

Diabetes Teleconsultations During the Pandemic: Perspectives of Patients and APDP Professionals

Teleconsultas na Diabetes Durante a Pandemia: Perspetivas dos Pacientes e dos Profissionais da APDP

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Abstract

Background: Considering Covid-19 pandemic times, there were several changes related with people with diabetes (PWD) care at *Associação Protectora dos Diabéticos de Portugal* (APDP). So, we considered to be important to know PWD and health care professionals' (HCPs) perspectives, relating to their opinions and satisfaction according to teleconsultations.

Aim: To know PWD and HCPs' perspectives, opinions and satisfaction relating to teleconsultations during pandemic period.

Methods: Data collection was performed with questionnaires online, with 476 PWD participants and with 37 HCPs participants. The research included quantitative and qualitative analysis.

Results: PWD: 64% refer having remote consultations during pandemic time, mainly by telephone - 98%. 94% were satisfied. HCPs: 100% refer to having remote consultations during pandemic time by telephone and 35% by video call. PWD and HCPs consider that remote consultations should be maintained.

Conclusion: At pandemic time, PWD and HCPs considered they could maintain a satisfactory communication, even by telephone. Remote consultations can be useful to maintain communication, contributing to improve PWDs' diabetes management. Participants consider to be important the continuity of teleconsultations in the future, complementary to face-to-face consultations, alternately and depending on the will/need of people with diabetes and health care team.

Keywords: health care; diabetes; pandemic; teleconsultations; people with diabetes; healthcare professionals

Resumo

Introdução: Tendo em conta a pandemia Covid-19, foi necessário reorganizar a modalidade de acompanhamento às Pessoas com Diabetes (PCD) na Associação Protectora dos Diabéticos de Portugal (APDP), com primazia para as teleconsultas, pelo que consideramos importante conhecer a opinião e satisfação das PCD e dos profissionais de saúde (PS) em relação às teleconsultas realizadas.

Objetivo: Conhecer as perspetivas, opiniões e satisfação das PCD e dos PS em relação às teleconsultas realizadas na APDP durante a pandemia.

Material e Métodos: A colheita de dados foi realizada através de questionários digitais, com 476 PCD e 37 PS. O estudo incluiu análise quantitativa e qualitativa.

Resultados: PCD: 64% referem ter realizado teleconsultas, principalmente por telefone - 98%. 94% ficaram satisfeitos. PS: 100% referem ter realizado consultas por telefone e 35% por videochamada. PCD e PS consideram que as consultas remotas devem ser mantidas.

Conclusão: Em tempo de pandemia, as PCD e os PS consideraram que poderiam manter uma comunicação satisfatória, mesmo por telefone. As teleconsultas podem ser úteis para manter a comunicação, contribuindo para melhorar a gestão da diabetes. Os participantes consideram importante a continuidade das teleconsultas no futuro, complementares às consultas presenciais, de forma alternada e dependendo da vontade/necessidade das pessoas com diabetes e da equipa de saúde.

Palavras-chave: cuidados de saúde; diabetes; pandemia; teleconsultas; pessoas com diabetes; profissionais de saúde

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> INTRODUCTION

The years 2020 and 2021 were marked by the COVID-19 pandemic and the repercussions on a personal, social, work and health level were very noticeable. Difficulties in accessing healthcare, caused by the pandemic, had a major impact on people with diabetes, wi-

th increased risks resulting from the interruption in healthcare all over the world.

In the research promoted by the Foundation of European Nurses in Diabetes (FEND), carried out in 2020, which involved the participation of 1,829 diabetes specialist nurses from 27 European countries, including Portugal, the results show that nurses across Europe observed significant increases of physical and psychological problems in the population with diabetes, and, in Portugal, psychological risks represent more than half of the concerns compared to physical risks. The data also reflects the significant interruption of clinical services for diabetes in Europe. ⁽¹⁾

