

Factors Associated with the Utilization of Traditional Health Services among People with Non-Communicable Diseases in Indonesia: Findings from a Nationwide Survey

Iwan Abdi Suandana¹, Putu Ayu Swandewi Astuti^{2,3*}, Pande Putu Januraga²

¹Department of Public Health, Politeknik Negeri Jember, East Java, Indonesia

²Department of Public Health and Preventive Medicine, Faculty of Medicine, Udayana University, Bali, Indonesia

³Udayana Center for Non-Communicable Diseases, Tobacco Control and lung Health, Udayana University, Bali, Indonesia

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Abstract

Globally, there is an increasing trend of morbidity and mortality from non-communicable diseases (NCDs). Traditional health service is one of the new approaches to support NCDs program. This study aimed to determine the prevalence and factors associated with the use of traditional health services among people with NCDs in Indonesia. We conducted a secondary analysis of integrated nationwide health and socio-economic survey data in 2018. Of the 127,198 people with NCDs included in the analysis, 38.7% of people with NCDs have ever used traditional health services, with the most common type being those that involve manual therapies. Compared to the reference group, likelihood of higher utilization of the traditional health service was among those aged 45-54 years (adjusted odds ratio (AOR) 1.19; $p < 0.001$), from highest socioeconomic (AOR = 1.13, $p < 0.001$), employed (AOR > 1, $p < 0.05$), married/divorced (AOR > 1, $p < 0.001$), has two type of NCDs (AOR 1.06, $p 0.023$), knows the existence of the nearest doctor/clinic (AOR 1.36, $p < 0.001$) and hospital (AOR = 1.13, $p 0.002$) and has very easy access to health facility (AOR 1.34, $p < 0.001$). Better socialization of traditional health services especially to the groups who have low utilization is important. The information should include the availability of traditional health services types, benefits, and advantages of using these services. It is also necessary to improve the quality and standardization of traditional health services to enhance public trust and increase the utilization of the services. Since a certain proportion of people with NCDs rely on traditional health services, improvement of the traditional health services quality is crucial, as well as engagement of these services to NCDs programs.

Keywords: Utilization; Traditional health services; Non-communicable diseases; Indonesia; Health survey

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*Corresponding Author: Putu Ayu Swandewi Astuti
Department of Public Health and Preventive Medicine, Faculty of Medicine, Udayana University, Bali, Indonesia
Email: ayu.swandewi@unud.ac.id

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Introduction

Before the coronavirus disease 2019 (COVID-19) pandemic occurred, the non-communicable diseases (NCDs) pandemic had emerged for the past two decades. Globally, we observed a decreasing number of deaths from infectious diseases; while deaths from NCDs have increased between 1990 to 2015 and this phenomenon is predicted to continue [1]. NCDs are the main causes of death globally, responsible for 71% of deaths with approximately 41 million people dying due to NCDs each year. Amid this COVID-19 pandemic, NCDs are among the comorbidities which increased the severity of infection [2].

In Indonesia, there has been a significant change in the burden of disease for the 10 years between 2005 to 2015, with the increasing main cause of death due to NCDs. To support the control of NCDs, one of the efforts made by the Indonesian Ministry of Health (MoH) is to strengthen the health service system, which includes the integration of traditional health services into the health service system [3]. Based on the data from the National Health Survey (Riskesdas), a third, 30.4% (2013) and 31.4% (2018), of Indonesians accessed traditional health services [4,5]. This indicates traditional medicine is one of the choices of the community to fulfil their health needs; and reflects the important role of traditional medicine in Indonesia's healthcare system, which includes the use of traditional herbal medicine (jamu), massage, acupuncture, and other alternative therapies. Although traditional medicine has been known for a long time, there are several obstacles in the development of traditional medicine. Not all types of traditional medicine have sufficient scientific evidence, clinical trial data are limited, so, the effectiveness and safety have not been adequately tested scientifically [6].

