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ORIGINAL ARTICLE

Adjuvant TaibUVID nutritional supplements proved promising for novel safe COVID-19 public prophylaxis and treatment: enhancing immunity and decreasing morbidity period for better outcomes (A retrospective study)

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ABSTRACT

Background: We recently suggested TaibUVID nutritional supplements (containing natural honey, Nigella sativa, chamomile, costus, fennel, and/or senna) of prophetic medicine as adjuvants to pharmacological treatments to potentiate immunity and combat the SARS-COV-2 virus and COVID-19 pandemic. The present study aims at assessing the safety and effectiveness of taking adjuvant TaibUVID nutritional supplements.

Methodology: A prospective controlled trial was not applicable. However, a retrospective data analysis of ten confirmed COVID-19 patients (many of them have radiological findings) in Egypt was carried out. Patients knew about the TaibUVID nutritional supplements via social media. An online questionnaire was also distributed via social media to investigate patients' opinions regarding the safety and effectiveness of taking adjuvant TaibUVID nutritional supplements. Paired sample *t*-test and Statistical Package for the Social Sciences version 16 were used for data analysis.

Results: TaibUVID induced lymphocytosis and increased the percentage of lymphocytes from 21% to 53.4% within few days, i.e., may increase B lymphocytes (humoral immunity) and T lymphocytes (cell-mediated immunity). COVID-19 patients (n = 3) taking pharmacological treatments only needed a significantly longer duration ($p < 0.05$) till the beginning of improvement or death (9.66 ± 1.33 days) versus 3.5± 0.22 days for COVID-19 patients who received pharmacological treatments with TaibUVID nutritional supplements (n = 10, majority were physicians). COVID-19 patients (n = 3, all were physicians) taking pharmacological treatments only needed a significantly longer duration ($p < 0.05$) till complete recovery or death (12.33 ± 2.73 days) versus 7.3 ± 1.01 days for those receiving pharmacological treatments with TaibUVID nutritional supplements (n = 10, majority were physicians). In the questionnaire, 33 out of 40 patients (82.5%) reported no side effects after TaibUVID administration. 7 patients (17.5%) reported few side effects (hyperglycemia and diarrhea) after TaibUVID intake. Diarrhea may be due to senna (recommended but optional). Hyperglycemia may occur with non-natural honey. 38 patients (90%) reported improvement by 25%-100% after intake of TaibUVID nutritional supplements. 20 patients (50%) confirmed getting health benefits after TaibUVID inhalation therapy. 22 patients (55%) reported they know other COVID-19 patients not taking TaibUVID supplements and had delayed improvements.

Conclusion: TaibUVID enhanced immunity and potentiated a safe rapid recovery of COVID-19 infection. It is strongly advisable to add TaibUVID nutritional supplements to pharmacological protocols to fasten patients' recovery. TaibUVID supplements are advisable for public and contacts prophylaxis. "TaibUVID for all" health campaigns are recommended. More clinical research studies are recommended. Limitation: This study is limited by the few number of patients and lack of detailed investigations

Keywords: COVID-19, TaibUVID, TaibUVID Forte, TaibUVID inhalation therapy, *Nigella sativa*, natural honey, chamomile, senna, fennel, costus.

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Introduction

The COVID-19 pandemic is still a big health concern affecting countries and health systems all over the world. The Saudi Government and health authorities deserve respect and appreciation (at national and international levels) for their evidence-based management of the crisis using standard updated healthcare systems and preventive measures. The Saudi Government and health authorities are still spending generously to save human lives. Citizens and non-citizens are equal in receiving a high standard of healthcare for free, despite the economic challenges posed by the COVID-19 crisis. Such efforts were fruitful in reducing COVID-19 morbidities and fatalities far below the international levels with the ICU beds ready and well-equipped.

Unfortunately, unlike the modern pharmacy schools' curriculum, modern medicine schools' curriculum (taught in almost all modern medical schools globally) does not include a topic or even short notes about the therapeutic benefits of natural products and medicinal plants that are available in all countries and environments. This causes three major health disadvantages: lack of physicians' knowledge regarding the treatment, wasting these enormous therapeutically beneficial resources, and forcing patients to ask for medical advice at non-medical herbalist shops which may worsen the patients' medical conditions. Instead, physicians should carry this responsibility for patients' safety. With an additional advantage over other modern medical schools, the Taibah College of Medicine (in Saudi Arabia) pioneered in introducing a short vital curriculum to educate the therapeutic benefits of natural products and medicinal plants through teaching prophetic medicine and integrative medicine [1,2]. Students learn basic details about the therapeutic benefits of natural products, such as honey and Zamzam water, in addition to medicinal plants, such as *Nigella sativa*, costus (*Saussurea lappa*), chamomile (*Anthemis hyalina*), senna (*Cassia angustifolia*), fennel (*Foeniculum vulgare* Mill), and others. Physicians graduated from Taibah College of Medicine are quite familiar with that and they know well about their therapeutic benefits and methods of administration.

TaibUVID nutritional supplements, which include TaibUVID, TaibUVID Plus, and TaibUVID Forte, are promising adjuvant nutritional supplements for COVID-19 patients (Table 1; Figure 1A-C). Such

Table 1. *Treatment dose preparation of the adjuvant nutritional therapy of home-made and hospital-made TaibUVID and TaibUVID Forte.*

This can be prepared on a large quantity basis (simple and more practical) or single dose basis.

A. Large quantity TaibUVID mix:

One TaibUVID stock mix equals:

- Ground *Nigella sativa* powder (4 large metal spoonfuls = about 60 g).
- Ground *Anthemis hyalina* powder (2 large metal spoonfuls = about 30 g).
- Mix well in a container.
- Add 500 g natural honey and mix well.

-One dose of TaibUVID equals 1 large metal spoonfuls (or 1.5 large disposable plastic spoonfuls).
-It is better to add the dose to a cup of warm water to dissolve while squeezing a fresh lemon or orange with it. Give to patient.

B. Large quantity TaibUVID Forte mix:

One TaibUVID stock mix equals:

- Ground *Nigella sativa* powder (4 large metal spoonfuls = about 60 g).
- Ground *Anthemis hyalina* powder (2 large metal spoonfuls = about 30 g).
- Ground fennel (2 large metal spoonfuls = about 30 g).
- Ground senna powder (1 large metal spoonful = about 15 g).
- Ground costus powder (1 large metal spoonful = about 15 g).
- Mix well in a container.
- Add 500 g natural honey and mix well.

-One dose of TaibUVID Forte equals 1 large metal spoonfuls (or 1.5 large disposable plastic spoonfuls).
-It is better to add the dose to a cup of warm water to dissolve while squeezing a fresh lemon or orange with it. Give to patient.
-If senna-induced diarrhea is disliked or disturbing, the patient is advised to use TaibUVID Forte containing senna for at least 3 days to gain the benefits of Emodin-induced blocking of the viral spike protein. Then, he/she can complete the dose with TaibUVID Forte (not containing senna).