In the same study, a large increase in clinical problems was recorded, such as: anxiety 82% (n = 1,486); diabetes 65% (n = 1,189); depression 49% (n = 893); acute hyperglycemia 39% (n = 710) and foot complications 18% (n = 323). Additionally, 47% (n = 771) of respondents identified that the level of care provided to people with diabetes has declined extremely or severely. ⁽¹⁾

The pandemic caused enormous challenges and these numbers reflect a growing inequality in access to healthcare which, across Europe, was, almost exclusively, dedicated to combating Covid-19. Another worrying factor demonstrated in this study was that 18% of respondents reported an increase in foot complications. Although this is a relatively small percentage compared to other problems, the consequences of this type of complication and the importance of a physical examination and rapid intervention are well known. ⁽¹⁾

Psychological support, as well as support in self-management and diabetes education were also assessed as having decreased extremely or severely during the pandemic in 34% (n = 551), 31% (n = 499) and 63% (n = 1,027), respectively. ⁽¹⁾

This study reinforced the evidence of the need to adapt monitoring and support circuits to minimize the impact of the pandemic on people with diabetes. ⁽¹⁾

In the investigation promoted by the International Diabetes Federation Europe in 32 European countries, in 2020, about the experiences of people with diabetes in times of pandemic, 3,480 people participated. This study aimed to understand the perspectives of people with diabetes regarding how the pandemic affected their quality of life and diabetes care, as well as the experienced difficulties and the practices implemented by health services to overcome the challenges of this period of restrictions. Participants considered that they had more difficulties in managing diabetes during this period. More than 50% reported changes in their mental health, with fewer periods of well-being and 40% reported an

increase in anxiety. People with diabetes also reported difficulties accessing in-person healthcare. The fear of contamination was the biggest obstacle mentioned by participants in accessing healthcare in person. ⁽²⁾

Many European healthcare services responded quickly to this pandemic challenge, providing a significant increase in virtual consultations and the use of digital tools for 35% of study participants. Most teleconsultations were carried out by telephone and sporadically through video calls or other digital resources. 60% of people with diabetes found teleconsultations useful and very useful. 45% of participants considered it important to continue teleconsultations after the pandemic, complementary to in-person consultations, 25% would like to have as many virtual consultations as possible and 30% of participants reported not wanting virtual consultations after the pandemic. ⁽²⁾

The difficulties caused by the COVID-19 pandemic in accessing healthcare were enormous, which is why healthcare professionals resorted to telephone consultations or other digital means to minimize the impact of confinement on health. ⁽¹⁻⁸⁾

Telehealth is an innovative and sustainable solution, providing improved access to healthcare, and ensuring more continuous and coordinated monitoring between different levels of care, contributing to greater effectiveness and efficiency. ⁽¹⁻¹¹⁾

Teleconsultation is a consultation in which the healthcare professional, remotely and using information and communication technologies, assesses a person's clinical situation and plans the provision of healthcare. The teleconsultation can take place in real time (synchronous), simulating the in-person consultation, or in a deferred time (asynchronous), where data collected in previous moments are analyzed. ⁽³⁻¹¹⁾

In Portugal, Diário da República Official Order No. 5314/2020, May 7, recommended the use of Telehealth to carry out scheduled assistance activities. ⁽¹²⁾

> TELECONSULTATIONS' EXPERIENCE AT APDP

At the Associação Protectora dos Diabéticos de Portugal (APDP), since March 2020, efforts were made to not interrupt care and maintain the same capacity and quality of care, so the use of remote consultations was also a primary strategy, to reduce the impact on access to diabetes care, particularly in terms of Diabetes Consultations, namely medical, nursing and nutrition and also in other specialties such as Nephrology and Reproductive Health. The exceptions were consultations in which it was not clinically appropriate or technically possible, such as First

Time Diabetes Consultations, Ophthalmology, Diabetic Foot, and Ophthalmology Operating Room Consultations, in which face-to-face care was maintained.

During this period, APDP also provided a national telephone helpline, from 8 am to 8 pm, to provide specialized advice to all people with diabetes.

