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Impact Of Covid Related Anosmia On Patients Quality Of Life At Hail Region

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Abstract:

The aim: of this study is to investigate the prevalence of anosmia and its impact on quality of life among COVID-19 positive patients.

Objectives:
To confirm tthe high prevalence and severity of smell disorders among laboratory-confirmed SARS-CoV-2 patients.To assess the impact of anosmia on quality of life among covid patients. To evaluate anosmia features and duration.

Materials and Methods

Study Design: Cross-sectional study. **Study population:** Patients diagnosed with covid-19 in Hail city constitute the population of the study. **Sample collection:** pre-validated self-administered questionnaire. **Sample collection and processing:** pre-validated and translated self-administered electronic questionnaire. The sample size was calculated by using the Rao soft sample size calculator. We will be collecting a sample size of 137, with a confidence level of 95% and a margin of error of 5%.

Rationale:
The sudden onset of smell loss has been reported as a symptom related to COVID-19, the rationale of this study is to provide an insight into the prevalence of the olfactory disorder.

Results:
A total of 213 covid-19 patients complained of anosmia Between the ages of 18 and 60, with a mean age of 36.2 + 11.9 years. Covid-19 patients' anosmia and quality of life in Hail, Saudi Arabia.74.4 percent of patients who were not concerned about future changes in their sense of smell had an excellent quality of life, compared to 23.7 percent of those who were. This difference was statistically significant (P=.001).

Keywords: patients; anosmia; COVID-19; Coronavirus; neurologic manifestations; dysfunction.

Introduction:
Covid-19 is a contagious disease that manifests itself in a variety of ways. The virus can impact several organs and body systems, including the lungs, brain, and neurological system, causing anosmia and causing mental health problems [1]. Anosmia and hypogeusia were not initially recognized as being linked to COVID-19; in one of the first studies from China [2], they were mentioned to affect only about 5% of COVID-19 patients. However, smell dysfunction has been demonstrated as one of the first among other neurologic manifestations of both hospitalized and mild COVID-19 patients in numerous studies [3,10]. How the virus affects the sensations of smell and taste has been a huge enigma. There has been significant progress in understanding the cellular and molecular mechanisms of coronavirus-induced anosmia. Recent research has revealed fresh information about the olfactory epithelial cell types that express the appropriate virus entry proteins and accumulate the virus after infection [4]. A report (5) discovered that olfactory sensory neurons do not express the gene that produces the ACE2 receptor protein, which SARS-CoV-2 utilizes to enter human cells, according to a paper published in Science Advances on July 24, 2021, ACE2 is found in cells that provide metabolic and structural support for olfactory sensory neurons, as well as specific stem cell and blood vessel cell populations. The findings point to non neuronal cell infection as a possible cause of anosmia in COVID-19 patients, and they can help researchers better understand how the disease progresses. This means that, in most cases, SARS-CoV-2 infection is unlikely to permanently alter olfactory brain circuits and result in persistent anosmia. Anosmia and dysgeusia have been shown to promote psychological distress in patients infected with COVID-19, and depressive symptoms are commonly related with taste loss and tend to stay even after symptoms and disease have resolved [11-13]. Issues related to the COVID-19 pandemic, such as the high risk of infection and reinfection, insufficient contamination protection, overwork, discrimination, isolation, patients with negative emotions, lack of contact with families, exhaustion, and healthcare systems' inability to respond to increased demand, all play a role in patients' emotional experiences [6]. Knowledge and awareness of the prevalence of anosmia and related olfactory disorders among covid-19 patients is essential to determine the extent of its impact on patients' quality of life, the performance of usual daily activities, and their mental health. The knowledge and awareness about anosmia is also essential for the

diagnosis, management also in the prevention of further complications related to this condition. The main aim of this study is to investigate the prevalence of anosmia and its impact on quality of life among COVID-19 positive patients.

Review of Literature:

There have been several studies done regarding the Quality of Life of covid related anosmia . One of which was conducted in Saudi Arabia, 2020 that aimed to investigate the impact of smell loss on quality of life in patients with Coronavirus Disease 2019 (COVID-19) and assess the importance of olfaction before and after the loss of smell.

That cross-sectional study recruited a total of 487 covid-positive patients with anosmia,
The results were that negative impacts of smell loss, associated risks, interference with daily activities, and deterioration in well-being were common. The study concluded that patients with loss of smell have significant reductions in health related QOL and their loss of smell directly affects daily activities related to the olfactory function (Elkholi SMA, Abdelwahab MK, Abdelhafeez M, 2020).