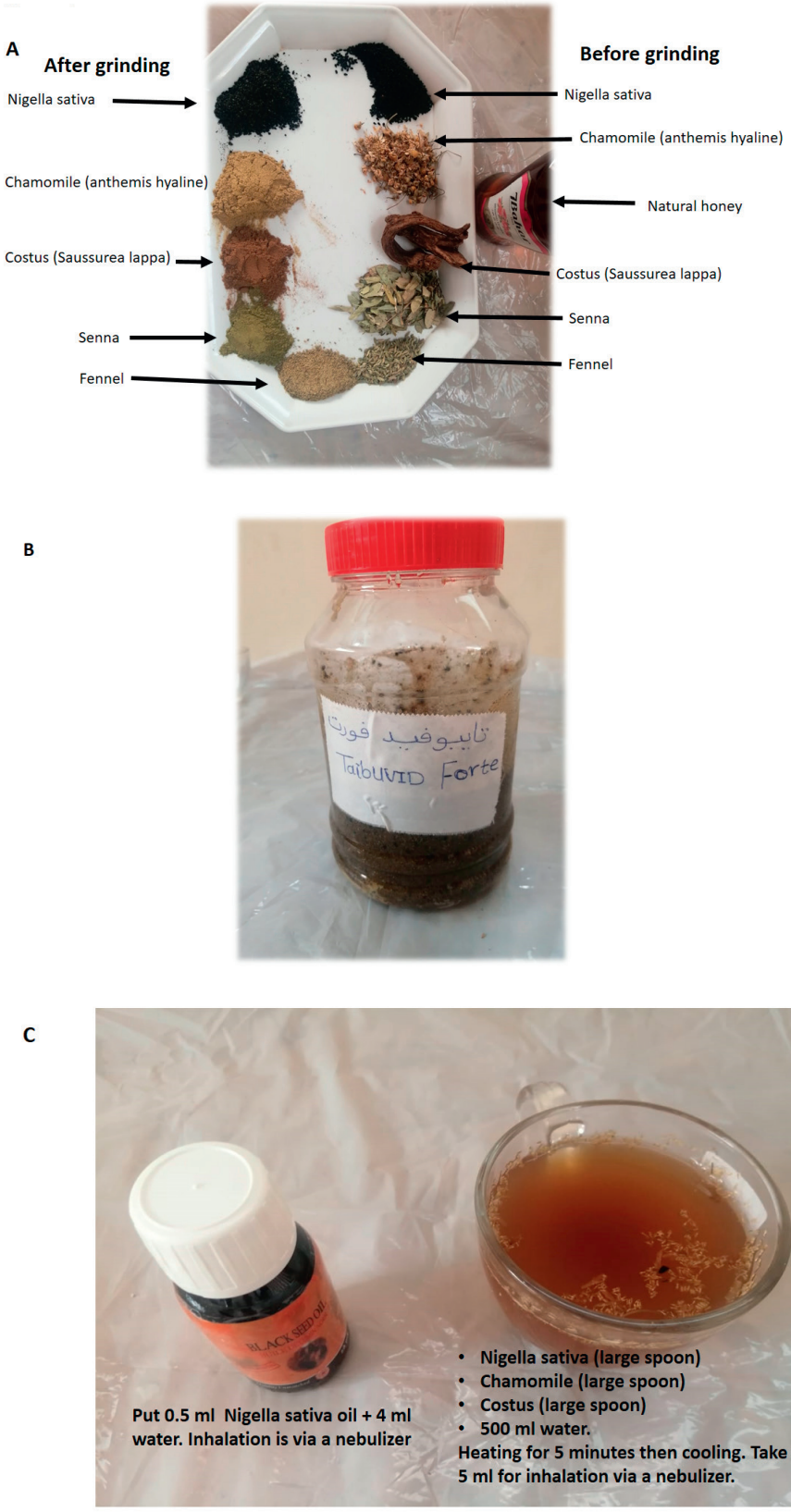


Figure 1. *TaibUVID nutritional supplements. (A) Components of TaibUVID Forte. (B) Home-made (or hospital-made) TaibUVID Forte. (C) Components of TaibUVID inhalation therapy.*

nutritional supplements are easily prepared as a home-made or hospital-made nutritional supplement (Table 1). The components of TaibUVID include natural products (natural honey) in addition to two medicinal plants (*Nigella sativa* and chamomile) [3]. TaibUVID Forte is a more beneficial nutritional supplement that includes TaibUVID in addition to three medicinal plants (costus, senna, and fennel) and it can also be prepared as a home-made nutritional supplement (Tables 1 and 2; Figure 1A-C). Those supplements are suggested to protect the public against COVID-19 infection, protect COVID-19 contacts, eradicate the COVID-19 pandemic, and potentiate the pharmacological health protocols given at hospitals through increasing patients' immunity and suppressing coronavirus replication in addition to their tissue-protective effects [3]. *Nigella sativa*, oranges, and *Anthemis hyalina* have proved to be effective in decreasing coronaviruses replication by nearly 100% (undetectable levels) in *in-vitro* cultures [4]. Interestingly, the medicinal respiratory and antimicrobial benefits beyond TaibUVID components are encouraging to use *Nigella sativa*, chamomile, and costus for preparing a home-made inhalation solution (Tables 3-5). Scientific principles beyond the components of TaibUVID nutritional therapies are documented in the literature [5-10] (Tables 5 and 6). TaibUVID components are known in the literature to treat many disease comorbidities that may accelerate COVID-19 fatality, e.g. diabetes mellitus and patients receiving immunosuppressive therapy like cancer patients and patients with rheumatoid arthritis [5-8]. Treatment protocols suggested for using oral TaibUVID and TaibUVID inhalation therapy were previously reported [3]. Briefly, the public should use TaibUVID once daily until the eradication of the pandemic. COVID-19 contacts and health staff (physicians and nurses) should preferably use TaibUVID Forte (twice daily for a week, and then 1-2 doses/day until the eradication of the pandemic). Mild asymptomatic COVID-19 cases should use TaibUVID (three times daily for a week). Moderate to severe cases should use TaibUVID Forte (five times daily until they are cured and then revert to once daily until COVID-19 eradication of the pandemic). In this study, potential therapeutic benefits beyond TaibUVID nutritional supplements were reported.

Methodology

A prospective controlled trial was not applicable. However, a retrospective data analysis of ten confirmed COVID-19 patients in Egypt was carried out. Patients knew about the TaibUVID nutritional supplements via social media. The retrospective analysis was carried out in Egypt. Patients read about TaibUVID nutritional supplements from social media (YouTube, WhatsApp, and Facebook) after publishing the suggested treatment protocol for COVID-19 patients using the nutritional supplements as adjuvants to the given pharmacological treatments [3]. Full history of the ten positive COVID-19 cases (who took pharmacological treatments and TaibUVID nutritional supplements) was taken (Table 4). Some cases that had some investigation were also included. Three other positive COVID-19 cases who took pharmacological treatments without TaibUVID nutritional supplements were also included in the study, retrospectively (Table 4). The study concentrated on the type of symptoms reported by patients, duration till the beginning of improvement or death and the duration till

Table 2. *Preparation of TaibUVID Plus (an adjuvant inhalation therapy).*

An adjuvant inhalation therapy:
Indications:
1. Moderate and severe cases of COVID-19 infection.
2. Presence of respiratory symptoms (e.g. cough, wheezing, difficult breathing, decreased oxygen saturation, etc.)
3. Presence of associated pulmonary diseases (e.g. asthma, pneumonia, bronchitis, etc.)