The catastrophe cycle defines the phases before, after and during the incident, in this case the pandemic situation, and the different activities to be carried out in each of the phases, with different durations, covering prevention, planning, mitigation, response and recovery. The activities of each one of these phases must be included in each entity's intervention plans. ^(13, 14)

The Catastrophe Cycle Model ⁽¹³⁾ is presented below, adapted to the activities organized and carried out at APDP from March 12, 2020 (Figure 1).

So, according to the COVID-19 pandemic, the years 2020 and 2021 were quite different in the ways of monitoring people with diabetes at APDP. Therefore, for future memory of this period, it was considered important to know the various perspectives, from people with diabetes and their families and APDP professionals, in relation to the ways in which they experienced this period.

> MATERIAL AND METHODS

A study was carried out using questionnaires for people with diabetes and healthcare professionals and interviews with people with diabetes, family members and healthcare professionals, in addition to photo reporting from that period. The aim is to create a digital library on the APDP website with image records, results of questionnaires and interviews relating to the period of the COVID19 pandemic.

This article will present the results of the application of the questionnaires, which aimed to understand the perspectives of people with diabetes and APDP health professionals, in relation to the ways in which they experienced this period of the pandemic.

The objectives of this study:

1. Identify the perspectives, opinions and satisfaction of people with diabetes in relation to teleconsultations carried out at APDP in times of pandemic, between March 2020 and September 2021.
2. Identify the perspectives, opinions and satisfaction of APDP healthcare professionals in relation to the teleconsultations carried out.

