

Evaluation of oral and general health related quality of life on patients suffering with covid-19 in east Godavari district, Andhra Pradesh - A cross sectional study

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Abstract

Background: A highly contagious viral disease COVID-19 caused by severe acute respiratory syndrome coronavirus (SARS-COV-2) affected all equally, transcending the barriers of socioeconomic status, education level, race and profession. Both oral and general health of the people were affected.

Objectives: The objective of this study is to evaluate the oral and general health related quality of life of patients with COVID-19 in East Godavari District.

Methods: A cross sectional survey was conducted on 528 COVID-19 patients admitted in COVID-19 wards of

two Government General Hospitals in East Godavari District. Oral Health Impact Profile-14 and WHOQOL-BREF (World Health Organization Quality of life Assessment: Brief Version) questionnaires were administered to the patients by four duty doctors posted in COVID-19 wards. Independent t-test and Pearson correlation tests were applied. Mean scores were calculated for each item and each domain. Data was analyzed using SPSS 23.0 version. The level of statistical significance was set at $p < 0.05$.

Results: The mean age of the patients was 42.05 years. Overall mean OHIP-14 and WHOQoL BREF scores

were 3.65 and 2.39 respectively. In OHIP-14, significant difference was observed between males and females. The mean OHIP-14 and WHOQoL-BREF scores among urban and rural regions did not show any significant difference. Positive correlation was observed between OHIP and WHOQoL ($p = .000$).

Conclusion: Patients with COVID-19 reported compromised oral health and general health quality of life.

Keywords: COVID-19, OHIP-14, WHOQoL-BREF.

Introduction

The entire world is practically brought to a standstill by a highly contagious viral disease COVID-19 caused by severe acute respiratory syndrome corona virus (SARS-COV-2).¹ In December, 2019, World Health Organization (WHO) was notified by clinicians in Wuhan, China, of this novel and Severe Acute Respiratory Virus which was recognized as a substantial global public health emergency and SARS-COV-2 was declared a pandemic on March 11, 2020.² The first laboratory confirmed case of the novel coronavirus (COVID-19) was reported in India on 30th January 2020.³ Since then, there has been exponential growth in cases, with 126890643 confirmed cases and 2778619 deaths globally by April 7, 2021 reported by WHO.⁴ The disease has affected all equally, transcending the barriers of socioeconomic status, education level, race and profession. Both oral and general health of the people were affected.

The quality of life derives from the individual and subjective evaluation of each person's life, taking into account their perception of their physical, emotional and social well-being.⁵ Outbreaks of infectious diseases, such as COVID-19, negatively affect the physical, social, and psychological functioning of individuals and societies, and have significant economic consequences.

The most common symptoms of COVID-19 are fever, dry cough, tiredness, body aches and pain, diarrhea, conjunctivitis, headache, a rash on the skin, or discoloration of fingers and toes. The severe symptoms are difficulty in breathing or shortness of breath, chest pain or pressure, and loss of speech or movement. Clinical symptoms vary from totally asymptomatic to having mild flu-like symptoms to severe respiratory illness. The symptoms are more profound in individuals with comorbidities like diabetes, hypertension, and ischemic heart disease.^{6,7} Oral manifestations are ageusia (loss of taste), non-specific anosmia (loss of smell—not associated with rhinitis), and hyposalivation.^{8,9} Few reports state that along with unexplained ulcers in the oral cavity, desquamative gingivitis, herpetiform ulcers on attached gingiva, blisters/irregular ulcers on the tongue's dorsal surface, enlargement of submandibular glands, cervical lymph node enlargement and covid tongue or coated tongue.¹⁰ These symptoms may affect the quality of life of COVID-19 patients. The COVID-19 patients have faced the depressing atmosphere in the COVID-19 treatment centers and hospitals. They are often haunted by traumatic memories related to the disease and the associated deaths. Also there is fear of discrimination by society and struggle to cope with extreme anxiety. These patients have been deeply affected by the sufferings and the deaths of their family members and friends.¹¹ It is expected that patients hospitalized due to COVID-19 infection show a reduction in physical performance and quality of life. The severity of illness is hypothesized to be associated with a reduction as well in oral and general health related quality of life.

As there was paucity of data regarding the oral and general health related quality of life of COVID-19 patients this study was conducted with an aim to

evaluate the Oral and General Health related quality of life of COVID-19 patients in East Godavari District.

Materials and methods

Study setting and study design

A questionnaire based, cross sectional study was carried out from September to October 2020. COVID-19 patients who were admitted in two government general hospitals of East Godavari District were enrolled in the study.

