

## Evaluation of Electronic-Clinic Services in Basrah, Southern Iraq, During the COVID-19 Era: A Descriptive Study

Basim AA. Al Hijaj<sup>1</sup>, Wael J Alshihaby<sup>2</sup>, Mohamed B. Abdulzahra<sup>3</sup>, Luay H. Alwan<sup>4</sup>, Sadik Hassan<sup>5</sup>.

<sup>1</sup> (F.I.C.M.S) Specialist in Pediatric, Al-Basrah Maternity and Child Hospital and Member of Iraqi Association for Medical Research and Studies (IAMRS),

<sup>2</sup> (ORL, HNS) Otorhinolaryngologist, Basrah Teaching Hospital,

<sup>3</sup> M. B. Ch. B. CABMS (ortho) Orthopedic Surgeon, Basrah Teaching Hospital,

<sup>4</sup> (F.I.C.M.S) Pediatrician, Neonatologist, Al-Basrah Maternity and Child Hospital,

<sup>5</sup> (FICMS, ped.surgeon) Assistant Professor, Pediatric Surgeon, AlZahraa Medical College

### ABSTRACT

**Background:** Few studies have attempted to evaluate the organizational impact of telemedicine and the associated process changes that affect the way that it is used and accepted.

**Objective:** To evaluate the degree of satisfaction of both the doctors who participated in electronic clinics and the patients who benefitted from it by inquiring about suggestions for optimization.

**Method:** An online survey was conducted in which both the patients and the doctors were blinded; the link for the inquiry was sent to them without any recognizable names attached by a personnel from outside the research group. Responses were gathered and analyzed, and relevant graphs and tables were constructed using Microsoft Excel.

**Results:** A total of 277 patient responses were analyzed. The most common platform for obtaining information about the electronic clinics was social media. It was observed that 77.7% of the respondents were satisfied with e-clinic, 85.5% found the service easy, 75.1% felt it was trustful, and 50.5% found the time available to be adequate. Among the respondents, 83.4% intend to resort to electronic counseling in the future. Most of the doctors who participated in e-clinics were pediatricians (25%), followed by otorhinolaryngologists (22%). Most doctors enrolled in the service because they wanted to help the people (41.8%). WhatsApp (58.2%), Facebook (44.8%), and phone calls (40.3%) were the most common platforms for consultation. Among the doctors, 53.7% responded that the experience was successful, 43.3% recommended continuing the service throughout the course of the pandemic, and 53.7% recommended continuing even after the pandemic comes to an end.

**Conclusions:** Evaluation of the clinical service via the electronic survey revealed a spectrum of satisfactory responses from both the patients and the doctors who participated, and suggestions for technical optimizations and for the continuation of the service even beyond the pandemic were received.

**keywords:** Electronic Clinic, Telehealth, COVID 19, Satisfaction.

**Corresponding author:** Basim AA. Al Hijaj Email: basim@iamrs.edu.iq

**Disclaimer:** The authors have no conflict of interest.

**Copyright** © 2022 The Authors. Published by Iraqi Association for Medical Research and Studies. This is an open-access article distributed under the terms of the Creative Commons Attribution, Non-Commercial License 4.0 (CCBY-NC), where it is permissible to download and share the work provided it is properly cited.

**DOI:** <https://doi.org/10.37319/iqnm.4.1.12>

**Received:** 1 Jul 2021

**Accepted:** 20 Dec 2021

**Published online:** 15 Jan 2022

## INTRODUCTION

Telephone consultations have become increasingly common in modern medical practice, driven in part by technological advancement and convenience and, more recently, by the COVID-19 pandemic. While telephone consultations are most frequently used in primary care, they are now routinely employed in outpatient clinics within secondary care.

Telephone consultations may be used for a variety of reasons:

- Routine consultations (primary care or outpatient clinics).
- Triage (e.g., to determine the urgency of a referral or assessment).
- Follow up (e.g., to discuss test results)
- Out-of-hours consultations.
- Third-party consultations with other health professionals (e.g., with a nurse in a care home).
- Chronic disease reviews<sup>1,2</sup>

Some of the advantages of telephone consultations are listed below:

- Reduced disruption to patients' lives.
- Greater flexibility for working patients.
- Unnecessary travel can be avoided.
- Improved access to healthcare for housebound or isolated patients.
- Limited requirement of hospital infrastructure.<sup>2</sup>

