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The Relationship between Natural Medicine Use and Recovery Time in Early Adult COVID-19 Patients

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ABSTRACT

COVID-19 is a single-stranded RNA virus that infects through droplets. Drug consumption is one of the factors that affect the recovery of COVID-19 patients. The drug that has become a trend in the world is the use of natural ingredients, but people do not know whether it is effective in shortening the recovery time. Therefore, it is necessary to conduct research related to the relationship between the use of natural ingredients with the length of recovery of COVID-19 patients in early adulthood. This study used an analytical observational design with a cross-sectional method on 94 respondents in the Grogol Village area. Respondents fill out questionnaires via Google form and fill out questionnaires directly. Bivariate analysis of data using SPSS version 29. A total of 50 subjects consumed natural medicines (53.2%), namely jamu (58%), and 34 of them consumed almost every day (68%). There was no significant relationship between the use of natural medicine with the length of recovery of COVID-19 patients in early adulthood

INTRODUCTION

The meaning of the word adulthood based on physiological terms is the change from adolescence or puberty to the beginning of the transition to adulthood. In physiological and economic terms, the word adulthood is often associated with independence and the ability to control one's own life. (Adioetomo et al., 2014) Early adulthood is a time when a person can determine their independence and how they view the future. The range of early adulthood based on WHO is 15-24 years. (Rumain et al., 2021)

COVID-19 is a single-stranded RNA virus that has not been previously identified in humans. This virus was originally found in animals and can be transmitted to humans and can be transmitted to other humans through droplets. The prevalence of cured patients as of January 03, 2021, in Indonesia according to the COVID-19 Handling Task Force at the age of 16-18 years is 2.13% and the age of 19-30 years is 25%, while as of January 30, 2022, it is 2.34% at the age of 16-18 years and 25.57% at the age of 19-30 years. (COVID-19 Handling Task Force, 2021)(COVID-19 Handling Task Force, 2022).

There are several factors that affect the recovery of COVID-19 patients such as environment, food intake, age, drug consumption, and others. The ways to increase immunity are by consuming vitamins or natural medicines. The use of natural medicines is currently a trend in the world since COVID-19 cases have surged. Many people believe that consuming natural medicines can avoid COVID-19 infection and can cure patients who are confirmed positive. Alternative treatments from natural ingredients that are widely used are ginger, turmeric, lemon, honey, ginger, and others. Until now, many people use alternative medicines such as natural medicines without knowing whether the drugs used are effective in curing COVID-19, especially in shortening the recovery time.

Various studies have been conducted to determine the relationship between the use of natural ingredients and the length of recovery of COVID-19 patients, the study by Amir et al, shows that curcumin has a beneficial effect on pro-inflammatory or anti-inflammatory balance during recovery.(Vahedian-Azimi et al., 2022) Another study by Philip Musoke et al showed that there was an improvement after using natural ingredients.(Musoke et al., 2021) However, there are studies that show the use of natural ingredients in COVID-19 patients, 2021) However, there are studies that show the use of natural medicines with a dosage form in the form of essential oils does not affect the difference in the length of hospitalization compared to patients who are not given essential oils.(Rahayu et al., 2022) Therefore, further research is needed to determine the relationship between the use of natural medicines and the length of recovery of COVID-19 patients in early adulthood.

METHODS

This study used an analytic observational design, with a cross-sectional method, namely looking for the relationship between sociodemographic characteristics and the use of natural medicine with the length of recovery of COVID-19 patients in early adulthood. The research was conducted in several Grogol villages based on data obtained from the Grogol sub-district health center and people who carry out daily activities in the Grogol village area from September to November 2022. The inclusion criteria for this study were 18-24 years old who had been infected with mild degrees of COVID-19 (fever, cough, sore throat, headache, loss of sense of smell and taste) in the last 1 year or so and had agreed to fill out informed consent. The exclusion criteria in this study were having comorbid diseases and a history of being infected with COVID-19 with hospitalization in the hospital. 94 respondents were sampled in this study. Respondent data collection was obtained from the results of filling out questionnaires with Google forms through social media and questionnaire sheets distributed directly, then analyzed to find the relationship between the two variables with the Chi-Square test through the SPSS version 29.

