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RESEARCH ARTICLE

# Examining the Correlation Between Clinical Presentations of Coronavirus Disease 2019 (COVID-2019) Infected Pneumonia and the Utilisation of Natural Remedies for Alleviation

**Rasha Sami Dabbour**

Yarmouk University, Irbid, Jordan; rdabbour@hotmail.com

## Abstract

**Background**: The COVID-19 pandemic has exposed various clinical presentations, including respiratory, gastrointestinal, musculoskeletal and neurological symptoms. In this scenario, natural remedies have notably increased popularity due to their perceived therapeutic advantages. However, these remedies remain untested in terms of their effectiveness and role in mitigating COVID-19 symptoms. **Aim:** This study aims to examine how natural remedies can help manage COVID-19 symptoms and explore the complex relationship between symptomatology and consumption. **Methods:** An exploratory cross-sectional study with 215 Jordanians was conducted. A structured questionnaire was used to collect information about symptoms and natural remedies used by COVID-19 patients. Statistical analysis was conducted to identify relationships between symptoms and natural remedies used. **Results:** Natural remedies were used to treat mild symptoms (58.1%) and to help patients recover from their symptoms (40.5%). The use of natural remedies is associated with symptoms such as indigestion, coughing, shortness of breath, chest pain, nasal congestion, nausea, stomachache, diarrhoea and loss of smell. For headaches, 31.3% of participants used fenugreek, black seeds and sesame oil. Sore throats and coughs were treated with honey, turmeric, cinnamon, chamomile, lemon, olive oil, rosemary, sage, anise, sesame oil, parsley and cardamom. To treat nasal congestion, honey, garlic and anise were used. Severe loss of taste and smell were treated with onions and garlic. Each region offers unique natural remedies and preferences that reflect its distinct culture and environment. **Conclusions:** During the COVID-19 pandemic, natural remedies were found to be effective in treating upper respiratory infections among the adult Jordanian population. Individuals use natural remedies during health crises for a variety of purposes, emphasising the importance of a personalised approach.

**Keywords:** Herbal Medicine, Phytomedicine, Respiratory Infection, Symptoms, Traditional Medicine

## 1. Introduction

The COVID-19 pandemic has highlighted the importance of understanding its symptoms, ranging from mild to severe, affecting multiple parts of the body, including the respiratory and gastrointestinal system[1,2]. The variety of symptoms makes diagnosis difficult and many people have turned to natural remedies for relief, especially for upper respiratory symptoms. People increasingly prefer natural treatments that are believed to have antiviral, anti-inflammatory and immune-boosting properties, using remedies from traditional medicine, plants, and dietary supplements[3,4] various therapeutic approaches were attempted, with complementary and alternative medicine (CAM. Studies suggest that natural remedies can help manage COVID-19 symptoms, but it's still unclear how they affect the disease's clinical presentation. This study examines how natural remedies relieve COVID-19 symptoms, as well as the relationship between the

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severity of symptoms and natural remedies. Clinical practices may be guided by the findings, especially for Upper Respiratory Infections (URTIs).

In light of the COVID-19 pandemic, there has been an increase in the interest in holistic health approaches. The popularity of these remedies is based on their perceived safety, accessibility, and potential to boost immunity[3]. Herbs have been used for centuries in traditional medicine. Herbs and natural remedies are effective in treating and preventing respiratory conditions and some have antiviral properties as well[2,5] belief, cultural practice, and previous experience are associated with the use of herbal products. The trend is observed to be on the increase since covid-19 Pandemic hit the global stage. In the early days of the Pandemic, people protected themselves by practicing measures that would safeguard them from getting infected with the deadly virus. This study evaluated prevalence, risks, harms, benefits, and other issues associated with using herbs and home-based remedies to prevent and treat Covid-19. It highlights various measures of prevention and treatment practiced by employees and customers of a Regional Corporation by capturing the demographic characteristics, reasons, and associated factors for using alternative medical products. A descriptive cross-sectional survey in a hybrid online was carried out from February 2022 to April 2022. Data of independent and dependent variables was collected using a well-structured hybrid (online and paper and pencil. Traditional Chinese medicine has long incorporated herbal treatments into its therapeutic effects[6,7]. Natural remedies with anti-inflammatory properties also offer a promising solution for respiratory problems.