On the other hand, telephone consultations also have certain important disadvantages that cannot be overlooked, such as difficulty in building patient-doctor rapport, challenges to communication, limited possibility of

examination, difficulty in determining patient satisfaction, and increased clinician fatigue.<sup>2</sup> Electronic clinic (telehealth) can become a basic need for the general population, healthcare providers, and patients with COVID-19; it can be especially useful when people are in quarantine, enabling patients to have real-time contact with their healthcare provider for advice related to their health problems. As COVID-19 spreads exponentially across the world, demands for innovative solutions in e-clinics have increased, to make up for unmet needs in the healthcare systems. The findings of the present review study strongly recommend that clinicians and patients employ e-clinic tools as an appropriate option to prevent and contain COVID-19 infections. E-clinic will almost certainly find a stronger hold within the health service frameworks of the three countries (Australia, the United Kingdom, and the United States), and it is likely to gain increased acceptance among both patients and healthcare providers.

The use of telehealth improves the provision of healthcare services; therefore, telehealth should be employed as an important tool in ensuring that adequate healthcare is offered to patients while simultaneously keeping them and the healthcare providers safe during COVID-19 outbreak.<sup>3,5</sup>

E-clinic presented an avenue for the patients to have continuity of care during this unprecedented time. Telehealth and telemedicine are not new services. Telehealth, a subset of e-health, is the umbrella term for clinical and non-clinical services provided remotely, whereas

telemedicine is a subset of telehealth and involves the delivery of clinical services to patients using electronic communications and softwares.<sup>2</sup>

Evaluations of telehealth have sought to assess the various measures of effectiveness or efficiency (cost) and engagement (patient satisfaction) to determine its success. Few studies, however, have looked at evaluating the organizational impact of telemedicine, which involves technology and process changes that affect the way that it is used and accepted by patients and clinicians alike.<sup>3</sup>

### MATERIALS AND METHODS

An electronic inquiry questionnaire was designed by the research team, structurally validated, and examined via preparatory tests before being distributed from May 1, 2020 till August 30, 2020 in two paths. Patient questionnaire was directed in a non-biased and blinded way to 500 patients who were randomly selected by the survey-blinded operator. The questionnaire was sent through the social media platform they had previously used to contact the e-clinic service. The link

was indexed as <https://www.iamrs.edu.iq/e-clinics-survey-patients>.

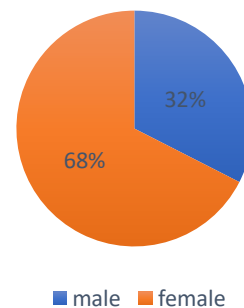
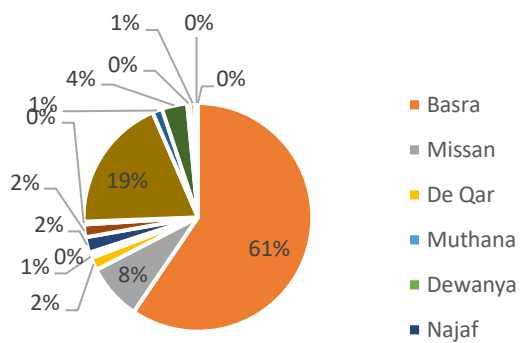
Another inquiry form was collectively distributed to all the 86 doctors who participated in providing the e-clinic service. The link for the form is listed below: <https://www.iamrs.edu.iq/e-clinics-survey-doctors/>

In both the questionnaires, a Likert scale (with five levels of satisfaction scores) was used to gauge the respondents' satisfaction levels and opinions regarding the different domains, as presented in appendices (1) and (2).

The responses received were automatically transferred to two separate Microsoft Excel sheet databases. Analysis and graphing of certain domains were then performed in a non-comparative manner.

### RESULTS

A total of 277 responses were gathered from the internet inquiry. Most of the respondents (59.6%) were from Basra governorate, followed by Najaf (19.1%) and Missan (7.9%).



**Figure 1:** Participant distribution according to the governorate.

**Figure 2:** Gender distribution of the respondents.

Most of the respondents were male (67.5%). Frequency of consultation ranged from one consultation (30.3%) to nine consultations (1.1%), with more than two-thirds of the respondents having participated in three or fewer consultations via electronic clinic services.

Average age for the respondents was 34.9 years (14–75 years).

Among the patient respondents, five were from Turkey and one from Australia, while the remaining 271 were local participants.

Most of the consultations were in May and June (49.9%) collectively, with the frequency decreasing in April (15.5%) and July (14.8%).

