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The role of teledentistry in oral surgery during the COVID-19 pandemic

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ABSTRACT

Objectives: Evaluation of patient experience of teledentistry during the coronavirus pandemic and establishing the clinical effectiveness of teleclinics in this context.

Methods: 103 follow-up patients who had a telephone review during the pandemic were included. A five-item, five-point Likert-scale telephone survey was used to gauge patient experience. In addition, retrospective analysis of these patients' electronic records was done to establish effectiveness of the telephone review. Patients' responses and data collected were then analysed.

Results: In terms of patient experience of their telephone review, 70% found the telephone review was useful, 77% felt their concerns were addressed, 99% felt it was easy to access and time saving, 94% felt they could discuss their healthcare matters on the phone, and 62% felt they preferred telephone reviews rather than face-to-face reviews for their follow-up appointments.

When analysing effectiveness of the telephone review, 62% of patients could be discharged following the teleconsultation, suggesting it was sufficient alone to complete these patients' care. All relevant clinical information was present for 98% of the teleconsultations to proceed. Results showed teledentistry was particularly effective for follow-up patients requiring a post-operative review or finalisation of treatment plans.

Conclusion: Patients had a positive experience of telephone clinics for the provision of their routine follow-up care. In addition, teledentistry is shown to be a means of increasing capacity for face-to-face reviews, in turn reducing waiting times and further improving patient experience. Appropriate case selection for teledentistry is essential. Teledentistry is an efficient and effective tool for patient care when used suitably and can have an important role in routine patient care beyond the pandemic.

1. Introduction

The coronavirus (COVID-19) pandemic has led to unprecedented changes within all healthcare professions, including dentistry. Overcoming the challenges related to quarantine and social distancing has become crucial in the provision of necessary dental care. Innovative approaches such as teledentistry allow delivery of patient care whilst mitigating the risk of viral transmission.

Teledentistry can be defined as the remote provision of dental care, advice or treatment through the medium of information technology, rather than direct personal contact with patients [1].

In contrast to general medicine, where up to a quarter of interactions between patients and doctors are over the phone [2-3], teledentistry was rarely utilised prior to the pandemic. This is mostly due to reliance on

visual and/or tactile clinical examination intraorally. The lack of patient acceptance has also been highlighted as a challenge to teledentistry [4].

The value of teledentistry in increasing access to care and lowering costs of healthcare has been well documented, particularly in urban and rural areas [5-10]. However, their clinical effectiveness has not been widely reported [11,12]. Moreover, these studies did not account for the effectiveness of teledentistry from a patient perspective; a key dimension of quality of care [13].

The current study reports outcomes from the first teleconsultations used in the Oral Surgery Department at a London dental hospital in response to the global pandemic. We focus on patient experience and effectiveness of telephone reviews for follow-up patients, with a view of assessing the role of teleclinics beyond the pandemic.

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2. Method

We performed a retrospective study using electronic medical records and patient survey data of patients who had a telephone review between May–June 2020.

Patient experience was gauged via a telephone survey conducted by two oral surgery clinicians. This included five statements (Box 1) with which respondents rated their level of agreement using a five-point Likert scale.

In the event of non-response, a maximum of two further attempts was made to contact the patient before excluding them. Other exclusion criteria included new patients and patients already on the waiting list for treatment. The focus was on the effectiveness of teleclinics in the context of follow-up patients.

The electronic records of included patients were used to collate further anonymised data (Box 2) to assess effectiveness of the telephone review. Results were recorded electronically, alongside any additional comments made by patients.

3. Results

3.1. Outcomes of patient survey

A total of 117 eligible follow-up patients who had a telephone review between May–June 2020 were identified. Of these, 103 responded when

contacted and were included in the analysis, giving an 88% response rate. The majority of respondents were female (63%) and the average age of the study group was 49 (range: 18–84).

Patient responses to survey questions (Box 1) were analysed (Fig. 1). In terms of the responses to the survey, 70% (n = 72) of patients agreed or strongly agreed that the telephone review was useful to them, 77% (n = 79) agreed or strongly agreed that their concerns were addressed, 99% (n = 102) agreed or strongly agreed that the teleclinic was time saving and easy to access and 94% (n = 97) agreed or strongly agreed that they felt able to discuss confidential healthcare matters over the phone. Finally, 62% (n = 64) agreed or strongly agreed that they would prefer a telephone review rather than a hospital visit when appropriate.

3.2. Outcomes of teleclinic reviews

Overall, the majority of follow-up patients (60%, n = 62) were discharged following their telephone review.

Fig. 2 illustrates the outcomes for each reason for review. The most common reason for a follow-up was post-operative review (59%, n = 61) and within this cohort, most patients were discharged (72%, n = 44). A fifth of patients were reviewed to finalise a treatment plan and over half of these were discharged after their teleconsultation (57%, n = 12). The remaining patients required review of a chronic lesion or condition (e.g. MRONJ) or TMJD (20%, n = 21) and these were more likely to require further follow-up.