Researchers have explored the role of herbs and natural remedies during COVID-19, in addition to clinical aspects, vaccines and pharmaceutical treatments[4,8-13]. According to a study in Saudi Arabia from May to July 2020, 92.7% of participants used herbs and natural products more than before (P=0.036)[11]. Honey (84%), black seeds (63%), lemon (54%) and ginger (41%) were commonly used natural remedies. Researchers in Morocco found that *Eucalyptus globulus* (Blue gum) and *Azadirachta indica* are commonly used plants to prevent and treat COVID-19[9] the novel coronavirus identified in Wuhan, China, presented as a cluster of symptoms of pneumonia. Its quick spread resulted in a global pandemic. This research documents detailed ethnopharmacological information on the medicinal plant species used by herbalists against coronavirus disease. Methods: The study was conducted in Salé Prefecture, from March 1st, 2020 to May 31st, 2020. Semi-structured face to face interviews were held with 30 herbalists and collected; socio-demographic characteristics, the names of local species, and traditional remedies being used. The data were analyzed through the use reports (UR. In another study, conducted during the initial few weeks of March 2020, 55 participants (55% response rate) completed the survey[13]. An online form was used to ask respondents whether they had ever used 15 medicinal plants identified from interviews with herbalists, along with pictures and scientific and common names. Commonly used plants included Garlic, Olive, Onion, Ginger, Thyme, Blue Gum and Turmeric. Another prospective cross-sectional study from Serbia found that 1,704 respondents from various sociodemographic groups used garlic, ginger, chamomile, mint, propolis, and cinnamon, with 23.24% of respondents using herbal products regularly[4] various therapeutic approaches were attempted, with complementary and alternative medicine (CAM). A cross-sectional survey of 386 Jordanians conducted during the second wave of the pandemic found that citrus fruits (78.8%), honey (63.0%), ginger (53.1%), cinnamon (35%) and star anise (32.1%) were the most commonly used natural remedies[10].

The COVID-19 pandemic has made it crucial to understand URTIs and possible natural remedies to manage these infections. Symptoms of COVID-19, caused by SARS-CoV-2, include fever, cough and shortness of breath. There are also unusual symptoms like loss of smell and taste, gastrointestinal problems and neurological problems[14-16] the coronavirus disease 2019 (COVID-19). Despite plenty of information on COVID-19 symptoms and herbs, the relationship between them remains unclear. The use of herbal remedies to treat COVID-19 symptoms has been limited. In a study conducted across five Peruvian districts, 80.2% of participants used medicinal plants to prevent illness and 71% to treat respiratory symptoms such as coughs, sore throats, fevers and headaches[12]. Plants were used by 24% for multiple symptoms and 11% for general malaise. A common respiratory remedy was eucalyptus oil, ginger and spiked pepper; while chamomile was

utilised as a preventative herb, and garlic was used for respiratory problems. A Saudi Arabian study found that natural remedies helped patients manage symptoms such as fevers, coughs, fatigue, loss of taste and smell and other COVID-19 symptoms[10]. Nonetheless, the study did not examine the relationship between specific symptoms and remedies. The purpose of this study is to uncover potentially overlooked yet effective treatments for COVID-19 symptoms. Personalised care is delivered by incorporating the preferences and practices of patients. The study examines the association between symptoms of URTIs, particularly those associated with COVID-19 and the consumption of natural remedies. This paper provides evidence-based insights for guiding holistic healthcare practices, advocating for integrative approaches and identifying strategies to manage and treat URTIs.

## 2. Materials and Methods

A cross-sectional observational design was used in this study to investigate the relationship between COVID-19 symptoms and the use of herbal remedies. The survey was administered online in Arabic using Google Forms. The study was conducted in all provinces of Jordan, with participants required to meet specific inclusion criteria: they were at least 18 years old, positive for COVID-19 by PCR for the first time and used natural remedies to treat COVID-19 symptoms. Aqaba branch of the University of Jordan's Ethics Committee approved the study (approval no.2/3/2022). All relevant data protection and research ethics regulations, including the Declaration of Helsinki, the General Data Protection Regulation and local guidelines were followed during the study. Before beginning the survey, participants were required to confirm their consent electronically. The questionnaire was then administered to the participants once their consent had been obtained. The survey automatically ended if a participant refused the study terms. Participants were informed that they could withdraw voluntarily.