**Table 1:** Percentage distribution of electronic consultation over eight months.

Month of consultations	No.	Percentage
February	1	0.36
March	16	5.7
April	43	15.5
May	61	22.0
June	77	27.7
July	41	14.8
August	18	6.4
September	20	7.2
Total	277	100

Social media was the most common platform for getting informed about the electronic clinics (62.9%).beside (25.9%) had been informed of it by their acquaintances.

About (77.7%) of the patients respondents were satisfied with the electronic clinic service, and they indicated that the experience was satisfactory. Only 6.1% of the respondents were unsatisfied, and they indexed that the consultation they received was not enough.

**Table 2:** Participants’ responses to different questions according to the Likert scale.

Question	Totally Agree/satisfied	Agree/satisfied	Somewhat	Not Agree/not satisfied	Strongly Not Agree/ strongly not satisfied	Rank predominance
Did you find the medical advice you got sufficient to answer a question?	78(28.2)	137(49.5)	48(17.3)	12(4.3)	5(1.8)	agree
Was access to the electronic medical clinic service easy?	89(32.1)	148(53.4)	32(11.6)	10(3.6)	3(1.1)	agree
Did you receive consultation within an appropriate period of time?	86(31)	140(50.5)	34(12.3)	10(3.6)	7(2.5)	agree
Did you trust this medical advice beforehand?	74(26.7)	134(48.4)	61(22)	11(4)	0(0)	agree
Were you persuaded to respond to the medical advice?	90(32.5)	144(52.)	33(11.9)	9(3.2)	3(1.3)	agree
Was the service you received within your expectations?	62(22.4)	145(52.3)	53(19.1)	14(5.1)	7 (2.5)	agree
Do you intend to resort to electronic counseling in the future, if given the opportunity?	109(39.4)	133(48)	25(9)	11(4)	1(0.4)	agree
How satisfied are you, overall, with the online medical consultation experience?	109(39.4)	127(45.8)	28(10.1)	10(3.6)	5(1.8)	satisfied

About 85.5 % of the respondents agreed to the statement “It was easy to access the electronic service” (with 32.1% agreeing completely and 53.1% expressing general agreement).

For the question “Did you receive consultation within an appropriate period of time?” 50.5% of the respondents expressed satisfaction.

For the question “Did you trust this medical advice beforehand?” 75.1% of the respondents replied in the affirmative, expressing their trust in e-clinic experience, with only 4% stating that they did not trust the service.

For the question “Were you persuaded to respond to the medical advice delivered by the electronic clinic?” 52% expressed satisfaction, with 32.5% expressing strong

satisfaction according to the Likert score; about 4.3 % were not satisfied.

For the question “Was the service you received within your expectations?” 74.7% indexed satisfactory service via electronic clinic, while 7.3 % expressed dissatisfaction in varying degrees.

For the question “Do you intend to resort to electronic counseling in the future if you have the opportunity?” 242 (83.4%) respondents expressed agreement, while 12 (4.4%) did not.

For the question “What is your overall level of satisfaction with the e-medical consultation experience?” 39.4% of the respondents expressed strong satisfaction and 45.8% expressed general satisfaction, while 15.4% stated that they were unsatisfied.

**Table 3:** The percentage distribution of the responses to the request for suggestions or comments

Suggestion/comment	No.	Percentage of those with suggestions	Percentage of total respondents
Thankfulness and appreciation messages	23	26.8	8.3
Request to continue beyond the pandemic or to add other specialties	18	20.9	6.4
Suggestion to add special consultation form to allocate timings	17	19.8	6.1
To minimize the waiting duration	14	16.3	5.05
Dissatisfaction and swearing	7	8.1	2.52
Other suggestions and positive messages, financial optimization of e-clinics as full-time service	7	8.1	2.52
Responses that did not include any suggestions	191		68.9
Total	277	100	100

