

Access to primary health care and changes in quality of life of patients with type 2 diabetes during the COVID-19 pandemic in Hungary

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ABSTRACT

Aim: The aim of this study was to reveal the barriers to accessing primary care among diabetic patients, and the changes in their quality of life and self-management during the COVID-19 epidemic. **Setting and Design:** We conducted cross-sectional semi-structured qualitative research with 15 people diagnosed 4 years ago at least with type 2 diabetes in August 2022. The average age of participants was 62.3 years, 66.6% were male and 33.3% were female. A criterion sampling method was used. Interviews were audio-recorded, transcribed, translated, and analysed in thematic analysis. Transcripts were coded and grouped, then themes and sub-themes were formed. **Results:** We have identified 8 themes and 10 subthemes. The main themes were as follows: Communication with the GP, access to GP referral, fear of the epidemic, lack of personal meetings, worry about missing treatments, changes in physical activity, obstacles in blood sugar measurement, and changes in blood sugar measurement habits. All the patients communicated only by phone or messenger with the GP, nurse, or assistant during the epidemic. Patients contacted the GP only to have their medication prescribed. Some respondents thought it necessary to have face-to-face consultations. Some respondents were initially worried about the impact of the epidemic and lockdown on their lives and illness. The physical activity of the patients mainly did not change during the lockdown. While some diabetic patients said that they had measured their blood glucose more frequently at the beginning of the epidemic, some respondents irregularly measured their blood glucose since the first wave. **Conclusion:** General practitioners should provide more attention and regular follow-ups for those diabetic patients who changed their lifestyle and self-management during the COVID-19 pandemic to prevent development of complications.

Keywords: COVID-19, diabetes mellitus, primary care, self-management

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Introduction

The emergence of a new coronavirus, COVID-19, in December 2019 has dramatically changed the care and management of people with diabetes who were at a high risk of death from COVID-19.^[1-4]

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Most research has shown that the COVID-19 pandemic had a negative impact on the quality of life and lifestyle of diabetic patients, for example, they could not stay physically active, failed to attend regular medical check-ups, or had a poorer general quality of life, as well as their body mass index increased.^[5-14]

Patients also had to face new challenges in self-management.^[15] During the pandemic, glycaemic control became even more important since patients with high, uncontrolled blood glucose levels were more likely to develop COVID-19 infection and were more at risk than non-diabetic patients.^[16-18]

Moreover, fear of getting infected, and the restrictive healthcare measures have led to a reduced number of healthcare attendance among people with diabetes.^[14,19]

In Hungary, in the pre-COVID period, the comprehensive care of people with type 2 diabetes took place in the complex family care system, in close cooperation with the specialist care system (diabetes outpatient clinics). The type 2 diabetes patient was cared for 2-4 times a year, depending on the method of treatment and the presence of complications.^[20]

In Hungary, deferred interventions and public health screenings were suspended from 15 March 2020, then these measures were lifted in several stages in May and June of 2020. In the second and third waves of the epidemic, certain services were suspended in a more selective manner.^[16] The restrictive measures in primary care, imposed during the first wave, were lifted on 4 May 2020.

With the introduction of telemedicine, significant changes have occurred in the care and treatment of diabetic patients. The present rules and regulations allow health professionals to make therapeutic proposals, give advice, hold consultations, or even perform care for the patients without a personal presence.^[21]

The aim of this study was to reveal the barriers to accessing primary care among diabetic patients and the changes in their quality of life during the COVID-19 epidemic. We examined how the quality of life, lifestyle, and self-management behaviour of diabetic patients were affected by restrictions and the introduction of teleconsultation, as well as the difficulties that posed problems in their care.

Materials and Methods

We performed a qualitative study with a sample of 15 patients with type 2 diabetes. We conducted in-depth semi-structured interviews and the generated transcripts were then analysed using thematic analysis (TA) and the ‘codebook’ approach.^[22,23] The semi-structured questionnaire was developed based on the comprehensive literature review. The content validity of the questionnaire was established by consultation with two GPs.

