type II diabetes to make proper generalizations towards selecting the appropriate glucose monitor.
- Understand whether motivational bias is present in company's descriptions of their CGM.

Conclusion

Promoting quality of life and convenience is our priority when considering the diabetic care management as diabetes is a lifelong condition. With growing in knowledge of what resources are readily available for diabetic patients, we then can strengthen patient care.

We recognize Dexcom is not the leading continuous glucose monitor for Orange City Area Health System diabetic patients. Our findings have suggested that it is the work of continuous glucose monitors in general that assist these patients with improved quality of life by providing insight on their glucose levels, which in turn improve their management of those glucose levels, reducing hyper or hypoglycemic episodes, thus also improving A1C level.

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