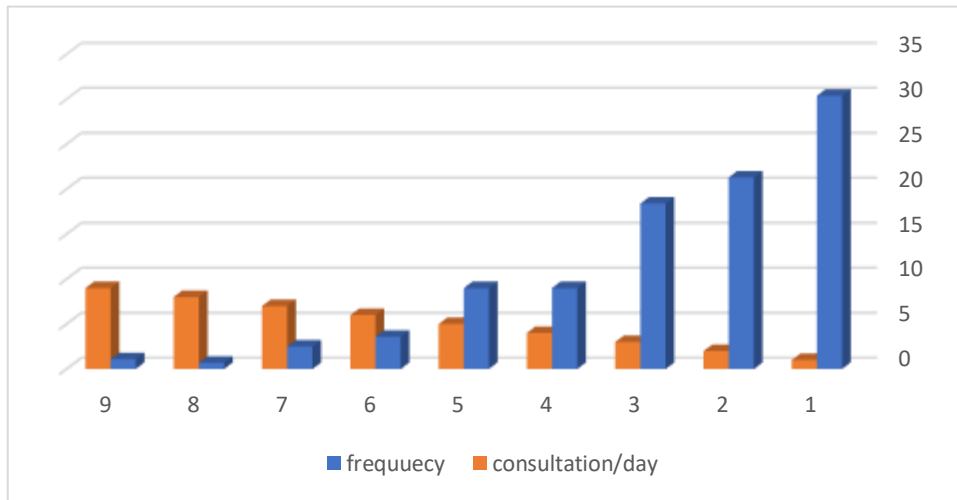
On requesting to add a comment or a suggestion, 191 (68.9%) respondents declined, while 86 (32.1%) offered a comment or a suggestion, which are presented in Table 3 from the most to the least frequent.

**Trend among the doctors towards the electronic clinic service**

A total of 68 doctors participated in and responded to the survey.

The median age of doctors who participated in the e-clinic service was 44 years (30–63

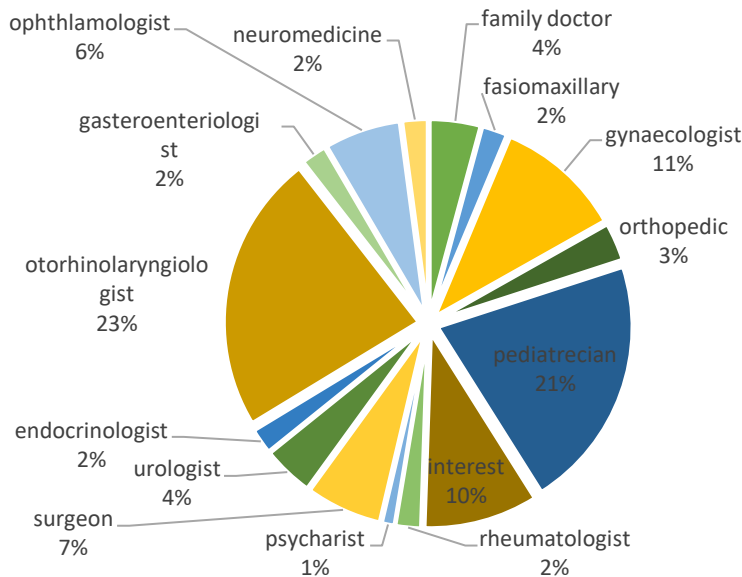
years); only 7 (10.4%) doctors were female, and the remaining 60 (89.6%) were male.



**Figure 3:** Distribution of the number of consultation per day via the electronic clinic.

Most of the doctors who participated (42; 62.7%) received 10–20 consultations per day, while 7 (10.4%) doctors received more than

50 consultations per day. As the frequency of consultation increased, the number decreased.



**Figure 4:** Percentage distribution of the specialties involved in the electronic clinic services.

Pediatricians (25%), otorhinolarngiologists (22%), and gynecologists (10%) were the most sought-after specialists in the electronic clinics.

**Table 4:** Reasons behind the doctors’ decision to grant electronic consultations to citizens.

Answer	No.	Percentage
Desire to help citizens	28	(41.8%)
The desire to communicate with patients in particular	10	(14.9%)
Divine reward	13	(19.4%)
All the above reasons	40	(59.7%)
None of the above reasons	0	0%
Total		

Desire to help citizens and the possibility of divine rewards were the two most common incentives that were isolated as the reasons behind the doctors’ decision to participate in the e-clinics.

*“What method(s) did you use to communicate with citizens?”* most common platforms used for conducting electronic consultations. This was presented as a multiple-answer question. WhatsApp messenger (58.2%), Facebook (44.8%), and phone calls (40.3%) were the

**Table 5:** Methods used to communicate with electronic clinic users.

Communication tool*	No.	Percentage
Telephonic call	27	(40.3%)
Viber	39	(58.2%)
SMS postal messages	7	(10.4%)
Other means of electronic communication	5	(7.5%)
WhatsApp messenger	39	(58.2%)
Telegram	2	(3%)
Instagram	1	(1.5%)
E-mail	1	(1.5%)
Facebook page	30	(44.8%)
All of the above means	13	(19.4%)