Structured questionnaires were used to collect data. The research objectives and questions were carefully formulated in the questions. There were three sections in the questionnaire. The first section collected sociodemographic information. The second section collected information about COVID-19 symptoms. As a final question, participants were asked why they took natural remedies in light of their symptoms. To indicate that natural remedies had been taken, there was a list of natural remedies to choose from, which was prepared based on literature for treating COVID-19 using natural remedies, as well as taking into consideration the familiarity and availability of natural remedies in Jordan.

To ensure that the study population is representative of the larger group of COVID-19 patients, participants are selected by random sampling. Social media platforms were used to recruit participants. The online questionnaire began with clear instructions about the study and informed consent. Respondents were assured of anonymity. Participants accessed the online questionnaire, read the instructions and answered the questions. The online survey platform collected and stored responses automatically. An automated validation check was incorporated into the online survey to ensure that responses felt within a valid range. To protect participants' information, the collected data was encrypted and stored securely. Both descriptive and inferential statistics were used in the analysis of the data using the Statistical Package for the Social Sciences, version 25.0. Statistical significance is defined at a p-value of 0.05. Participants who did not experience COVID-19 symptoms with a confirmed medical diagnosis were excluded from the study.

## 3. Results and Discussions

The study consisted of 346 participants with COVID-19. There were 284 (82.1%) participants who used natural remedies to prevent or treat the disease. A total of 277 people were infected with COVID-19. A total of 62 participants were excluded from the analysis because they used natural remedies for prevention and did not report using any natural remedies to relieve COVID-19 symptoms. There were 215 participants in all. The sociodemographic characteristics of the study participants (n=215) are summarised in Table 1.

Participants consumed a variety of natural remedies for COVID-19 and its symptoms (Table 2). There are names arranged descending in English, Latin and Arabic. Honey, ginger, citrus fruits, chamomile, anise,

**Table 1.** Sociodemographic characteristics (n=215)

| Item | Category | n | (%) |
|---|---|---|---|
| **Gender** | Female | 165 | 76.7 |
| | Male | 50 | 23.3 |
| **Age group, Year** | 18-25 | 48 | 22.3 |
| | 26-35 | 48 | 22.3 |
| | 36-45 | 66 | 30.7 |
| | 46-55 | 47 | 21.9 |
| | 56-65 | 6 | 2.8 |
| | >65 | 48 | 22.3 |
| **Marital Status** | Single | 62 | 28.8 |
| | Married | 143 | 66.5 |
| | Divorced | 7 | 3.3 |
| | Widowed | 3 | 1.4 |
| **Region** | Northern | 86 | 40.0 |
| | Central | 43 | 20.0 |
| | Southern | 86 | 40.0 |
| **Community Type** | rural | 141 | 65.6 |
| | suburban | 29 | 13.5 |
| | Urban | 45 | 20.9 |
| **Educational Level** | Primary (Grade 1-6) | 0 | |
| | Secondary (Grade 7-9) | 0 | |
| | Tertiary (Grade 10-12) | 19 | 8.8 |
| | College | 30 | 14.0 |
| | undergraduate | 125 | 58.1 |
| | postgraduate | 41 | 19.1 |
| **Occupation** | unemployed | 11 | 5.1 |
| | Housewife | 24 | 11.2 |
| | Student | 29 | 13.5 |
| | Self-employed | 4 | 1.9 |
| | private sector | 30 | 14.0 |
| | public sector | 111 | 51.6 |
| | Retired | 6 | 2.8 |
| **Monthly Income** | < 250 JD | 24 | 11.2 |
| | 251-450 JD | 59 | 27.4 |
| | 451-650 JD | 53 | 24.7 |
| | 651-850 JD | 34 | 15.8 |
| | 851-1000 JD | 8 | 3.7 |
| | > 1000 JD | 21 | 9.8 |
| | Missing | 16 | 7.4 |

onion and garlic were the most consumed natural remedies.

