IMPACT OF A DIGITAL INTERVENTION ENGINE ON DIABETES SELF-MANAGEMENT

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Introduction

Persons with Diabetes have an increased risk of developing complications caused by elevated glucose levels. Thorough self-care and adherence to treatment are required to avoid such complications. The ongoing digital revolution combined with the increasing prevalence of diabetes has led to a proliferation of mobile health apps for self-monitoring and treatment guidance for diabetes patients[1]. Digital functions such as providing personal health information and prompt feedback may help individuals develop more active roles in managing their disease. Dario, a digital therapeutc platform, may assist patient self-monitoring and help achieve optimal outcomes by applying a user-specific Digital Intervention Flow, an approach based on behavioral insights at the individual level and applies user interface design elements including specific content, wording, or small features to affect the choices of users in digital environments.[2] This study aims to analyze the extent to which a Digital Flow affects user engagement with a digital platform and impacts activities inherent in diabetes management, such as measuring blood glucose.

Method

A retrospective study was performed on a population of 246 Dario active members who had not measured blood glucose for a 7-day period. 127 of these users were randomly assigned to a test group and experienced a digital intervention flow and user journey with personalized messages via various digital channels to maximize user engagement. The remaining 119 users were assigned to a control group. Digital engagement levels were observed following 60 days in both groups. We established 4 metrics capturing different aspects of user engagement to measure the difference between the groups:

A.   Percentage of users measuring blood glucose at 0-30 days and 30-60 days.

B.   Average number of blood glucose measurements at 0-30 days and 30-60 days.

C.   Average number of Dario app sessions at 0-30 days and 30-60 days

D.   Recency – average number of days between blood glucose measurements[3].

Results

The differences measured between the test group and control group:

• Percentage of users who measured blood glucose was significantly higher in the test group: 14% in first 30 days and 22% in 30-60 days (P<0.001) (Figure 1).

• Average number of blood glucose measurements increased by 6% and 17% at first 30 days and 30-60 days, respectively.

• Average number of Dario app sessions increased by 10% and 15% at first 30 days and 30-60 days, respectively.

• Recency was significantly improved by 30% in the test group (P<0.02).

Discussion

The aim of this study was to investigate how intensively users engage with digital platform in response to a user-specific Digital Intervention Flow. This observational study demonstrates the potential benefit of implementing a digital diabetes interaction platform to durably improve self-management among users who had not recently measured their blood glucose. Research in psychology and behavioral economics has shown that people are influenced by various psychological inputs during their decision making, decisions are highly context-dependent[2]. User engagement can be optimized by implementing targeted inputs; the great potential to support peole with diabetes via appropriate digital interventions is increasingly highlighted by organizations such as ADA[4] and WHO.[5]

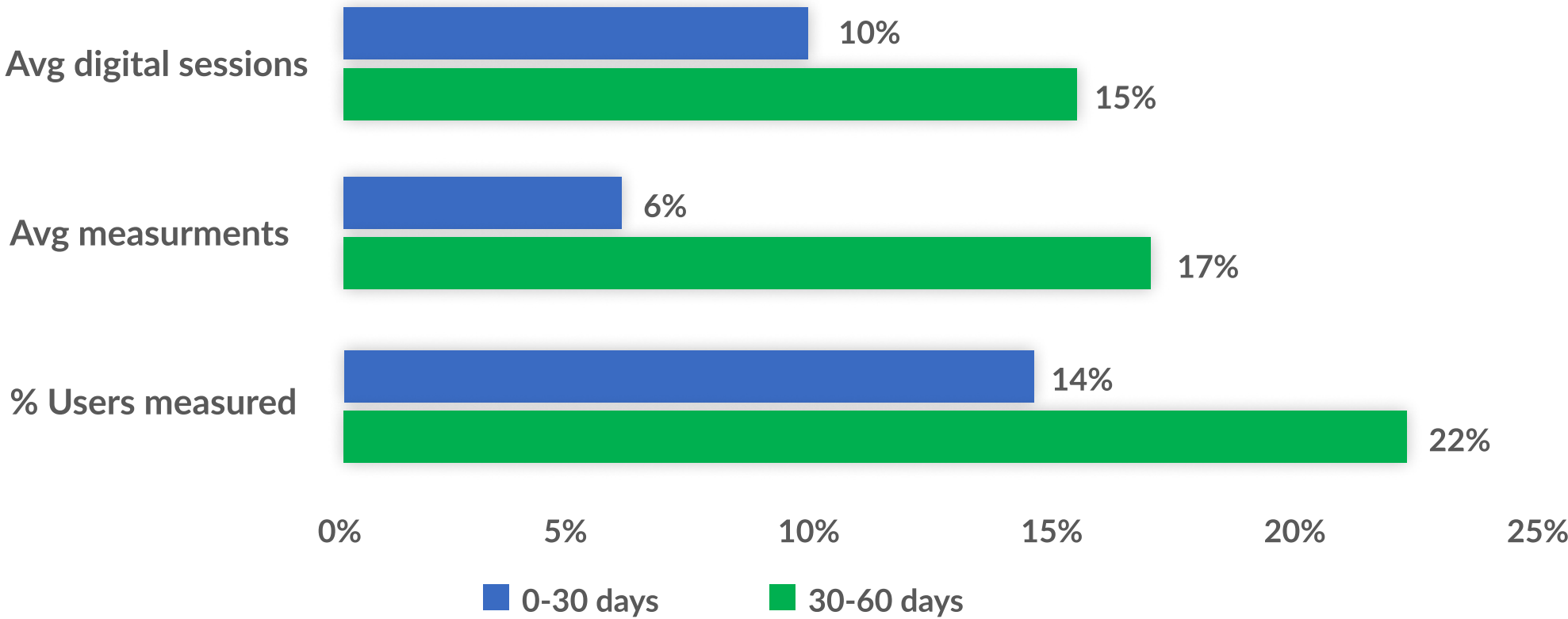### Engagement increase and sustainability vs. control*

Figure 1: Engagement differences between Test groups vs. Control group. * statistically significant.

Conclusion

This observational study demonstrates the potential benefit of implementing a digital diabetes interaction platform with user-specific interventions to durably improve to durably improve self-management among users who had not recently measured their blood glucose.

Sources:

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