**Table 6:** Distribution of doctors' answers into different satisfaction levels.

Question	Totally agree/ Satisfied	Agree/ Satisfied	Somewhat	Not agree/ Not satisfied	Strongly not agree/ Strongly not satisfied	Rank Predominance
Did you find this experience successful for you and your patients?	8 (11.9%)	28 (41.8%)	26 (38.8%)	4 (6%)	0 (0%)	Agree
Do you recommend continuing this experiment until the post-ban period to reduce the stress on public and private health institutions?	8 (11.9%)	21 (31.3%)	25 (37.3%)	13 (19.4%)	2 (3%)	Somewhat agree
Did social media (Facebook, WhatsApp, Viber, etc.) help you accurately diagnose during the medical consultations?	4 (6%)	25 (37.3%)	31 (46.3%)	7 (10.4%)	0 (0%)	Somewhat agree
Do you expect this experience was useful in diagnosing the patients' diseases, reducing their suffering, or treating certain medical cases?	14 (20.9%)	32 (47.8%)	19 (28.4%)	2 (3%)	0 (0%)	Agree
Do you expect that this experiment can be generalized and applied beyond the COVID-19 pandemic to filter cases according to their severity and need for medical service and correspondingly schedule patients' visits to healthcare institutions?	8 (11.9%)	28 (41.8%)	20 (29.9%)	10 (14.9%)	1 (1.5%)	Agree
Were there some absurd or offensive consultations?	4 (6%)	24 (35.8%)	12 (17.9%)	25 (37.3%)	2 (3%)	Not agree

About 53.7% of the doctors responded that the experience was successful, 43.3% recommended continuing the service

throughout the course of the pandemic, and 53.7% recommended continuing it even beyond the pandemic.

**Table 7:** Categorization of the participating doctors' suggestions.

Suggestion categories	No.	%
To establish a central platform/web citation to organize and unify the streaming of consultation	12	26.6
None	11	24.4
To allocate specific timings for consultations	8	17.7
Other individual proposals	6	13.3
To cancel the service due to inconvenience and lack of usefulness	3	6.6
To offer an application/special unified form	3	6.6
To initiate the consultation as a part of public services	2	4.4
	46	

The suggestions received from the participating doctors about the service were categorized, and their responses were

distributed; 45 doctors responded to the question and 22 did not.



**Table 8:** Categories of obstacles identified by the participating doctors.

Obstacle categories	No.	%
Internet-related problems	12	17.74
Difficulties in reaching optimum diagnosis, lack of clinical examination findings	11	12.9
Excess of unnecessary messaging and irrelevant questions	9	8.06
Difficulties in imparting information to the patient, lack of active intervention	8	14.51
Consulting outside jurisdiction	7	9.67
Unsuitable timings, duration, or content of the consultation; abusive consultation	6	19.35
None	5	11.29
Other	4	6.45
Total	62	

The obstacles recorded by the 62 respondents were primarily related to the following three major categories: internet-related problems, difficulties in reaching optimum diagnosis/lack of clinical examination findings, and excessive/unnecessary messaging and irrelevant questions.

## DISCUSSION

About 77.7% of the respondents were satisfied with the e-clinic and they indicated that it was satisfactory to them; only 6.1% of the patient respondents were unsatisfied. The results are consistent with the findings of Balas, et al. who analyzed 61 (76%) provider-initiated communication with patients, of which 50 (63%) reported positive outcomes, improved performance, or significant benefits.<sup>5</sup>

E-clinic provided easy access, was trustful, and was of satisfactory durations, as indicated by the respondents with an overall satisfactory experience with the service. Likert score of 84.5% of the respondents is consistent with the results of the study by Jennifer et al., where around 94% of respondents from the USA reported satisfactory telehealth visits. The findings are also commensurate with those of Andrews et

al., which recorded 75% satisfaction in a Kyruus survey.<sup>6,7,10</sup>

Kyruus survey in the USA revealed that 75% of the 1000 respondents were greatly satisfied with the e-clinic service and 60% wanted to reuse the service in future. Further, 46% found the service to be very easy, while 36% found it easy.<sup>10</sup>

The major trend toward agreement was observed in the responses to the following three questions: “Were you persuaded to respond to the medical advice?”, “Was the service you received within your expectations?”, and “Do you intend in the future to resort to electronic counseling, if given the opportunity?”