Natural remedies were consumed by the participants for a variety of reasons. The purpose of using natural remedies during the COVID-19 pandemic is presented in Table 3. There were 413 responses from 215 participants. Experienced Signs and Symptoms (S and S) are listed in the table along with the number of participants who used natural remedies according to their purposes. The Chi-square test was used to determine whether each purpose and symptoms reported were significantly related. Natural remedies were most commonly used to treat mild symptoms (58.1%) and during recovery (40.5%). Participants also used these remedies to prevent infection (20.9%) and treat viral infection (33.5%). Considering the purpose of use, there was a significant association between the use of natural remedies and the experienced symptoms (Table 3).

Many participants with various S and S reported using specific natural remedies for relief. Table 4 illustrates the COVID-19 pandemic S and S of the participants and the natural remedies that significantly alleviated their symptoms. Of the 1558 reported S and S, fever accounted for 64.7% (n=139) and 47 participants (17.3%) reported using natural remedies, but none were significantly associated with fever. 74% of participants reported headaches and 31.3% significantly used fenugreek, black seeds or sesame oil. Honey, turmeric, cinnamon, chamomile, lemon, olive oil, rosemary, sage, anise, sesame oil and parsley consumption were associated with sore throats. Honey, turmeric, cinnamon and cardamom were among the remedies used to treat dry coughs. Participants also reported using natural remedies at varying rates to alleviate symptoms including breathing difficulties, nasal congestion, red itchy eyes, fatigue/tiredness, nausea, stomachache, ache/joint pain, indigestion/heartburn, diarrhoea, ageusia (loss of taste), anosmia (loss of smell), and others. Garlic, onion and rosemary consumption was significantly associated with ageusia, while peppermint, turmeric, and clove consumption was associated with breathing difficulties.

There was a significant association between the use of specific natural remedies and different regions (North, Center, South) (Table 5). As a result of the chi-square test, the central region reported higher turmeric usage than the rest of the country (chi-square = 6.08, df = 2, p = .048). A notable association was also shown for cardamom and df = 2, p = .046, respectively. Blue Gum demonstrated a substantial regional difference ($\chi^2$ = 9.37, df = 2, p = .009), with only reported usage

**Table 2.** Natural remedies consumed by the participants; presented in English, Latin and Arabic names (n= 215; 1533 responses)

| English Name | Latin Name | Arabic Name | N | Percent of cases |
|---|---|---|---|---|
| Honey | *Apis mellifera* | عسل *(Asal)* | 144 | 67.0% |
| Ginger | *Zingiber officinale* | زنجبيل *(Zanjabeel)* | 136 | 63.3% |
| Oranges | *Citrus sinensis* | برتقال *(Burtuqal)* | 120 | 55.8% |
| Lemon | *Citrus limon* | ليمون *(Laymoon* | 114 | 53.0% |
| Chamomile | *Matricaria chamomilla* | البابونج *(Baboong)* | 112 | 52.1% |
| Anise | *Pimpinella anisum* | يانسون *(Yansoon)* | 107 | 49.8% |
| Onion | *Allium cepa* | بصل *(Basal)* | 95 | 44.2% |
| Garlic | *Allium sativum* | ثوم *(Thoam)* | 89 | 41.4% |
| Sage | *Salvia officinalis* | مريمية *(Maryamiah)* | 81 | 37.7% |
| Clove | *Syzygium aromaticum* | قرنفل *(Qaranful)* | 74 | 34.4% |
| Peppermint | *Mentha piperita* | نعناع *(Na'na)* | 71 | 33.0% |
| Turmeric | *Curcuma longa* | كركم *(Kurkum)* | 47 | 21.9% |
| Cinnamon | *Cinnamomum verum* | قرفة *(Qurfah)* | 46 | 21.4% |
| Thyme | *Thymus vulgaris* | زعتر *(Za'atar)* | 38 | 17.7% |
| Green tea | *Camellia sinensis* | شاي أخضر*(Shay akhdar)* | 32 | 14.9% |
| Olive oil | *Olea europaea* | زيت الزيتون *(Zeit alzeitoun)* | 28 | 13.0% |
| Rosemary | *Rosmarinus officinalis* | روزماري *(Rozmary)* | 25 | 11.6% |
| Sweet wormwood | *Artimesia annua* | شيح *(Sheeh)* | 24 | 11.2% |
| Black seeds | *Nigella sativa* | حبة البركة*(Habbat albarakah)* | 23 | 10.7% |
| Cardamom | *Elettaria cardamomum* | حب الهيل /هال*(Hal)* | 16 | 7.4% |
| Parsley | *Petroselinum crispum* | بقدونس *(Baqdounes)* | 15 | 7.0% |
| Black pepper | *Piper nigrum* | فلفل أسود *(Filfil aswad)* | 14 | 6.5% |
| Wild thyme | *Thymus serpyllum* | زعتر بري *(Za'atar bari)* | 12 | 5.6% |
| Sesame oil | *Sesamum indicum* | زيت السمسم *(Zeit alsimsim)* | 11 | 5.1% |
| Blue gum leaves | *Eucalyptus globulus* | أوراق شجرة الكينا | 9 | 4.2% |
| Rose mallow/ *Malvaceae* | *Hibiscus sabdariffa* | كركديه *(Karkadeh)* | 7 | 3.3% |
| Woolly yarrow | *Achillea tomentosa* | قيسوم *(Qaisoom)* | 6 | 2.8% |
| Fenugreek | *Trigonella foenum-graecum* | حلبة *(Hulbah)* | 5 | 2.3% |
| Common/wood mallow | *Malva sylvestris* | خبيزة *(Khabeez)* | 4 | 1.9% |
| Camel milk | *Camelus dromedarius* | حليب الإبل*(Haleeb al'ibil)* | 2 | 0.9% |
| *Alloeh* | *Aloe vera* | الصبار الألوفيرا | 1 | 0.5% |
| Basil | *Ocimum basilicum* | ريحان *(Reehan)* | 1 | 0.5% |
| Olive tree leaves | *Olea europaea* | أوراق الزيتون *(Awraq alzeitoun)* | 1 | 0.5% |
| Liquorice | *Glycyrrhiza glabra* | عرقسوس *(Areqsoos)* | 0 | |