Two therapeutic inhalation solutions can be prepared:
A. *Nigella sativa* oil/saline inhalation solution:
Add 1/2 ml *Nigella sativa* oil to 3–6 ml normal saline
Use via a nebulizer.

B. Nigella/anthemis/costus inhalation solution:
In a clean small container, put:
- *Nigella sativa* seeds (one large spoonful)
- *Anthemis hyalina* (one large spoonful)
- Ground costus powder (one small spoonful)
- 500 ml water.

All the components should be boiled for 5 minutes and the resultant hot water is then cooled. Remove the seeds and put 5 ml in a nebulizer.

N.B.
- Nebulization session should be 15 minutes per session and 4–5 times/day.
- Always use a fresh solution (not older than 12 hours).
- Remaining amount of Nigella/Anthemis/costus inhalation solution can be stored in a spray bottle for spraying patient's room, hospital wards, and isolation places.

Table 3. *Complete blood count of patient #1 at time of COVID-19 diagnosis (before starting TaibUVID) and few days after starting TaibUVID nutritional supplements. TaibUVID-induced lymphocytosis is evident.*

	At time of COVID-19 diagnosis (before starting TaibUVID nutritional supplement)	Few days later (after starting TaibUVID nutritional supplement)
White blood cells	5.5 (4-11 × 10^3/µl)	4.4 (4-11 × 10^3/µl)
Red blood cells	5.11 (3.5-5.8 × 10^6/µl)	4.86 (3.5-5.8 × 10^6/µl)
Hemoglobin	15.7 (13.5-17.5 g/dl)	15.7 (13.5-17.5 g/dl)
HCT	45 (30%-50%)	44.8 (30%-50%)
MCV	88.1 (80-97 fl)	92.2 (80-97 fl)
MCH	30.7 (26-33.5 pg)	32 (26-33.5 pg)
MCHC	34.8 (31.5-36 g/dl)	35 (31.5-36 g/dl)
Platelets	140 (150-400 × 10^3/µl)	132 (150-400 × 10^3/µl)
Neutrophils	74.5 % (43%-76%)	41.2% (43%-76%)
Lymphocytes	21% (20%-40%)	53.4% (20%-40%)
Monocytes	3.6% (2%-10%)	3.1% (2%-10%)
Eosinophils	0.2% (1%-6%)	1.5% (1%-6%)
Basophils	0.5% (0%-1%)	0.8% (0%-1%)

complete improvement or death. An online questionnaire was distributed via social media to investigate patients' opinions regarding the safety and effectiveness of taking TaibUVID nutritional supplements as adjuvants to current pharmacological treatments. The questionnaire investigated the gender of the participants, most distressing symptom, side effects of oral TaibUVID supplements, side effects of TaibUVID inhalation therapy and percentage of improvements after TaibUVID intake. The questionnaire investigated patients' satisfaction with TaibUVID nutritional supplements, health benefits after TaibUVID inhalation therapy, duration till beginning of improvements, and if they know other COVID-19 patients whose conditions deteriorated. Participation in the questionnaire was optional. Given patients' agreements to participate were guaranteed. All figures were drawn using Microsoft excel. Paired sample *t*-test and Statistical Package for the Social Sciences version 16 were used in this study.

Results

Symptoms reported by COVID-19 patients

COVID-19 patients were variable in symptomatology and severity. Symptoms presented by COVID-19 patients included fever, sore throat, cough, malaise, difficult breathing, anosmia, loss of taste, and running nose (Figure 2A).

The TaibUVID effect (TaibUVID-induced lymphocytosis) was investigated and complete blood count of one patient was available before and after the intake of TaibUVID nutritional supplements (Table 3). The percentage of lymphocytes increased from 21% (low normal lymphocytes count) to 53.4% (lymphocytosis) few days after TaibUVID intake (Table 3).

Duration (in days) till beginning of improvement or death in COVID-19 patients

Then, we analyzed the duration (in days) till beginning of improvement, complete improvement, or death. COVID-19 patients taking pharmacological treatments without taking TaibUVID (n = 3) had a significantly longer duration ($p < 0.05$) till the beginning of improvement or death (9.66 ± 1.33 days) versus 3.5 ± 0.22 days for COVID-19 patients who received pharmacological treatments with TaibUVID nutritional supplements (Figure 2 B-C; Table 4).

Table 4. *Main findings and treatment progress of COVID-19 patients taking pharmacological treatments only vs those taking both pharmacological treatments and TaibUVID nutritional supplements.*

Patient's number	Main findings	Treatment progress
		COVID-19 patients who took pharmacological treatments only
1	-A 41–year-old male physician who contracted COVID-19 infection from hospital. -He had cough, anosmia, loss of taste, malaise, and respiratory difficulty.	- He received paracetamol, azithromycin, and hydroxychloroquine). -11 days later, his symptoms started to improve. -16 days later, he completely recovered.
2	-A 60-year-old male orthopedic surgeon who contracted COVID-19 infection. -He had cough, fever, respiratory difficulty, and malaise.	-He was admitted to the COVID-19 isolation hospital and died 7 days after diagnosis.
3	A 31-year-old male physician who contracted COVID-19 infection from the hospital. He had cough, anosmia, loss of taste, and malaise.	- He received paracetamol, azithromycin, and vitamin C). -11 days later, his symptoms started to improve. -14 days later, he completely recovered.
		COVID-19 patients who took pharmacological treatments + TaibUVID supplements
1	-A 36-year-old Egyptian male patient -He had sore throat, fever, and cough. - His blood film revealed a decreased lymphocytes count. -Positive nasopharyngeal swab PCR for COVID-19 infection	- He received home-made TaibUVID three times daily. - He received paracetamol, azithromycin, and vitamin C). -3 days later, his symptoms improved. - Five days later, his blood film revealed lymphocytosis (TaibUVID effect)
2	-A 58-year-old Egyptian teacher presented with intensive cough (not responding to antitussive drugs). -He suddenly developed general malaise, fever, cough, anosmia, loss of taste, and inability to breathe comfortably. -His nasopharyngeal swab PCR was positive for COVID-19 infection. -Oxygen saturation was decreased to below 90%. He received regular pharmacological protocol after he was admitted to hospital	-Admitted to ER department, then intensive care unit, and received oxygen. -Received hydroxychloroquine and azithromycin. - Received home-made TaibUVID three times daily - Three days later, relief of symptoms occurred but he was still in need of oxygen and he was discharged to an ordinary ward. - Three days later, nasal swab PCR was negative. - Seven days later, second nasal swab PCR was negative and he was discharged home
3	-A 15-year-old Egyptian male got high fever (not responding to antipyretics) and sore throat. -Positive COVID-19 PCR. Persistent high fever (39.6 °C) for 3 days.	-He started antipyretics and antibiotics (amoxicillin + clavulanic acid 625 mg three times daily) and home-made TaibUVID nutritional upplements (five daily doses). -Received cold sponges and TaibUVID inhalation therapy. - On the 3rd day, his fever subsided and sore throat improved.
4-7	An Egyptian family consisting of a father (50 years), mother (43 years), and 2 children (14 years and 12 years, respectively). -All were positive for COVID-19 PCR. -All had fever, anosmia, and loss of smell.	-All received pharmacological treatments -On the 4th day, the mother and kids received home-made TaibUVID nutritional supplements (three daily doses). Their symptoms disappeared and was negative for COVID-19 PCR. -Father still had persistent fever (not responding to treatment) with positive COVID-19 PCR. -He received home-made TaibUVID nutritional supplements (four daily doses) for 5 days. Fever disappeared and PCR was negative.
8	-A 59-year-old Egyptian female having diabetes mellitus, knee osteoarthritis, and poor immunity. -Positive for COVID-19 PCR. -She developed fever (not responding to antipyretics), sore throat, running nose, anosmia, and loss of taste.	-She received antibiotics (azithromycin and antipyretics). -She started home-made TaibUVID nutritional supplements (4 times daily) and TaibUVID inhalation therapy. -4 days later, she improved completely.
9	A 42-year-old ER physician dealing with COVID-19 patients contracted the infection. He had malaise, moderate fever, running nose, anosmia, and loss of taste. PCR test was positive.	-He received azithromycin and antipyretics at home in addition to TaibUVID Forte. -After 1 week, he improved. -4 days later, his nasopharyngeal PCR was negative.
10	A 35-year-old lady (wife of ER physician, case no. 9). She had malaise, moderate fever, running nose, anosmia, and loss of taste. PCR test was positive.	-She received azithromycin and antipyretics at home in addition to TaibUVID Forte. -After 1 week, she improved. -4 days later, her nasopharyngeal PCR was negative.