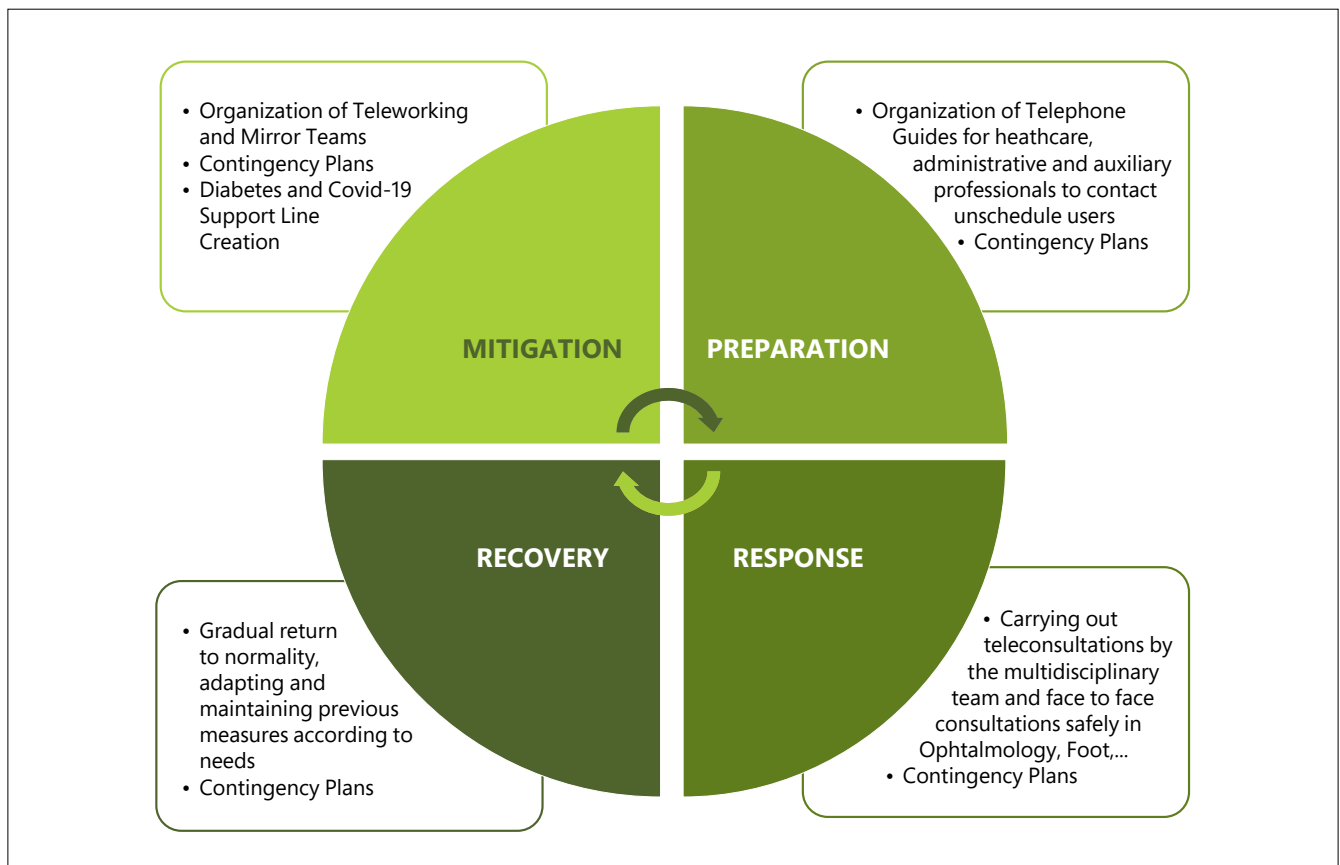


Figure 1 - Catastrophe Cycle Model at APDP.

The study "COVID Narratives – APDP in times of COVID-19" was approved by the APDP Health Ethics Committee, process 001/2022.

Informed consents obtained through an electronic declaration were used in this study, namely for the application of questionnaires in digital format to participants, guaranteeing complete anonymization of data and the provision of information on the procedures inherent to the study and the form of treatment and conservation of personal data.

Inclusion Criteria

People with type 1 and 2 diabetes monitored at APDP, aged ≥ 18 years. Healthcare professionals from the APDP multidisciplinary team.

Questionnaires Used in the Study

Data collection was carried out based on filling out digital questionnaires, using a link through the Google Forms software.

The questionnaire aimed at people with diabetes was sent to the emails of APDP users available on APDPsoft, as well as made available for completion through APDP

social networks (with access link to Google Forms).

The questionnaire addressed to healthcare professionals was sent to the institutional emails of APDP health professionals, and was completed by those who, of their own free will and in an enlightened and informed manner, intended to do so.

Responses to the questionnaires, without any identification of the participants, were received by email at apdp.portugal@gmail.pt (drive created for APDP, with a specific account and credentials accessible only to 3 APDP employees with functions linked to training).

The excel file extracted from Google Forms was stored in a folder with restricted access to the researchers of this study on the APDP network, being used for statistical processing and obtaining the results of this study. Any disclosure of this data will be completely anonymous.

We present Figure 2 with the synthesis of study design.

> RESULTS

We then present, separately, the results of the study of people with diabetes and afterwards of healthcare professionals.

Quantitative analyzes were carried out, with descriptive statistics and also qualitative analysis.

