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Assessing the impact of an urgent dental care centre on the oral health-related quality of life of patients during the COVID-19 pandemic

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ABSTRACT

Introduction: An urgent dental care centre (UDCC) was set up at Queen Mary's Hospital in Sidcup, in response to the COVID-19 pandemic. Alongside the reporting of clinical outcomes, it is important to determine the success of a service from a patient's perspective. The aim of this study was to ascertain patient reported outcome measures (PROMs) and patient reported experienced measures (PREMs) of our service.

Method: The Oral Health Impact Profile 14 (OHIP-14) tool was used to assess the Oral Health-Related Quality of Life (OHRQoL) of patients, and completed before and after attending our UDCC for treatment. Patients were also asked to complete a patient satisfaction questionnaire.

Results: 146 patients were recruited for our study, with 95 patients completing the OHIP-14 questionnaires pre- and post-intervention at our UDCC and 136 patients completing a patient satisfaction questionnaire. A statistically significant reduction in OHIP score when comparing pre- and post-intervention was found across all OHIP-14 domains. The mean positive response rate (strongly agree or agree) for the patient satisfaction questionnaire was 97.1%.

Conclusion: A significant improvement in OHRQoL was found after treatment at our UDCC, with the majority of patients reporting a positive experience. We conclude that PROMs and PREMs are vital tools to assess service efficacy, help with the planning of service provision and should remain at the forefront even during a crisis such as the COVID-19 pandemic.

Introduction

On 23rd March 2020, the UK government issued a nationwide lockdown in response to the COVID-19 pandemic resulting in the cessation of all emergency and elective dental treatment across primary, secondary and tertiary services. Consequently, access to emergency dental care for patients experiencing acute dental trauma, dental pain and signs and symptoms of spreading dental infection were severely restricted. Primary general dental practitioners (GDPs) were encouraged to provide a remote triaging service to their patients to assess their condition and to provide remote treatment in the form of AAA (Advice, Analgesia and Antimicrobial prescribing).

In response to this absolute termination of services, Urgent Dental Care Centres (UDCCs) were established to provide emergency dental treatment where AAA was ineffective. One such UDCC operating outside the established NHS-111 service was set up within 10 days of the
The unique circumstances surrounding COVID-19 presented a significant challenge to oral health-care provision. Commissioning Oral Surgery and Oral Medicine Specialties (2015) noted that the quality of services, clinical effectiveness and patient experience are important considerations when planning treatment. The concept of Oral Health-Related Quality of Life (OHRQoL) is multifactorial and has been defined by Locker et al., as ‘the extent to which oral disorders affect functioning and psychosocial wellbeing’ [6]. Ultimately, it is a patient-reported outcome measure (PROM). Understanding patient satisfaction through the delivery of service is of prime importance too as it allows service providers to continually improve the provision of their care. Evaluating a service from this aspect provides patient reported experience measures (PREMs).

The authors felt that during this phase of urgent dental service provision, the quality of services, clinical effectiveness and patient experience should not be compromised. This is in line with the Guide for Commissioning Oral Surgery and Oral Medicine Specialties (2015) [7]. The unique circumstances surrounding COVID-19 presented a significant but relatively unknown impact on the OHRQoL of patients with dento-alveolar conditions.

Aims

Primary

To understand the provision of urgent dental care provided within our UDCC during from a 360-degree perspective: looking at both PROMs and PREMs.

