



# HERBS CONSUMPTION AND IMMUNITY DURING THE COVID-19 PANDEMIC

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## ABSTRACT

Exposure to COVID-19 causes respiratory tract infections. During the COVID-19 pandemic, there are ways to stay healthy and strengthen the immune system, namely a balanced diet, physical and mental activity, and consuming traditional herbs. This study aimed to describe herb consumption and immunity during the COVID-19 pandemic. The study was an explorative quantitative with a cross-sectional approach. Two hundred people were involved in this study using purposive sampling. Data were collected using traditional herbal consumption questionnaires and an immune status questionnaire (ISQ). Data were analyzed by description. The results show that female was 60%, aged 36–45 years was 33%, Bataknese was 69%, unemployment was 29.5%, senior high school was 50.5%, and greater than or equal to the regional minimum wage was 50.5%. Jamu is a kind of traditional herbal that is the most consumed (75%), respondents consumed less than 250 ml (83%). The results also show that immunity status was good (52%) and poor (48%). It is recommended to take herbs to increase the body's immunity so that it can prevent exposure to COVID-19 in accordance with government recommendations in Indonesia.

**Keywords:** Herbs, Immunity, COVID-19 pandemic

## ABSTRAK

Paparan terhadap COVID-19 menyebabkan infeksi saluran pernapasan. Selama pandemi COVID-19, terdapat berbagai cara untuk menjaga kesehatan dan memperkuat sistem imun, antara lain melalui pola makan seimbang, aktivitas fisik dan mental, serta mengonsumsi ramuan tradisional. Penelitian ini bertujuan untuk mendeskripsikan konsumsi herbal dan status imunitas selama pandemi COVID-19. Penelitian ini merupakan studi kuantitatif eksploratif dengan pendekatan potong lintang. Sebanyak 200 responden dilibatkan dalam penelitian ini menggunakan teknik purposive sampling. Data dikumpulkan menggunakan kuesioner konsumsi herbal tradisional dan kuesioner status imun (ISQ), kemudian dianalisis secara deskriptif. Hasil penelitian menunjukkan bahwa responden perempuan sebanyak 60%, usia 36–45 tahun sebesar 33%, etnis Batak sebesar 69%, tidak bekerja sebesar 29,5%, pendidikan terakhir SMA sebesar 50,5%, dan pendapatan sama dengan atau di atas upah minimum regional sebesar 50,5%. Jamu merupakan jenis herbal tradisional yang paling banyak dikonsumsi (75%), dengan sebagian besar responden mengonsumsi kurang dari 250 ml (83%). Hasil juga menunjukkan bahwa status imunitas tergolong baik sebesar 52% dan buruk sebesar 48%. Disarankan untuk mengonsumsi herbal guna meningkatkan imunitas tubuh sehingga dapat mencegah paparan COVID-19, sesuai dengan rekomendasi pemerintah di Indonesia.

**Kata kunci:** Herbal, Imunitas, Pandemi COVID-19



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## 1. INTRODUCTION

At the end of December, the world was shocked by a new virus known as Coronavirus Disease 2019 (COVID-19). According to the World Health Organization (WHO), in July 2021, the number of cases in the world was 193 million, and in Indonesia as many as 3.08 million cases. Indonesia is ranked 14th with the highest number of COVID-19 cases after Iran, with a total of 3.65 million cases. Based on WHO data, Jakarta, West Java, Central Java, and East Java have the highest number of COVID-19 cases, and North Sumatra had 64,524 confirmed COVID-19 cases. COVID-19 data from the Medan City Health Service on March 16, 2021,

showed a total of 24,383 confirmed cases and 34,358 suspects, and the Medan Johor Sub-district was one of the red zone areas in Medan City [1].

The cause of transmission of the virus that causes COVID-19 is still unclear. In China and other countries, human-to-human transmission is limited (close contacts and medical staff). It is estimated that the spread of COVID-19 is the same as the previous incidences of MERS and SARS, namely human-to-human transmission through droplets and contact with contaminated surfaces [2]. COVID-19 is a disturbing pandemic because it spreads rapidly through human contact. As a result, the number of confirmed patients increased dramatically in a short period [3].

The government has established a Five-M health protocol to control the spread of COVID-19, which includes using personal protective equipment in the form of a mask that covers the nose and mouth to the chin when going out of the house or interacting with other people whose health status is unknown (Memakai Masker), cleaning hands regularly by washing hands with soap and running water or using an alcohol-based antiseptic liquid/hand sanitizer (Mencuci Tangan), maintaining a distance of at least 1 meter from other people to avoid getting droplets from people who talk, cough, or sneeze (Menjaga Jarak), avoiding crowds (Menghindari Keramaian), increasing body resistance by implementing clean and healthy living behavior, and finally reducing mobility (Membatasi Mobilitas) [4].

