



## Research articles

## The trend in the use of local traditional medicine jamu during covid-19: a cross-sectional study in east nusa tenggara province, Indonesia

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**ABSTRACT**

The world is facing yet a global health and socio-economic crisis triggered by the Corona Virus Disease-2019 pandemic. In the midst of a health crisis due to the pandemic that has not yet ended, traditional medicine is an alternative that can be used by the community to maintain their immune system. Jamu is a local traditional medicine in Indonesia made from natural cultural heritage that has been passed down from generation to generation for health. The design of this research is an observational study with a cross-sectional design in which the use of traditional medicine jamu will be observed using a questionnaire. The total sample of this study was 150 respondents, accumulated from North Central Timor, South Central Timor, West Sumba, Sikka, Sabu Raijua, Rote Ndao, Kupang Regency, Kupang City, Flores Timor and Alor. The result of this study depicted a 600% rise in respondents in using jamu during the Corona Virus Disease-2019 pandemic. In conclusion, there is a significant difference p Value <  $\alpha$  ( $0.014 < 0.05$ ) between the use of jamu before the Corona Virus Disease-2019 pandemic (January – March 2020) and during the pandemic (April-June 2020) among households in East Nusa Tenggara Province, Indonesia.

**Keywords:** Jamu, traditional medicine, covid-19, herbs preparations.

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**INTRODUCTION**

The world is facing yet a global health and socio-economic crisis triggered by the Corona Virus Disease-2019 (COVID-19) pandemic. The first case of COVID-19 was confirmed at 1<sup>st</sup> December 2019 in Wuhan, China. On July 15<sup>th</sup>, 2020, there were 78,572 cases of Covid-19 confirmed in Indonesia, where 3,710 died and 37,636 people recovered. COVID-19 has an average incubation period of 5.2 days (95% confidence interval, 4.1-7.0). [1,2]. The infection is acute without any career status. Symptoms usually begins with a nonspecific syndrome, including fever, dry cough, and fatigue. Several systems in the body may be involved, including the respiratory system (cough, breath short, sore throat, rhinorrhea, hemoptysis, and chest pain), gastrointestinal (diarrhea, nausea, and vomiting), musculoskeletal (muscle pain), and neurological (headache or confusion). The more common signs and symptoms are fever (83% -98%), cough (76% -82%), and shortness of breath (31% -55%). There are about 15% experienced with fever, cough, and shortness of breath. [1,3].

In Indonesia, the lives of millions of children and families have changed since the pandemic. Lockdowns and closings of facilities affect the education system, mental health status and even

access to basic health facilities. Economic considerations are always important to government when taking any action, including in the current struggle to overcome the threat of the COVID-19 pandemic [2-4]. In the midst of a health crisis due to the COVID-19 pandemic, traditional medicine is one of the alternatives that can be used by the community in order to maintain the immune system. Traditional herbal medicine is widely practiced for centuries in the Indonesian society to maintain health. Traditional herbal medicine functions in maintain the body's immunity to avoid viruses that are spreading. Especially at times like this, without certainty in medication for the Corona Virus, people tend to use medicinal plants as an alternative, however, the results and benefits may vary. Medicinal plants that can be consumed and made into herbal medicine for immune boosters include ginger, turmeric, and ginger. [5-7].

Jamu is an ingredient in the form of medicinal plant, animal material, mineral material, generic preparations, or a mixture of these materials which have been used for generations for empirical treatment in accordance with the prevailing norms in society of Indonesians. Most people consume jamu because they believe that it provides considerable benefits to health, both for the prevention and

treatment of a disease as well as in terms of maintaining fitness and beauty and increasing stamina. Until now, the existence of jamu continues to grow. This can be seen in the demand for herbal medicine which continues to increase, particularly during the pandemic. [7,8].

Traditional medicine has been used widely in the world and about 80% of the population in some countries use traditional medicine as a protection for their health. Several factors such as the increasing prevalence of chronic disease and the failure to use chemical medicine for certain diseases and the wide access to information on traditional medicine are the reasons for the increasing use of traditional medicine in developed countries. Traditional medicines have been well accepted in almost all countries in the world, both in developing and developed countries. [7]. The production of traditional medicines has also increased from year to year due to the large variety of natural ingredients, so to facilitate supervision and licensing of the Drug Control Agency and Indonesian Food classifies traditional medicines into herbal preparations, standardized herbal medicines, and Phyto-pharmacy. [7-9].

In Indonesia, based on data from the National Socio-Economic Survey (SUSENAS) it can be seen that the use of jamu increased from 19.8% to 32.8% during 1980 to 2004. In 2010 the use of jamu in Indonesia was 45.17% and the year 2011 increased to 49.53%. Jamu is still widely used as an alternative in the society of Indonesians. Traditional medicine and jamu have been integrated with society, being used in overcoming health problems. The ability of the community to self-medicate, regarding symptoms of disease and to maintain health needs to be improved in order to maintain health for all levels of the society. For this reason, traditional medicine, such as jamu has a great potential because they are well known to the public, easy to obtain, relatively inexpensive, and are part of the community's socio-culture. [10-12].