in the North. Sweet wormwood showed a highly significant association ($\chi^2 = 27.6$, df = 2, $p < .005$), with a pronounced preference in the South.

Individuals seek information about natural remedies from a variety of sources. Two hundred and fifteen participants provided information about natural remedies, resulting in 522 responses (Table 6). The primary sources of information cited by 67.6% of participants were family, parents and grandparents. 42.3% of respondents were influenced by media and the internet. Books influenced 23.0% of participants, while friends and trial/error influenced 21.6% and

**Table 3.** Purpose of using natural remedies during the COVID-19 pandemic and associated signs and symptoms (n=215; 413 responses)

| Purpose | Count N | Percentages of cases | | Chi-square test results | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | value | df | Sig. |
| | | | | Yes | No | | | |
| Treatment of viral infection | 72 | 33.5% | Dry cough | 52 | 20 | 6.7.4 | 1 | .009 |
| | | | SOB | 39 | 33 | 8.44 | 1 | .004 |
| | | | Chest pain | 36 | 36 | 7.00 | 1 | .008 |
| | | | Nasal congestion | 39 | 33 | 3.97 | 1 | .046 |
| | | | Nausea | 19 | 53 | 5.65 | 1 | .017 |
| | | | Stomachache | 18 | 54 | 6.04 | 1 | .014 |
| | | | Indigestion | 9 | 63 | 4.02 | 1 | .045 |
| Treatment of mild symptoms | 125 | 58.1% | Smell loss | 62 | 63 | 3.99 | 1 | .046 |
| Treatment of severe symptoms | 59 | 27.4% | Fever | 45 | 14 | 4.80 | 1 | .028 |
| | | | Headache | 50 | 9 | 4.92 | 1 | .027 |
| | | | Dry cough | 42 | 17 | 4.24 | 1 | .039 |
| | | | Sweating | 24 | 35 | 6.59 | 1 | .010 |
| | | | SOB | 32 | 27 | 6.40 | 1 | .011 |
| | | | Chest pain | 30 | 29 | 6.01 | 1 | .014 |
| | | | Red itchy eyes | 12 | 47 | 11.7 | 1 | .001 |
| | | | Fatigue | 43 | 16 | 6.83 | 1 | .009 |
| | | | Nausea | 18 | 41 | 9.20 | 1 | .002 |
| | | | Stomachache | 15 | 44 | 4.98 | 1 | .026 |
| | | | Joint pain | 48 | 13 | 5.53 | 1 | .019 |
| | | | Indigestion | 8 | 51 | 4.42 | 1 | .036 |
| | | | Diarrhea | 25 | 34 | 7.26 | 1 | .007 |
| Recovery period | 87 | 40.5% | Dry cough | 60 | 27 | 4.89 | 1 | .027 |
| | | | SOB | 46 | 41 | 9.34 | 1 | .002 |
| | | | Nausea | 23 | 64 | 7.71 | 1 | .005 |
| | | | Indigestion | 11 | 76 | 5.74 | 1 | .017 |
| | | | Diarrhea | 32 | 55 | 4.49 | 1 | .034 |
| | | | Smell loss | 56 | 31 | 4.81 | 1 | .028 |
| Prevention of recurrent infection | 25 | 11.6% | Red itchy eyes | 6 | 19 | 7.24 | 1 | .007 |
| | | | Indigestion | 5 | 20 | 6.48 | 1 | .011 |

