



DISSERTATION REPORT

To study the Adoption of Digital Health Technologies in the Practice of Behavioural Health: Qualitative Method of Glucose Monitoring Technology.

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OBJECTIVE

- ❑ This study aims to understand the key facilitators of and barriers to clinician and patient adoption of digital glucose monitoring technologies.
- ❑ To identify issues and facilitate improved adoption that may be relevant to the adoption of digital health .
- ❑ Identify lessons learned that could be relevant for the treatment and monitoring of other chronic conditions, including SMI.
- ❑ To evaluate the impact of digital health technology on the accessibility ,affordability and quality of the product in delhi area.
- ❑ To compare the performance and outcomes of pre covid and post covid with digital health technology.



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INTRODUCTION

- ❑ Digital health technologies introducing new tools for evaluation, intervention, and monitoring, digital health technology has revolutionised the field of behavioural health practice.
- ❑ It was initially developed for the management of diabetes. It makes use of wearable technology to check blood sugar levels in real-time, giving patients and healthcare professionals useful data.
- ❑ The implementation of glucose monitoring technologies in behavioural health is investigated using qualitative research techniques. The application of glucose monitoring technologies in the area of behavioural health is examined in this qualitative research.
- ❑ Diabetics patient ' use of digital glucometers in the treatment of those with severe mental illness (SMI). To more accurately assess longitudinal symptomology and simplify illness care digital technologies are being created

- ❑ Smartphone apps and other wearable technologies are examples of digital health interventions that have the potential to enhance care by giving patients, carers, and healthcare professionals better access to and knowledge of outcomes for a range of conditions, including SMI.

Diabetes mellitus

Dm is a group of metabolic diseases characterized by increased levels of glucose in the blood (hyperglycemia) resulting from defects in insulin secretion, insulin action, or both .

Type 1 Diabetes

- Effects children
- Caused due to deficiency of insulin
- Genetic variations & auto-immune response are leading cause.

Type 2 Diabetes

- Effects adults
- Caused due to insulin resistance by body
- Obesity, inactive lifestyle, hereditary are leading cause.

Gestational Diabetes

- Occurs during pregnancy
- Excessive weight gain, genetic history of diabetes.

MODY

- Very rare
- Caused in adults below 25 years of age
- Caused due to genetic variation

Symptoms

Excess urine

Infection

Thirst

Fatigue

Hunger

Vision changes

Diabetes

Complications

Coronary heart disease

Nephropathy

Neuropathy

Stroke

Retinopathy

Peripheral vascular



Statistics about Diabetics: -

Globally around 0.422 billion people are suffering from diabetes middle income country shows the highest prevalence of diabetic with Asia as an epicentre. India is a diabetic capital in the world will the diabetic population of 77 million It is expected 28 by over 134 million cases by 2045 which 57% will remain undiagnosed.

Parameters

Statistics (2022)

People with diabetic new cases

92127

Prevalence of diabetic

10.2

Undiagnosed people

45768

Probability of death due to diabetic

647831

Diabetic related Death under 60 years %

3.8%

BLOOD GLUCOSE METERS MARKET

Global Blood Glucose Meters Market (US\$ Mn), 2018 to 2026

7,419.0Mn

2018

15,415.6Mn

2026



Global Blood Glucose Meters Market Share, By Product, 2018



Continuous Glucose Monitoring Systems



Self-Monitoring Blood Glucose Systems

North America Blood Glucose Meters Market, 2018



LITERATURE REVIEW

The literature describes how digital health technology treatments have been implemented across the therapeutic spectrum, with a focus on how they could be utilised to manage persistent diseases outside of the clinic

Digital health technologies that broadcast glucose readings to patients and physicians and offer real-time insulin dose suggestions that such as continuous blood sugar monitors (CGMs) and smartphone monitoring of glucose, enhance HbA1c control.

Digital glucometers give data that may be utilised in clinical decision-making by providing real-time feedback, it helps people with behavioural health issues improve their self-awareness, self-management abilities, and ability to self-regulate their behaviour.

