



# Loss of Taste and Smell are Common Clinical Characteristics of Patients with COVID-19 in Somalia: A Retrospective Double Centre Study

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**Purpose:** The purpose of this study was to identify the common clinical presentations and the evidence on the presence of ageusia and anosmia as an emerging coronavirus disease 2019 (COVID-19) symptom to better inform in both COVID-19 patients and clinicians.

**Patients and Methods:** As part of a double-institutional collaboration coordinated by doctors, this study retrospectively collected and analyzed the clinical characteristics of 60 patients with COVID-19 pneumonia between April 1 and April 20, 2020. Pregnant women and patients taking anti-cancer drugs had been excluded from the study. Data from each institution's electronic medical record had been obtained.

**Results:** Sixty patients who had RT-PCR positive for COVID-19 were included in this study; of these patients, all of them had unknown exposure to COVID-19. The mean (SD) age was 45.7 (13.5) years, and 42 were men (70%). Of these patients, 80% had at least ageusia or anosmia. The most common symptoms at the onset of illness were cough (75%), fever (71.3%), myalgia or fatigue (53.3%), anosmia (loss of smell) (40%), ageusia (loss of taste) (28.3%), sore throat (25%), shortness of breath (16.7%), headache (16.7%), and GI symptoms (diarrhea, nausea, vomiting and loss appetite) (16.7%). A total of 68.3% of COVID-19 infected patients had reported either loss of taste or smell, and about 33.3% of them had only loss of smell, while 23.3% of them had impaired taste, and 11.7% of COVID-19 infected patients had both taste and smell loss.

**Conclusion:** During the epidemic period of SARS-CoV-2 infection, when presenting patients with ageusia and anosmia, physicians should consider COVID-19 pneumonia as a differential diagnosis to achieve early identification, avoid the delayed diagnosis, and prevention of transmission.

**Keywords:** anosmia, ageusia, severe acute respiratory syndrome coronavirus 2, SARS-CoV-2, pneumonia

## Introduction

In early December 2019, a novel coronavirus (2019-nCoV) identified as the causative agent associated with a cluster of cases of acute pneumonia in people at Wuhan, Hubei Province, uses next-generation sequencing in Wuhan Institute.<sup>1</sup> On January 30, 2020, WHO stated that the outbreak of 2019-nCoV constitutes a public health emergency of international concern and declared COVID19 as a pandemic.<sup>2,3</sup>

Fever, cough, shortness of breath, myalgia, and fatigue were the common clinical manifestations of COVID-19 patients.<sup>4</sup> Also, Professor Claire Hopkinson

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observed that ageusia and anosmia were classic symptoms of COVID-19 patients in the UK, France, the USA, and Italy.<sup>5</sup> Anosmia has already reported as a clinical manifestation of COVID-19 and another coronavirus.<sup>6</sup> Therefore, this is very likely due to the direct damage of the coronavirus on the olfactory and gustatory receptors.<sup>7</sup>

The incomplete or complete loss of smell and taste with or without other diseases had a wide differential diagnosis.<sup>8</sup> Several scientific types of research have demonstrated that impaired taste and smell could be a common manifestation of Covid-19.<sup>9,10</sup>

By April 17, 2020, 116 confirmed cases were reported in Somalia with 2 (1.7%) recovered cases and 5 (4.3%) deaths. Till now, the reported cases were mostly among adults, with no pediatric cases reported.<sup>11</sup> The clinical profiles of 2019-nCoV infection in children are unknown. So far, no studies in Somalia have described ageusia and anosmia, an emerging COVID-19 symptoms patient with COVID-19. We aim to summarize the common clinical presentations and the evidence on the presence of ageusia and anosmia as an emerging COVID-19 symptom, to better inform both COVID-19 patients and clinicians.

## Methods

### Study Population, Setting, and Data Collection

For this retrospective, double-center study, we reviewed 60 patients with real-time reverse transcriptase polymerase-chain-reaction (RT-PCR) confirmed Covid-19 pneumonia who had clinically presented to double hospitals in Mogadishu, Somalia, between April 1, 2020 to April 20, 2020. Only RT-PCR-confirmed cases included in this study. Pregnant women, patients taking anti-cancer drugs, and children (those younger than 18 years of age) were excluded from the study. Sixty adults (18 years of age or older) identified from two hospitals, including Mogadishu Somali Turkish Training and Research Hospital and Demartino Hospital. Data from each institution's electronic medical record was obtained. We obtained demographic data (age, sex, level of educational, and marital status); general clinical information (comorbidities and smoking status); and the signs and symptoms (fever, dry cough, impairment of taste and smell, shortness of breath, myalgia or fatigue, sore throat, headache, diarrhea, nausea, vomiting and impairment appetite).