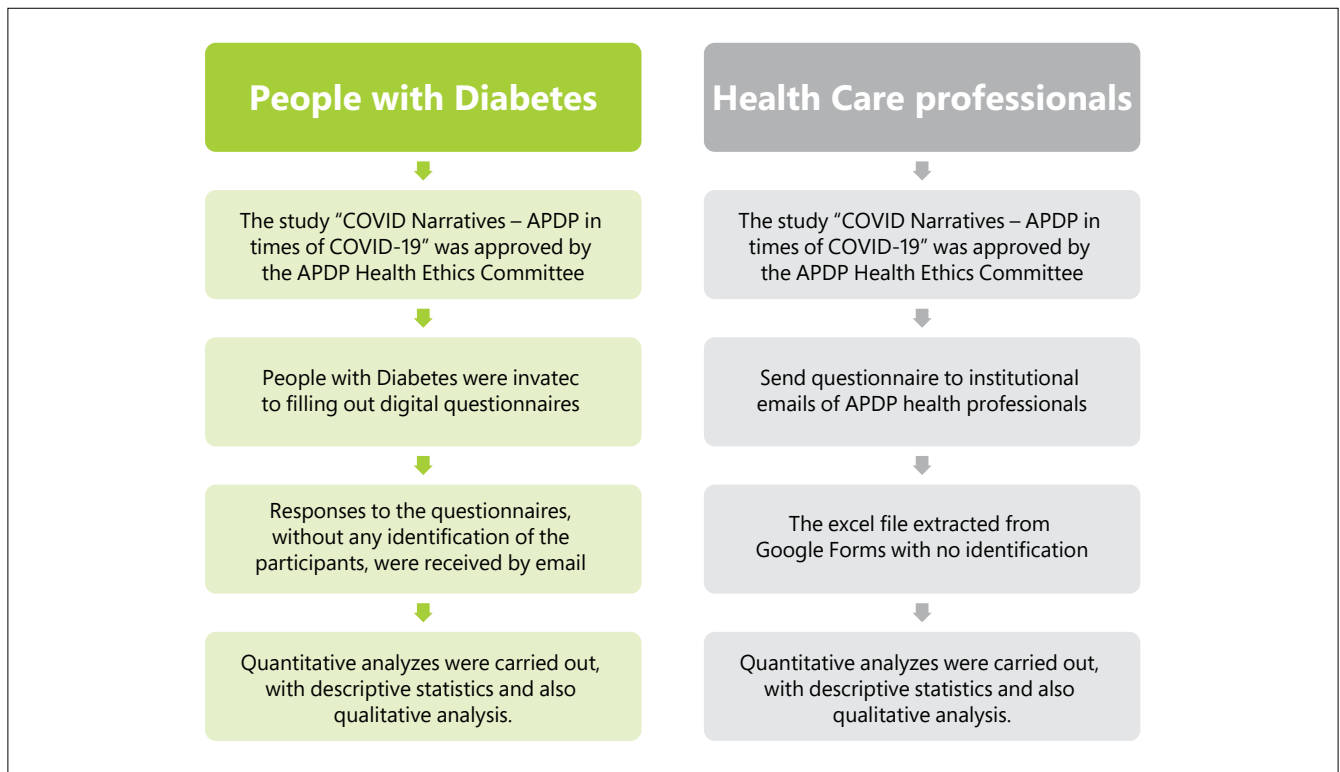


Figure 2 - Study Design.

People with Diabetes

476 people with diabetes, aged ≥ 18 years, responded to the questionnaire, 12% in age groups ≥ 18 – 40, 62% in age groups ≥ 41-70 and 26% ≥ 71 years. 44% of participants have a higher education degree, 37% have a 12th year, 13% a 9th year and 6% a 4th year. 70% live with a partner, with a wife/husband, 26% with children and 7% with parents. 16% live alone. 92% of participants felt that during the pandemic period they had people they could count on and talk to. Regarding employment status, 44% work, 43% are retired, with the remaining situations being unemployment, domestic workers, and students. Regarding working people, 78% of participants report that their employment situation has changed, due to them starting to telework, or having a decrease or loss of income, due to a reduction in the volume of work or even situations of unemployment (Table I). Regarding diabetes, 86% have had diabetes for ≥ 6

years, 43% have lived with the disease for ≥ 21 years and 20% for ≥ 31 years. 66% have been coming to APDP for ≥ 6 years. 64% report having had the experience of teleconsultations at APDP during the pandemic period, 98% of which were telephone teleconsultations, 1% via video call and 1% via WhatsApp. 10% also mention the use of email and 4% of SMS. Regarding satisfaction with teleconsultations: 22% - satisfied; 25% very satisfied; 47% very much satisfied. 81% report that communication with the healthcare team was not difficult and 76% believe that it was possible to contact professionals whenever they needed to. 64% of participants considered that teleconsultations should be maintained, whenever necessary, as a complement to in-person consultations (Table II). Below is a summary of the qualitative analysis about the opinions of people with diabetes regarding the benefits and disadvantages of teleconsultations (Table III).

Table I - Socio-demographic characterization of people with diabetes.