The Ministry of Health gave an example that if a person's immune system is very strong, because the virus is self-limiting, no special treatment is needed to recover from this viral infection. The immune system is the body's defense mechanism, which protects the body from bacteria, viruses, and parasites, and removes other foreign substances from the body. Therefore, people need to maintain a strong immune system at this time to protect the body from viral infections [3].

Many ways can be done to increase endurance, one of which is a balanced diet, exercise, avoiding stress, improving the digestive or hormonal system, taking vitamins, and consuming traditional herbs. Herbal plants, or what we usually call traditional medicine, are one of the actions that can be taken at this time in response to COVID-19 [5]. Herbal plants are very commonly used as raw materials for traditional medicines and herbal products. If consumed, they can increase the body's resistance because these plants have special properties as medicinal plants, which can be preventive and promotive due to their secondary metabolites. Consuming traditional herbs does not have a curative effect but prevents disease by boosting immunity, making it more beneficial for health rather than curing illness [6].

During the COVID-19 pandemic, there are several ways to stay healthy and strengthen the immune system. Although immunity cannot be built in a day, a balanced diet and regular physical and mental activity are enough to keep the immune system healthy [7]. The WHO estimates that 80% of people worldwide rely on herbal medicines as part of their primary health care. Traditional herbs that are widely consumed by the community are those in the form of herbal medicine. *Jamu* is one of the traditional herbs in Indonesia that has been practiced in society for hundreds of years to maintain health and treat diseases. Herbal plants that can be consumed and used as ingredients to increase immunity include ginger, turmeric, curcuma, and aromatic ginger as the main ingredients, usually made into herbal preparations [8].

Standardized herbal medicines are traditional medicines derived from plant, animal, or mineral extracts. It is necessary to conduct preclinical tests for scientific evidence regarding the standards of efficacious content, methods of preparing medicinal plant extracts, hygienic drug formulation standards, and acute and chronic toxicity tests, such as those required for phytopharmaceuticals [9]. Phytopharmaceuticals are drugs made from natural ingredients, especially from plants, with known properties and derived from raw materials either in the form of *simplicia* or *galenic* preparations that meet the minimum standards so that the uniformity of active components, safety, and efficacy are guaranteed. However, the quality of herbal medicines circulating in general is still in the herbal medicine category, and not many can be categorized as standardized herbal medicines or phytopharmaceuticals [10]. The purpose of this study was to determine the description of the consumption of traditional herbal products and the immunity of the people of Medan Johor Sub-district during the COVID-19 pandemic period.

## 2. METHOD

The study was an explorative quantitative study with a cross-sectional approach, conducted in the Medan Johor Sub-district from July to August 2021. The sample consisted of 200 respondents selected by purposive sampling. The inclusion criteria were:

- a. Willing to participate as a respondent;
- b. Aged between 17–55 years;
- c. Able to read well;
- d. Having a negative COVID-19 status at the time of data collection.

Data collected included respondent characteristics such as gender, age, educational level, employment status, family income, and ethnicity. Traditional herbal consumption data included the type (Jamu, standardized herbal medicine, and phytopharmaceuticals), frequency (never, rarely, often, and always), and dosage (low, medium, and high) of traditional herbal consumption. Immunity data were collected using the Immune Status Questionnaire (ISQ), which contains seven items scored on a Likert scale: never (0), sometimes (1), regularly (2), often (3), and always (4). In addition, the questionnaire included four specific questions about the respondent's current condition (questions A, B, C, and D):

- Question A assessed complaints experienced in the past month.
- Question B assessed the value of immune function on a scale from 0 (very bad) to 10 (very good).
- Question C asked whether the respondent's immune function was currently reduced (Yes/No).
- Question D asked whether the respondent had a chronic disease (Yes/No).

The total immunity score was calculated by summing the responses to questions A and B, with a scale ranging from 0 (very bad) to 10 (very good). The immunity score was then categorized using a cut-off point to determine whether the respondent's immunity was good or poor. Data analysis was performed using descriptive statistics. Ethical approval for this research was obtained from the Health Research Ethics Committee of Universitas Sumatera Utara with registration number No. 2343/VII/SPU/2021.

### 3. RESULTS AND DISCUSSION

#### Result

Table 1 showed that the majority gender was female (60%), the age was 36-45 years (31%), the majority ethnic was Bataknese 69%, the majority of respondents was unemployment (29.5%), Senior high school was a majority of the education level respondent (50.5%), and the family income was greater than or equal to regional minimum wage (59.5%).