RESULTS AND DISCUSSION

This study included 94 subjects, and most of the respondents were female as many as 63 people (67.0%). Based on the level of education there were 2 people who had low education (2.1%) and the number of subjects who did not work (67%) was dominant with an economic level < UMR (59.6%) and there were several people who did not work with an economic level ≥ UMR. A total of 80 people stated that they recovered within ≤14 days (85.1%)

and 14 of them recovered within ≥15 days (14.9%). A total of 50 people took natural medicine (53.2%) and 29.8% took herbal medicine. (Table 1)

A total of 50 people used natural medicines during COVID-19 either only herbal medicines independently or in tandem with vitamins. The following is the data distribution of 50 respondents who used natural medicines based on the type of medicine, method of consumption, source of information, and frequency of use. The most consumed herbal medicine is herbal medicine (58%). The majority used herbal medicine almost every day (68%) by drinking (62%) in liquid or solid dosage forms (syrup, tablets, pills, capsules, herbal tea bags, etc.). The use of natural medicines is mostly recommended by friends or family (58%). (Table 2)

From Table 3, male subjects who recovered within ≤ 14 days were more than the length of recovery ≥ 15 days (77.4% and 22.6%), as well as women 88.8% & 11.2%. Based on the Fisher Exact test results, the P value = 0.216. All subjects with low education levels recovered within ≤ 14 days. While 78 subjects with a high level of education (84.7%) recovered within ≤ 14 days. Based on the economic level, those who recovered within ≤ 14 days were more in subjects with income < UMR than ≥ UMR (87.5% and 81.5%). The same number was obtained, namely 7 people in each category of recovery time. Based on the results of the Chi-Square test, the P value = 0.429.

The results of data analysis (table 4) on subjects who did not recover within ≤ 14 days were 37 people (84.1%) and subjects who consumed natural ingredients were 43 people (86%), while the number of subjects who recovered within ≥ 15 was 7 people both who did not consume natural ingredients (15.9%) and who consumed natural ingredients (14%). Based on the results of the Chi-Square test, the P value is 0.795, which indicates that there is no relationship between the use of natural medicines and the length of recovery of COVID-19 patients in early adulthood.

Table 1. Sociodemographic Characteristics, Use of Natural Medicine, and Duration of Recovery (n=94)

Variable	n	Percentage (%)
Gender		
Man	31	33,0
Women	63	67,0
Education level		
Low	2	2,1
High	92	97,9
Economic level		
<UMR (regional minimun wage)	56	59,6
≥UMR	38	40,4
Working		
No	63	67,0
Yes	31	33,0
Recovery duration		
≤ 14 hari	80	85,1
≥ 15 hari	14	14,9
Using natural medicine		
No	44	46,8
Yes	50	53,2
Using medicine		
Herbal medicine	28	29,8
Combination (herbal and vitamin)	22	23,4
Not using	44	46,8

Respondents in this study mostly recovered within ≤ 14 days. The same results were also obtained from research in Ethiopia with an average recovery time of 11 days.(Dessie et al., 2022) However, in contrast to other Ethiopian studies in patients who received treatment at WURH with an average recovery time of 18 days.(Tolossa et al., 2021) Research in Tehran obtained an average of 13.5 days.(SeyedAlinaghi et al., 2021) While researching in India and Italy the average recovery time is 25 and 24 days.(Barman et al., 2020; Benoni et al., 2021).

Significant factors in this study were respondents aged 18-24 years, mild symptoms, no comorbid factors, and no hospitalization. Respondents with early adulthood have better immunity than those with advanced age because their immunity has decreased. In early adulthood, the immune system responds more quickly to infection in the body, in contrast to immunity in old age where the immune system takes longer to respond to infection. Mild symptoms do not require a long time to heal because symptoms can disappear within a few days supported by taking medication, resting, and eating healthy foods. Comorbid factors that a person must make it possible to be infected with COVID-19 with more severe symptoms, namely moderate to severe degrees and will increase mortality rates so that they require intensive care in the hospital.

