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## Telemedicine for ENT: Quality of Care During the COVID-19 Pandemic at the Jose R. Reyes Memorial Medical Center in 2022

### ABSTRACT

**Objective:** To assess the quality of care of telemedicine consultation during the COVID-19 pandemic at the Jose R. Reyes Memorial Medical Center in 2022

#### Methods:

**Design:** Cross-Sectional Study  
**Setting:** Tertiary Government Training Hospital  
**Participants:** 210 patients

**Results:** Majority of the respondents were female, less than 40 years of age, unemployed, consulted for the first time, lived < 25km distance from the hospital, consulted because of an ear problem, consulted without symptoms suggestive of COVID-19 and had higher outcomes of face-to-face consultation. The overall satisfaction with teleconsultation was good with majority of patients satisfied and very satisfied with teleconsultation (4.29±1.083). Occupational status, technical problems encountered in the teleconsultation, and those who were bothered by the absence of clinical examination were associated with the perceived quality of care of the ENT teleconsultation ( $p < .05$ ). Among the population who were satisfied to ENT teleconsultation, 82 (43%) were from the working population (OR 2.2 [1.1-4.7]), 158 (95%) were satisfied with quality of response (OR 23.7 [9.4-59.8]) and 154 (93%) were satisfied with image quality (OR 16.9 [7.3-39.0]).

**Conclusion:** Teleconsultation for ENT has proven useful in terms of satisfying the urgent concerns of patients in a pandemic setting.

**Keywords:** telemedicine; teleconsultation; pandemic; cross-sectional study; COVID-19; ENT

**Telemedicine**, a term coined in the 1970s means “healing at a distance”<sup>1</sup> while teleconsultation which comes from the Greek prefix “tele”, meaning “far”, is a means of performing remote medical consultation enabled by modern technology.<sup>2</sup> Teleconsultation and telemedicine are used interchangeably. Many studies have concluded that telemedicine reduces the geographical variability of diagnosis, treatment and clinical management.<sup>1-7</sup>

During the pandemic, telemedicine consultation was mandated by the Department of Health (DOH) as a means of consultation for patients. This was to limit travel (and virus propagation)

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and protect healthcare workers and patients.<sup>8</sup> Prior to the health emergency, telemedicine was already being used increasingly, as numerous articles have been published on the subject.<sup>1-7</sup> However, there have been few reports of Ear, Nose, Throat (ENT) telemedicine consultation in context of a pandemic or other natural disasters and to the best of our knowledge, there is no local data on the impact of the telemedicine in the quality of care of ENT patients.

This study aims to assess the quality of care of telemedicine consultation during the COVID-19 pandemic in a tertiary government hospital in Metro Manila in 2022 and to describe the demographic profile of patients who were included in the study.

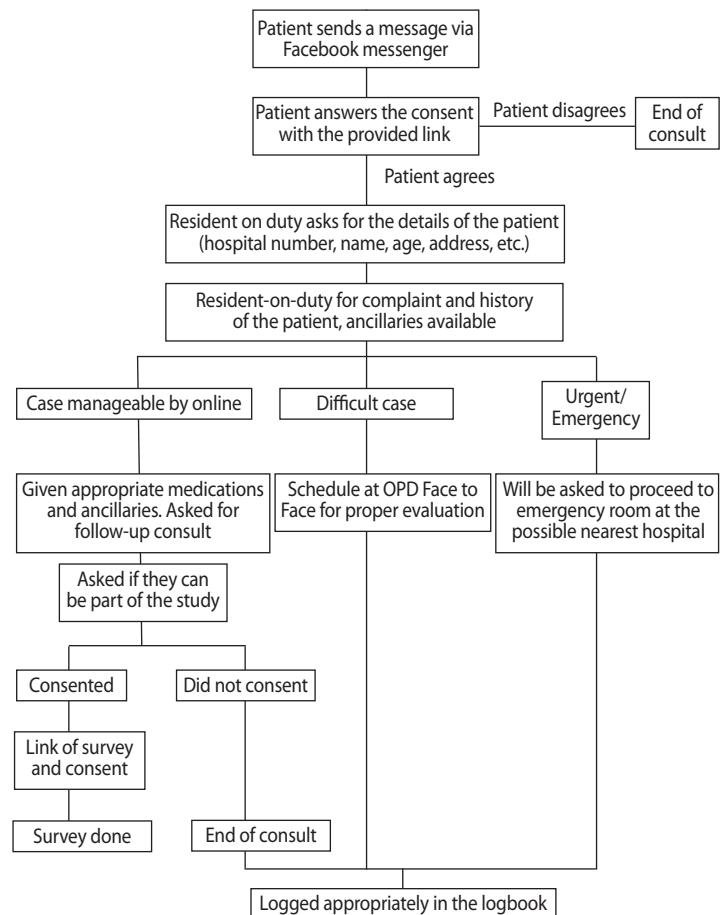
**METHODS**

The cross-sectional study was approved by the Jose R. Reyes Memorial Medical Center’s Institutional Review Board (IRB). Inclusion criteria for participation were as follows: patients ≥18 years old from Metro Manila and outside, who could perform web messaging through the Facebook page of the Department of Ear, Nose, Throat – Head and Neck Surgery (ENT-HNS) between June 2022 to December 2022 and had non-emergent ENT symptoms. Excluded were patients who did not consent to answer the survey and those who already answered the survey once.