Table 5. *Reported beneficial effects exerted by the components of TaibUVID nutritional supplements that may be beneficial for COVID-19 patients.*

1. Inhibits coronaviruses replication (carried out by *Nigella sativa*, oranges, and *Anthemis hyalina*).
2. General antiviral effects with antiviral ingredients (carried out by *Nigella sativa*, oranges, and *Anthemis hyalina*, costus, senna, fennel, and honey).
3. Antibacterial effect for guarding against secondary bacterial infection (carried out by *Nigella sativa*, costus, honey, and fennel**)**
4. Enhances antiviral immunity (carried out by *Nigella sativa*, honey, and fennel)
5. Stimulates lymphocytosis to counteract lymphopenia induced by COVID-19 (carried out by *Nigella sativa* and natural honey)
6. Prevents coronaviruses entry in to target cells (carried out by emodin in senna)
7. Antiplatelets effect (carried out by *Nigella sativa*, *Anthemis hyalina* and fennel).
8. Thrombolytic effect (carried out by *Nigella sativa* and fennel)
9. Tissue-protective effect (carried out by all the six components)
10. Tracheal relaxation effects (carried out by *Nigella sativa* and fennel).
11. Blocks necessary coronaviruses proteins (carried out by senna).
12. Enhances bronchial ciliary movement, which results in pulmonary clearance function of the airways (*Nigella sativa* effect)
13. Improves respiratory function tests (*Nigella sativa* effect).
14. Treats COVID-19 comorbidities (carried out by *Nigella sativa*, costus, senna, fennel and honey).
15. Inhibits the main protease enzyme of SARS-CoV-2 virus (carvacrol in *Nigella sativa* and *Anthemis hyalina*).
16. Reduces pulmonary inflammation (carried out by costus, *Anthemis hyalina* and *Nigella sativa*).
17. Protects against acute lung injury (ARDS, acute respiratory distress syndrome) (carried out by *Nigella sativa* and fennel)

Table 6. *TaibUVID nutritional supplements may help potentiating pharmacological protocols and rapid COVID-19 eradication.*

May help in eradicating contacts and decreasing virus infectivity.
May help in public prophylaxis against COVID-19 infectiousness (to decrease the emergence of new cases).
May exert tissue-protective effects to the lungs and body tissues
May exert potent antiviral effects (owing to so many antiviral gradients)
May enhance antiviral immunity
May cause lymphocytosis (to counteract lymphopenia induced by COVID-19 infection)

Duration (in days) till complete recovery or death in COVID-19 patients

Then, we analyzed the duration (in days) till gaining complete improvement or death. COVID-19 patients taking pharmacological treatments without taking TaibUVID (n = 3) had a significantly longer duration ($p < 0.05$) till complete recovery or death (12.33 ± 2.73 days) versus 7.3 ± 1.01 days for COVID-19 patients who received pharmacological treatments with TaibUVID nutritional supplements (n = 10) (Figure 2D-E; Table 4).

Investigating safety of TaibUVID nutritional supplements to COVID-19 patients

Then, we investigated safety of TaibUVID nutritional supplements given to COVID-19 patients (n=40) retrospectively. About 85% (n=34) of participants were males and 15% (n=6) were females (Figure 3A). Most distressing symptoms reported by COVID-19 patients in the questionnaire were fever, cough, difficult breathing, malaise, vomiting, diarrhea and some complications, e.g. neurological complications (Figure 3B). A total of 33 patients (82.5%) reported no side effects after TaibUVID administration and 7 patients (17.5%) reported few side effects (hyperglycemia and diarrhea) after TaibUVID intake (Figure 3C). No discontinuation of TaibUVID treatment was needed. A total of 31 patients (77.5%) did not find any side effects after TaibUVID inhalation therapy (Figure 3D). One patient (2.5%) reported cough after TaibUVID inhalation therapy (Figure 3D).

Investigating COVID-19 patients' improvement and satisfaction with TaibUVID nutritional supplements

Then, we investigated patients' improvement estimation after TaibUVID nutritional supplements intake as an adjuvant to pharmacological treatments. A total of 15 patients (37.5%) reported that they improved by 75% after TaibUVID intake, 10 patients (25%) reported that they improved by 100% after TaibUVID intake, 9 patients (22.5%) reported that they improved by 50% after TaibUVID intake, 4 patients (10%) reported that they improved by 25% after TaibUVID intake, and 1 patient reported that he improved by 10%, while a single patient (2.5%) reported that he did not improve with combined pharmacological treatment and TaibUVID nutritional supplements (Figure 4A). A total of 36 patients (90%) reported that they feel happy with TaibUVID nutritional supplements (Figure 4B), 20 patients (50%) confirmed that they had got health benefits after TaibUVID inhalation therapy, 2 patients (5%) reported that they did not get health benefits after TaibUVID inhalation therapy (figure 4C), and 18 patients (45%) reported that they do not know (did not need to use TaibUVID inhalation therapy) (Figure 4C).