Studies on Medicinal Plants and Herbs in 2017 stated that Indonesia has biological natural resources consisting of at least 2,848 species of medicinal plants, with 32,014 medicinal ingredients. The use of these traditional medicines is an effort to maintain health, prevent disease and health care, including during public health emergencies or the COVID-19 pandemic. Phyto-pharmacy is a medicine made from natural ingredients whose safety and efficacy have been scientifically proven by pre-clinical and clinical trials. [13-15]. Thus, this study aims to determine the trend in the use of traditional medicine jamu during the COVID-19 pandemic (April - June 2020) compared to the use of traditional medicines before the Covid-19 pandemic (January - March 2020).

## METHOD

The design of this research is an observational study with a

cross-sectional design in which the use of traditional medicine jamu will be analyzed using a questionnaire. The total sample of this study was 150 respondents, accumulated from North Central Timor, South Central Timor, West Sumba, Sikka, Sabu Raijua, Rote Ndao, Kupang Regency, Kupang City, Flores Timor and Alor.

## RESULT

### Respondents' socioeconomic characteristics

Age of respondent Respondents were aged between 20 and 80 years old. Most of the respondents (62.67%) were spread between the ages of 21-40 years. Only a small proportion of respondents were young adults and the elderly.

### Education level of respondents

The education level of the respondent is based on the educational background completed. The education level of the respondents ranged from not graduating from elementary school to tertiary education. The study showed that most of the respondents (78.67%) have graduated from high school and tertiary education. Meanwhile, a small proportion of others have no education and have a low level of education, namely graduating from elementary to junior high school.

### Type of occupation of the respondent

Several respondents have adequate jobs, starting from employees (14.67%), civil servants (18%) and self-employed (25%) (Table 1).

Table 1: Characteristics of Respondents

Characteristics of Respondents	SUM	Percentage %
<b>Age:</b>		
≤ 20	4	2,67
21-30	40	26,67
31-40	54	36,00
41-50	21	14,00
51-60	20	13,33
61-70	4	2,67
71-80	7	4,67
<b>Education Level</b>		
No school	3	2,00
Not completed in primary school	8	5,33
Graduated from Elementary School/equivalent	12	8,00
Junior high school/equivalent	9	6,00
Senior high school/equivalent	42	28,00
College	76	50,67
<b>Employment</b>		
Not Yet Working	10	6,67
Civil servant/Police officer/Army	27	18,00
Traders	4	2,67
Factory Labor	1	0,67
Farmer	37	24,67
Private employees	22	14,67
Entrepreneur	25	16,67
Others	24	16,00

Based on the length of time in which the jamu was used or consumed in Table 2, demonstrated that there are 63 respondents who have consumed traditional medicines for approximately 10 months, 33 respondents have consumed traditional medicines for 11-20 months, 21 respondents for 21-30 months, and another 33 respondents have consumed jamu for 31 - 70 months.

As shown in Table 3, pharmacy was the most popular place in obtaining jamu during the COVID-19 pandemic, which has increased tremendously by 600% before the pandemic. The shops and

private gardens at home were moderately popular in respondents in order to obtain jamu. While the least popular place to obtain jamu was the multi-level marketing, albeit the 120% increase during the pandemic.

Table 2: Distribution of Respondents based on the length of time jamu has been used

Months	SUM	%
≤ 10	63	42,00
11-20	33	22,00
21-30	21	14,00
31-40	14	9,33
41-50	9	6,00
51-60	9	6,00
61-70	1	0,67
<b>SUM</b>	<b>150</b>	<b>100</b>

Figure 1. Sig value (2-tailed) <0.05, thus there is a significant difference between drug use before and during COVID-19.

Paired Samples Test								
Paired Differences								
95% Confidence Interval of the Difference								
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1 Before - During	-21.06667	29.16080	7.52929	-37.21538	-4.91795	-2.798	14	.014

Table 4: Distribution of Respondents by Information Sources of traditional medicine

Source of Information	Before Covid-19 (Jan-March 2020)		During Covid-19 (April-June 2020)	
	SUM	%	SUM	%
	Family, parents, neighbors, co-workers, acquaintances, community leaders, religious leaders	85	56,67	68
Health workers, doctors / nurses / midwives / extension workers and health promotion	4	2,67	8	5,33
Social Media, Internet, Online Media, WA, Facebook, Instagram, Twitter	8	5,33	11	7,33
Television Broadcast, Radio Broadcast, Newspaper, Magazine, Tabloid	4	2,67	4	2,67
Others	49	32,67	59	39,33

The distribution of respondents in obtaining sources of information or knowledge about jamu was the highest with 85 respondents before the COVID-19 pandemic (January - March 2020) and as many as 68 respondents during the COVID-19 pandemic period (April - June 2020) obtained information or knowledge from family, elders, neighbors, work colleagues, acquaintances, community leaders and religious leaders (Table 4).