A qualitative study of literature may involve interviewing & survey individuals with diabetes.

- **User Experience:** Patient experiences with glucose monitoring technology are important for understanding their perceptions of usability, convenience, and satisfaction.
- **Emotional impact:** People with diabetes may have emotional and psychological effects from glucose monitoring technologies, such as reduced stress and anxiety as well as feelings of empowerment.
- **Behavioural change:** Examining the effects of glucose monitoring technologies on people's dietary, physical activity, adherence to treatment plans, and overall self-management of diabetes.
- **Social support:** Investigating how social support systems—including those of family, friends, and medical professionals—affect the adoption of glucose monitoring technologies.
- **Barrier& facilitators:** Identifying the factors including cost, accessibility, device usability, and individual motivation that either impede or facilitate the adoption and continued use of glucose monitoring equipment

Methods

- **Digital Glucose Monitoring Technology:** -Patients were discouraged from routinely checking their blood sugar levels because of the waiting time associated with glucose tests, either the procedure was for blood finger pricks (a few seconds) or urine strips (60 seconds)
- **Lab Tests:** -The ability to obtain views of the individual's glucose level at different points in time before the development of continuous glucose monitoring equipment, particularly data on whether the sugar level is falling or rising.

METHODOLOGY

➤ Study Design –

- **Study type:** - Descriptive study and Analytical
- **Data source:-** Primary and secondary search
- **Data collection :** Techniques/tools
- **Primary search:** Interviewing
- **Secondary research:-** Survey
- **Data analysing tool:** - Research data analysis using excel

➤ Sample Design :-

- **Research Type:-** Primary & secondary
- **Study Design:-** Analytical & Descriptive study
- **Sampling Method:** Convenient random sampling
- **Study Area :** Delhi
- **Sampling Size :** 90
- **Sample Selection :** The sample is selected from the part of Delhi on the basis of prevalence of diabetes.
- **Data collection :** Quantitative data
- **Study duration :** 3 months

Method and Materials :

A cross-sectional investigation was carried out in the Delhi these studies conducted by collecting interviewing from 90 participants and the samples are selected based on sampling from one part of Delhi. Permission from the guardian worst taken prior to this study. The sample size of the study is 90 after collecting the data the drug used in the treatment along with the life modification are being studied.

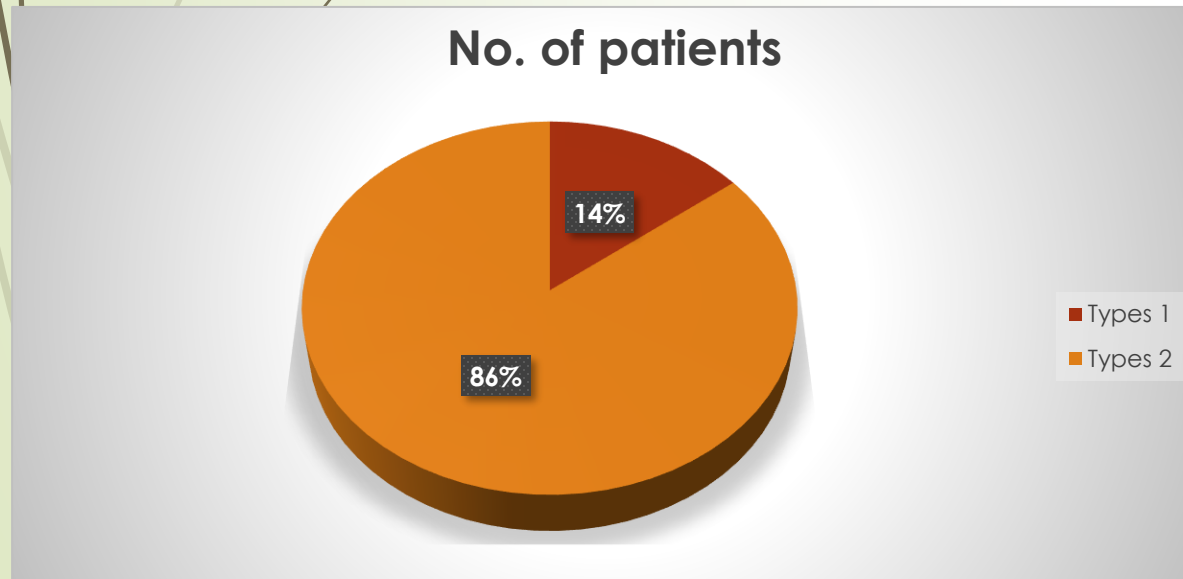
The following Parameters are taken in consideration of the study.

