

# Deep Breathing and Bronchial Postural Drainage Exercises and the Relationship with Covid-19 Patients

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## Abstract

**Background:** COVID-19 virus can have a significant impact on an individual's health and ability to exercise. The Center for Disease Control (CDC) has noted 11 main COVID-19 symptoms: fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, the new loss of sensation or smell, sore throat, congestion, or runny nose, nausea or vomiting, and diarrhea. Experts have begun to look at the positive effects of deep breathing exercises on these respiratory issues among during and post-COVID-19 individuals. Worldwide physical therapy, deep breathing and coughing exercises services are given in conjunction with medical treatment

**Objectives:** The study aimed to find the relationship of deep breathing and bronchial postural drainage for patients with coronavirus and find out the relationship between this exercises and patients demographic and personal data such as age, gender, and educational level

**Methodology:** A descriptive (cross-sectional) study design was conducted in Baghdad city hospitals, starting from 1<sup>st</sup> of October to the end of October 2020. Non- probability (purposive) sample of 100 patients have coronavirus. The data were analyzed through the application of descriptive statistical analysis frequency, & percentages, and inferential statistical analysis, chi-square, are used.

**Results:** More than half of the studied sample (59%) were within (20-39) years old and (52%) of them were male. both variables have a significant association with deep breathing and bronchial postural drainage exercises but in regard to their educational level, no significant association was found and most of patients have commonly symptoms of Covid-19 and are highly significant association with that exercises, while most of patient have emergency warning signs of Covid-19, Inability to wake or stay awake and bluish lips or face are significantly association with it and most of patients under study have good healthy condition after doing exercise but it has no significant association with that exercises.

**Recommendations:** The researchers recommended training the patients on deep breathing and bronchial postural drainage exercises in the Ministry of Health hospitals and displaying for them the updating information through different social media locations to put the affected patients on the right ways for having better health

**Keywords:** deep breathing and bronchial postural drainage, and Covid-19

## 1. Introduction

COVID-19, an ongoing pandemic of respiratory disease, is the latest menace to global health ever since its outbreak in December 2019 in Wuhan, China. It has generated a major distress due to the high percentage of death it has caused globally and non-availability of valid treatment till date only by vaccines that reduced number of infected.

COVID-19 virus can have a significant impact on an individual's health and ability to exercise. The Center for Disease Control (CDC) has noted 11 main COVID-19 symptoms: fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, the new loss of sensation or smell, sore throat, congestion, or runny nose, nausea or vomiting, and diarrhea [1]. Existing studies suggest that 80% of cases are asymptomatic; 15% serious (oxygen-requiring illness); and 5% cases are crucial who require ventilator support system. Symptoms may appear 2 to 14 days after exposure to the virus and can last up to 6 months in some individuals with long-term complications [2].

One of the main hallmark symptoms is respiratory issues

such as coughing or shortness of breath [3]. Experts have begun to look at the positive effects of deep breathing exercises on these respiratory issues among post-COVID-19 individuals [4].

Postural drainage is a type of rehabilitation for patients with difficulties in the expectoration of large amounts of bronchial secretion. The task of drainage, which means posture positions, is to remove secretions by supporting physiological mechanisms and to improve and maintain the proper lung ventilation [5, 6].

Worldwide physical therapy, deep breathing and coughing exercises services are given in conjunction with medical treatment

## 2. Methodology

A descriptive (cross-sectional) study design was conducted on Baghdad city hospitals, starting from 1<sup>st</sup> of October to the end of October 2020. Non- probability (purposive) sample of 100 patients have coronavirus. The data were analyzed through the application of descriptive statistical analysis frequency, & percentages, and inferential statistical analysis, chi-square, are used

## 3. Results of the Study

**Table (1): Distribution of Patients According to their Demographic Data & its Association with Deep Breathing and Bronchial Postural Drainage Exercises**

| Demographic Data |                    |    | Deep Breathing and Bronchial Postural Drainage Exercises Times /per Day |       |      |       | P Value |
|------------------|--------------------|----|---|-------|------|-------|---------|
| Age              | No.                | %  | 3and more   | Twice | Once | Never |         |
| Age              | 20-39 years        | 59 | 17  | 22    | 11   | 9     | 0.016*  |
|                  | 40 years and above | 41 | 23  | 7     | 3    | 8     |         |
| Gender           | Male               | 52 | 15  | 20    | 9    | 8     | 0.052*  |
|                  | Female             | 48 | 25  | 5     | 9    | 5     |         |
| Education        | Read and write     | 4  | 2   | 0     | 1    | 1     | 0.096   |
|                  | Primary level      | 2  | 0   | 1     | 0    | 1     |         |
|                  | Secondary level    | 15 | 7   | 0     | 5    | 3     |         |
|                  | Institute level    | 15 | 6   | 7     | 1    | 1     |         |
|                  | College and above  | 48 | 17  | 14    | 6    | 11    |         |
|                  | Student            | 16 | 8   | 7     | 1    | 0     |         |