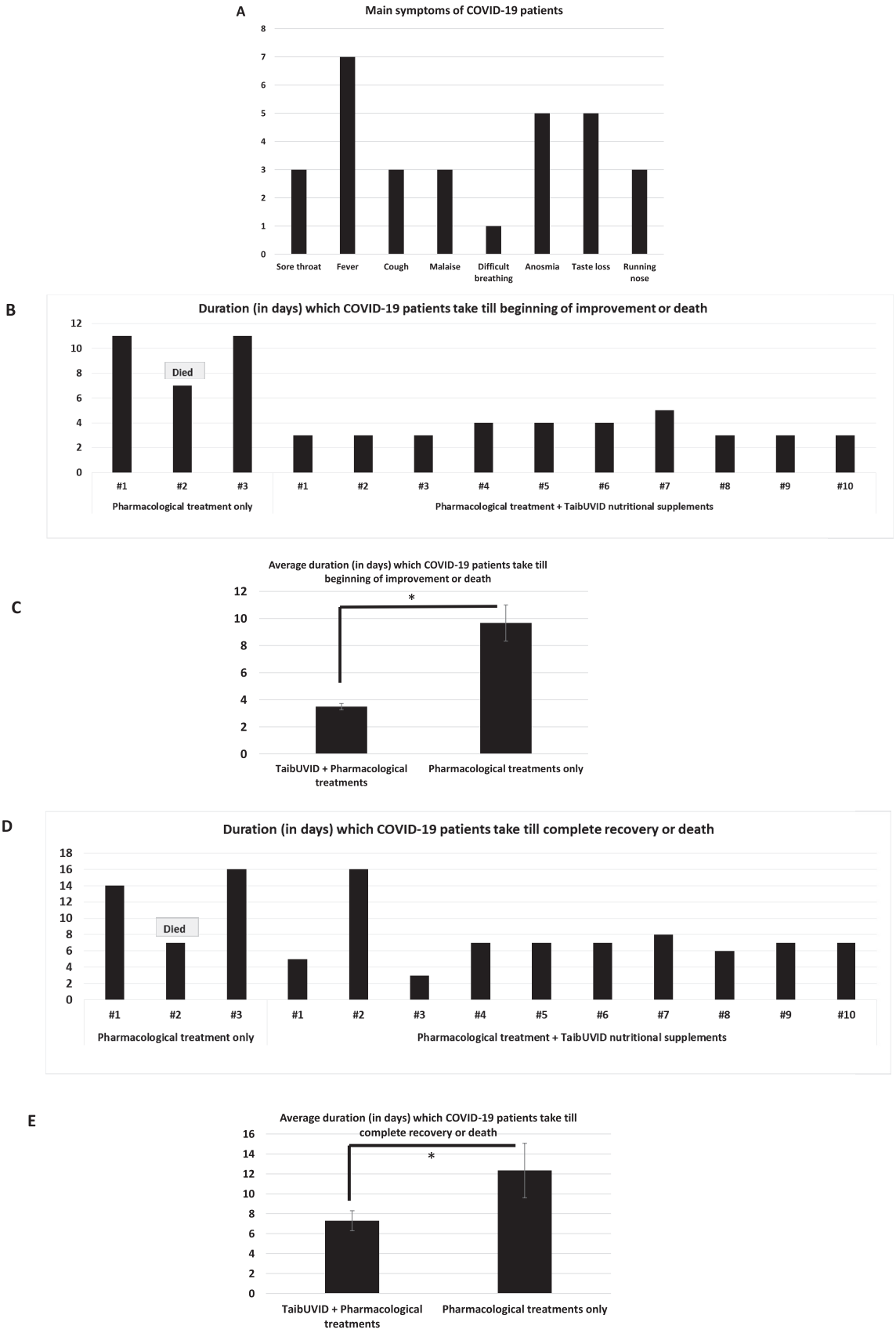
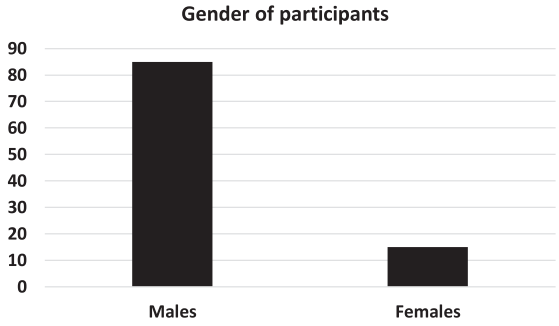


Figure 2. *COVID-19 infection course and progress. (A) Main symptoms presented by COVID-19 patients. (B and C) Duration (in days) till gaining the beginning of improvement of symptoms of COVID-19 infection. (D and E) Duration (in days) till gaining complete recovery from the symptoms of COVID-19 infection.*

A



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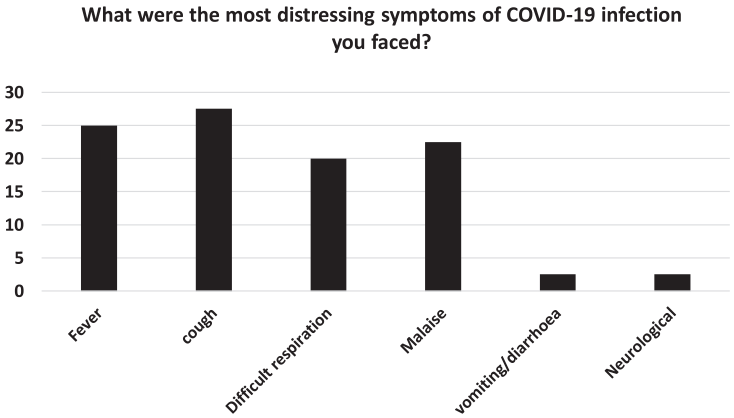

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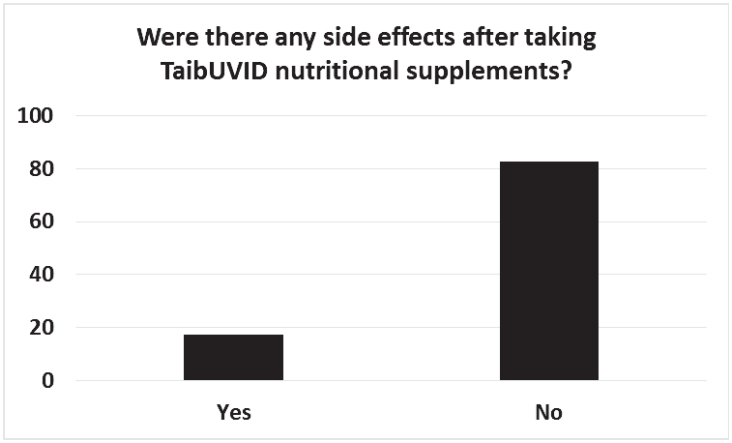

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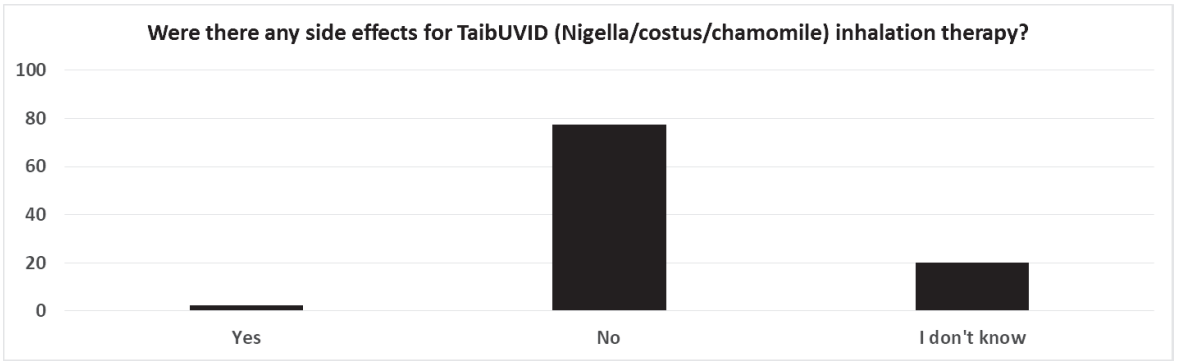