Recruitment

The patients were selected for the study at the Diabetology outpatient clinic of the Szabolcs- Szatmár-Bereg County Hospitals and University Teaching Hospital Jóna András Teaching Hospital by using the criteria sampling method (selection of participants who meet pre-determined criteria of importance). We decided to select patients at a specialist clinic because, in a previous pilot study, where patients were selected and interviewed in a GP’s waiting room, the responses seemed to be significantly influenced by the location.

Criteria for inclusion

All of the 18-year-olds included in the research were diagnosed with diabetes type 2 at least 4 years before the outbreak of the COVID-19 epidemic.

Criteria for exclusion

Patients under the age of 18 who were diagnosed with diabetes less than 4 years ago, and patients with diabetes type 1 were excluded from the study.

Data collection

The semi-structured interviews were conducted in August 2022. Each interview took about 15-20 min. We personally interviewed the research participants. With the consent of the patients, the conversation was recorded in order to evaluate the results as accurately as possible.

The interview questions can be divided into two main groups. In addition to demographic data, we asked about access to primary health care and experiences related to care, as well as topics related to the quality of life and self-management.

Data analysis

The in-depth interviews were audio-recorded, translated, and transcribed into English. The transcripts were analysed using a ‘codebook’ thematic analysis.^[23] First, we prepared notes and then clustered them in preliminary categories. The next step was to collect the similar and dissimilar categories into broader higher-order categories. These subcategories with similar events and information were then grouped together as categories. Finally, the main categories were reviewed, compared, and approved by the two main investigators. Data saturation was achieved with this sample based on the repetition of the responses.

Ethical considerations

Before each interview, the researcher who conducted the interview informed the participants about the purpose of the research and also assured them that their answers will be treated confidentially, and only the professionals participating in the research can gain insight into the data. The interview questions do not contain any information that can identify the respondent’s identity.

The patients were asked to sign the consent form.

Results

Characteristics of the participants

The average age of the respondents was 62.3 years of age (min.: 44; max.: 79 years), 5 of them were female (33.3%) while 10 of them were male (66.6%). Most of them were married, and 9 of them were already pensioners [Table 1].

Experience in connection with access to primary care

Theme 1 Communication with the GP

Subtheme 1 – Satisfaction with teleconsultations

As a result of the restrictive measures introduced during the COVID-19 epidemic and telephone consultations made available in the health sector, the majority of patients consulted their general practitioner or the GP's assistant only by phone during the epidemic. The interviewed patients reported that during the epidemic, only medicines were prescribed by the general practitioner. Patients called the GP's surgery or sent messages to the assistant about the medicines they needed. Most of the patients ($N = 8$) were completely satisfied with the telephone consultations provided by the general practitioner and considered the prescription of medicine over the phone as well-functioning.

"I call every 3 months and ask for a prescription."

"On the phone, or we put a small note in a box if we needed medicine or insulin."

"I called the assistant on the phone and he/she sent the medicine through the cloud."

One patient stated that he/she communicated with the assistant via messenger messages or email instead of the phone.

Table 1: Patients' main characteristics (n=15)

Characteristics	n
Gender	
Male	10
Female	5
Age (years)	
≤54	4
55–64	3
65+	8
Marital status	
Married	10
Single	2
Divorced	3
Work	
Active Worker	6
Pensioner	9
Duration of diabetes (years)	
<10	4
10–14	2
≥15	9

Subtheme 2- Difficulties in telephone communication

Although most people were satisfied with the availability of the GP during the epidemic, some patients ($N = 9$) mentioned that in some cases they only managed to reach the GP or the assistant after several phone calls. However, no patient could not reach his/her GP at all, or could not get the medicine because of this. The difficulties in telephone communications showed that the healthcare system was not prepared to switch to this type of operation, which may lead to fear of COVID-19 infection.

"We consulted [the GP] on the phone, there was no appointment given, so there were times when I called ten times, but there were times when they answered the phone at once."