- **Categorisation of type of diabetic.**
- **Digital Monitoring Has Improved Patient Outcomes and Facilitated More Effective Care Delivery and Patient Engagement**
- **Recommendations and Opportunities for Increasing Uptake of Digital Health Technologies.**
- **Digital Monitoring Technologies Have Introduced New Challenges for Clinical Care Delivery**
- **Prescription is written in either generic or branded form.**
- **To study the prescription, share of different brands**

RESULT

Categorisation of Diabetes

Types	No. of patients	Percentage
Types 1	13	14
Types 2	77	86

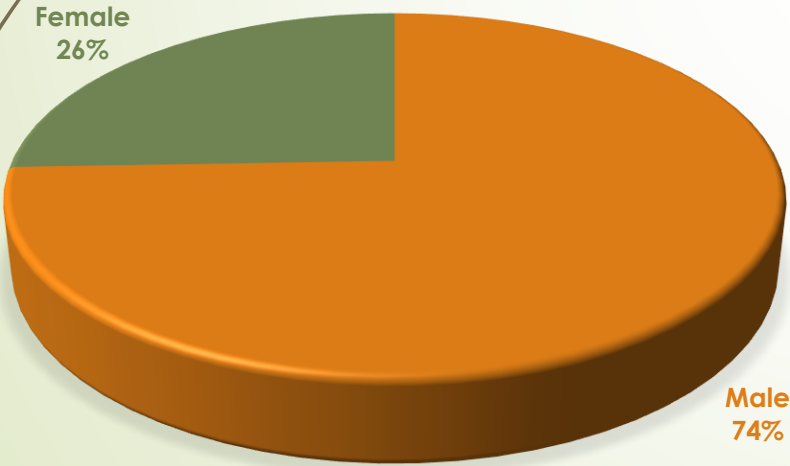


Among 90 patients that participate in the study. As the graph suggested type 2 diabetes the common form of diabetic and accounts for 86% and there is the less significant of type 1 diabetic which account for 14%.

Distribution based on gender.

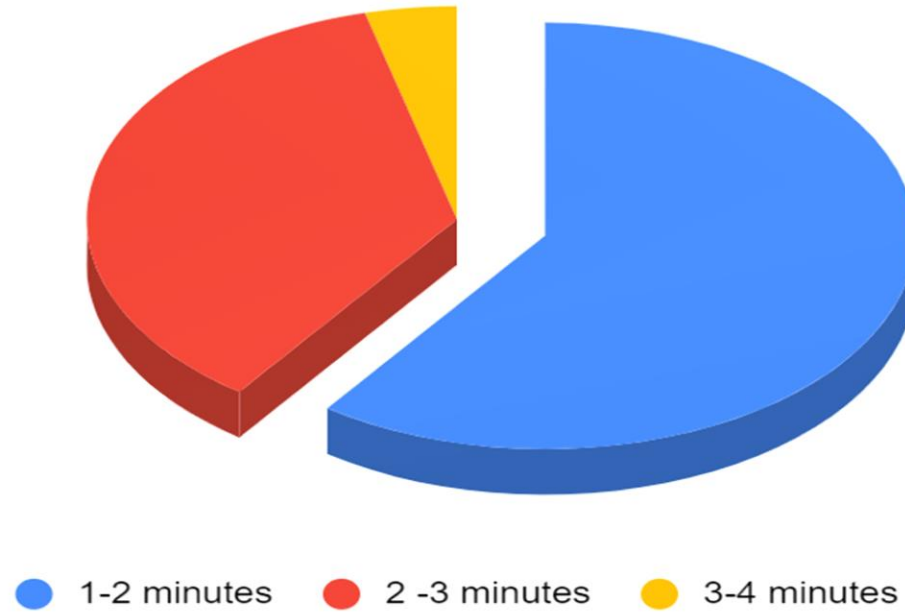
Gender	Participants	Percentage
Female	23	26
Male	67	74