Figure 3. *COVID-19 patients' most distressing symptomatology and the safety of TaibUVID supplements. (A) Gender of COVID-19 patients who participated in the questionnaire. (B) Most distressing symptoms reported in the questionnaire. (C) COVID-19 opinions regarding the safety of TaibUVID nutritional supplements. (D) COVID-19 opinions regarding safety of TaibUVID inhalation therapy.*

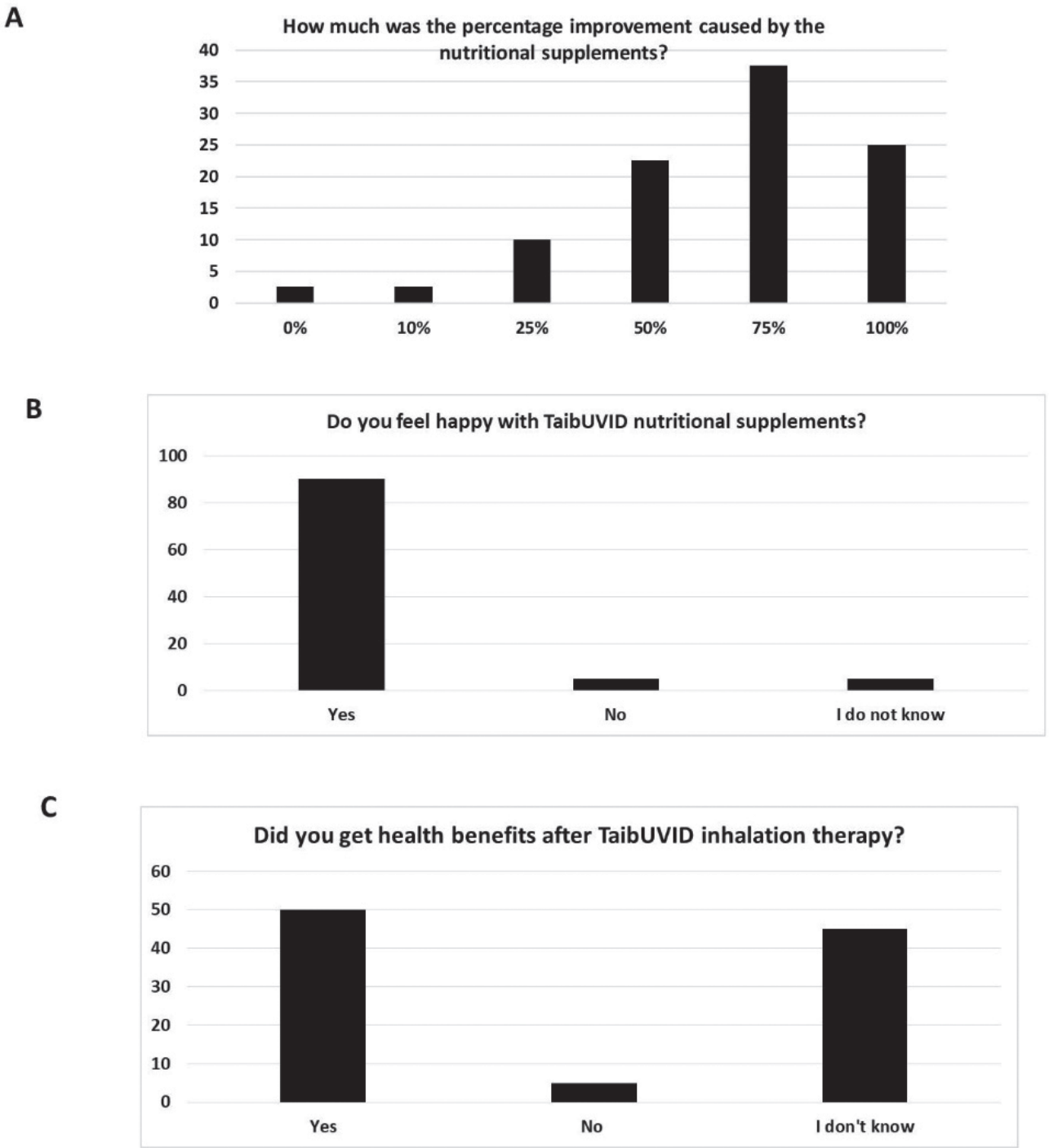

Figure 4. *Evaluation of patients' satisfaction and improvement with TaibUVID nutritional supplements. (A) Percentage of improvements caused by the nutritional supplements. (B) Percentage of patients' satisfaction with TaibUVID nutritional supplements. (C) Evaluation of TaibUVID nutritional supplements by COVID-19 patients.*

Investigating progress of improvement related to TaibUVID nutritional supplements

Then, we investigated the time taken for the symptoms to improve in COVID-19 patients. A total of 4 patients (10%) started to improve one day after TaibUVID intake, 12 patients (30%) started to improve 2 days after TaibUVID intake, 8 patients (20%) started to improve three days after TaibUVID intake, 5 patients (12.5%) started to improve 4 days after TaibUVID intake, 4 patients (10%) started to improve 5 days after TaibUVID intake, 5 patients (12.5%) started to improve 5 days after TaibUVID intake, and 1 patient (2.5%) did not know when exactly he started to improve and another patient