This table shows that more than half of the studied sample (59%) were within (20-39) years old and (52%) of them were male. both variables have a significant association with deep breathing and bronchial postural

drainage exercises but in regard to their educational level, no significant association was found although more than one third of the studied sample (48%) were college graduate and above

**Table (2): Distribution the Studied Sample According to Covid-19 Symptoms & Its Association with Deep Breathing and Bronchial Postural Drainage Exercises**

| Covid-19 Symptoms        | Deep Breathing and Bronchial Postural Drainage Exercises Times / per Day |     |           |       |      |       | P Value |
|--------------------------|--|-----|-----------|-------|------|-------|---------|
|                          | No.  | %   | 3and more | Twice | once | Never |         |
| Fever                    | Yes  | 96  | 54        | 30    | 9    | 3     | 0.389   |
|                          | No   | 4   | 4         | -     | -    | -     |         |
| Chills                   | Yes  | 98  | 67        | 26    | 5    | -     | 0.073   |
|                          | No   | 2   | 1         | 3     | -    | -     |         |
| Cough                    | Yes  | 99  | 67        | 27    | 5    | 0     | 0.273   |
|                          | No   | 1   | 0         | 1     | 0    | 0     |         |
| Shortness of breathing   | Yes  | 98  | 67        | 27    | 4    | 0     | 0.007*  |
|                          | No   | 2   | 0         | 1     | 0    | 0     |         |
| Tiredness                | Yes  | 100 | 67        | 28    | 5    | 0     | ----    |
|                          | No   | 0   | 0         | 0     | 0    | 0     |         |
| Muscles or body aches    | Yes  | 98  | 67        | 26    | 5    | 0     | 0.073   |
|                          | No   | 2   | 0         | 2     | 0    | 0     |         |
| Headaches                | Yes  | 94  | 66        | 24    | 4    | 0     | 0.023*  |
|                          | No   | 6   | 1         | 4     | 1    | 0     |         |
| Loss taste and smell     | Yes  | 79  | 54        | 21    | 4    | 0     | 0.829   |
|                          | No   | 21  | 13        | 7     | 1    | 0     |         |
| Sore throat              | Yes  | 79  | 47        | 25    | 6    | 1     | 0.166   |
|                          | No   | 21  | 11        | 5     | 3    | 2     |         |
| Congestion or runny nose | Yes  | 78  | 48        | 23    | 3    | 0     | 0.010*  |
|                          | No   | 22  | 10        | 7     | 7    | 3     |         |
| Nausea                   | Yes  | 81  | 53        | 22    | 2    | 0     | 0.000*  |
|                          | No   | 19  | 5         | 8     | 6    | 3     |         |
| Vomiting                 | Yes  | 78  | 47        | 26    | 3    | 0     | 0.002*  |
|                          | No   | 22  | 11        | 4     | 5    | 3     |         |
| Loss appetite            | Yes  | 69  | 45        | 18    | 5    | 1     | 0.128   |
|                          | No   | 31  | 13        | 12    | 4    | 2     |         |
| Diarrhea                 | Yes  | 74  | 46        | 21    | 4    | 3     | 0.101   |
|                          | No   | 26  | 12        | 9     | 5    | 0     |         |
| Pinkeye (conjunctivitis) | Yes  | 69  | 42        | 24    | 3    | 0     | 0.003*  |
|                          | No   | 31  | 16        | 6     | 6    | 3     |         |

This table shows that mostly of patient have commonly symptoms of Covid-19 and shortness of breathing, headaches, congestion or runny nose, nausea, vomiting and pink eye (conjunctivitis)are highly significant

association with deep breathing and bronchial postural drainage exercises while the rest items have no significant.