Table 2

Patient demographic data for total sample vs completed OHIP questionnaires.

| Patient characteristic | Total sample (n = 136) | Completed OHIP (n = 95) |
|------------------------|------------------------|------------------------|
| Sex                    |                        |                        |
| M                      | 52 (38%)               | 37 (39%)               |
| F                      | 84 (62%)               | 58 (61%)               |
| Age                    |                        |                        |
| ≤20                    | 9 (7%)                 | 3 (3%)                 |
| 21–40                  | 47 (35%)               | 36 (38%)               |
| 41–60                  | 51 (37%)               | 38 (40%)               |
| 61–80                  | 27 (20%)               | 17 (18%)               |
| >80                    | 2 (1%)                 | 1 (1%)                 |
| Pre-existing medical condition |                |                        |
| Y                      | 55 (40%)               | 46 (51%)               |
| N                      | 81 (60%)               | 47 (49%)               |
| Reason for referral†   |                        |                        |
| Pain                   | 124                    | 86                     |
| Swelling               | 32                     | 22                     |
| Dental trauma          | 14                     | 11                     |
| Other trauma           | 3                      | 4                      |
| IMD score              |                        |                        |
| 1 – least deprived     | 25 (18%)               | 19 (20%)               |
| 2                      | 16 (12%)               | 15 (16%)               |
| 3                      | 27 (20%)               | 17 (18%)               |
| 4                      | 33 (24%)               | 22 (23%)               |
| 5 – most deprived      | 35 (26%)               | 22 (23%)               |

† This data is not displayed as a percentage as some referrers noted multiple reasons in a single referral.

Secondary

To ascertain how deprivation affects OHRQoL during a pandemic crisis.

Methods

Data collection and measures

This study was deemed a service evaluation not requiring ethical approval. Patients who attended the UDCC at QMH over a consecutive four-week period were recruited to take part. Given the heightened cross-infection protocols and limit placed on face-to-face interaction, all questionnaires were conducted via telephone and inputted electronically. Participation was entirely voluntary, with the right to opt out at any point during the process. It was made apparent that reluctance to participate would not impact on treatment provision.

Patients were recruited if they:
- Were accepted at triage stage and agreed to treatment within the UDCC.
- Consented to take part at both triage and three-week post-operative stages of the survey.
- Experienced symptoms for at least 1 week prior to triage at the UDCC.

Patients were excluded if they:
- Exhibited signs of communication barriers, e.g. translator required to carry out the triage phone call.
- Exhibited signs of lack of capacity to consent for their treatment, e.g. if another individual had lasting power of attorney.
- Were less than 16-years-old.
- Were being referred back to the UDCC for post-operative complications.
- Were not contactable by telephone after three attempts.
- Failed to attend/cancelled their treatment appointment at the UDCC.
- Opted out of the study.

An assessment of OHRQoL involved completing the 14-item Oral Health Impact Profile (OHIP-14) [8] (Box 1 – Supplementary Data). This was completed at two stages: pre-operatively at the point at which the triage team had assessed the patient and deemed they had met the acceptance criteria and post-operatively, three weeks after treatment within the UDCC. A three-week period was determined to account for any altered results owing to unavoidable post-operative pain. To assess patient satisfaction, subjects were asked to complete a questionnaire four weeks after treatment. The questionnaire was formulated using a modified Delphi method with key stakeholders within the UDCC (Table 1). This was once again completed by telephone.

Each item on the OHIP-14 questionnaire was scored from 0 (never) to 4 (all the time). A higher total OHIP-14 score denotes a worse OHRQoL (minimum 0, maximum 56). Similarly, items on the patient satisfaction questionnaire are graded from ‘strongly disagree’ to ‘strongly agree’ on a 5-point Likert scale. Qualitative comments for those who wished to add these at the end of the survey were transcribed verbatim during the telephone call and inputted contemporaneously into a database.

The University of Oxford online tool [9] was used to calculate quintile group for the Index of Multiple Deprivation (IMD) score using the patients’ postcode. This score describes the patient deprivation and was grouped from those residing in the least deprived areas to those in the most deprived.

Data analysis

Means and standard deviations were used to summarise scores for the OHIP-14 questionnaire, for individual questions as well as for the total
score pre- and post-intervention. A two-tailed paired $t$-test was used to assess whether there was a statistically significant difference between pre- and post means (5% alpha level). To avoid inflation of type I error due to multiple testing, the formal test for assessing a pre-versus post change was only performed on the total score rather than for each item.