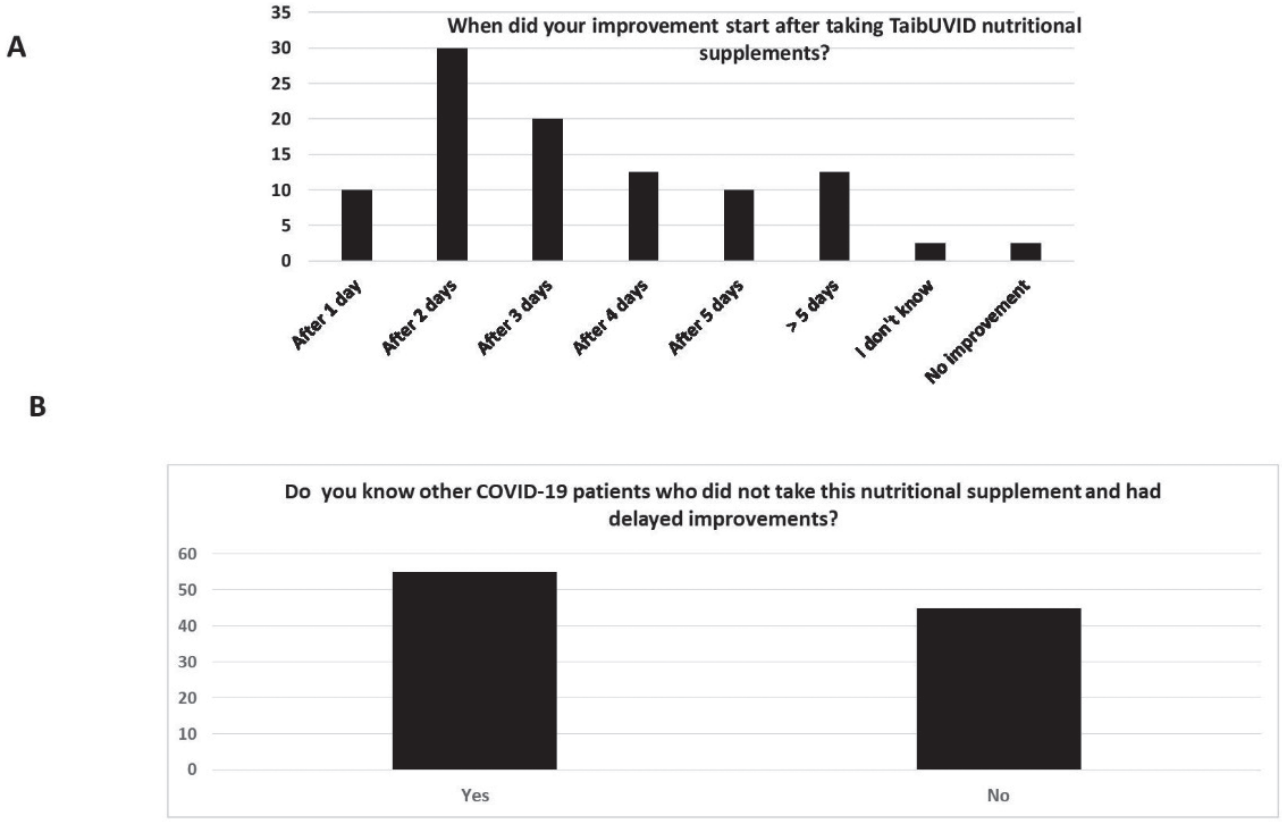

Figure 5. *Evaluation of COVID-19 patients' improvements upon using adjuvant TaibUVID nutritional supplements. (A) When the improvement of symptoms started. (B) Possible information about the COVID-19 progress in COVID-19 patients not taking TaibUVID nutritional supplements.*

(2.5%) reported that he did not improve with TaibUVID nutritional supplements (Figure 5A). A total of 22 patients (55%) reported that they know other COVID-19 patients not taking TaibUVID supplements and deteriorated and did not score any improvements. A total of 18 patients (45%) reported that they do not know about other COVID-19 patients (Figure 5B).

Discussion

Components of the nutritional supplements (TaibUVID, TaibUVID Plus, and TaibUVID Forte) have reported evidence-based therapeutic benefits that may help in public prophylaxis and treatment of COVID-19 patients [5-8] (Table 5). Importantly, components of TaibUVID Forte were reported to be quite safe at doses much higher than the suggested doses for COVID-19 patients and contacts. *Nigella sativa* was safe at 20 g/kg in broiler chicken [11]. *Anthemis hyalina* (chamomile) was reported to be safe at 20 g/day [12]. Senna at 10 g/kg/day for 7 consecutive days (about 200 times the dose used to treat human constipation) was reported to be safe without causing acute or subchronic toxic effects in rodents [13]. Costus at a dose of 1.5 g/kg/day was reported to be safe in animal studies [14]. Costus was reported to be tissue-protective with no mutagenic, toxic or teratogenic effects [15]. Fennel extract was safe at 3 g/kg orally without causing any type of toxicity [16]. Each component in the TaibUVID nutritional supplements is a suggested good candidate for improving COVID-19 patients based on many therapeutic benefits in published meta-analyses, systematic reviews, and research studies confirming its therapeutic benefits in other human diseases that may be comorbidities in COVID-19 patients and may suppress immunity [3-8]. Collectively, components of TaibUVID and TaibUVID Forte carry a lot of reported evidence-based therapeutic benefits that may be better utilized for combating COVID-19 infection and may be quite beneficial for rapid recovery of COVID-19 patients (Table 5 and 6). Natural honey is an excellent immune stimulant and antiviral agent. Honey exerts potent tissue-protective effects against tissue damaging drugs and radiation [10]. Natural honey decreased prostaglandins levels, and resulted in increased nitric oxide end product, percentage of lymphocytes, platelet count, serum protein, albumin and copper levels (immune stimulant) in an AIDS patient [17]. Oral honey enhances immunity via stimulating antibody production during primary and secondary immune responses against thymus-dependent and thymus-independent antigens [18]. *Nigella sativa* is well known to exert general antiviral effects, immune potentiating effects, and tissue-protective effects. *Nigella sativa* could maintain seronegative status in an HIV

patient [19]. *Nigella sativa* is a natural source of so many active ingredients, most of which are confirmed strong antiviral agents, e.g. thymoquinone, p-cymene, cis-carveol, carvacrol, thymol, α-phellandrene, α-pinene, β-pinene, trans-anethole, α-longipinene, longifolene [20], alpha-terpinene, gamma-terpinene, terpinen-4-ol, alpha-terpineol, citral, and 1,8-cineole [20]. Thymoquinone is the most abundant constituent in *Nigella sativa* and is famous for its tissue-protective and antiviral effects. Thymoquinone powerfully suppressed Epstein–Barr virus-infected B cells [21]. Both α-hederin and thymoquinone (of *Nigella sativa*) have anti-inflammatory and bronchodilator effects [22]. *Nigella sativa* enhances immunity and thymoquinone (an active ingredient in *Nigella sativa*) also enhances the antiviral immunity. In our previous publications, we treated thalassemic children with *Nigella sativa* at 2 g/day. At basal values, immunity indicators (white blood cells count, CD4 cells counts, CD8 cells counts, and neutrophils count) were low. Following three consecutive months of regular *Nigella sativa* treatment at a low dose (2 gram/day), immunological potentiation was manifested (increased white blood cells count, increased neutrophil count, increased CD4 T helper count, and increased CD8 T-cytotoxic count) [23]. Both thymoquinone and curcumin significantly enhanced immune responsiveness and suppressed the pathogenicity of the influenza viruses [24].

