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Analysis of post covid respiratory disease and their relation with nutrition

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Abstract
The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the infectious agent that causes coronavirus disease 2019 (COVID-19), a highly contagious illness. Over 6 million people have died as a result of COVID-19, which has had a devastating impact on the world. Since the 1918 influenza pandemic, it has become the most significant worldwide health emergency. The aim of the research and analysis is to examine the relationship between nutrition and post-COVID respiratory diseases. Dietary management, causes, risk factors, and symptoms are included in this study. 200 participants were selected from the Malappuram district for the study. The way of gathering data was a self-created questionnaire. Each subject was questioned personally and separately. According to the study, the majority of the 200 Covid-affected individuals had been diagnosed with additional illnesses. The majority of them suffer from memory loss, breathing difficulties, and sleep issues. According to the survey, the majority of them had been diagnosed with various illnesses.

Keywords: Post Covid 19, respiratory disease, relation between post Covid and respiratory disease

1. Introduction
The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the infectious agent that causes coronavirus disease 2019 (COVID-19), a highly contagious illness. Over 6 million people have died as a result of COVID-19, which has had a devastating impact on the world. Since the 1918 influenza pandemic, it has become the most significant worldwide health emergency. Treatment recommendations are updated to reflect the most effective treatments when the virus mutates. The presentation of the condition, its consequences, and the current treatment options advised by guidelines are all thoroughly reviewed in this activity (Cascella Marco *et al*., 2023) [1].
According to a study by Nalbandian *et al*. (2021) [9], the first pandemic of the twenty-first century occurred in February 2003 and was brought on by the coronavirus known as SARS-CoV. Then, in December 2019, a deadly respiratory virus outbreak-known as SARS-CoV-2, a new coronavirus called COVID-19 (coronavirus disease 2019; Chen *et al*., 2020) [10]-spread rapidly in Wuhan, China. Although a single human coronavirus causes both SARS and COVID-19, there are some distinctions between the two respiratory diseases. The coronavirus family of viruses primarily affects bats, but they can infect a wide variety of animals. A coronavirus typically causes mild respiratory symptoms that resemble the common cold. These viruses are named from the Latin word for crown (corona) and have spikes on their surface that resemble crowns.

Objectives
- To assess the respiratory disease of Covid patients.
- To assess the level of knowledge regarding Covid among post covid patients.
- To assess the level of knowledge regarding respiratory disease among post covid patients.
- To recognize the complications that can affect the post covid patients.
- To make them aware of the importance of dietary modifications and healthy lifestyle in the post covid patients.

2. Review of Literature
A new coronavirus known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2;

formerly known as 2019-nCoV) is the cause of coronavirus disease 2019 (COVID-19), which was initially discovered during a respiratory illness outbreak in Wuhan City, Hubei Province, China (David J Cennimo, 2024) [3].

During the COVID-19 pandemic, many people had what is now known as post-COVID-19 syndrome, which is characterized by lingering symptoms and/or problems that last longer than four weeks. SARS-CoV-2 is a respiratory coronavirus that induces COVID-19. While lung destruction is expected, many other cells and organs are also damaged, which results in a variety of symptoms. Patients with mild to severe COVID-19 experience these persistent symptoms; at this time, little is known about the possible pathophysiological mechanisms behind this illness (Janet D. Pierce *et al*., 2021).

Any of the breathing-related structures and organs, such as the nasal cavities, pharynx (or throat), larynx, trachea (or windpipe), bronchi and bronchioles, lung tissues, and respiratory muscles of the chest cage, can be impacted by respiratory system diseases. Three primary factors contribute to the remarkably wide range of illnesses that affect the respiratory tract: (1) it has a vast network of capillaries that the entire output of the heart must pass through, meaning that diseases that affect the small blood vessels are likely to affect the lung; (2) it is exposed to the environment and may therefore be impacted by inhaled organisms, dusts, or gases; and (3) it might be the location of allergic or "sensitivity" events that could significantly impair function (John Hansen-Flaschen *et al*., 2024).

3. Methodology

The methodology pertaining to the study “analysis of post covid respiratory disease and their relation with nutrition” is given under the following headings

3.1 Selection of subject

A sample of 200 coronavirus affected people was randomly selected from various fields. Questionnaire were sent through online and the respondents were asked to complete the online questionnaire. Participation in the study was completely anonymous. The study was reviewed and approved by department staffs.

3.2 Selection of Tool

The tool selected for the present study was a self-formulated questionnaire. Questionnaire provide a quick and efficient way of eliciting information from a largest sample of people. It was a validated questionnaire based on information collected from previous research journals and articles. The questionnaire consisted of the various aspects related to background information.

3.3 Selection of the Method

The method selected for the study is the survey method. It is a research method where the data needed is collected from people by creating a questionnaire. In this method we will be able to know about their opinions, habits or insight about a certain study. They are useful in describing the characteristics of a large population. They are cost effective and have the ability to gather large amounts of information.