Baseline demographics were reported for the total sample as well as for only those who completed the OHIP-14 questionnaire, in order to judge whether any patient characteristics were associated with drop-out.

For the patient satisfaction questionnaire, a stacked bar-chart was produced to illustrate the distribution of responses to each question, which were then dichotomised into ‘strongly agree or agree’ versus ‘neutral, disagree or strongly disagree’, in order to summarise positive responses. Analysis was conducted using Stata version 16.0 (StataCorp, Texas).

Qualitative patient data (i.e., their additional comments) was analysed and coded according to the emerging themes. Comments containing multiple themes were split, where necessary, to allow all salient points to be included. The themes were then tabulated and the corresponding comments divided into those which were clearly positive and endorsing in nature, against those which were negative or suggested an improvement or alteration to the service or treatment received.

Results

146 patients were recruited over a 4-week period (out of 420 seen). The patient satisfaction questionnaire was completed by 136 patients, whilst data to compare pre- and post-intervention OHRQoL was obtained from 95 patients.
The demographic data for our patient sample is shown in Table 2. This includes key information such as age, sex, pre-existing medical conditions, the main reasons for referral into the UDCC and the IMD score. Fig. 1 shows a heat map demonstrating the patient cohorts’ location by postcode.

The mean (95% CI) pre- and post-intervention OHIP-14 scores were 30.4 (28.0–32.7) and 6.5 (4.4–8.6), respectively, with a statistically significant difference (p < 0.001). This improvement was reflected across each of the 14 domains assessed using the OHIP-14 questionnaire. The pre- and post-intervention mean OHIP scores for each question are displayed in Fig. 2.

The mean positive response rate (strongly agree or agree) from the patient satisfaction questionnaire was 97.1% (Fig. 3), where the majority response to all questions was ‘strongly agree’, and 76.5% (n = 104) of patients responded positively to all 11 questions. Of the patients who completed the satisfaction questionnaire, 93% chose to leave a free text comment. These were coded and grouped into the domains shown in Table 3, with an example of each comment provided. 156 comments were coded and grouped individually. Of these, 18% were either negative in nature or offering suggestions for improvements. In many cases however, these comments were traced back to their pre-coded form and often appeared in conjunction with a more positive comment, for example, “Had to wait for 45 min and the receptionist didn’t tell me I would need to wait. Everything else was very impressive – my treatment was super, very professional, very considerate of COVID” (Male, 47yo).

Most of the negative comments or ones focusing on improvements appeared in the domains of ‘treatment provided’ (n = 11), ‘waiting time’ (n = 7) and ‘equipment’ (n = 2).

**Discussion**

It is important to be able to qualify treatment from patients’ perspectives. Healthcare providers are able to assess and include patients’ experiences and outcomes in decisions about care planning and service evaluation. As a pillar of clinical governance, patients should be involved in these decisions as they are integral in framing service provider’s understanding and insight into treatment. As the COVID-19 pandemic continues, UDCCs such as this one may need to be established yet again. Deficiencies or shortcomings relating to services set up in an acute fashion during the first lockdown should be identified and evaluated for future planning.

To the authors knowledge, this is the only study using the OHIP-14 tool as a measure of intervention during the coronavirus pandemic in a United Kingdom UDCC. There was a statistically significant difference between the pre-and post-intervention OHIP-14 scores, demonstrating an
objectively determined improvement in OHRQoL of our sample population. This is something that would be expected. Patients accessing our emergency service had experienced symptoms (most commonly pain) for at least a week. Curative intervention to alleviate them of this would undoubtedly improve their OHRQoL.

Across all 14 domains assessed using the OHIP-14 questionnaire a marked improvement (decrease in score) was found. The greatest decrease between pre-and post-intervention mean OHIP scores was found in questions 3 and 9 which relate to painful aching in the mouth and difficulty in relaxing respectively. This would be expected as 124 patients (91.2%) of the included cohort had pain documented as at least one of the reasons for referral.