Variables	%
Age group	
18 – 40	12
41 – 70	62
≥ 71	26
Education degree	
Higher Education degree	44
12th year	37
9th year	13
4th year	6
Who they live with	
Partner/Husband/Wife	70
Children	26
Parents	7
Other relatives	2
Alone	16
Having people to count on and talk to during the pandemic period	
Yes	92
No	8
Employment situation	
Work	44
Retired	43
Unemployment	13

Table II - Characteristics of participants regarding diabetes and communication with APDP during the pandemic period.

Variables	%
Diabetes evolution time	
≥ 6 years	86
≥ 21 years	43
≥ 31 years	20
Experience of teleconsultations at APDP during the pandemic period	
Yes	64
No	36
Technological modalities of consultations and communication	
Telephone consultations	98
Video calls	1
Whatsapp	1
Email	10
SMS	4
Satisfaction with Teleconsultations	
Satisfied	92
Very Satisfied	8
Very Much Satisfied	
Employment situation	
Work	22
Retired	25
Unemployment	47

Table III - People with diabetes' opinions about teleconsultations.

Benefits	n	%	Disadvantages	n	%
Reduction of: travel, costs, absence from work, time wastage	177	37%	Communication difficulties between users and professionals: less time for consultation, less personalization, less understanding of messages	216	44%
Protection and safety in relation to the pandemic, more comfort and efficiency	110	23%	There are no evaluations: clinical analyses, exams, physical observation.	115	24%

Healthcare Professionals

37 healthcare professionals participated in the study, including 25 nurses, 9 doctors and 3 nutritionists.

All professionals carried out consultations by telephone and 35% by video call. 90% also used email and 45% used digital platforms to communicate with users.

Regarding the satisfaction of people with diabetes with teleconsultations: 60% of professionals considered people very satisfied and 20% very much satisfied.

80% stated that teleconsultations should be maintained, whenever necessary, as a complement to in-person consultations (Table IV).

Below is a summary of APDP healthcare team experiences in relation to this new type of monitoring with teleconsultations, regarding the main difficulties and challenges, lessons learned and future perspectives (Table V). Between March 2020 and June 2021, 51,926 remote consultations were carried out. Between July 2021 and June 2022, teleconsultations remained complementary to in-person consultations, as suggested by users and professionals, total of 17,438.

Table IV - Characterization of healthcare professionals regarding Communication with patients during the pandemic period.

Variables	%
Experience of teleconsultations at APDP during the pandemic period	
Yes	100
Technological modalities of consultations and communication	
Telephone consultations	100
Video calls	35
Email	90
Digital platforms	45
Satisfaction of people with diabetes with Teleconsultations	
Very Satisfied	60
Very Much Satisfied	20

It would be important to develop these kinds of studies related to patients and HCPs perspectives about teleconsultations at other Portuguese diabetes services, as well as to promote this research again at APDP to compare the results obtained during pandemic times with nowadays results, to better improve diabetes care.

> DISCUSSION

At APDP, every effort was made to promote continuity of care and maintain the same capacity in care delivery, with medical, nursing, nutrition and psychology teleconsultations, in follow-up consultations, and in person in first-time appointments, foot and ophthalmology consultations, which were maintained during periods of greater confinement.

Most patients reported that they maintained satisfactory communication with the healthcare team during the pandemic, even over the phone. Teleconsultations are useful for maintaining communication and can contribute to improving patients' diabetes management.

People with diabetes considered teleconsultations to be advantageous because allowed them to reduce travels, costs, absence from work and wasted time, as well as greater protection and safety in relation to the pandemic, with more comfort and efficiency.

Despite the disadvantages related to teleconsultations, in terms of communication difficulties between users and professionals: less time for the consultation, less personalization, understanding of messages and the fact that there are no assessments: clinical analyses, exams, physical observation, most of the people with diabetes consider it important to continue these consultations, complementary to in-person consultations, alternately and depending on the needs and options of users and the healthcare team. These results corroborate the data obtained in the European study, as well as at other studies. ^(2,6,7)

Table V - Healthcare professionals' opinions about teleconsultations.