41.8% of participants, respectively. The knowledge of participants was also influenced by herbalists and health care professionals (doctors, nurses and pharmacists), each contributing 17.4% and 11.3% respectively. In addition, 12.2% of the participants obtained information through formal education and 8.0% from nutritionists.

In this study, natural remedies were used widely by individuals with COVID-19, highlighting a notable preference for natural remedies during the pandemic. A significant majority (82.1%) of the 346 participants diagnosed with COVID-19 used natural remedies to prevent or treat their illness. In light of this prevalence, it is critical to explore the role of natural remedies in managing the symptoms associated with this disease. The sociodemographic characteristics of participants revealed interesting patterns in terms of gender distribution, age, marital status, regional representation, educational background and occupational status. The majority of participants (76.7%) were female,

**Table 4.** Association between experienced signs and symptoms (S and S) of COVID-19 and utilisation of natural remedies significantly used remedies for alleviation

| Experienced S and S | | | Participants used natural remedies for the experienced S and S | | Natural remedies significantly associated with the complaints and symptoms (p<.05) |
|---|---|---|---|---|---|
| | N | % of cases | N | % | |
| Fever | 139 | 64.7% | 47 | 17.3 | ---------- |
| Headache | 159 | 74.0% | 69 | 31.3 | Fenugreek, Black seeds, Sesame oil |
| Sore Throat | 135 | 62.8% | 123 | 44.8 | Honey, Turmeric, Cinnamon, Chamomile, Lemon, Olive oil, Rosemary, Sage, Anise, Sesame oil, Parsley |
| Dry Cough | 129 | 60.0% | 123 | 44.4 | Honey, Turmeric, Cinnamon, Cardamom |
| Sweating | 60 | 27.9% | 16 | 6.1 | ------- |
| Breathing Difficulty | 87 | 40.5% | 41 | 14.8 | Peppermint, Turmeric, Clove |
| Chest Pain | 81 | 37.7% | 32 | 11.6 | ---------- |
| Nasal Congestion | 96 | 44.7% | 56 | 20.6 | Honey, Garlic, Anise |
| Red Itchy Eyes | 20 | 9.3% | 6 | 2.2 | Sage |
| Fatigue/ Tiredness | 126 | 58.6% | 37 | 13.4 | Garlic, Onion, Cinnamon, Olive oil |
| Nausea | 38 | 17.7% | 16 | 5.8 | Peppermint, Thyme, Sesame oil, Blue gum |
| Stomach Ache | 35 | 16.3% | 24 | 9 | Cinnamon, Thyme, Chamomile, Blue gum |
| Ache/ Joint Pain | 141 | 65.6% | 45 | 16.6 | Turmeric, Cardamom, Anise, Black seeds, Common/ Wood mallow |
| Indigestion/ Heartburn | 16 | 7.4% | 8 | 2.9 | Honey, Thyme, Anise, Woolly yarrow, Rose mallow, Blue gum. |
| Diarrhoea | 62 | 28.8% | 29 | 10.8 | Peppermint, Thyme, Clove, Cinnamon, Rosemary, Anise, Parsley, Sweet wormwood,Woolly yarrow. |
| Ageusia (Loss of taste) | 108 | 50.2% | 63 | 23.1 | Garlic, Onion, Rosemary, Anise |
| Anosmia (Loss of smell) | 119 | 55.3% | 73 | 27.1 | Garlic, Onion, Green tea, Blue gum |
| Others | 7 | 3.3% | 2 | 0.7 | |
| Total | 1558 | 724.7 | 277 | 100 | |