PARTICIPANTS



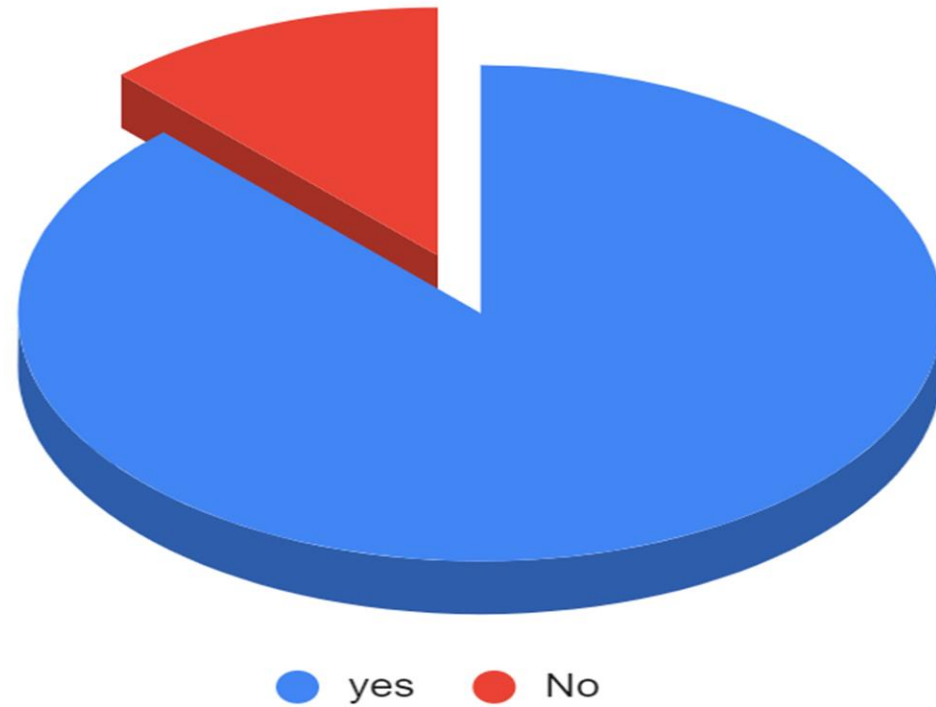
Among 90 participants 74% male have diabetic condition and 26% female. 23 have diabetic condition in the study sample which significance the prevalence is more in male as compared to female population.