"Sometimes I called several times, sometimes they answered right away, it varied."

Subtheme 3- Lack of personal consultation

Seven patients had no complaints that could urge them to visit their GP in person, so the telephone consultation, as mentioned above, was completely satisfactory for them, and they did not require a face-to-face consultation with the GP.

"Because of the epidemic, we didn't go [to the doctor], we checked our blood sugar levels at home, and since there were no complaints, we didn't go."

However, some patients ($N = 6$) reported that, for them, personal consultation is the acceptable form of consultation with a doctor, and a personal meeting with a doctor is the basis of care.

- "The personal consultation, which I really miss. It's also good when you don't have to sit in the doctor's office, because I just call and the doctor's proposal is prolonged, or if you run out of medicine, it's prescribed separately, but there are things that you can't tell the assistant over the phone, but you should discuss it with the doctor."
- "[phone consultation] works, but I think it's better in person."

One respondent stated that he/she would have liked the GP to examine him/her. This patient had been infected with COVID-19 and was worried that he/she had not been examined by a doctor, so he might not have received the treatment he/she needed in that condition, which may have increased the anxiety of the patient.

"There was a problem because when I was sick and I coughed a lot and I couldn't go to the doctor because I only received medicine over the phone, and it would have been good if a doctor had examined me because I felt like I was dying."

Theme 2 – Access to GP referral

The patients had to take part in a blood test once a year to have the specialist's proposal prolonged. (The GP can prescribe medicines and insulin for the patient based on the specialist's proposal.) For this, the general practitioner must issue a referral. Most of the patients ($N = 14$) called the GP's office and asked for a referral for a laboratory test. There was a patient to whom

the assistant indicated that the specialist's proposal would expire, and then the assistant gave the patient a referral for a blood test. None of the interviewees stated that they were unable to get the referral in time or to get it at all. According to them, asking for the referrals and getting access to the referrals went smoothly. However, there were cases when the patient had to go in for his/her referral in person. This can contribute to feeling worry and can increase the risk of infection.

“We consulted on the phone. I went to see the GP in person twice or so, with a complaint, to prescribe medicine for me and to get the lab papers for a blood test.”

The impact of the COVID-19 epidemic on the quality of life and health behaviour

The impact of the COVID-19 epidemic on the lives of patients

Theme 3- Fear of the epidemic

The COVID-19 epidemic also caused considerable fear in the general population, but this fear was particularly prevalent among diabetic patients, especially in the first phase of the epidemic. Some of the interviewed patients ($N = 6$) also reported that they were initially worried about the impact of the epidemic on their lives of their own and their family members.

- “You live in fear at this time.”
- “It crossed my mind” [how isolation will affect my illness].
- “It upsets me in many ways” [the epidemic].

Theme 4- Lack of personal meetings

As a result of the restrictive measures introduced during the epidemic, friendly meetings between family members and those outside the family have become significantly rarer. Some of the interviewed patients ($N = 3$) suffered from a lack of personal meetings, isolation, and distance from their families.

- “There was a time when we didn't see each other for 3 months.” [family members]
- “I was worried about my family.”

Theme 5- Worry about missing treatments

From the viewpoint of diabetes treatments, it is important for the patients to receive them continuously, and have timely access to the necessary tests and treatments. Several patients ($N = 8$) stated that they were not worried about how the restrictions would affect their diabetes management because the GP and/or assistants could be reached when needed.

- “In the end I wasn't worried, because it's true that my blood sugar went up during COVID, it was unmeasurable, but I was able to talk to the GP.”
- “Nothing [worry], [diabetes] is there, you just take the medicine and that's it.”
- “I wasn't [worried] although [my condition] had worsened, but I wasn't worried, because somehow I realized that there were reasons beyond my control I couldn't change, so you just have to accept that this is the way it works now.”