**Table 5.** Types of natural remedies used and regional distribution

| Natural Remedies | | North | Center | South | Chi square value | df | p-value |
|---|---|---|---|---|---|---|---|
| Turmeric | Yes (N)<br>No (N) | 13<br>73 | 35<br>8 | 26<br>60 | 6.08 | 2 | .048 |
| Cardamom | Yes (N)<br>No (N) | 4<br>82 | 7<br>36 | 5<br>81 | 6.18 | 2 | .046 |
| Blue gum | Yes (N)<br>No (N) | 9<br>77 | 0<br>43 | 0<br>86 | 9.37 | 2 | .009 |
| Sweet wormwood | Yes (N)<br>No (N) | 1<br>84 | 2<br>41 | 21<br>65 | 27.6 | 2 | .005 |

**Table 6.** Source of information about natural remedies (n=215; 522 responses)

| Source of Information | N | Percent of Cases |
|---|---|---|
| Books | 49 | 23.0% |
| Family/Parents/Grandparents | 144 | 67.6% |
| Friends | 46 | 21.6% |
| Health Care Professionals (Doctors, Pharmacists, Nurses) | 37 | 17.4% |
| Herbalists | 24 | 11.3% |
| Nutritionist | 17 | 8.0% |
| Education | 26 | 12.2% |
| Media/Internet | 90 | 42.3% |
| Trial/Error | 89 | 41.8% |

suggesting gender disparities in seeking alternative treatments during the pandemic[15,17] lifestyle practices, and intakes of herbs, vitamins, diet, and medications during the COVID-19 pandemic were assessed. Results: A total of 1048 participants completed the survey, 75 % of which were females and 60 % were in the age group of 18 - 34 years. The majority (75 %). Further, substantial proportions of individuals across different age groups turned to natural remedies for their healthcare, suggesting that natural remedies are becoming more prevalent across different age groups. Most of the participants in the study were married (66.5%) and came from a variety of regions, reflecting the heterogeneity of the population. A thorough understanding of these demographic nuances is essential to developing healthcare interventions and public health strategies that are tailored to diverse populations.

Regarding the consumption of natural remedies, honey, ginger, citrus fruits, chamomile, anise, onion and garlic emerged as the most commonly used herbs. These findings align with a previous study highlighting the therapeutic properties of these natural ingredients, particularly in alleviating symptoms commonly associated with respiratory illnesses like COVID-19[11] individuals continue to search for and consume specific herbs, foods and commercial supplements for this purpose. This study aimed to estimate the prevalence of using such alternatives, determine their usage reasons and evaluate their potential side effects. An online cross-sectional survey of 1,054 participants was conducted from 1 May to 31 July 2020 and focused on respondents' chronic disease histories, socio-demographic characteristics and frequency and trends of using these products. Descriptive and univariate analyses were performed to determine prevalence and associations between various products used and respondents' socio-demographic data. Relationships were tested using Pearson's chi-square test or an exact probability test. The use of herbs and natural products merely because of the COVID-19 pandemic was significantly increased (p=0.036). Interestingly, none of the participants ingested liquorice (the roots of the *Glycyrrhiza glabra*), despite its anti-inflammatory and immune modulator properties[6].

Natural remedies are used by participants for a variety of purposes, which gives insight into their perception of how effective they are in managing COVID-19 symptoms. A significant percentage of participants used these remedies during the recovery period and for mild symptoms. A significant number of people also used natural remedies to prevent infection and treat viral infections. The association between specific symptoms and the use of natural remedies supports their therapeutic value in treating various manifestations of COVID-19. Symptoms such as sore throat, dry cough and fatigue have been significantly relieved by natural remedies like honey, turmeric, cinnamon and garlic. During recovery, individuals who used natural remedies were more likely to report symptoms such as dry cough, shortness of breath, nausea, indigestion, diarrhoea, and loss of smell. Evidence suggests that natural remedies may reduce respiratory, gastrointestinal and sensory symptoms during recovery.