Figure 1 shows the flow diagram of the ENT teleconsultation protocol in our hospital in 2022. The Facebook® page of the department only had an option to answer web messages, send video and images. Web video calls were not an option.

The sample size was computed using OpenEpi® version 3.0 (Emory University, Rollins School of Public Health, Atlanta, GA, USA) based on the study of Fioux, M., *et al.*<sup>2</sup> A sample size of 209 participants was needed to ensure sample representation and minimize bias.

A modified questionnaire by Fioux, M., *et al.*<sup>2</sup> was utilized using Google® Forms. Included in the survey were demographic data, consultation details, consultation field, home-to-hospital distance, occupational status, situation during the pandemic (traveling to work or work-from home set-up), reason for teleconsultation, symptoms suggestive of COVID-19 and outcome of the teleconsultation. However, the statement about the video and sound quality was removed since the platform of the Department only allowed sending of web messages and images. Hence, it was modified to the quality of response and image during the consultation. A Filipino version of the questionnaire was made using forward-backward translation validated by a professional translator affiliated with Orange Translations, Inc.<sup>9</sup> and was utilized for patients who were not familiar with the English language. Qualitative questions with 1-5 Likert scores were used, followed by 2 binary yes/no questions and consultation time was recorded by the



Note: urgent and emergency cases will be advised to seek consult to the nearest possible hospital

**Figure 1.** Flowchart of the ENT teleconsultation protocol at Jose R. Reyes Memorial Medical Center in 2022

patient. Participants self-administered the survey and completed questionnaires were collected and data was tabulated using MS Excel® for Windows 10 version 2407 (Microsoft Corp., Redmond, WA, USA).

Descriptive analysis of the demographics and perceived quality of care of telemedicine for ENT were determined using IBM SPSS® Statistics version 20 (IBM Corp., Armonk, NY, USA). Frequencies and percentages were used to describe categorical variables. Continuous variables and Likert scales were described using means and standard deviations. For the overall satisfaction responses to question 12, 2 groups were distinguished: “Poorly or not satisfied: PNS” (Likert score 1-3) and “Satisfied or very satisfied: SVS” (Likert score 4-5) and means and standard deviations were computed. Odds ratios (OR) with 95% confidence intervals (95% CI) were calculated per variable on univariate logistic regression. All clinically relevant variables suggestively associated with satisfaction on univariate logistic regression (p-value < .05) were identified taking possible confounding factors into account.



## RESULTS

There were 210 ENT patients included in the study: 42 males (20%) and 168 females (80%). Seventy-four percent (74%) of the respondents were less than 40 years of age. Of the 210 patients, 61% were unemployed while only 39% were employed. Among the 39% of patients who were working, 66% were travelling to work while 26% were on a work-from-home set-up while 9% did not provide information. Forty-five percent (45%) of patients lived less than 25 kilometers (km) from the hospital, however, 23% lived more than 100 km from the hospital. Among the 210 patients, 51% consulted with primary complaints related to the ears and 83% consulted for the first time. Four percent (4%) of patients consulted with symptoms suggesting COVID-19 while the majority (95.7%) of patients did not have COVID-19 related symptoms. The outcome of teleconsultations was face-to-face consultation in 38.6%. Up to 45% of patients encountered technical problems in the teleconsultation.

Table 1 shows mean responses to questions 1 to 12 with standard deviations. The ENT patients who fully agreed to answer the survey (130; 69%) were satisfied with the quality of response during the teleconsultation ( $4.39 \pm .948$ ) and 124 (59%) were satisfied with the quality of the image during the teleconsultation ( $4.34 \pm .951$ ). Majority (150; 72%) of patients easily communicated and discussed their health problems with the doctor ( $4.51 \pm .934$ ) and felt the doctor answered all the questions they had in mind ( $4.47 \pm .949$ ). One hundred forty three patients (143; 68%) were also satisfied with the doctor's response to their problems ( $4.51 \pm .903$ ) and agreed that the teleconsultation saved time and money ( $4.40 \pm 1.032$ ). Sixty five patients (65; 31%) agreed that the reason for consulting was urgent ( $3.57 \pm 1.440$ ) and also agreed that the consultation was as effective as if it had been at the hospital ( $3.95 \pm 1.203$ ). One third (63; 30%) of patients had neutral answers when asked if they were bothered that a doctor could not examine them physically ( $2.84 \pm 1.388$ ) and partly disagreed that the teleconsultation made them nervous ( $2.60 \pm 1.478$ ). Majority (125; 60%) of patients who answered the survey would use teleconsultation again ( $4.16 \pm 1.221$ ) and were satisfied overall with the teleconsultation process ( $4.29 \pm 1.083$ ).