BOX 1

Statements given to respondents for the telephone survey

1. Your telephone review was useful to you
2. Your telephone review addressed your concerns
3. Your telephone review was time saving and easy to access
4. You felt able to discuss confidential healthcare related information on the phone
5. When appropriate and clinically viable, you would prefer a telephone review for your follow up appointments

1. Your telephone review was useful to you
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BOX 2

Patient data collated from electronic records

1. Reason for review (e.g. post-operative review, review of chronic TMJD/ lesion)
2. Patient demographics
3. Availability of appropriate imaging, histopathology and blood reports where necessary
4. Availability of medical history
5. Outcome of telephone review (i.e. discharge vs follow-up)

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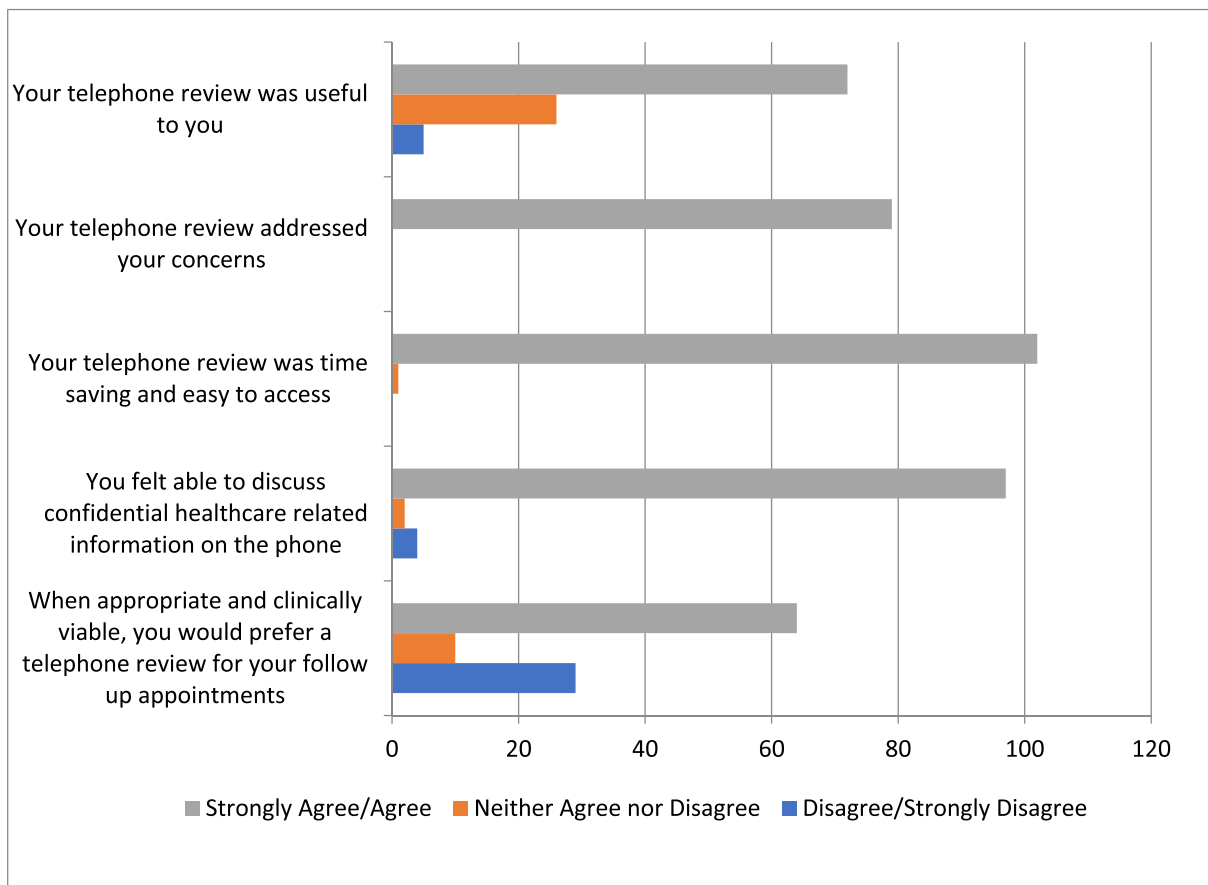


Fig. 1. Patient responses to telephone survey (n = 103).