Study participants

A total of 528 COVID-19 patients were included in the study. Inclusion criteria consisted of patients who were tested COVID-19 positive by RT-PCR (Reverse Transcriptase Polymerase Chain Reaction) and Rapid Antigen Test and patients who have given the written consent. Patients who were tested COVID negative, patients those who refused to sign the consent form were excluded from the study.

Ethical considerations

Ethical clearance was obtained from the Institutional Review Board of the college (File Number: 33/ IEC/ LIDS/ 2020) and permission was taken priorly from the District Medical and Health Officer, East Godavari District to collect data from the COVID-19 patients admitted in two government general hospitals in East Godavari District.

Data collection

Oral health related quality of life (OHRQoL) was assessed using Oral Health Impact Profile (OHIP-14)^{12,13} questionnaire which had fourteen questions that were subdivided into seven domains: Functional limitation, physical discomfort, psychological discomfort, physical disability, psychological disability, social disability, and handicap Ness. The Oral Health Impact Profile (OHIP-14) is one such instrument that measures people's perception of the social impact of oral disorders on their well-being. The general health related

quality of life was assessed using World Health Organization Quality of Life Assessment-Brief version (WHOQoL-BREF)¹⁴ questionnaire which comprised of 25 questions. Out of these, 2 questions assess the perception of quality of life and overall health satisfaction, and the remaining 23 questions belong to four different domains i.e., physical, psychological, social and environmental. Overall, these 25 questions explain how respondents attribute to each aspect of their life. The score of each question for each domain was used to obtain as summarized domain score. Higher score of a domain indicated higher levels of health-related quality of life while comparing to the rest of the domains and vice versa. Demographic characteristics measured were age, gender, region, socioeconomic status. The questionnaires were administered to the patients by four trained duty doctors posted in COVID-19 wards.

Statistical analysis

Data was analysed using the statistical package for social sciences (SPSS version 23.0). Socio-demographic variables like gender, region with WHOQoL and OHRQoL domains were determined using independent t-test. Pearson correlation was applied to correlate all domains with each other to find the association between them. $p \leq 0.05$ is set as statistically significant.

Results

In this study, the mean age of the study population was 42.05 years. Of all participants, 53.8% were males and 46.2% were females. Based on the region, 55.3% population were from rural and 44.7% population were from urban.

The present study shows the mean scores of oral health related impact profile-14 and world health organization quality of life which were 3.65 ± 0.35 and 2.39 ± 0.58 respectively.

TABLE 1 presents the mean scores of the domains of OHIP-14 and WHOQOL-BREF among the study respondents. The mean score for the social domain was the highest (2.55±0.79) whereas the psychological domain had the lowest (2.21±0.49) mean score among

all four domains of the WHOQOL-BREF. The mean score for handicap domain was the 7 highest (3.98±0.07) and functional limitation domain had the lowest (3.3±0.64) mean score among all the seven domains of OHIP-14.

Table 1: Mean scores for domains of OHIP-14 and WHOQoL-BREF

	DOMAINS	MEAN	STANDARD DEVIATION
OHIP-14	Functional limitation	3.3068	.64396
	Physical pain	3.4394	.63915
	Psychological discomfort	3.5606	.59267
	Physical disability	3.6136	.53357
	Psychological disability	3.9394	.20518
	Social disability	3.7652	.36778
	Handicap	3.9886	.07480
WHOQoL-BREF	Physical	2.2965	.62223
	Psychological	2.2109	.49930
	Social	2.5530	.79899
	Environmental	2.5085	.65749

Table 2 shows gender comparison of mean scores of OHIP-14 and WHOQoL BREF. The mean OHIP-14 scores of males and females and was found to be 3.74±.283 and 3.55±.399 respectively and the difference

was statistically highly significant (p=0.002). The mean WHOQoL-BREF scores of males and females were 2.46±.554 and 2.30±.603 respectively and the difference was not statistically significant (p=.119).

Table 2: Gender comparison of mean scores of OHIP-14 and WHOQoL-BREF

	SEX	N	MEAN	STD.DEVIATIO N	T VALUE	P VALUE
OHIP-14	Male	284	3.7455	.28360	3.131	0.002 HS
	Female	244	3.5585	.39951		
WHOQoL-BREF	Male	284	2.4653	.55422	1.569	0.119
	Female	244	2.3072	.60336		

Statistical test applied: Independent t test HS- Highly significant at p≤ 0.01 TABLE 3 represents correlation between OHIP-14 and WHOQoL-BREF. In the present study, weak correlation was found between oral health related quality of life and general health related quality

of life (.370) and this correlation was found to be highly significant with p value .000.