How much time taken a glucose metre



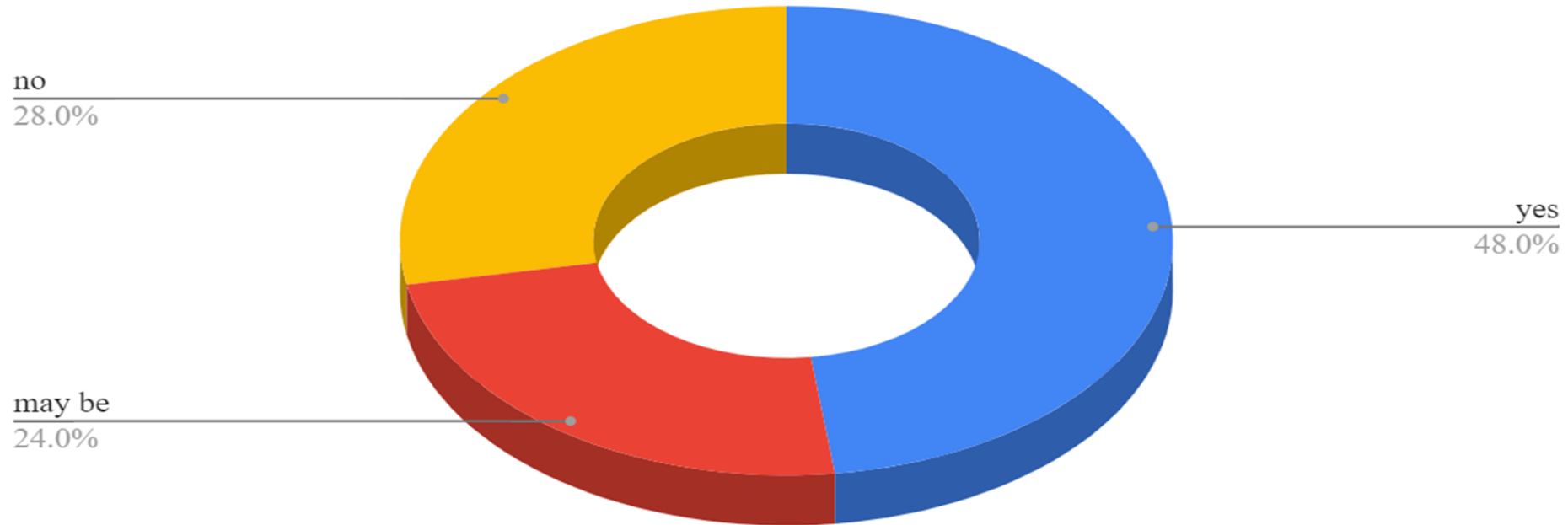
In this pie chart, we obtained responses. 60% of people agree that it takes only 1-2 minutes, but 36% agree with 2-3 minutes, and lastly, 4% agree with 3-4 minutes.

Count of Glucose Monitoring metre easily available in the markets ?



In this pie graph, 88% of people agree that glucose monitoring metres are easily available in the market, and 12% do not agree that glucose monitoring is easily available in the market.

Count of Before covid have purchased digital glucose monitoring metre ?



In this pie graph, people who are concerned about their health have purchased glucose metre machines, but demand is expected to rise soon. 48% of those polled have purchased glucose monitoring devices, 28% have not, and 24% are undecided.

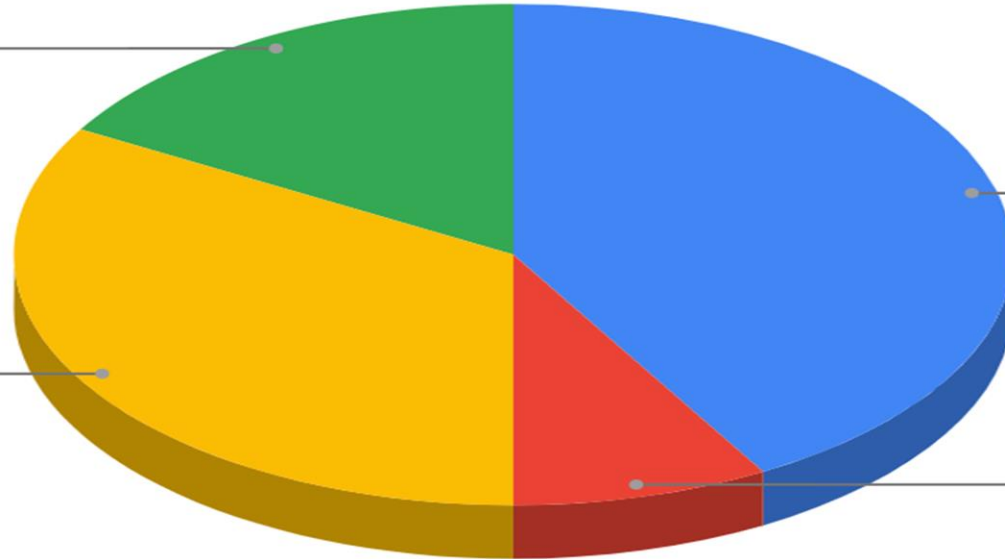
What factors do you consider critical for the successful integration of glucose monitoring technology into behavioral...