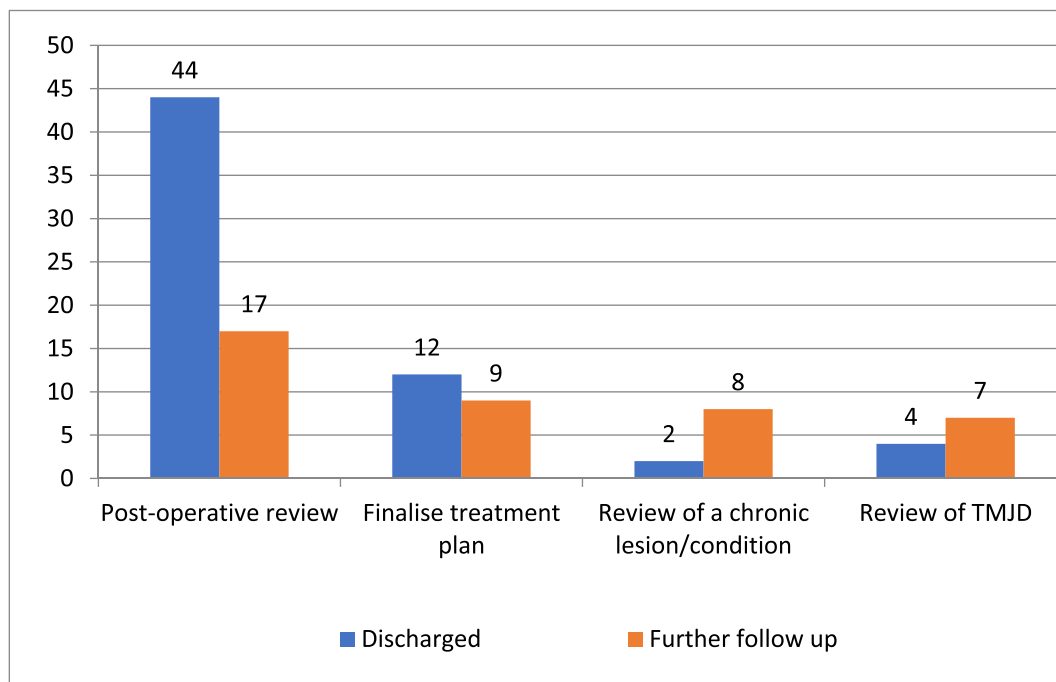


Fig. 2. Outcomes of the telephone review for category of follow-up patient.

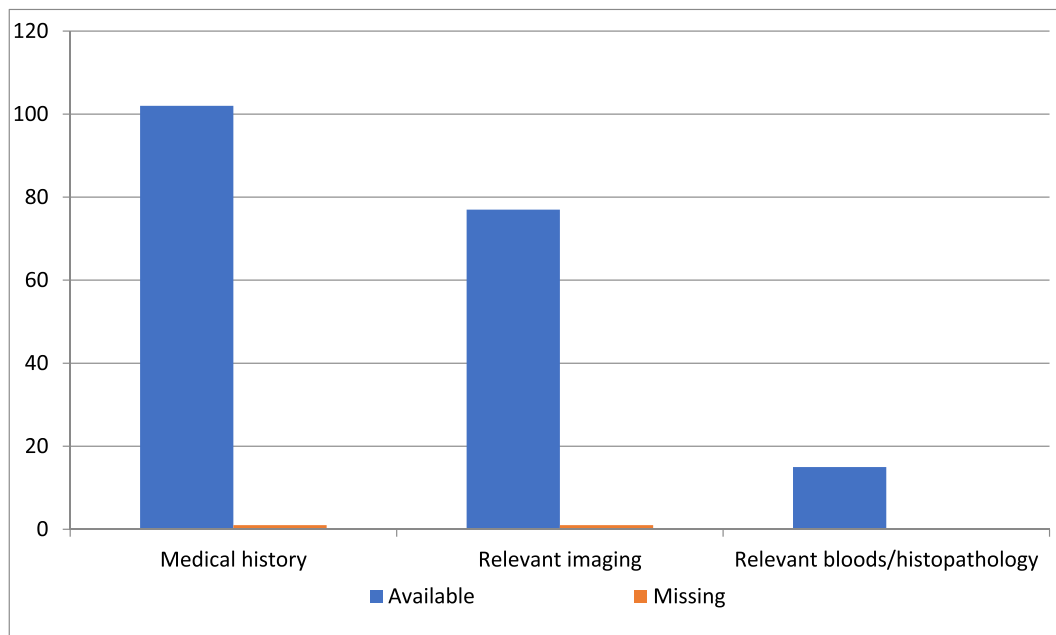


Fig. 3. The availability of clinical information at the time of the telephone review.

3.3. Availability of relevant clinical information

Nearly all (98%, n = 101) the teleclinic consultations were able to proceed with the relevant clinical information available (see Fig. 3). In terms of missing clinical investigations, this included incomplete medical history for one patient who could not recall their updated medications and imaging following enucleation of a cystic lesion was outstanding due to COVID-19 related delays for one patient. Blood and histopathology results were available for all patients who required them, allowing a discussion of the results and progression of the patient's care over the phone.