For the variables, occupational status, technical problems encountered in the teleconsultation, and those who were bothered by the absence of clinical examination were associated with the perceived quality of care of the ENT teleconsultation with p-value of  $< .05$ . There was not enough evidence to show that sex, age group, situation during pandemic, home hospital distance, consultation field, reason for teleconsultation, and consultation time were associated with perceived quality of care of ENT teleconsultation. Among the population who were satisfied with ENT teleconsultation, 82 (43%) were from the working population (OR 2.2 [1.1-4.7]), 158 (95%) were satisfied with quality of response (OR 23.7 [9.4-59.8]) and 154 (93%) were satisfied with image quality (OR 16.9 [7.3-39.0]).

**Table 1.** Patient satisfaction with mean and standard deviation (SD)

Questions	Mean $\pm$ SD
I was satisfied with the quality of response during the teleconsultation	4.39 $\pm$ .948
I was satisfied with the quality of image quality during the teleconsultation	4.34 $\pm$ .951
The teleconsultation made me nervous	2.60 $\pm$ 1.478
I could easily communicate and tell my doctor my health problems	4.51 $\pm$ .934
I felt the doctor answered all my questions	4.47 $\pm$ .949
I felt the reason for consulting was urgent	3.57 $\pm$ 1.440
I was satisfied with the doctor's response to my problem	4.51 $\pm$ .903
I think the consultation was as effective as if it had been at the hospital	3.95 $\pm$ 1.203
I was bothered that the doctor could not examine me	2.84 $\pm$ 1.388
Teleconsultation saved time and money	4.40 $\pm$ 1.032
I would use teleconsultation again	4.16 $\pm$ 1.221
Overall, I was satisfied with the teleconsultation	4.29 $\pm$ 1.083

## DISCUSSION

The COVID-19 pandemic made the world adapt to virtual consultations and limited face to face consultations. In the Philippines, teleconsultation was not incorporated into the healthcare system and was not popular among physicians and patients until the DOH issued a memorandum<sup>8</sup> to adapt to the practice as part of its pandemic response. Using Facebook<sup>®</sup> Page as the platform, patients were able to seek consult for free. As a result, healthcare became more accessible despite the lockdown restrictions.<sup>11</sup>

The majority of our respondents were less than 40 years of age, unemployed, consulted for the first time, and outcomes of their teleconsultation had a higher percentage of face-to-face consultation. This differs from international studies<sup>2,6-7</sup> that involved a majority aged 40-60 who were employed, with a higher percentage of another teleconsultation. Similarities between our study and these studies<sup>2,6-7</sup> include mostly females consulting, who lived  $< 25$ km distance from the hospital, and consulted because of an ear problem, without symptoms suggestive of COVID-19. Patient's overall satisfaction with the teleconsultation was good ( $4.29 \pm 1.083$ ) and is comparable with international studies<sup>2,6-9</sup> that have cited that telemedicine was helpful for their ENT concern and reported satisfaction because it saves time and avoided the need to travel.

The present study had several limitations. First is the small sample size due to the short duration of the study in a context of a receding pandemic. Local studies on telemedicine practice (pandemic and non-pandemic) have been scarce and not adequate to conclude factors that can affect perceived quality of care. Patients also encountered technical problems during the teleconsultation which was deemed time consuming considering 44 minutes was the average consultation



time. It may be attributed to the type of communication that the department's Facebook® Page was able to provide wherein chat, sending of images and videos were the only features of our platform. Since there were no call or videocall features on the platform, some patients were bothered that a doctor could not examine them and were nervous about the teleconsult. However, to the best of our knowledge, no local or international studies have been published at this time to support the use of Facebook® as a useful platform for teleconsultation. Another drawback and limitation of our study is that only one platform was used for teleconsultation means. Although different applications or web programs were emerging at the time of the pandemic, Facebook® was the most popular app among our patients because it was free. Even though a majority of patients who answered the survey were satisfied with the current teleconsultation process, the authors believe

that there are other ways to improve the teleconsultation process and further studies need be done to determine other variables or factors that can contribute to the quality of care.

In conclusion, teleconsultation for ENT has proven useful in terms of satisfying the urgent concerns of our patients in a pandemic setting. Patients were satisfied with the quality of response given by the healthcare workers and were satisfied with the image quality using the platform. Although several areas of improvement in terms of telemedicine protocol and incorporation into the healthcare system are deemed necessary, teleconsultation could serve as adjunct to OPD consult and is useful in patients who live in far flung areas. Further studies are needed to determine the quality of care of patients in a non-pandemic setting, determine the barriers to telemedicine adoption and to improve the teleconsultation process going forward.

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