b) Seamless integrati...
16.7%

a) Training and educ...
33.3%

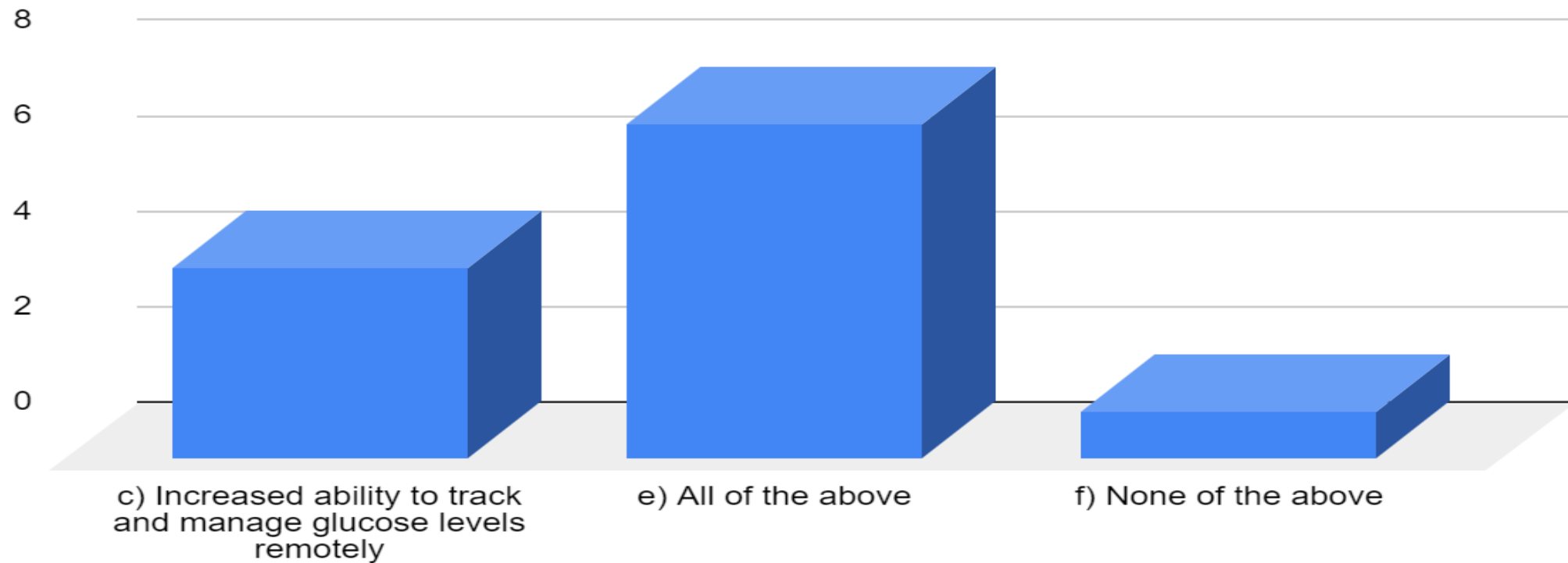
d) All of the above
41.7%

c) Patient acceptanc...
8.3%



In this pie chart, 41.7% of participants agree with the lack of interoperability, privacy, privacy and security of the patients, and resistance from the patients is followed by the adoption of digital health technologies in behavioural health, where both the lack of interoperability and security of the patients are equal (16.7%), and the last 8.3% agree with the security and privacy of the patients.