The smallest decrease between mean OHIP scores was found in question 1, relating to the pronunciation of words. Discussion with the clinical team staffing the UDCC indicated that the majority of extracted teeth were located in posterior sextants, which would not be expected to negatively impact phonation or speech. Another question relating to the impact of the loss of teeth in the anterior sextant is question 10, which relates to feelings of embarrassment. This showed the second lowest decrease between mean OHIP scores. Question 7 explores the theme of difficulty in mastication. One would expect that there would be a reduction in OHIP following removal of a posterior tooth, which may aid eating. Surprisingly, this was not what the results showed.

Of the patient sample who completed the OHIP-14 questionnaires, almost half (46%) fell into quintiles 4 and 5 representing the most deprived population groups. This is consistent with previous UK surveys which have found that those patients who have oral problems are most likely to seek emergency dental care will be from more deprived socioeconomic backgrounds [10]. This suggests that future UDCC provision within the pandemic should focus around more deprived areas, where clinical need is greater. Patients from the least deprived area (quintile 1) were also more likely (76%) to complete the OHIP questionnaire than those from the most deprived area (quintile 5, 63%).

PREMs were recorded using a patient satisfaction questionnaire. The majority of responses were positive in nature (Fig. 3), mirrored by the positive free text comments (82%). With 93% of patients choosing to leave a free text comment, the authors feel that there was patient engagement to provide meaningful feedback. This could be representative of public engagement with a study surrounding COVID-19 and also because patients may have had less restriction on their time during the lockdown.

Although our sample size was small, it is comparable to other studies which use the OHIP-14 tool as an assessment following minor oral surgery procedures [11–13]. The sample of patients recruited represents approximately 17% of the total number of patients treated within the UDCC and these patients were recruited over a consecutive period. During UDCC operation, the provision of primary dental services in the UK varied. The limited period during which patients were recruited may therefore not be representative of all of the patients seen over the three-month operational period. Assessing a larger cohort longitudinally, when access to primary dental services was variable, may have shown a greater variability in data. Further limitations to the study include the local development of the patient satisfaction questionnaire. Using a validated questionnaire, such as the PSQ-18 [1-4] may have allowed comparison of PREMs across differing sites, producing more generalisable results with the ability to compare the success of differing operational methods, from a patient’s perspective.

Conclusion

The results from this study confirm that the provision of emergency dental services at our UDCC was received well by the patient population treated. The model adopted at this UDCC can be utilised across different sites with confidence that patients will benefit from both an experience and outcome perspective. The majority of patients were seen from more deprived areas, which advocates for service providers to ensure that accessibility to emergency dental services in similar conditions are located in relation to these population needs. PREMs and PROMs are integral to the holistic evaluation of a service. It was reassuring to find that a UDCC set up within 10 days of the UK-wide lockdown was received so well by the population served.

Ethics statement/confirmation of patient permission

Ethics approval not required. Consent not applicable.

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Author contribution

Meera Pajpani: Conception and design of study/review/case series, Acquisition of data: laboratory or clinical/literature search, Analysis and interpretation of data collected, Drafting of article and/or critical revision, Final approval and guarantor of manuscript. Kishan Patel: Conception and design of study/review/case series, Acquisition of data: laboratory or clinical/literature search, Analysis and interpretation of data collected, Drafting of article and/or critical revision, Final approval and guarantor of manuscript. Emily Robinson: Analysis and interpretation of data collected, Drafting of article and/or critical revision, Final approval and guarantor of manuscript. Rachael Suffern: Acquisition of data: laboratory or clinical/literature search, Analysis and interpretation of data collected, Drafting of article and/or critical revision. Philip Stenhouse: Conception and design of study/review/case series, Acquisition of data: laboratory or clinical/literature search, Analysis and interpretation of data collected, Drafting of article and/or critical revision, Final approval and guarantor of manuscript.

Declaration of competing interest

No conflicts of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.adoms.2021.100040.

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