Table 2. Type, Consumption Method, Source of Information, Frequency of Use in Respondents who Use Natural Medicines (N=50)

Variable	N	Percentage (%)
Type natural medicine		
Fitofarmaka	4	8
Jamu	29	58
OHT	17	34
Consumption method		
Oral	31	62
Inhalation (*essential oils/ aromatic waters)*	0	0
Combination (oral and inhalation)	19	38
Source of information		
Recommendation from friends/family	29	58
Social media/internet	6	12
Health worker	15	30
Frequency of natural medicine		
Almost every day	34	68
Every day	16	32

In several studies, the factors that influence the recovery time are the symptoms felt by the patient. Symptoms of dyspnea or shortness of breath cause the recovery time of COVID-19 patients to be longer, the age factor, is a risk factor for mortality. (SeyedAlinaghi et al., 2021)

Table 3. The Relationship Between Sociodemographic Characteristics and the Length of Recovery of COVID-19 Patients in Early Adulthood

Sociodemographic characteristics	Recovery duration				N (%)	P
	≤ 14 hari		≥ 15 hari			
	N	%	N	%		
Gender						
Man	24	77,4	7	22,6	31 (100)	0,216^
Woman	56	88,8	7	11,2	63 (100)	
Education level						
Low	2	100	0	0	2 (100)	1^
High	78	84,7	14	15,3	92 (100)	
Economic level						
< UMR	49	87,5	7	12,5	56 (100)	0,429*
≥ UMR	31	81,5	7	18,5	38 (100)	

* = Chi-Square ^ = Fisher Exact

Respondents who do not have symptoms of COVID-19 and who have mild symptoms take a shorter or faster time. (8) Respondents with advanced age have experienced a decrease in lung function, and the presence of immunocompromised and comorbid factors of COVID-19 patients causes a lower cure rate and death due to COVID-19. (Tolossa et al., 2021). The number of respondents in this study who

used natural medicine in the form of herbal medicine was more and most of them consumed it by drinking both liquid and solid dosage forms. The same results were also obtained in other studies, respondents who consumed herbal medicine were more because herbal medicine was easier to find than OHT or phytopharmaceuticals, and natural medicines were consumed by drinking, especially in liquid dosage forms because the taste, aroma, and color were more attractive to the public. (Adiyasa & Meiyanti, 2021; Dewi et al., 2019)

Table 4. The Relationship Between the Use of Natural Medicine and the Length of Recovery of COVID-19 Patients in Early Adulthood

Use of natural medicine	Recovery duration				N (%)	P
	≤ 14 hari		≥ 15 hari			
	N	%	N	%		
No	37	84,1	7	15,9	44 (100)	0,795*
Yes	43	86	7	14	50 (100)	

* = Uji Chi-Square

The most widely consumed natural medicine today by the public is herbal medicine. The use of natural medicines, especially traditional Indonesian medicines, is a cultural heritage of Indonesia because it has been used from generation to generation. The existence of belief factors in natural medicines that are safe for consumption to treat diseases and maintain a healthy body makes this medicine widely used by the community to date. Natural medicine itself is widely found in various regions of Indonesia; this is influenced by sociodemographics so that people can get natural medicine easily. (Adiyasa & Meiyanti, 2021; Tiara & Meiyanti, 2021)