**Table (3): Distribution of Covid-19 Emergency Warning Signs & its Association with Deep Breathing and Bronchial Postural Drainage Exercises**

| Emergency Warning Signs         |     | Deep Breathing and Bronchial Postural Drainage Exercises Times / per Day |           |       |      |       | P Value |
|---------------------------------|-----|--|-----------|-------|------|-------|---------|
|                                 |     | No. & %  | 3and more | Twice | Once | Never |         |
| Difficulty Breathing            | Yes | 83   | 52        | 22    | 6    | 3     | 0.106   |
|                                 | No  | 17   | 6         | 8     | 3    | 0     |         |
| Chest pain                      | Yes | 79   | 47        | 22    | 7    | 3     | 0.675   |
|                                 | No  | 21   | 11        | 8     | 2    | 0     |         |
| New confusion                   | Yes | 80   | 50        | 25    | 5    | 0     | 0.138   |
|                                 | No  | 20   | 17        | 3     | 0    | 0     |         |
| Inability to wake or stay awake | Yes | 85   | 52        | 21    | 9    | 3     | 0.038*  |
|                                 | No  | 15   | 6         | 9     | 0    | 0     |         |
| Bluish lips or face             | Yes | 81   | 53        | 26    | 2    | 0     | 0.017*  |
|                                 | No  | 19   | 14        | 2     | 3    | 0     |         |
| Bacterial or viral infections   | Yes | 80   | 50        | 25    | 5    | 0     | 0.138   |
|                                 | No  | 20   | 17        | 3     | 0    | 0     |         |

This table shows that mostly of patient have emergency warning signs of Covid-19, Inability to wake or stay awake and bluish lips or face are significantly association with

deep breathing and bronchial postural drainage exercises while the rest items were not significant

**Table (4): Distribution of Patients Health Condition after Doing Exercises & its Association with Deep Breathing and Bronchial Postural Drainage Exercises**

| Patient Health Condition after That Exercises: |     | Deep Breathing and Bronchial Postural Drainage Exercises Times /per Day |           |       |      |       | P Value |
|--|-----|---|-----------|-------|------|-------|---------|
|  |     | No.%  | 3and more | Twice | Once | Never |         |
| He feeling quiet and good breathing            | Yes | 94  | 54        | 28    | 9    | 3     | 0.832   |
|  | No  | 6   | 4         | 2     | 0    | 0     |         |
| After that exercisesleep deeply                | Yes | 95  | 54        | 29    | 9    | 3     | 0.742   |
|  | No  | 5   | 4         | 1     | 0    | 0     |         |
| I would like to eat                            | Yes | 98  | 56        | 30    | 9    | 3     | 0.687   |
|  | No  | 2   | 2         | 0     | 0    | 0     |         |
| I can be doing some duties awake               | Yes | 96  | 55        | 29    | 9    | 3     | 0.863   |
|  | No  | 4   | 3         | 1     | 0    | 0     |         |

This table shows that most of patients under study have good healthy condition after doing exercise but it has no significant association with deep breathing and bronchial postural drainage exercises

#### 4. Discussion

The sample of the study consists of 100 patients have coronavirus in Baghdad City hospitals.

In the present study as shown in table (1) that more than half of the sample (59%) were within (20-39) years old and (52%) of them were male. both variables (gender and age) have a significant association with deep breathing and bronchial postural drainage exercises and at age 40 and above (23%) doing deep breathing more than 3 times per day, while in regard to their educational level, no significant association was found although more than one third of the studied sample(48%) were college graduate and above that mean adult people knowing that exercise lead to good breathing condition for them and reduce accumulations of lung secretion when they doing these exercises .

Regarding the studied sample as shown in table (2) most of the patients have commonly symptoms of Covid-19 and shortness of breathing, headaches, congestion or runny nose, nausea, vomiting and pink eye (conjunctivitis)are highly significant association with deep breathing and

bronchial postural drainage exercises while the rest items have no significant. A study conducted by RG [7], their study characterized by symptoms mainly from the respiratory system, requires medical intervention in almost every case[7].

Table (3) shows that most of the patients have emergency warning signs of Covid-19, Inability to wake or stay awake and bluish lips or face are significantly association with deep breathing and bronchial postural drainage exercises while the rest items were not significant. This result was agreed with the study by Jarosz et al. [8].

Regarding to Chinese Association of Rehabilitation Medicine, Respiratory Rehabilitation Committee agree with the result of table(4) shows most of patients under study have good healthy condition after doing exercise but it has no significant association with deep breathing and bronchial postural drainage exercises [9].

Finally, the researchers found that, the implementation of patients' physiotherapy by deep breathing and bronchial postural drainage exercises during illness is as important as their rehabilitation before and after recovery.

#### 5. Recommendations

The researchers recommended training the patients on deep breathing and bronchial postural drainage exercises in the Ministry of Health hospitals and displaying for them

the updating information through different social media locations to put the affected patients on the right ways for having better health condition.

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