## DISCUSSION

Historically, the use of jamu has been going on in Indonesia for a long time in an effort to improve health status until now. Basic Health Research Data (Riseskdas) 2013, a National Health Research conducted by the Health Research and

Table 3: Distribution of Respondents by Method of Obtaining Jamu

Methods in obtaining jamu	Before Covid-19 (Jan-Mar 2020)	During Covid-19 (April-June 2020)	% Increase
Pharmacy	2	12	600
Shops	43	120	279.069767
Traditional Market	84	187	222.619048
Supermarket	21	45	214.285714
Third party	12	31	258.333333
Online	9	21	233.333333
Given by friends/family	34	51	150
Own garden	11	30	272.727273
Self-planting	7	12	171.428571
Local herbs seller	9	14	155.555556
Licensed Drugstore	13	18	138.461538
Unlicensed drugstore	23	31	134.782609
Multi-level marketing	15	18	120

Development Agency of the Ministry of Health, shows that 30.4% of households in Indonesia use traditional health medicines, such as jamu. Traditional jamu in Indonesia are empirically used in primitive, preventive and even further developments towards curative and palliative. [15].

Besides being in the form of herbal medicine, various medicinal plants are also widely known in Indonesia for a long time. Another national-scale research that was also carried out by the Health Research and Development Agency of the Ministry of Health Indonesia was the Research on Medicinal Plants and Herbs I (Ristoja) in 2012. This research succeeded in obtaining data on 1,889 medicinal plant species, 15,671 herbs for health, and 1,183 healers/traditional healers from 20 % ethnicity (209 out of a total of 1,128 ethnicities) of non-Javanese and Balinese. [1,13,14].

From an international perspective, WHO has agreed to promote the use of traditional medicine such as jamu, complementary medicine for health, people-centered wellness in health services and encourage the use of the safety and efficacy of traditional medicine through regulations and products, practices, and practitioners [15].

To ensure the availability of safe, efficacious and quality of jamu, the Government of Indonesia has taken steps and efforts to ensure the safety of jamu. To strengthen scientific data and

information about Jamu, especially the herbal formula. The Government of Indonesia implements the Scientific Based Jamu Development Program, which is service-based research that includes the development of medicinal plants into scientific herbal medicine, including the following stages [10,12,14,15].

1. Ethnopharmacology studies to obtain base-line data related to the use of traditional medicinal plants.
2. Selection of potential herbal formulas for alternative/complementary therapy.
3. Clinical studies to obtain evidence of efficacy and safety.
4. Jamu that is proven to be efficacious and safe can be used in the formal health care system.

The distribution of respondents based on the length of time in consuming traditional medicine depends on the understanding of each respondent regarding traditional medicine, the understanding that is described through questions about the meaning of traditional medicine according to the respondent. Jamu is a local traditional medicine that is processed from generation to generation using ingredients from the natural surroundings. The distribution of respondents according to how to obtain traditional medicine is also dependent on the availability of natural resources, geographical location, economy, level of knowledge and education of respondents. The distribution of respondents in obtaining sources of information or knowledge about traditional medicine also depends on the available media such as newspapers, magazines, television, radio and so on. The role of medical personnel and health facilities, family, neighbors and relatives in the respondent's area is also very important in terms of providing information. From these data shows that public awareness of health is high, it is evident that when people are sick, they try to treat it so that the illness is does not complicate.

Besides that, the diseases suffered by the community are only minor illnesses with complaints of self-limiting illness. The increasing use of traditional medicine may be due to the government intervention by promoting the use of native Indonesian medicines and promoting the Family Medicine Garden. The increase in the use of traditional medicines may also be related to the increase in the number of traditional medicine industries and small traditional medicine industries. People think that when they are sick, they want cheap and easy-to-get treatment so they use traditional medicine to treat acute illnesses

The most common way to get jamu is from a traditional herbal medicine pharmacy. Meanwhile, the family has an important role in providing information about traditional medicine. Family is a group of people who live together in the same place of residence. The family is the closest party to the respondent, so it is from this

family that the respondents obtain information about traditional medicine.

Indonesian herbal medicine such as jamu has a high comparative advantage because it originates from the diversity of culture and local wisdom of the community as well as very high biodiversity. Jamu is also a product of the creative economy of the Indonesian nation based on hereditary culture and it is time to propose it as one of the world heritages. Herbal medicine as a national asset has broad dimensions of benefits including health, economy, and socio-culture.

## CONCLUSION

Overall, there was a 600% rise in respondents using jamu during the Corona Virus Disease-2019 pandemic. Indeed, there is a significant difference p Value  $< \alpha$  ( $0.014 < 0.05$ ) between the use of jamu before the Corona Virus Disease-2019 pandemic (January – March 2020) and during the pandemic (April-June 2020) among households in East Nusa Tenggara Province, Indonesia.

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## CONFLICT OF INTERESTS

There is no conflict of interests found during this study

## ETHICS

This study has received ethical approval from the Health Research Ethics Commission of the Faculty of Medicine, University of Nusa Cendana.

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