Table 3: Correlation between OHIP-14 and WHOQoL-BREF

		WHOQoL-BREF
OHIP-14	Pearson Correlation	.370**
	P value	.000HS

HS- Highly significant at $p \leq 0.01$ TABLE 4 represents the mean OHIP scores of urban and rural population

Table 4: Region comparison of mean scores of OHIP-14 and WHOQOL-BREF

	REGION	N	MEAN	STD.DEVIATION	T VALUE	P VALUE
OHIP-14	Urban	236	3.7119	.27885	1.551	.123
	Rural	292	3.6164	.40045		
WHOQoL-BREF	Urban	236	2.5317	.58488	2.531	0.13
	Rural	292	2.2795	.55590		

Discussion

The present study was aimed to evaluate the oral and general health related quality of life of COVID-19 patients. Overall, the findings validated the negative effect of the COVID19 pandemic on the various aspects of individuals’ Quality of life, physical and psychological health. As it was the first study of this kind, comparison with other studies were not done. According to the results, the lowest mean score was found for the psychological domain ($2.21 \pm .49$) that may show patients’ dissatisfaction from healthcare facilities, their body appearance, negative feelings, a lower level of self-esteem, personal beliefs, religious freedom and more dependence on self-pocket, followed by the physical domain ($2.29 \pm .62$) indicating compromised activities of daily living, more dependence on medicines and medical aids, less mobility and more fatigue,

which were $3.71 \pm .27$ and $3.61 \pm .40$ and the difference was not statistically significant ($p=0.123$). The mean general health related quality of life scores of urban and rural populations were $2.53 \pm .58$ and $2.27 \pm .55$ respectively and there was no significant difference between them. ($p= 0.13$)

discomfort, and less work capacity. Highest mean scores were observed for social and environmental domains ($2.55 \pm .79$ and $2.50 \pm .65$ respectively) showing satisfactory personal relationships, social support and sexual activities, sufficient financial resources, opportunities for acquiring new information and skills, performing religious deeds, adequate safety and security, quality healthcare and frequent access to cheap and convenient transport.¹⁵

The present study showed that OHIP-14 and WHOQoL-BREF was higher in males than females. It is due to higher sensitivity of females’ emotions and their social problems. They are likely to have a more limited income, more barriers concerning access health care and more responsibilities regarding household chores. All of these factors could affect their perceived quality of life. 16Another reason may be due to the fact that women are

more worried about disease and may have less ability to cope.

In this study, the mean score of OHIP-14 and WHOQoL-BREF were higher in urban population indicating that the oral health related quality of life is poor in the rural population compared to urban areas. This is because of lack of accessibility, availability and acceptability of health facilities in the rural areas in obtaining proper services to maintain the quality of life. And also because of the fact that the urban people are more concern about their health and might have more knowledge towards the disease than people in rural region.¹⁷

In the present study, weak correlation was found between OHIP-14 and WHOQoL-BREF indicating Oral health affects general health by causing considerable pain and suffering and by changing what people eat, their speech and their quality of life and well-being. There are few limitations in this study. First, we used only one tool (WHOQOL-BREF) to measure the general health related quality of life. Second, severity/stage of the disease was not considered. Third, population size of this study was small.¹⁸ Fourth, it was a cross sectional study. Among the study limitations, we acknowledge that a one-time cross-sectional study could not capture the ongoing effects of the COVID-19 pandemic on various dimensions of QoL; thus, future research could collect the data using a longitudinal design. Given the preliminary nature of the present report, further research is needed to confirm our conclusions among different populations, using representative samples and on large sample size. However, the strength of the study is that, to our knowledge this was the first study from East Godavari District providing information on the Oral health and General health related quality of life on COVID-19 patients treated at the COVID-19 hospitals.

It would lead this study to serve as one of the few sources of information about the Oral and General health related quality of life of COVID-19 patients.

Conclusion

Patients with COVID-19 reported compromised oral health and general health quality of life. Identifying strategies to improve the oral and general health related quality of life in patients, is therefore of particular importance. Furthermore, the focus should be on improving the physical and psychological domains of Quality of life, which were most significantly influenced during the pandemic. The findings of this study could help physicians, pharmacists, allied healthcare professionals, and the family members of the patients to better understand the physical, psychological, social and environmental difficulties which patients usually face during COVID-19 treatment.¹⁵

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