The findings reveal significant associations between natural remedies and the alleviation of COVID-19 symptoms, suggesting herbal treatments may be effective in managing viral infections. This study supports the importance of holistic healthcare, integrating conventional medical treatments with complementary herbal remedies tailored to each patient's needs. The observed correlation between natural remedy use and severe symptoms suggests that they may support the body's immune response during acute illness. Furthermore, the positive outcomes associated with natural remedy use during the recovery phase and for prevention of infection recurrence suggest broader implications for long-term symptom

management and immune support. There is, however, a need for further research to elucidate the mechanisms underlying herbal efficacy and to set up standardised protocols for their use in clinical settings. The findings provide valuable insights into the potential benefits of herbal remedies for combating COVID-19 and promoting public health resilience against respiratory infections.

Natural remedies are used differently in different regions, demonstrating the influence of geography on treatment preferences. In the Northern region, turmeric and cardamom were more commonly used, while in the Southern region, Blue Gum and sweet wormwood were more prevalent. It is important to consider regional preferences and cultural practices when evaluating the use of natural remedies. Regional variations in natural remedy usage provide fascinating insights into cultural practices and preferences. There is also a need for regionally tailored educational programs and interventions which could be more effective if public health strategies accommodated regional differences. Culturally sensitive care could also be provided.

It is evident from the diversity of sources of information about natural remedies that knowledge acquisition in this domain is multifaceted. Family members, particularly parents and grandparents, emerged as primary influencers, highlighting the importance of intergenerational knowledge transmission. A holistic approach to information dissemination and healthcare education is also important because of the influence of media, internet resources, books, friends and healthcare professionals. This study contributes to our understanding of how natural remedies are widely used among individuals with COVID-19. To ensure comprehensive and culturally sensitive healthcare during and after the pandemic, more research on the efficacy and safety of specific natural remedies is required.

## 4. Conclusion

Taking into account the COVID-19 epidemic, these findings shed light on the complexity of natural remedies/ herbal medicine practices and their relevance in addressing upper respiratory infection challenges. This study examines the relationship between symptoms and herbal remedies to gain insight into the diverse purposes for which individuals used herbs during the pandemic. It shows how symptoms and herbal choices interact, emphasising the need for individualised approaches to healthcare during such times. Additionally, the study reveals that family, the media, and the internet are key sources of information that influence herbal medicine practices. A comprehensive understanding of natural medicine among the public can be achieved by integrating these diverse sources of information into health education initiatives. Thus, this study improves our understanding of how natural remedies can be used during global health crises. A healthcare practitioner or policymaker can develop more effective strategies to promote holistic well-being and resilience in the face of URTI and pandemics by recognising the diverse motivations, regional variations and information sources that shape individual choices.

### 4.1 Limitations

Despite providing valuable insights, this study has limitations. Self-reported data may introduce recall bias, which may affect the accuracy of symptom reporting and natural usage. Our ability to establish causal relationships between symptoms and natural choices is further limited by the cross-sectional design. Additionally, the study's sample predominantly consists of recovered COVID-19 patients from Jordan, limiting its generalisability to other populations. The study did not examine to what extent these remedies influence the severity and course of COVID-19 symptoms.

### 4.2 Recommendations for Future Research and Practice

To validate the effectiveness and safety profiles of natural medicines in treating COVID-19, high-quality Randomised Controlled Trials (RCTs) should be conducted. Furthermore, it is important to investigate the mechanisms behind the association between specific naturopathic remedies and specific symptoms, particularly fever, headaches, sore throats and respiratory problems. Moreover, longitudinal studies are needed to assess the long-term outcomes of individuals using natural remedies during COVID-19, including their recovery and recurrence of symptoms.

The use of natural medicines during health crises should be promoted through public health campaigns.

Disseminating accurate information between healthcare professionals and herbalists requires the use of media, the Internet and educational programs. Integrative patient care requires interdisciplinary collaboration between healthcare professionals and herbalists. Health professionals, herbalists, policymakers and the public should work together to integrate natural remedies into mainstream healthcare systems, ensuring equitable access and informed choices. These initiatives will enhance understanding while empowering individuals and contributing to culturally sensitive healthcare.

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