Nigella sativa and its constituents exert significant anti-inflammatory, antibacterial, and tissue-protective effects. Thymoquinone significantly inhibited effects of IL-4, IL-5, and IL-13 and induced interferon-gamma production. Thymoquinone attenuated allergic airway inflammation by inhibiting Th2 cytokines and eosinophil infiltration into the airways, thus demonstrating its potential anti-inflammatory role [25]. *Nigella sativa* exerted tracheal relaxation effects that counteracted the tracheal contractions caused by bronchoconstrictors, e.g. leukotriene B4. This prevents spasmodic effects and opens the airways [25]. Such property is quite needed in COVID-19 patients. TaibUVID-induced lymphocytosis was evident where the percentage of lymphocytes increased from 21% to 53.4% (Table 3). TaibUVID induced lymphocytosis and increased the percentage of lymphocytes within few days, i.e., may increase B lymphocytes (humoral immunity) and T lymphocytes (cell-mediated immunity). This may be attributed to honey and *Nigella sativa*-induced lymphoproliferative effects and increased bone marrow cellularity. Main presenting symptoms of COVID-19 patients were fever, sore throat, cough, malaise, difficult breathing, anosmia, loss of taste, and running nose (Figure 2A), which was almost similar to the most distressing symptoms reported by COVID-19 patients in the questionnaire (Figure 3B). Beginning of improvement in COVID-19 patients taking both pharmacological treatments and TaibUVID nutritional supplements (n=10) was significantly shorter in duration (3.5 ± 0.22 days) ($p < 0.05$) than COVID-19 patients taking pharmacological treatments only, who experienced a longer delayed period before gaining any improvement (9.66 ± 1.33 days). Unfortunately, a physician (with positive COVID-19 infection) died seven days after receiving pharmacological treatments without TaibUVID nutritional supplements (Figure 2B-E; Table 4). Moreover, the duration (in days) till gaining complete recovery or death was estimated. COVID-19 patients taking pharmacological treatments without taking TaibUVID ($n = 3$) had a significantly longer duration ($p < 0.05$) till gaining complete recovery or death (12.33 ± 2.73 days) versus 7.3 ± 1.01 days for COVID-19 patients who received pharmacological treatments with TaibUVID nutritional supplements ($n = 10$) (Figure 2 D-E; Table 4). Investigating the safety of TaibUVID nutritional supplements to COVID-19 patients is a vital issue. Therefore, we investigated the safety of TaibUVID nutritional supplements given to COVID-19 patients ($n = 40$) retrospectively. A total of 85% (n = 34) of participants were males and 15% (n = 6) were female (Figure 3B). The most distressing symptoms reported by COVID-19 patients in the questionnaire were fever, cough, difficult breathing, and some complications, e.g. neurological complications. A total of 33 patients (82.5%) reported no side effects after TaibUVID administration, 7 patients (17.5%) reported few side effects (hyperglycemia and diarrhea) after TaibUVID intake (Figure 3C). No discontinuation of TaibUVID treatment was needed. A total of 31 patients (77.5%) did not find any side effects after TaibUVID inhalation therapy (Figure 2D). However, one patient (2.5%) reported cough after TaibUVID inhalation therapy (Figure 3D). We then evaluated the percentage by which TaibUVID nutritional supplements contributed to patients' improvements. Fifteen COVID-19 patients (37.5%) reported that they improved by 75% after TaibUVID intake, 10 patients (25%) reported that they improved by 100% after TaibUVID intake, 9 patients (22.5%) reported they improved by 50% after TaibUVID intake, and 4 patients (10%) improved by 25% after TaibUVID intake. However, one patient (2.5%) reported he did improve by about 10% due to TaibUVID intake, while another patient (2.5%) reported that he did not improve with TaibUVID intake (Figure 4A). A total of 36 patients (90%) reported that they feel happy with TaibUVID nutritional supplements (Figure 4B) and 20 patients (50%) confirmed that they had gained health benefits after TaibUVID inhalation therapy (Figure 4C).

Four COVID-19 patients (10%) started to improve one day after TaibUVID intake, 12 patients (30%) started to improve 2 days after TaibUVID intake, 8 patients (20%) started to improve three days after TaibUVID intake, 5 patients (12.5%) started to improve 4 days after TaibUVID intake, 4 patients (10%) started to improve 5 days after TaibUVID intake, 5 patients (12.5%) started to improve more than 5 days after TaibUVID intake (Figure 5A), 22 patients (55%) reported that they knew the other COVID-19 patients who did not take TaibUVID supplements, deteriorated, and did not score improvements, 18 patients (45%) reported that they did

not know about the other COVID-19 patients (Figure 5B). Chamomile is a promising component in TaibUVID Forte for treating COVID-19 patients. Chamomile extract was reported to inhibit replication of coronaviruses by about 100% [4]. Chamomile extract was reported to reduce lung tissue fibrosis induced by bleomycin in a dose-dependent manner. This may be due to the presence of many active ingredients exerting anti-inflammatory and anti-oxidant properties [26]. α-bisabolol (in chamomile) was reported to reduce lipopolysaccharide-induced pulmonary inflammation in mice [27].

Costus exerts antihyperglycemic, hepatoprotective, cardioprotective, nephroprotective, analgesic, anti-arthritic, antibacterial, and antioxidant effects. Moreover, costus exerts testicular protection and CNS depressant effects. Costus can be used as an alternative and complementary therapy for many oxidative stress-related diseases [28]. The anthraquinone derivative emodin is present in senna [29]. Emodin ameliorates the neurobehavioral deficits of a rodent model for schizophrenia. Emodin was reported to inhibit the previous coronavirus epidemic SARS-associated coronavirus 3a protein involved in coronavirus release [29,30]. Moreover, emodin was reported to block the coronavirus spike protein and angiotensin-converting enzyme-2 interaction that are quite essential for viral attachment to the host cell receptor angiotensin-converting enzyme-2 [31,32]. However, it may be argued that senna is a laxative. Senna-induced diarrhea may not be welcomed by a lot of patients and physicians altogether. We simply confirm that senna-induced diarrhea has a therapeutic role. The digestive system was reported as a potential route for SARS-CoV-2 infection [33-35]. Emodin in senna may attach to SARS-COV-2 spike protein, preventing viral attachment to ACE receptors in intestinal cells. Senna-induced diarrhea may help excretion of the virus outside the alimentary tract causing a significant decrease in viral load. If senna-induced diarrhea is disliked, at least the patient should be given senna (TaibUVID Forte with senna) for three days (to gain therapeutic benefits of emodin and senna), then he can shift to TaibUVID Forte without senna. Fennel exerts antimicrobial, antiviral, anti-inflammatory, antimutagenic, antinociceptive (pain killer), antipyretic, antispasmodic, antithrombotic, apoptotic, cardiovascular, chemomodulatory, antitumor, hepatoprotective, hypoglycemic, hypolipidemic, and memory enhancing effects [16]. In the present study, collecting COVID-19 patients' data was very difficult. Unfortunately, carrying out a prospective controlled study on COVID-19 patients to investigate pharmacological treatments vs pharmacological treatments plus TaibUVID nutritional supplements was not applicable. Although this study is pioneering, it is limited by the low number of patients who were hardly available.

Conclusion

TaibUVID nutritional supplements may help in enhancing immunity and potentiating rapid eradication of COVID-19 infection. Rapid improvements after adding TaibUVID confirms published evidence-based effects of TaibUVID components in treating other human diseases (disease comorbidities in COVID-19 patients). This is quite promising for potentiating immunity, decreasing coronavirus replication, exerting tissue-protective effects, and treating co-morbidities. It is strongly advisable to add TaibUVID nutritional supplements to the currently used protocols to fasten patients' recovery and as a sole prophylaxis to eradicate COVID-19 contacts. It is quite advisable to utilize social media to make the public awake for using TaibUVID nutritional supplements for prophylaxis against COVID-19 infection to decrease the emergence of new COVID-19 cases, facilitate the performing of clinical research studies to explore therapeutic benefits of TaibUVID + protocols of ministry of health vs protocol of ministry of health only, provide TaibUVID for free to the elderly, the needy, handicapped, and the poor; establish health campaigns "TaibUVID for all" and ask the public to start TaibUVID daily for rapid COVID-19 eradication; establish volunteer health teams to deliver TaibUVID to all and to allow doing public nasal swabs PCR five days after initiating TaibUVID prophylaxis to give time for better SARS-COV-2 and COVID-19 eradication.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent for publication

Informed consent was obtained from all the participants.

Ethical approval

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