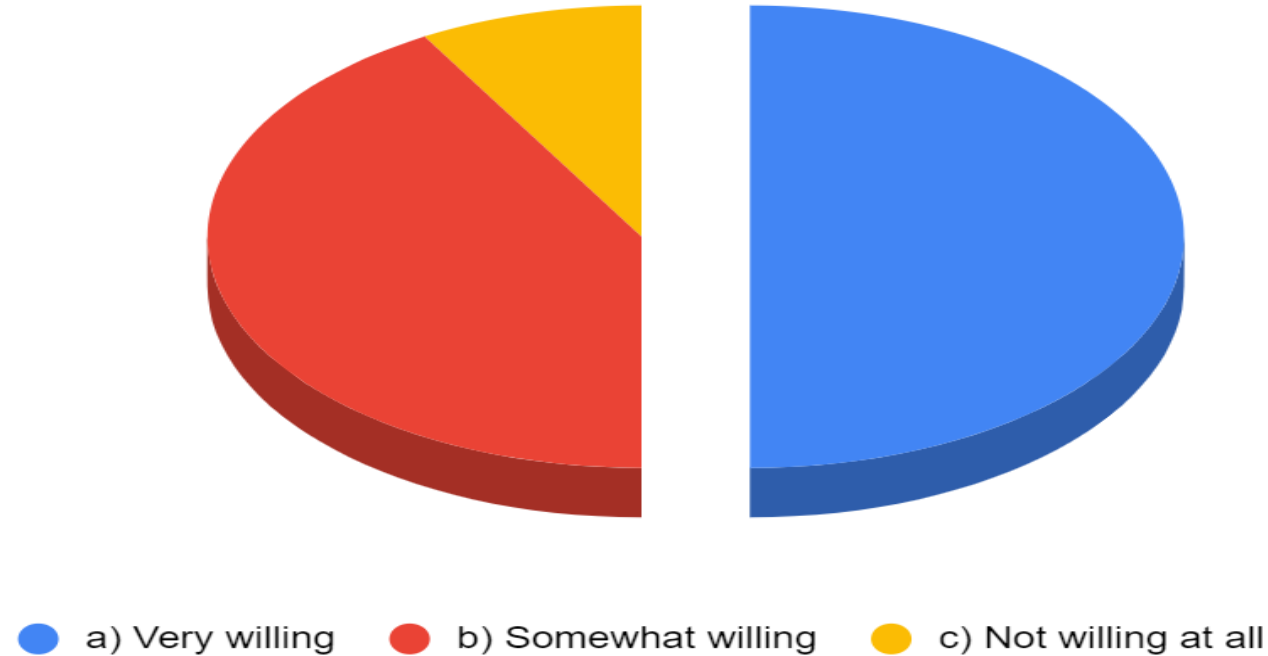
Which of the following factors do you believe contributes to the adoption of digital glucose monitoring technology in the field...



Which of the following factors do you believe contributes to the adoption of digital glucose monitoring...

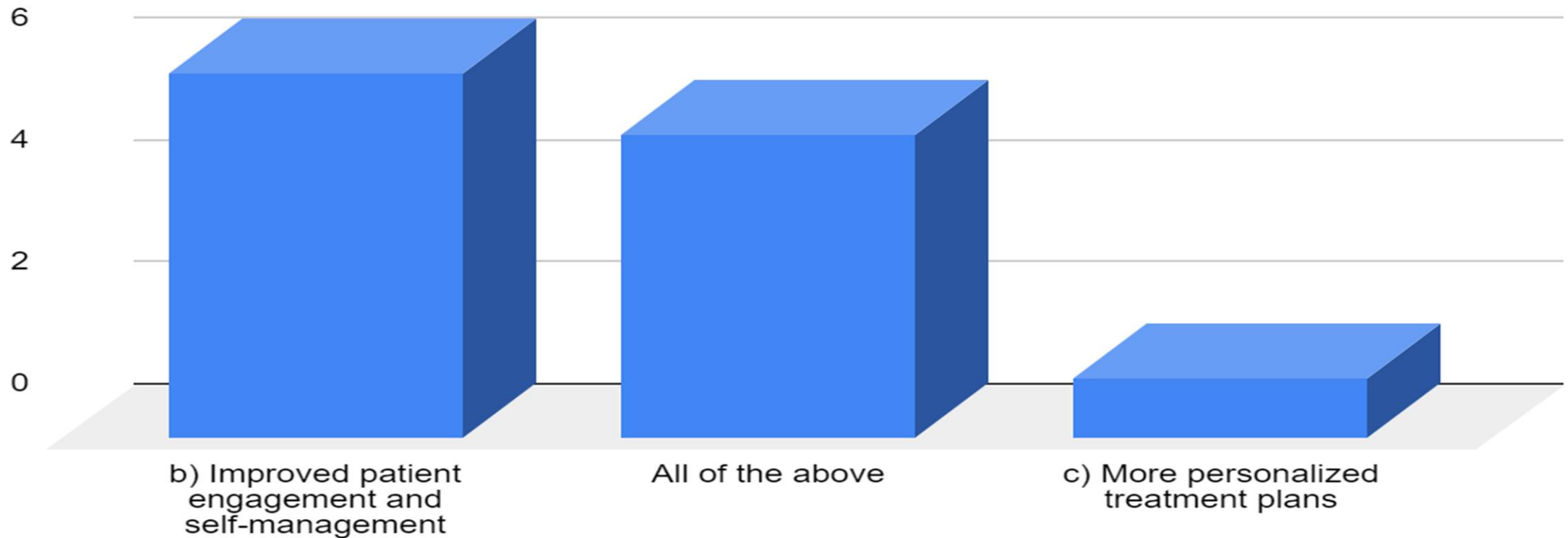
In this graph, the majority of the patients follow all the accepts, like enhanced convenience and accessibility for patients, improved accuracy and reliability of glucose reading, increased ability to track and manage glucose levels remotely, greater integration with the electronic health record system, and some patients with some patience also believe in increasing the ability to track and manage glucose levels remotely.