Changes in patients' lifestyles

Theme 6 – Changes in physical activity

Subtheme 1 – Unchanged physical activity

The lifestyle, eating habits, and physical activity of diabetic patients significantly influence their diabetes condition. Most of the diabetic patients ($N = 9$) reported that they had not changed their physical activity during the epidemic compared to the period before the epidemic.

- “I worked the same way.”
- “I regularly work 8-10 hours, sometimes 12, it's quite hard, so I move to exercise, sometimes I walk as many as 14 km.”
- “I surely didn't move as much as I used to. I live in a house with a garden, I had to cut wood.”

Subtheme 2 – Decrease in physical activity

Some ($N = 4$), on the other hand, stated that they moved less during the lockdown than before the pandemic. This could influence and worsen the laboratory parameters of the patients.

- “I exercised less during the quarantine at home, although I still did yoga.”
- “If I didn't have to, I didn't move, I moved less.”

Self-management of the disease

Regular blood sugar checking is an important part of diabetes self-management that contributes to maintaining the appropriate blood sugar level. More than half of the patients ($N = 8$) stated that their blood sugar measurement habits had not changed during the epidemic. Some of them do not measure their blood sugar regularly, only when they have a complaint.

Theme 7- Obstacles in blood sugar measurement

Subtheme 1- Material problems

Among the interviewed patients, two diabetic patients receiving insulin therapy stated that they did not measure their blood sugar levels at home. Regarding one of them, this was caused by a financial problem. During the epidemic, his/her blood glucose meter broke down, he/she could not afford to buy a new blood glucose meter, so he was not been able to measure his/her blood sugar level for several months.

“I measured regularly until Christmas last year, but my meter broke around Christmas, and then I didn't measure this year because I couldn't buy a new one.”

Subtheme 2 – Obstacles in access to tools

One patient stated that, unfortunately, the two boxes of test strips prescribed for 3 months ran out in 2 months, so there were days when he could not control his blood sugar values.

“If the test strip runs out, I can't measure it, because I have 2 boxes of 100 every 3 months ...”

Theme 8 – Changes in blood sugar measurement habits

Subtheme 1 – There is no change in the frequency of blood sugar measurement

In the case of diabetic patients, regular blood sugar measurement is important in order to adjust insulin dosage and to prevent the

development of complications in the long term. Most of the interviewed patients ($N = 9$) did not change their blood sugar measurement habits during the epidemic.

- “I stick to a certain measurement time and always measure accordingly.” [no change].

Subtheme 2 – More frequent blood sugar measurement

Some patients ($N = 2$) stated that they measured their blood sugar more often during COVID-19, especially during the lockdowns.

“I was at home in quarantine, so I measured my sugar more often.”

“During COVID, I watched it several times because I noticed that I wasn’t feeling the way I should.”

Subtheme 3 – Less frequent blood sugar measurement

Two patients stated that at the beginning of the epidemic, during the 1st wave, they measured their blood sugar regularly, but now they do not.

“Since the epidemic, I have become more careless, I don’t spend as much time on myself as I should, this is my way of life.”

Discussion

The fear and uncertainty caused by the COVID-19 epidemic led to difficulties in access to primary and secondary health care in most countries. The restriction on personal visits and the introduction of telephone or telehealth consultations were general measures in different countries during the COVID-19 pandemic.^[19,24]

The results of this study demonstrated that most of the patients communicated via telephone or e-mail with the doctor or assistant at the primary care level, and they were satisfied with these ways of communication. Most of the patients just wanted to have their medicine prescribed during this period. However, some interviewees mentioned that they had communication problems with the primary care due to difficulties in access.

Some patients complained about the lack of personal consultation with the GP. It is reasonable to assume that these patients regularly visited their GP and they were able to discuss their problems more efficiently with their GP personally. A previous study from the US showed that the number of in-person encounters in primary care dropped substantially during the first wave of the pandemic, allowing telephone and telehealth consultations for the service providers. However, in the middle of 2022, in-person encounters became most prominent among diabetic patients showing that this type of encounter is more suitable both for the patients and physicians/GPs.^[24]

Some diabetic patients involved in this study mentioned that they were afraid of the epidemic and the consequences of infection. Similar studies have found that diabetic patients were worried

about and feared the COVID-19 infection.^[1] The main drive of this phenomenon could be that both the media and professional organizations informed the populations of the most vulnerable groups right from the beginning of the pandemic.