Another cross-sectional study was conducted in Italy, 2020, a descriptive cross-sectional study was conducted among 88 covid-19 positive hospitalized patients aimed to assess the presence or absence of olfactory and taste disorder. Taste alterations were more frequent (91%) before hospitalization, whereas after hospitalization taste and olfactory alteration appeared with equal frequency (Andrea Giacomelli, Et al, 2020).

Another systemic review aimed to to determine the frequency of anosmia and weather anosmia is independently associated with COVID-19 diagnosis. The study included studies with COVID-19 patients describing their symptoms; studies that compared smell and taste disorders between COVID-19 patients and otherwise and obtained 31 reports and the frequency of anosmia ranged between 22%-68%. The study concluded that the frequency of smell disorders is as high as other symptoms, and suggested anosmia for which the definition was more consistent, could be included in lists of COVID-19 symptoms (Carrillo-Larco RM, Altez-Fernandez C, 2021).

Another Systematic review of the PubMed/Medline, Cochrane databases and preprints up to May 3, 2020. The researchers reviewed 18 articles and 6 manuscript preprints. Significant prevalence of anosmia is reported in COVID-19 patients. Controlled studies indicate that anosmia is more common in COVID-19 patients than in patients suffering from other viral infections or controls anosmia is more prevalent in COVID-19 patients than in patients suffering from other respiratory infections or controls **(**Athanasia Printza, Jannis Constantinidis, 2020).

Up to the researcher knowledge, the local study mentioned above was the only published study to evaluate the prevalence of covid quality life anosmia.

Selection criteria:

Inclusion criteria:

COVID-19 patients in Hail City having a positive reverse transcription polymerase chain reaction. 18 years of age and up Covid-related anosmia is a complaint.

Exclusion criteria:

Under the 18 years old patients, Patients outside of Hai'l city.

Data and Statistical Analysis:

After data were extracted, it was revised, coded, and fed to statistical software IBM SPSS version 22(SPSS, Inc. Chicago, IL). All statistical analysis was done using two tailed tests. P value less than 0.05 was statistically significant. Regarding patients' quality of life affected by anosmia, the overall score was obtained by summing up all items discrete score with overall score ranged from 13 to 52 points. The overall score was categorized into poor quality of life (13-25), moderate quality of life (26-38), and good quality of life (39-52). This categorization based on means standardized score ± SD. (14) Descriptive analysis based on frequency and percent distribution was done for all variables including patients' personal data, medical history, worry about smell disturbance, and effect of anosmia on their quality of life. Cross tabulation was used to assess distribution of patients' quality of life by their personal data. Relations were tested using Pearson chi-square test and exact probability test for small frequency distributions.

The statistical analysis will be processed using the Statistical Package for Social Sciences (SPSS) software version 23 (SPSS Inc., Chicago, IL, USA).

Results:

A total of 213 covid-19 patients complained of anosmia completed the study questionnaire. Patents ages ranged from 18 to 60 years with mean age of 36.2 ± 11.9 years old. Exact of 135 (63.4%) patients were males. On asking about if still worried that they might not be able to get used to changes in sense of smell in the future, 59 (27.7%) said "yes", 64 (30%) said "sometimes", and 90 (42.3%) said "No" , as shown in Table 1.

Table 1. Personal data of covid-19 cases with neurosensory (anosmia), Hail, Saudi Arabia.

Personal data	No	%
Age in years		
< 20	12	5.6%
21-30	37	17.4%
31-40	109	51.2%
41-50	27	12.7%
51-60	28	13.1%
Gender		
Male	135	63.4%
Female	78	36.6%
Were you/still worried that you might not be able to get used to changes in your sense of smell in the future?		
Yes	59	27.7%
Sometimes	64	30.0%

Not at all	90	42.3%

Effect of anosmia among covid-19 patients on their quality of life, Hail, Saudi Arabia. Exact of 61% agreed that anosmia bother them while eating, 57.3% reported that they no longer enjoy the taste of drinks or food as used to, 46.5% were afraid of exposure to some stimuli such as gas and spoiled food during anosmia, 46% reported affected visits to restaurants which became now less than they used to be, 46% told that anosmia makes then angry, 43.7% eat more or less food than I used to, and 38.5% have been/still find it hard to relax. Only 18.3% told that anosmia affected their relationship with surrounding population, as shown in Table 2.