4. Discussion

Teledentistry has emerged as a critical tool for providing ongoing care in the advent of COVID-19. The number of coronavirus cases across the world continues to rise and as the WHO stated, the pandemic is 'not even close to being over' [14]. Thus, the need for teleclinics will be ever more necessary. Moving forward, although provision of remote patient care in dentistry was born of necessity, it is proving to be a useful tool in the routine care of patients that can be employed beyond the pandemic.

We report outcomes from the largest evaluation to date of teledentistry within Oral Surgery incorporating patient experience and clinical effectiveness, which demonstrated a very positive perception of telephone consultations. This is in-line with findings from a recent study of 52 patients which found patients that used virtual clinics and telephone consultations had 97% and 94% satisfaction respectively [15]. Only telephone clinics were assessed in our study as these are more widely available across this particular Trust at the time of the study.

We found that nearly two thirds of patients (62%) preferred a telephone review rather than a face-to-face consultation. However, the extent to which this related to concerns of potential exposure to COVID-19 and adherence to social distancing was not ascertained and is a limitation of the study.

Of the patients who preferred a hospital visit over a telephone review, we noted the majority were symptomatic or had a clinical concern which required a face-to-face assessment, highlighting the importance of careful case selection when deciding which patients would benefit the most from teleclinics. One important consideration for this can be seen in the response of patients who disagreed with the statement "you felt able to

Table 1
Baseline patient demographics.

Patient demographics		N (%)
Sex	Male	38 (37)
	Female	65 (63)
Age (years)	<25	7 (7)
	25–50	43 (42)
	51–75	39 (38)
	>75	14 (13)
Distance from dental hospital (miles)	<10	77 (75)
	10–30	25 (24)
	>30	1 (1)
Reason for review	Post-operative review	57 (55)
	Finalising treatment plan	21 (20)
	Review of chronic lesion or condition	12 (12)
	Review of temporomandibular joint disorder (TMJD)	13 (13)

discuss confidential healthcare related information on the phone". The underlying reason was usually lack of privacy in their homes to discuss confidential health matters. In light of the 2018 General Data Protection Regulations [16], confidentiality of patient information in the context of teleclinics should be accounted for. It may be appropriate to establish if patients have suitable living conditions to allow a private telephone consultation and obtain their consent before proceeding.

Clinical effectiveness of telephone reviews may be partly assessed by the proportion of patient satisfaction as well as discharges following the telephone review; a discharge outcome suggests the review was sufficient in addressing the patients' concerns and completing the patients' care. Effectiveness can also be gauged by the availability of clinical information to complete each review. Taken altogether, we found that telephone

clinics were very effective in the context of post-operative reviews, patients who required a treatment plan to be finalised (this includes those who were unsure what treatment they wanted at the initial consultation, or those whose medical history needed to be chased by liaising with other healthcare professionals to safely treatment plan) and patients awaiting blood or biopsy results.

Not surprising, patients with chronic lesions or conditions such as temporomandibular joint disorder (TMJD) often required further follow-up after a telephone review. This is usually related to ongoing concerns or the need for further investigations. It may be appropriate to consider patients in these categories who are relatively stable for telephone reviews, where any conservative management and advice can be reiterated.

Another key finding was related to improved patient turnover. Prior to the pandemic, each clinician would see on average 9 patients per session. This doubled to an average of 18 patients following use of telephone clinics. Importantly, this increased patient flow (remotely) whilst allowing more face-to-face consultations and reduced footfall in the hospital. This holds promise for the usefulness of teleclinics beyond COVID-19, in reducing waiting times and streamlining patient access to dental care.

Strengths of the study include a good response rate with patients showing a wide range of baseline characteristics, allowing for a representative sample. The advantage of focusing on review patients means that all respondents were able to compare their experience to a face-to-face review in the department.

Limitations of this study include the possibility of response bias, as patients could not give anonymous responses for the telephone survey despite being advised to be as honest as possible. Virtual clinics are being increasingly used as part of teledentistry; further evaluation of virtual clinics would help paint a clearer picture of the value of teledentistry in the context of patient experience and clinical effectiveness beyond the COVID-19 pandemic.

5. Conclusion

Patients had a favourable experience of telephone clinics for the provision of their routine follow-up care. In addition to patient satisfaction, teleclinics increased efficiency and capacity for face-to-face reviews, thus improving patient experience further. Case selection of patients best suited for teledentistry would improve satisfaction further. This study highlights teledentistry is an efficient and effective tool for patient care when used appropriately and can have an important role in routine patient care beyond the pandemic.

Ethics statement/confirmation of patient permission

Ethical approval was not required for this Trust service evaluation. Patients consent has been obtained.

Table 1 shows the baseline characteristics of patients included in this evaluation.

Declaration of competing interest

There are no Conflicts of Interest for any authors.

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