Most of the doctors who participated in the service and answered the survey (64) were pediatricians, followed by ENT specialists. This observation is comparatively different to that of Andrews et al., whose study found that the majority of services offered were in subspecialty areas, such as allergy and immunology, pediatricians, and head, eyes, ears, nose and throat (HEENT).<sup>7</sup>

Almost all the participating doctors received 10–20 consultations per day. The Likert score suggests that the observable trend among the doctors was to agree with the following

questions: “Do you think that the experience was successful for doctors and patients?”, “Do you expect that this experience was useful for patients in diagnosing their diseases, reducing their suffering, or treating some cases?”, and “Do you expect that this experiment can be generalized and applied beyond the COVID-19 pandemic?” On the other hand, most disagreed with the statement that the service carried a lot of absurd or offensive consultations.

The motivations behind their participation stemmed primarily from a desire to help or from the incentive of divine reward.

Most of the doctors provided consultations through social media rather than direct phone calls. Andrews et al. similarly reported that a single mode of communication did not dominate.<sup>7</sup>

The doctors’ suggestions included the need to establish a central platform, web citation to organize and unify streaming of consultation (26.6%), and allocation of specific timings for consultations (17.7%).

Chinese government launched a remote consultation network that enables internet or telephone consultations in safe settings to ensure the continuous provision of mental health services and to reduce the hazard of cross infections.<sup>6</sup>

Some of respondents, unexpectedly, suggested financially optimizing e-clinics as a full-time service (8.1%); mostly, the suggestions recommended a special consultation form and allocated timings, which could be continued beyond the pandemic. This seems to correspond with the findings of Cohen et al., whose study based

in the USA suggested developing staffing plans that can be used to bill the patients. Further, appropriately-performed electronic clinic visits can be used in psychological treatments.<sup>9,10</sup>

## CONCLUSIONS

E-clinic service evaluation via electronic survey revealed a spectrum of satisfactory responses from both the patient respondents and the doctors, with most suggestions recommending technical optimizations and continuation of the service beyond the pandemic.

E-clinic should be considered an important tool in healthcare services, as it helps keep the patients and healthcare providers safe during the COVID-19 pandemic.

## RECOMMENDATIONS

1. To continue beyond the pandemic.
2. To expand the experience to all regions of Iraq.
3. To include all the different specialties.
4. Technical optimization using a special application software/form and a unified platform.

### Limitations:

A larger sample of respondents can be included in the patients’ survey in order to overcome the limitation of time restrictions.

**Disclaimer:** The authors have no conflict of interest.

## REFERENCES

1. Royal College of Physicians. Outpatients: the future – adding value through sustainability, RCP 2018. Available from: <https://www.rcplondon.ac.uk/>.
2. Ambrose L. Remote consulting: recognizing the cognitive load. *British Journal of General Practice*. 2020;70(695): 295. Available from: <https://bjgp.org/content/70/695/295>.
3. M.Elham, H. Alireza. The role of telehealth during COVID-19 outbreak: a systematic review based on current evidence electronic. *BMC Public Health*. 2020;20: 1193.
4. Cranford L. Telemedicine vs. telehealth: what's the difference? *Chiron*. Available from: <https://chironhealth.com/blog/telemedicine-vs-telehealth-whats-the-difference> Accessed at March 23 2021.
5. Fisk M, Livingstone A, Winona S. Telehealth in the context of COVID-19: changing perspectives in Australia, the United Kingdom, and the United States. *J Med Internet Res*. 2020;22(6): e19264. doi: 10.2196/19264.
6. Yang Y, Zhou Y, Liu X, Tan J. Health services provision of 48 public tertiary dental hospitals during the COVID-19 epidemic in China. *Clin Oral Investig*. 2020. <https://doi.org/https://doi.org/10.1007/s00784-020-03267-8>.
7. Andrews E, Berghofer K, Long J, Prescott A, Caboral-Stevens M. Satisfaction with the use of telehealth during COVID-19: an integrative review. *International Journal of Nursing Studies Advances* 2 (2020) 100008, Available online 16 October 2020,
8. Jiang X, Deng L, Zhu Y, Ji H, Tao L, Liu L, et al. psychological crisis intervention during the outbreak period of new coronavirus pneumonia from experience in Shanghai. *Psychiatry Res*. 2020:112903.
9. Balas A, Jaffrey F, Gilad J, Kuperman, Boren S A, Brown G D, Pincirolu F et al. Electronic communication with patients: evaluation of distance medicine technology *JAMA*. 1997;278(2): 152–159. doi:10.1001/jama.1997.03550020084043.
10. Patient perspectives on virtual care insights from a survey of 1,000 patients about their virtual care experiences during the COVID-19 pandemic. *Kyruus*.