**Table 1** Distribution of frequency and percentage of demography characteristics (n=200)

Variable	Frequency (n)	Percentage (%)
Gender		
Male	80	40.0
Female	120	60.0
Age (year)		
17-25	43	21.5
26-35	48	24.0
36-45	62	31.0
46-55	47	23.5
Ethnic	33	16.5
Javanese		
Bataknese	138	69.0
Melayunese	8	4.0
Minangnese	12	6.0
Others	9	4.5
Employment		
Entrepreneur	40	20.0
Private employee	32	16.0
Civil officer/retired	38	19.0
Laborer	31	15.5
Unemployment	59	29.5
Educational		
Primary to Junior high school	21	10.5
Senior high school	101	50.5
Diploma/ Bachelor	78	39.0
Family income	99	49.5
< Regional minimum wage		
> Regional minimum wage	101	50.5
Total	200	100

Table 2 showed that the majority of traditional herbal consumption was jamu (75%).

**Table 2.** Distribution of frequency and percentage kind of traditional herbal consumption (n=200)

Kind of traditional herbal consumption	Frequency (n)	Percentage (%)
Jamu	150	75.0
Standardized herbal medicine	38	19.0
Phyto-pharmaceuticals	12	6.0
Total	200	100.0

Table 3 showed that the majority of traditional herbal consumption frequency was rarely as many as 144 persons (77%).

**Table 3.** Distribution of frequency and percentage of traditional herbal consumption frequency (n=200)

Frequency of traditional herbal consumption	Frequency (n)	Percentage (%)
Rarely	144	77.0
Often	17	34.0
Almost always	6	12.0
Total	200	100

Table 4 showed that the dose of traditional herbal consumed per day was less than 250ml as many as 166 persons (83%) in the low category.

**Table 4.** Distribution of frequency and percentage of dose traditional herbal consumption (n=200)

Dose traditional herbal that consumed per day	Frequency (n)	Percentage (%)
Low	166	83
Medium	30	15
High	4	2
Total	100	100

Table 5 indicates that the majority of headache complaints obtained were sometimes as many as 108 people (54%).

**Table 5.** Distribution of frequency and percentage of complaints experienced in the past month (n=200)

Statement	Never, n(%)	Sometimes, n(%)	Often, n(%)	Always, n(%)	Almost always, n(%)
High fever attack	88(44)	68(34)	48 (24)	32(16)	4(2)
Diarrhea	78(39)	96(48)	22(11)	4(2)	0(0)
Headache	30(15)	108(54)	40(20)	22(11)	0(0)
Skin Illness (e.g. acne/rash and enzymes)	74(37)	78(39)	36(18)	6(3)	4(2)
Muscle and joint pain	48(24)	106(53)	38(19)	8(4)	0(0)
Fever	92(46)	94(47)	8(4)	6(3)	0(0)
Cough	40(20)	100(50)	40(20)	16(8)	4(2)

Table 6 obtained from the immune status of the respondents showed that the general health value in the final score of 6 was 86 people (43.0%), the respondent's immune function value was answered with a score of 9 as many as 38 people (19.0%), the results of the study were for the question of whether the immune function was immune function. your body is reduced by answering no to as many as 144 people (72%) and for the question of whether you suffer from chronic disease, you get no answer as many as 200 people (100.0%).

**Table 6.** Distribution of frequency and percentage what do you feel at this time (n=200)

No.	What do you feel at this moment?	Frequency (n)	Percentage (%)
A	Assess my health in general		
	2	6	3.0
	3	26	13.0
	6	86	43.0
	7	2	1.0
	8	24	12.0

	9	16	8.0
	10	40	20.0
B	Assess my immune function		
	0	2	1.0
	2	16	8.0
	3	24	12.0
	5	20	10.0
	6	18	9.0
	7	14	7.0
	8	26	13.0
	9	38	19.0
	10	42	21.0
C	Is your immune function reduced at this time?		
	Yes	56	28.0
	No	144	72.0
D	Do you suffer from chronic disease?		
	Yes	0	0
	No	200	100.0
	Total	200	100.0

Based on the results of the ISQ in obtaining the respondent's immunity status, the sum of questions A and question B on a scale ranging from 0 (very bad) to 10 (very good) with a cut of point < 6 was bad. The research results obtained were the majority of respondents' immunity status was good as many as 104 people (52.0%). (Table 7)

**Table 7.** Distribution and frequency of immune status (n=200)

Body immune status	Frequency (n)	Percentage (%)
Good	104	52.0
Poor	96	48.0
Total	200	100.0

## Discussion

In this study, the results of the description of the community in consuming traditional herbs related to the type, frequency, and amount consumed. Following the theory, consuming traditional herbs is influenced by several factors, including gender, age, ethnicity, occupation, recent education, monthly family income. From the research that has been done, it is found that the majority of the respondents' gender is female. Following the opinion Oktarlina et al. (2018) this is because more female respondents are at home than men [11]. This is also in line with Putra et al. (2020) that women have more free time because they are generally housewives while men generally work [12]. According to Malli et al. (2023), women do more self-medication and care more about their health. In addition, most women have less working time than men. Therefore, when data were collected, the majority of those at home were women [13].