## DATA Sources/Specimen Collection and Testing

We performed a retrospective double centre study on the clinical records of 60 RT-PCR confirmed patients with COVID-19 that diagnosed from April 1 to April 20, 2020. The final follow-up for this report lasted until April 28, 2020.

Real-time reverse transcriptase polymerase-chain-reaction (RT-PCR) assay test is the primary method of diagnosis to confirm COVID-19 by using throat swab specimens that collected from upper respiratory tracts following Centers for Disease Control and Prevention (CDC) guidelines. This test had done at different intervals. Of the 60 cases reported here, all cases RT-PCR tested were positive for SARS-CoV-2 once.

This retrospective study received medical ethical committee approval from the institutional review board of Mogadishu Somalia-Turkey Recep Tayyip Erdogan Training and Research Hospital, Mogadishu, Somalia (2020). In agreement with the declaration of Helsinki, the required patients written informed consent had waived by the ethical committee and data collected from medical records, confidential, no harm could potentially do to the patients and did not contain information that could identify individual personal information (anonymization).

## Statistical Analysis

Descriptive statistics had used to summarize the data; results reported as medians and means and standard deviations, as appropriate. Categorical variables summarized as counts and percentages. No imputation had made for missing data. The analysis performed with IBM SPSS statistics version 23.0.

## Results

Sixty patients who had RT-PCR positive for COVID-19 were included in this study; of these patients, all of them had unknown exposure to COVID-19. Their clinical characteristics had shown in (Table 1). The mean (SD) age was 45.7 (15.5) years, and 42 were men (70%). Of these patients, 75% had at least ageusia or anosmia. The male gender remained the predominant cases, 60% had a loss of taste and smell compared with females. Comorbidities were present in 18.3% of patients, with diabetic being the most common comorbidity, followed by hypertension and chronic obstructive pulmonary disease (COPD) (Table 1).

**Table 1** Clinical Characteristics of 60 Adult Patients with COVID-19 Pneumonia

Patient Characteristics Patients (n = 60)		
Patient demographics		
Sex	Male Female	42 (70%) 18 (30%)
Age	19–39 40–59 ≥60	41 (68.3%) 11 (18.3%) 8 (13.4%)
Marital status	Single Married Divorced Widowed	17 (28.3%) 43 (71.7%) 0 (0%) 0 (0%)
Level of education	Illiterate Primary and intermediate school Secondary school Tertiary (University)	4 (6.7%) 3 (5%) 4 (6.7%) 49 (81.7%)
Smoking status	Non-smoker Past smoker Current smoker	54 (90%) 6 (10%) 0 (0%)
Exposure history	Unknown exposure Exposure to positive patients	60 (100%) 0 (0%)
Comorbid conditions	Diabetes Hypertension COPD	7 (11.7%) 3 (5%) 1 (1.7%)
Signs and symptoms		
	Dry cough Fever Myalgia or fatigue Anosmia (loss of smell) Ageusia (loss of taste) Sore throat Shortness of breath Headache GI Symptoms (diarrhea, nausea, vomiting and loss appetite)	45 (75%) 43 (71.7%) 32 (53.3%) 24 (40%) 17 (28.3%) 15 (25%) 10 (16.7%) 10 (16.7%) 10 (16.7%)
Onset and recovery of anosmia and ageusia		
Onset of anosmia	Before the typical symptoms With the typical symptoms After the typical symptoms Not remember	3 (5%) 6 (10%) 11 (18.3%) 4 (6.7%)
Onset of ageusia	Before the typical symptoms With the typical symptoms After the typical symptoms Not remember	2 (3.4%) 4 (6.6%) 8 (13.3%) 3 (5%)

(Continued)

**Table 1** (Continued).

Patient Characteristics Patients (n = 60)		
Recovery of anosmia	<5 days 5–10 days >10 days	15 (25%) 3 (5%) 6 (10%)
Recovery of ageusia	<5 days 5–10 days >10 days	10 (16.7%) 3 (5%) 4 (6.6%)

The most common symptoms at the onset of illness were cough (75%), fever (71.3%), myalgia or fatigue (53.3%), anosmia (loss of smell) (40%), ageusia (loss of taste) (28.3%), sore throat (25%), shortness of breath (16.7%), headache (16.7%), and GI symptoms (diarrhea, nausea, vomiting and impaired appetite) (16.7%).