In this study, most respondents consumed natural medicines almost every day rather than consuming every day and information obtained from family and friends. The same results as research by Syed et al. and Faris et al, respondents were given recommendations by family and friends.(El-Dahiyat et al., 2020; Zaidi et al., 2022) However, respondents only consume it at certain times.(15) In contrast to Bisrat et al, respondents were recommended a lot from advertisements on TV and used more every month.(Hailemeskel et al., 2017) Respondents in a study in Jordan consumed natural medicines every day with a dose of 1 time a day.(Younis et al., 2021). The frequency of material drug consumption is influenced by many factors such as motivation, boredom, and other drugs that must be consumed. With the use of drugs for a long period of time, boredom will arise. This is where the role of motivation in the form of social support from family, relatives, and friends is very important to help remind the use of drugs regularly, think positively, and bind the effects that will occur if you do not take medicine regularly. (Mamba'ul ' & Surakarta, 2016) The existence of a history of other diseases that are already owned and require routine medication before being infected with COVID-19 causes a person to be worried about the negative effects that may occur due to various drugs with different doses and rules. Whether they should be taken every day or every few days. Respondents listen more to recommendations from family or friends because they trust them. The family environment is the first thing a child recognizes when they are born until they grow up. In building a closeness, a sense of care and nurture will arise. This causes a child's trust to start from the family environment. Not only closeness, but openness, communication and honesty play an important role in building a person's trust with his family.(Tyas et al., 2012) A person who has grown up will get to know other environments including the friendship environment. The support of closeness, honesty, and reciprocal relationships will build trust in others. This is in line with research by Ainin et al which shows that support, closeness and reciprocal relationships affect a person's trust. The most influential factors for building trust in a friendship relationship are support and reciprocity (Rahmanawati et al., 2020).

The results that are not meaningful in this study are in line with research conducted in India by Manash et al, found that the average recovery in men

for 23 days and in women for 25 days. (Barman et al., 2020) Research in the US also got the same results between women and men infected with COVID-19 returned to a healthy condition after 14-21 days. (Tenforde et al., 2020) In contrast to the study of Batte et al, 2020) In contrast to the Batte et al. study in Australia, it showed that the recovery time of men was 30% faster than that of women and patients who had symptoms took more time than those who were asymptomatic.(Liu et al., 2021) Of the number obtained from this study, more women recovered within $\leq$ 14 days (88.8%). No significant results were obtained because it affects the immunity and age of a person, be it male or female. In terms of recovery rate, the early adult age group was greater than the elderly age group. This is because the immune system of the elderly is less capable to fight the virus so that the symptoms that arise are more severe than early adulthood. (Hooper et al., 2020) In addition, women also have two X chromosomes (XX), these chromosomes will help a woman's immune system, both the adaptive immune system and the innate immune system when an infection occurs in the body, while only one X chromosome is owned by men (XY). Sex hormones that women and men have are different and greatly affect the immune system, the hormone estrogen will activate the body's immune system and testosterone will inhibit the body's immune system. This causes the antibody response of women to be much higher than men (Sarvasti, 2020).

Data analysis related to education level also obtained results that were not meaningful. The results of research by Firdawasyi et al. and Irfan et al. show that the education and knowledge a person has are not significantly related to COVID-19 recovery.(Hooper et al., 2020; Nuzula & Oktaviana, 2022) In contrast to Wardani et al, it was found that there were significant results between the level of education and the recovery from COVID-19.(Wardani & Syamsul, 2021) The healing process of COVID-19 patients is not only influenced by the level of education related to understanding the knowledge of the information received about the disease itself. Respondents from this study almost entirely have a high education (92%). A person with a high level of education is indeed less at risk of infection or a faster recovery process because they have high awareness, can follow protocols, and receive information well (distinguish true news or hoaxes). However, someone with low education is also able to understand the knowledge they get from various platforms about COVID-19 such as symptoms, ways to prevent, how to treat or drugs that can help reduce symptoms so that healing time is faster. So someone with High and low education have an equal chance of recovery.(Hooper et al., 2020)

However, a study conducted by Su et al. from 178 countries is in line with Santiago et al, which shows economic factors are significantly related to health, especially COVID-19. (Lago et al., 2018; Su et al., 2020) The high wage income that a person has is very supportive of getting good health services so that the illness suffered is treated more quickly. However, it does not rule out the possibility of someone with a low wage income getting good health services. The government has a health service program in the form of health insurance. In addition, the government also cooperates with various telemedicine platforms to get health services, both getting health consultation treatment with doctors for free with terms and conditions applied. Therefore, a person with high or low wages has the same opportunity to get health services anywhere and anytime so that the condition of health service users recovers quickly.