At the age of the majority of respondents, namely 36-45 years, this age, of course, they are more knowledgeable and experienced in terms of traditional herbs in line with Krsnik and Erjavec (2024) age above 35 years is a productive age which makes a person's grasping power and mindset develop so that the easier to dig up information about traditional medicine [14]. This is also in line with Suryawati et al. (2023) that those aged over 35 years have a habit of consuming herbal medicine as traditional medicinal plants so that those aged over 35 years are accustomed to using medicinal plants as a self-medication business [15].

The majority of respondents' education level was senior high school, at the secondary education level a person can easily accept new things and apply them to life. According to Oktarlina et al. (2018) that someone with higher education will be easier to accept or remember a knowledge becomes easier [11]. The majority of respondents' occupations are not working (housewives and students) where usually their knowledge of traditional herbs is better because they are obtained from socializing among others in the environment in line with research. A person with a type of job that can provide high income tends to choose a better treatment because he can do it. This is in line with Thorsen and Pouliot (2016) that traditional medicine is mostly used by farmers, fishermen, and not working [16]. From the research, the majority of respondents' monthly income is more than regional minimum wage, this is the reason people interpret traditional herbs more as an alternative to healing disease or maintaining health in addition to modern medicine. In line with Andriati and Wahjudi (2016), price is a factor that influences individuals about consuming traditional herbs [17]. Currently, many

drugs or supplements are claimed to work to boost the immune system of plant origin. One way to protect yourself from contracting this virus is to increase or maintain immunity by utilizing family medicinal plants or TOGA [18]. The majority of the respondent ethnics obtained were the Batakese, the Batakese dominates because the research location was in the Batak plains, and each region or tribe has its unique plants and treatment methods.

People in Indonesia have long been creative in utilizing various natural resources to be used as medicine. Although currently synthetic chemical drugs dominate disease management and health care in Indonesia, all levels of Indonesian society know very well that there are healers other than synthetic drugs, namely traditional herbal medicines [19]. The majority of the types of traditional herbs consumed by the respondents were herbal medicine, the herbs in question were all traditional medicinal preparations, both purchased freely and the results of their concoction. In line with research Kristianto et al. (2022) which shows that of the 1,524 respondents analyzed for this study, it was concluded that 79% of respondents consumed herbal medicine to increase their immune system during the covid-19 outbreak, and 55.7% of respondents became more frequent drinking herbal medicine after the COVID-19 outbreak [20]. According to Al Baihaqi and Levita (2021) that as many as 50% of the people who use herbal medicine and of this 50%, 96% have felt the benefits [21]. For examples of phytopharmaca are Nodia, Stimuno, Rheumaneer, Tensigard Agromed. This is also in line with study by Navia et al. (2022) stated that the type of traditional herbs used by respondents was usually herbal medicine 53.2% [22].

From the results of the study, the majority of respondents consumed traditional herbs 1-2 days/week, indicating that respondents still rarely use traditional herbal medicines. This is in line with El-Dahiyat et al. (2020) stated that the highest percentage of respondents who rarely use herbal medicines is 52.8% because most of the respondents have not used herbal medicines optimally and many are do not know the benefits, efficacy, and advantages of herbal medicines compared to chemical drugs [23]. According to Pradipta et al. (2023) the right dose in the use of traditional medicine is not yet widely supported by research data. Compounding traditionally uses a pinch, a handful, or as much as it is difficult to determine the accuracy [19]. The use of a more definite dose in grams can reduce the possibility of unwanted effects because the boundary between poison and medicine in traditional ingredients is very thin. From the results obtained, the number of traditional herbs consumed by the majority of respondents was less than 250ml, this was included in the low category for the amount consumed. This is because herbal medicines that are consumed usually taste very bitter and it feels less comfortable if consumed in large quantities.

The results of research on the immune status of the respondents stated that the majority of respondents experienced good (52.0%) and poor (48.0%) immunity status. This is supported by the fact that the majority of respondents to increase immunity are carried out by consuming traditional herbs with low frequency and amount. In line with study by Izazi and Astrid (2020) stated that respondents experienced low immunity conditions, this showed that 100% of all had experienced low immunity conditions [5]. This can be seen from the conceptual closeness where knowledge about immunity with low immunity conditions is close together.

#### 4. CONCLUSION

Types of traditional herbs are consumed to increase the body's immunity, namely herbal medicine as many as 75 answers (75%). The frequency of consuming traditional herbs in a week is 1-2 days/week as many as 77 answers (77%). The number of traditional herbs consumed was less than 250mL as many as 83 answers (83%). The immune status of the community in consuming traditional herbs was the majority good (52.0%)

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