A total of 68.3% of COVID-19 infected patients had reported either impaired of taste or smell, about 33.3% of them had an only loss of smell, while about 23.3% of them had an impaired taste only, and 11.7% of COVID-19 infected patients had both taste and smell impaired.

Patients who exhibited impaired smell were four groups, about 5% developed before typical symptoms of COVID-19, while about 18.3% manifested impaired smell after typical symptoms, and 10% develop at the same time, while 6.7% of patients did not remember the specific time of onset. Moreover, patients who had developed impaired taste before typical symptoms of COVID-19 were about 3.4%, while 13.3% developed after typical symptoms, about 6.6% develop at the same time, and 5% of patients did not remember the time of onset.

Our search identified that about 25% of COVID-19 infected patients had recovered from the loss of smell for less than five days. While about 5% had recovered within 5–10 days and about 10% of these patients were unrecovered for more than 10 days. Moreover, about 16.7% of COVID-19 infected patients had recovered from the loss of taste in less than 5 days. While about 5% had recovered within 5–10 days, and about 6.6% of these patients were unrecovered for more than 10 days.

Moreover, there was no association between comorbidities and the development of loss of taste or smell in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and this indicated that only one patient who had diabetes developed an impaired taste.

## Discussion

The clinical characteristics of 60 patients with the laboratory-confirmed novel coronavirus (2019-nCoV) from two selected hospitals in Mogadishu, Somalia, between April 1 to April 20, 2020, were included in this study.

Seventy five percent of the patients with or without typical symptoms (fever, cough, and fatigue or myalgia) of COVID-19 came to the hospital with impaired taste and the smell as their presenting features in contrast to previous studies.<sup>12–14</sup>

Taste and smelling disorders are well known to be related to a wide range of viral infections.<sup>15</sup> A research study in Wuhan recently published on the neurologic manifestations of 214 SARS-CoV-2-positive hospitalized patients. The study showed that 11 (5.1%) patients and ageusia in 12 (5.6%) patients.<sup>16</sup> In our study, impaired taste and smell were among the two main clinical findings in patients with COVID-19 infection in the absence or presence of other symptoms similar to the previous studies that about 85.6% of patients reported an isolated loss of taste, 79.6% of them having loss of smell, and 55% had combined loss of taste and smell.<sup>17,18</sup>

A cross-sectional research study in Milan in 59 SARS-CoV-2-positive hospitalized patients had disturbances of smell and taste. The study showed that 34% of the patients had a loss of smell and taste, 20% before, and 14% after hospitalization.<sup>19</sup>

Patients who exhibited impaired smell were four groups, about 5% developed before typical symptoms of COVID-19, while about 18.3% manifested impaired smell after typical symptoms, and 10% develop at the same time, while 6.7% of patients did not remember the specific time of onset. Moreover, patients who had developed impaired taste before typical symptoms of COVID-19 were about 3.4%, while 13.3% developed after typical symptoms, about 6.6% develop at the same time, and 5% of patients did not remember the time of onset.

In our study, loss of taste and smell was prevalent in patients with mild-to-moderate SARS-CoV-2 infection that was consistent with the previous studies.<sup>20</sup>

The limitations of the present study are: first, it was a retrospective study design, and the number of cases was small, including only 60 patients. Second, all data collected from the electronic medical records; some patients with impairment taste and smell might not be involved in the study due to too mild impairment. Finally, in our research, most of the symptoms were a patient's subjective descriptions. We could not distinguish whether impaired of taste and smell caused by the COVID-19 virus directly or by the neurological disease or other infections or other organ damage indirectly.

However, by including all adult patients in the two designated hospitals for COVID-19, we believe our study population is representative of cases of experienced disturbance of taste and smell in Mogadishu. According to knowledge, this is one of the most significant retrospective studies among patients with COVID-19 who have experienced impaired taste and smell.

In conclusion, during the epidemic period of SARS-CoV-2 infection, the patients presenting with ageusia and anosmia, physicians should consider COVID-19 pneumonia as a differential diagnosis to achieve early identification, avoid the delayed diagnosis, and prevention of transmission. Also, impaired smell and taste in COVID-19 infected patients would allow self-isolation and urge communication to their healthcare providers.

We recommend conducting further research to provide valid and reliable ways to achieve early identification and avoid the delayed diagnosis of this public health emergency.

## Disclosure

The authors report no conflicts of interest in this work.

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