Main Difficulties and Challenges	n	%	Key Learnings	n	%	Future Perspectives	n	%
Communication, sharing of data and information and confirmation of receipt of the transmitted message.	27	72%	Improvement of communication strategies: active listening, understand the persons just through their voice.	18	48%	Maintain teleconsultations, alternating and complementary to in-person consultations	23	62%
Lack of non-verbal communication, body posture, looking, ...	18	48%	Development of technological capabilities and reduction of distance through technologies.	13	35%	Overcoming technological challenges, improving communication on online platforms.	12	32%
Difficulties of people with diabetes in using technology and accessing information	7	19%	Make the most of your time and optimize teleconsultation.	13	35%	—	—	—

In times of pandemic, health professionals considered that it was possible to maintain satisfactory communication with people with diabetes.

Regarding the main challenges of teleconsultations, the different forms of communication between the team and people with diabetes were identified, mainly related with the lack of non-verbal communication and difficulties in using technology. The main learnings were connected to the improvement of digital communication strategies, making the most of time and developing technological capabilities, which made it easier to overcome the difficulties of adapting consultations.

Considering the main challenges and the main lessons learned related to teleconsultations, the team consider it important to continue these consultations in the future, alternating and complementary to in-person consultations, improving communication on online platforms and adapting to the preferences, needs and capabilities of people with diabetes. These results are in line with what is reported in the literature consulted. ^(1,2, 6,7,8)

As previously mentioned in the presentation of the results, between July 2021 and June 2022, teleconsultations remained complementary to in-person consultations, as suggested by users and professionals, total of 17,438.

We intend to develop other research at APDP related to patients and HCPs opinions about teleconsultations to evaluate more deeply the impact of these consultations on diabetes management and patients' diabetes control and wellbeing.

> CONCLUSION

This study reinforces the evidence of the need, in crisis situations that affect health, to adapt monitoring and support circuits to minimize the impact of the pandemic on people with diabetes. ^(1,2,3,5,6,7,8,10)

According to the results of this study and the literature review, teleconsultations do not replace face-to-face consultations, but they represented a very useful alternative, allowing continued communication between health professionals and patients, as well as the support in diabetes care and in problem solving. It is considered important that they continue in the future, in alternation and in a complementary way to face-to-face consultations, adapting consultations to the preferences, needs and capabilities of people with diabetes, also considering their technological literacy. ^(1,2,3,5,6,7,8) For those patients who live far away or have good metabolic control, remote consultations represent an added value, as they avoid absenteeism from work and travel expenses.

As mentioned before in Materials and Methods, in addition to this study, we also took photographs of APDP functioning in times of pandemic and video interviews with people with diabetes and family members accompanied at the APDP, as well as with healthcare professionals about how they experienced the pandemic, which will be made available on the APDP website and will allow to obtain a more complete picture of those times. In the era of Digital Health, the changes made in the technological area to support users with diabetes need to be consolidated and used in the best way, with continuous training of health professionals in the area of teleconsultations and digital platforms, to correspond to the interests, needs, capabilities, accessibility and difficulties of people with diabetes and their families, promoting their active and effective participation, to obtain better health results. ^(1,2,3,5,6,7,8,10,14)

However, on this new path, it is very important that we continue to value the importance of communication, therapeutic relationship and education with users, learning and developing tools and strategies that allow communication that corresponds to what people with diabetes expect from us, to optimize our skills and communication capabilities also in the digital domain. ⁽⁸⁾

We also consider the need to develop other studies at APDP related with the impact of teleconsultations continuity, to know patients' acceptance, the technology improvement and the quality of care, as well as the importance of knowing the experience of other Portuguese services addressed to people with diabetes. <

Conflitos de Interesses e Patrocínios/Conflicts of Interests and Sponsorships:

Os autores declaram a inexistência de conflitos de interesses e de patrocínios./*The authors declare no conflicts of interests or sponsorship.*