Regarding the impacts of the COVID-19 pandemic on their quality of life, patients reported that they were worried about the effects of the pandemic. This was connected to the fear of getting infected and to the possibility of missing treatments, this latter one being a real problem mainly during the lockdown. The international data also strengthened that diabetic patients had a higher risk of severe or fatal outcomes when suffering from COVID-19.^[4,25,26]

Patients also mentioned that social isolation had a negative impact on the quality of their lives. The social isolation directly or indirectly can lead to the deterioration of the mental and physical health of these patients. Loneliness and isolation also emerged as a problem among T2DM patients connected to the lockdown in a previous qualitative study from Lebanon and a quantitative study from India.^[27,28] Regarding self-isolation Pardhan *et al.* (2021)^[29] found that self-isolation due to COVID-19 infection had a negative impact on most of the health indicators related to self-management of T2DM patients (e.g., greater fluctuation in blood glucose levels). Although social isolation is not as strict as self-isolation, the consequences can be similar.

In this study, we have found similar health behaviour changes among participants in terms of physical activity like the previous studies.^[1,2,12,13] Most of them talked about lower physical activity during the COVID-19. This may stem from lockdown, the fear of infection, and social isolation. However, a study conducted among patients with diabetes in China found higher physical activity in this group.^[10] None of any other health behaviour changes were mentioned by the patients.

Regarding self-management of the disease, half of the patients reported that they had not changed in self-monitoring their blood glucose level. However, some patients reported that they had problems with it. The similar obstacles were identified in a previous study.^[27] Moreover, some patients increased regular blood glucose level checking, while another group reported on unregular or a much rarer monitoring. A study from Denmark also found that the lockdown can have positive, negative or no effect on self-management practice of diabetes among T2DM patients.^[1] Another study from India reported that self-monitoring of blood glucose dropped by almost one-fifth during the lockdown.^[13] A study from India reported a significant increase in HbA1c level among patients with diabetes.^[28] Regular monitoring of blood glucose is inevitable to maintain the optimal level of blood glucose and reduce the development of complications.

The findings of our results strengthen that policy makers should provide more attention to the diabetic patients during the pandemic by establishing methods of patient monitoring,

which do not necessarily require the patient physician's personal meetings.

Strength and limitations

Our study has some limitations. First, we have to consider that the number of participants in this study was limited due to the nature of qualitative studies, therefore, the results cannot be generalized. Second, the recruitment of the participants was performed in one hospital; therefore, their experience regarding the COVID-19 pandemic represents the view of this group only. The males and participants with secondary school educational levels were overrepresented in our sample. Further similar studies should involve more balanced samples regarding gender and educational background to represent the experience of these groups, too. Finally, we cannot exclude that the answers of the participants were influenced by social desirability.

Conclusions

Our study has revealed that most of the patients were satisfied with the access to primary care; however, some of them complained about difficulties in communications. Patients' quality of life mainly became worse due to the fear of getting infected, having complications, being in social isolation, in addition their physical activity decreased during this period. Our study could identify three groups according to the habit of the self-monitoring the blood glucose level: the patients who had not changed on it, the patients who checked it more regularly, and patients who measured it more rarely, which is a relatively new finding. Overall, the findings of this study have called the attention to the need for more support for and regular follow-ups of diabetic patients who were at increased risk during the COVID-19 pandemic. More research is needed how can be introduce and effectively use of telehealth interventions for more strict monitoring the patients at primary care level and in self-management of diabetes.

Ethics approval and consent to participate

This study was approved by the Scientific and Research Ethics Committee of Medical Research Council of Hungary (Number IV/2477-1/2022/EKU).

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Conflicts of interest

There are no conflicts of interest.

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