Table 2. Effect of anosmia among covid-19 patients on their quality of life, Hail, Saudi Arabia

Effect of anosmia on patient QOL	**Totally agree**		**Agree to some extent**		**Disagree to some extent**		**Totally disagree**	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**
My visits to restaurants are now less than they used to be	48	22.5%	50	23.5%	39	18.3%	76	35.7%
I no longer enjoy the taste of drinks or food as I used to	80	37.6%	42	19.7%	27	12.7%	64	30.0%
Changes in my sense of smell bother me while eating	81	38.0%	49	23.0%	21	9.9%	62	29.1%
My visits to friends, relatives and neighbours were decreased	25	11.7%	23	10.8%	37	17.4%	128	60.1%
I have been/still found it hard to relax	28	13.1%	54	25.4%	33	15.5%	98	46.0%
I am having weight problems	26	12.2%	36	16.9%	34	16.0%	117	54.9%
It makes me feel isolated	20	9.4%	25	11.7%	37	17.4%	131	61.5%
Avoid contact with people	16	7.5%	30	14.1%	23	10.8%	144	67.6%
I eat more or less food than I used to	49	23.0%	44	20.7%	31	14.6%	89	41.8%
Afraid of exposure to some stimuli such as gas and spoiled food	58	27.2%	41	19.2%	32	15.0%	82	38.5%

I find it difficult to engage in daily life activities	22	10.3%	33	15.5%	40	18.8%	118	55.4%
It makes me angry	42	19.7%	56	26.3%	33	15.5%	82	38.5%
Affected my relationship with surroundings	22	10.3%	17	8.0%	22	10.3%	152	71.4%

Overall quality of life of covid-19 patients with anosmia in Hail, Saudi Arabia. A total of 105 (49.3%) of the study cases had good quality of life, 77 (36.2%) had moderate quality of life, and 31 (14.6%) had por quality of life. The overall mean quality of life score was 38.1 ± 10.8 as shown in Figure 1.

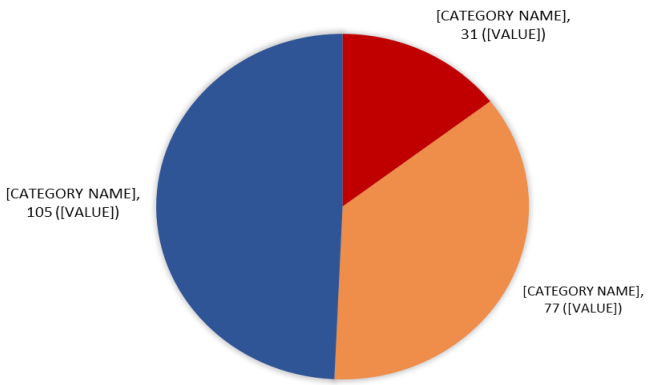

Figure 1. Overall quality of life of covid-19 patients with anosmia in Hail, Saudi Arabia.

Distribution of patients' quality of life by their personal data. A total of 74.4% of patients who were not worried that they might not be able to get used to changes in sense of smell in the future had good quality of life in comparison to 23.7% of those who were worried about that issue with recorded statistical significance (P=.001). Also, 54.1% of male patients with anosmia had good quality of life compared to 41% of females (P=.049) as shown in Table 3.

Table 3. Distribution of patients' quality of life by their personal data.

Personal data	**Overall QOL level**						**p-value**
	Poor		**Moderate**		**Good**		
	No	**%**	**No**	**%**	**No**	**%**	
Age in years							
< 20	2	16.7%	6	50.0%	4	33.3%	.719$^{\$}$

21-30	7	18.9%	14	37.8%	16	43.2%	
31-40	13	11.9%	39	35.8%	57	52.3%	
41-50	5	18.5%	11	40.7%	11	40.7%	
51-60	4	14.3%	7	25.0%	17	60.7%	
Gender							
Male	17	12.6%	45	33.3%	73	54.1%	.049*
Female	14	17.9%	32	41.0%	32	41.0%	
Were you/still worried that you might not be able to get used to changes in your sense of smell in the future?							
Yes	18	30.5%	27	45.8%	14	23.7%	.001*
Sometimes	7	10.9%	33	51.6%	24	37.5%	
Not at all	6	6.7%	17	18.9%	67	74.4%	

P: Pearson X^2 test $: Exact probability test

* P < 0.05 (significant)

Ethical Consent:

The objectives of the research will be clarified to each participant. Everyone would have the choice whether to take part in this study or to abstain. Participants will be notified that their comments will be confidential and will be used for research purposes only. Ethical approval will be obtained from the ethical committee of university of Hail.

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