Overall, how willing are you to adopt glucose monitoring technology in your practice of behavioral health?



In this pie chart, 50% of patients are very willing to adopt glucose monitoring technology in your practise of behavioural health, and 42% are maybe willing or not willing. 8% of patients are not willing to include hypoglycemia monitoring technologies into your behavioural health practises.

What benefits do you perceive in using glucose monitoring technology in the practice of behavioral health?



Count of 4. What benefits do you perceive in using glucose monitoring technology in the practice of...

In these studies, the survey conducted by me to analyse the maximum number of patients has patient engagement and self-management, some patients have more personalised treatment plans, and the majority of them follow all the glucose monitoring technology in the practise of behavioural health.

Discussion

According to the result obtained It is feasible using technology for digital health to encourage better treatment choices and analyse and track patient results in real-time. In order to draw conclusions that may be extended to the acceptance of technological innovations in the field of cognitive health, the study's goal was to assess the acceptance of digital glucose surveillance as a real-life instance of digital medical penetration. The medical professionals who took part in our study provided comprehensive accounts of the various advantages and difficulties they faced as well as particular suggestions for how electronic health monitoring equipment might be used to improve the therapeutic treatment of other chronic illnesses, including behavioural health. By providing patient data that may help better monitor, monitoring has improved the way in which therapy is delivered. Treatment should be customised and concentrated on the patient's adherence and response to medicine in order to enhance patient outcomes.

Conclusion

The present study analysis digital glucose monitoring technology is adopted by the patients which represent 86% of the 90 individuals with type 2 diabetes in this article and 14% of less significant type 2 diabetics, are the most crucial information. Self-blood monitoring occurs in 7 patients (28%), 8 patients during medical visits, and 20% of our patients use a home glucometer for digital glucose monitoring. The survey revealed that 88% of respondents agreed that glucose monitoring metres are readily available on the market, 72% of respondents agreed that a digital glucose metre is more effective in Covid time, 60% of respondents said it takes only 1-2 minutes, 36% said it takes 2-3 minutes, and 4% said it takes 3-4 minutes. those that are worried People currently use glucose-monitoring gadgets for their health, but the demand is anticipated to increase shortly. Due to increased digitization, glucose monitoring technology use increased by 68% among individuals, whereas only 20% of people were aware of it.

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Abbreviations

MODY	Maturity onset diabetes of the young.
DPP4	Di peptidyl peptidase 4
SGLT2	Sodium- glucose co transporter 2
GLP1	Glycogen like peptide
SMI	Significant mental illness