REFERENCES

1. Forde R, Arente L, Ausili D, De Backer K, Due-Christensen M, Epps A, et al.; FEND COVID-19 consortium. The impact of the COVID-19 pandemic on people with diabetes and diabetes services: A pan-European survey of diabetes specialist nurses undertaken by the Foundation of European Nurses in Diabetes survey consortium. *Diabet Med.* 2021 May; 38(5): e14498. doi: 10.1111/dme.14498.
2. International Diabetes Federation Europe. Living in COVID Times: Experiences from People living with Diabetes. April 2021. <https://idf.org/europe/media/uploads/sites/2/2023/05/LIVING-IN-COVID-TIMES-Experiences-form-People-living-with-Diabetes.pdf>

3. Ordem dos Enfermeiros – Secção Regional do Centro. Consultas de Enfermagem à distância – Telenfermagem: guia de recomendações. Coimbra: Ordem dos Enfermeiros. 2021. Pp8. Disponível em: https://www.ordemenfermeiros.pt/media/21380/guia-telenfermagem_final.pdf
4. Nortadas R. Teleconsulta: à distância de um click? Revista Portuguesa de Diabetes. 2020; 15(2): 55-57. Accessible at: <http://www.revportdiabetes.com/wp-content/uploads/2020/08/RPD-junho.2020-Artigo-de-Opinião-págs-55-57.pdf>
5. Blanco CG. Teleconsulta de Diabetes. Revista Portuguesa de Diabetes. 2021; 16 (2): 95-97. Accessible at: http://www.revportdiabetes.com/wp-content/uploads/2021/07/RPD_Junho_2021_ARTIGODE-OPINIAO_95-97.pdf
6. Papazafropoulou A. Telemedicine and diabetes during the COVID-19 era. Arch Med Sci Atheroscler Dis. 2022 Aug 31; 7: e131-e135. doi: 10.5114/amsad/150506.Papazafropoulou A. Telemedicine and diabetes during the COVID-19 era. Arch Med Sci Atheroscler Dis. 2022 Aug 31;7:e131–e135.
7. Mirasghari F, Ayatollahi H, Velayati F, Abasi A. Challenges of using telemedicine for patients with diabetes during the COVID-19 pandemic: A scoping review. J Clin Transl Endocrinol. 2024 Jul 14; 37: 100361. doi: 10.1016/j.jcte.2024.100361.
8. Rosta L, Menyhart A, Mahmeed WA, Al-Rasadi K, Al-Alawi K, Banach M, et al. Telemedicine for diabetes management during COVID-19: what we have learnt, what and how to implement. Front Endocrinol (Lausanne). 2023 May 17; 14: 1129793. doi: 10.3389/fendo.2023.1129793.
9. Ordem dos Psicólogos Portugueses (2021). Plano Estratégico Nacional para a Telessaúde 2019-2022. Lisboa. https://recursos.ordemdospsicologos.pt/files/artigos/plano_estrat_gico_nacional_para_a_telessa_de_2019_2022.pdf
10. Nortadas R., Leitão M. A comunicação eficaz na consulta remota | teleconsulta de diabetes. In: Manual de Comunicação Eficaz na Diabetes. Sociedade Portuguesa de Diabetologia. 2023.
11. Direção-Geral da Saúde (DGS). Norma nº 010/2015 – Modelo de Funcionamento das Teleconsultas. Lisboa: DGS. 2015. Disponível em: www.dgs.min-saude.pt https://static.sanchoeasociados.com/DireitoMedicina/Omlegisum/legislacao2015/Junho/norma_10_2015.pdf
12. Diário da República n.º 89/2020, Série II de 2020-05-07, páginas 79 - 81 Despacho n.º 5314/2020, de 7 de maio. <https://diariodarepublica.pt/dr/detalhe/despacho/5314-2020-133226622>
13. A Saúde Pública e as Catástrofes. Consultado em 11 de Dezembro 2023: <https://www.saudemaispublica.com/emfoco/a-saude-publica-e-as-catastrofes>
14. World Health Organization. (2019). WHO guideline: recommendations on digital interventions for health system strengthening: evidence and recommendations. World Health Organization. 2019. <https://www.who.int/publications/i/item/9789241550505>