The results of the analysis in this study are not the same as the results obtained by Yangzhihan et al using QFPD. (Wang et al., 2022) Mingzhong et al, in 3 groups, namely using Huoxiang Zhengqi dropping pills, Linahua granules combined with Western medicine, and using Western medicine without combination, showed no improvement in clinical symptoms in the 3 groups after 14 days of treatment. (Xiao et al., 2020) Research conducted in Jakarta using natural medicine in the form of essential oil therapy did not provide a significant change in the recovery time of COVID-19 patients (Rahayu et al., 2022). In contrast to other researchers, significant results were obtained, namely, in 3 days there was an improvement of 71.1% and in 7 days it was 100% cured. (Devpura et al., 2021) Other researchers obtained results in the intervention group using a combination of various natural medicines, namely sugar cane, black myrobalan, and mastic compared to the group that received treatment according to the management protocol. The results obtained were significant in c-reactive protein levels which decreased within 7 days and were seen from the

length of hospitalization for 4-12 days in the group using natural medicine. (Hashemi Shiri et al., n.d.) The same results were obtained in studies in Uganda and Vietnam, there was a very significant improvement in the symptoms felt by patients with the consumption of natural medicine. (Musoke et al., 2021; Nguyen et al., 2021),

The use of natural medicine or conventional medicine can provide effective results for healing. These two drugs can be combined to overcome the symptoms of COVID-19 either as an immunomodulatory agent or antiviral. Substantial results with this combination treatment can reduce COVID-19 symptoms such as fever, cough, flu, and other symptoms. In addition, it can also improve CT images and accelerate recovery time, as well as improve laboratory examination results such as complete blood test results or routine blood, CRP levels, etc. (Chien et al., 2022; Kumar et al., 2022).

The results of this study are also influenced by various other factors such as daily diet and supplements that are being consumed such as vitamin C and vitamin D. Vitamin C can have a significant effect, as seen from the results of a study in patients who received vitamin C 4 times a day compared to patients who did not get vitamin C supplementation (Marik et al., 2017). Increased serum 25(OH)D levels, reduced symptoms of taste loss, and faster recovery time for patients with daily administration of vitamin D at a dose of 5000 IU. (Sabico et al., 2021) Diet is also important in maintaining the immune system because a person's nutrition is important. directly related to inflammation. Similarly, when infected with COVID-19, the presence of large amounts of inflammatory cytokines results in a cytokine storm and dysregulation of the immune system. Food intake that increases inflammation in the body is foods with excessive sugar and weak content, as well as addictive chemicals that induce the release of toxins and free radicals. (El Zakhem et al., 2021)

The use of natural medicines, vitamin C and vitamin D, and a healthy diet both have the potential. as immunomodulatory agents, anti-inflammatory, and antioxidants. The content of natural medicines can change the structure of proteins to inhibit the entry of viruses and can change the composition of the lipid bilayer structure in host cells. Pro-oxidants in vitamin C will release hydrogen peroxide on viral targets and increase chemotaxis, and Vitamin D also helps in increasing the expression of anti-inflammatory cytokines thereby reducing pro-inflammatory cytokines. (El Zakhem et al., 2021) The results of the study by Hu et al explained that the ingredients in Lianhuaqingwen herbal medicine have effects such as preventing viral binding to ACE, antagonizing the binding between spike proteins and ACE, suppressing the release of inflammatory mediators and oxidative stress, apoptosis, and pulmonary inflammation. (Hu et al., 2021) a healthy diet with the consumption of healthy food and consumption of antioxidants, (Morais et al., 2021) It can be concluded that the use of natural medicines, supplements, and a healthy diet has the same result, namely to reduce the symptoms felt by COVID-19 patients so that it will accelerate the time of improvement or the patient's condition itself even though the way each works is different. The limitation of this study is that several variables that can affect the length of recovery of COVID-19 patients related to various influencing factors such as the effect of the use of natural medicines with comorbid factors owned, other age categories, other drugs being consumed, other degrees of severity, vaccination status were not examined in this study.

CONCLUSION

There is no significant relationship between both sociodemographic characteristics and the use of natural medicine with the length of recovery of COVID-19 patients in early adulthood. However, most respondents recovered within $\leq$14 days, the type of medicine most widely used as herbal medicine in the form of jamu and consumed by drinking in liquid or solid form, almost every day consuming natural medicine, and information obtained based on recommendations from friends or family.

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