3.4 Data collection

Before participating in the study, all participants were fully informed about the study purpose, requirement sand data confidentiality under sharing and privacy policy. The data were filled by the investigator by asking the questions individually to every one of them.

3.5 Analysis of Data

The gathered data from the selected samples were consolidated and is presented in Results and Discussion with Tables and figures.

4. Results and Discussion

The result pertaining to the study "Analysis of post covid respiratory disease and their relation with nutrition" are presented and discussed under the following headings

4.1 Special diet followed

Special diets	No of Subjects (%)
Vegetarian	4
Vegan	0
No Veg	1
No Special Diet Followed	92
Other	4

92% of participants did not follow any special diet, 4% are vegetarian and other diets and 1% of them followed non veg diet.

4.2 Symptoms shown during covid

Symptoms shown during covid	No of subject (%)
Fever	161
Headache	100
Difficulty In Breathing	76
Cough	73
Muscle and Body Ache	166
Fatigue	178
Vomiting	7
Others	3

178 participants contain fatigue and 166 contain muscle and body ache, 161 participants contain fever and 100 contain headache and 76 contain difficulty in breathing and 73 peoples contain cough and remaining 7 participants contain vomiting and 3 contain other symptoms.

4.3 Kind of medicine used

Kind of medicine used	No of subjects (%)
Diabetes	41
Hypertension	23
Cholesterol	16
Other	20

44 participants using medications, 41% of participants use diabetes medicines and 23% of participants use hypertension medicine, 20% of participants use other medicines and the remaining 16% of participants use cholesterol medicines.

4.4 Whether the subject is a heart patient

Whether the subject is a heart patient	No of subjects (%)
Yes	3
No	97

The data shows the heart patients in 200 participants, 97% of participants are not heart patients and 3% of participants are heart patients.

4.5 Heart problem after covid 19

Heart problem after covid 19	No of subjects (%)
Yes	11
No	89

89% of participants do not have heart problems after covid and 11% of participants have heart problems after covid 19.

4.6 Kind of heart problems

Kind of heart problems	No of subjects
Heart attack	7
Angina	9
Arrhythmia	3
Heart palpitation	0
Myocarditis	0
Other	3

11% of participants have heart problems after covid 19. Angina was seen in 9participants, heart attack was seen in 7 participants and 3 participants seen in arrhythmia and other heart problems.

4.7 Kind of disease affected after covid

Kind of disease affect after covid	No of subjects (%)
Diabetes	77
Tuberculosis	5
Stroke	8
Other	10

33% of participants affected any disease after covid, the figure shows that what type of disease, 77% of participants affect diabetes and 10% of participants affect other disease, 8% of participants affect stroke and 5% affect tuberculosis.

4.8 Respiratory Symptoms

Respiratory symptoms	No of subjects
Persistent cough	57
Shortness of breath	71
Lung inflammation	1
Other	5

115 participants contain respiratory symptoms, 71 participants contain shortness of breath, 57 contain persistent cough and 5 participants contain other respiratory symptoms and 1 contain lung inflammation.

4.9 Experience anxiety and depression after covid 19

Experience Anxiety And Depression After Covid 19	No Of Subjects (%)
Yes	7
No	93

93% of participants experience anxiety and depression after covid 19 and 7% of participants experience anxiety and depression after covid 19.

4.10 proper sleep after covid 19

Proper sleep after covid 19	No of subjects
Very low	67
Moderate	74
Very high	18
None	41

The participants experienced proper sleep after covid 19. Among 200 participants, 74 participants experience moderate and 67 participants experience very low, 41 participants do not contain sleep problems and 18 of participants experience very high.

4.11 breathing problem after covid 19

Breathing problem after covid 19	No of subjects (%)
Yes	45
No	55

Almost all people experienced breathing problems after covid 19, among 200 participants, 55% of participants did not have breathing problems after covid 19 and 45% of participants experienced breathing problems after covid 19.

4.12 kind of breathing problems

Breathing problems	No of subjects
Shortness of breath	66
Allergies	57
Asthma	11
Pneumonia	7
Other	2

90 participants have got breathing problems after covid 19, 66 participants contain shortness of breath and 57 participants experience allergies, 11 participants contain asthma and 7 participants contain pneumonia and 2 participants contain other breathing problems.

5. Conclusion

The present study entitled “Analysis of post covid respiratory disease and their relation with nutrition” was carried out at Malappuram District. A set of self-formulated questionnaire was prepared and asked to covid affected people. The participants were very supportive and responsive about answering all the questions properly.

Analysis of the results gives a more comprehensive impression about the impacts of Personal and socio demographic data, Anthropometric assessment, Dietary profile and Covid 19 period of Covid patients. It is found that many people experienced shortness of breath, loss of memory, loss of proper sleep and effected by diabetes. The purpose of this paper is to analysis of post covid respiratory disease and their relation with nutrition.

6. Suggestions

- Conduct awareness classes about the after effect of Covid 19.
- Acknowledge the lack of consensus on specific nutritional protocols for post covid respiratory disease and the need for further research to define effective dietary interventions.
- Provide dietary chart and importance of dietary management to post covid patients.

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