Literature showed the use of traditional medicine are quite popular among patients with chronic diseases such as stroke, cancer, diabetes mellitus, and kidney failure [7,8,9]. There are several reasons for using traditional medicine such as having a severe (chronic) disease, belief toward traditional medicine, cheaper costs, dissatisfaction with medical health services, fear of side effects of medical drugs, easy access to traditional medicine, and socio-cultural influence [10,11,12,13].

Previous studies showed several factors related to the use of traditional health services, namely age, gender, education level, religion, socioeconomic, area of residence, health status, having a chronic disease, and experiencing depressive symptoms [9,14,15]. To date, there is limited studies in Indonesia looking at the use of traditional health services, especially among patients with NCDs. Exploration of this aspect using nationwide survey data will provide a proper understanding of the use of traditional health services

and factors to improve utilization and services, which will also contribute to a better control of NCDs. Therefore, this study aims to identify the level of utilization of traditional health services and factors related to their utilization by people with NCDs in Indonesia.

Methods

Study design and data

This study was a secondary data analysis of the integrated data from the 2018 national health survey (Riskesdas 2018) and national socio-economic survey (Susenas 2018) which were nationwide cross-sectional surveys. The Susenas was conducted in March 2018; while the Riskesdas was conducted in April 2018 using the same set of household samples. Selection of the household was conducted by two-stage sampling using the probability proportional to size (PPS) method. In the first stage, a 30.000 block census was selected from all block censuses with implicit stratification based on wealth status and area of residence, followed by a random selection of 10 households in the selected block census.

For this analysis, we included households that had one or more family members with NCDs who were successfully interviewed during the survey, and we excluded those with incomplete data. From households that meet the inclusion and exclusion criteria, a total of 127,198 people with one or more NCD problems including asthma, cancer, diabetes, hypertension, heart disease, stroke, chronic kidney, and arthritis were included in this study. Data from those two surveys were collected by enumerators using a set of household and individual questionnaires, and a collection of biological specimens (not applicable to our study).

Variables and Measurement

The dependent variable in this study is the use of traditional health services in the past year before the survey time (1 = yes, 2 = no, but do self-medication, 3=not at all), for predictor analysis, we then coded category 1 as using traditional health service, and category 2 and 3 as not using traditional health services. The independent variables in this study were age, gender, education, occupation, marital status, number of family members, family expenses/month, area of residence, number NCDs suffered, availability of health facilities (hospital, clinic/practice's doctor, community health services) and access to health facilities. Availability of health facilities is the respondent's perception regarding the existence of health facilities such as hospitals, community health center, clinics, and independent doctor's practice as nearest (1 = available, 2 = none, 3 = don't know). The

variable access to health facilities (hospital/community health center/clinic/doctor's practice) is a combination of 3 indicators, namely the type of transportation used to the health facilities, transportation costs to go back and forth to the health facilities, and travel time from the residence to the health facilities. Based on these indicators, the access to health services was determined using Principle Component Analysis and categorized into (1 = Easy, 2 = Difficult, 3 = very difficult).

Data Analysis

The data analysis used was descriptive, bivariate (simple logistic regression), and multivariate (multiple logistic regression) analysis by linking each independent variable with the dependent variable using a 95% confidence level ($\alpha = 0.05$). Variables that have a p-value <0.25 in the bivariate analysis will be continued into multivariate analysis with the Backward Conditional method so that variables that have $p \leq 0.05$ in the initial model will be automatically continued in the final model to determine the factors associated with utilization traditional health services in families with NCDs. The analysis was conducted with STATA 13, using the "svy" command to take into account the design effect and weighting.

Ethics Approval

The study was approved by Faculty of Medicine, Udayana University / Sanglah Hospital Denpasar Ethics Committee, grant no. 2194 / UN / 14.2.2.VII.14 / LT / 2020. This research has also obtained permission to use a subset of data from the Research and Development Unit of the Ministry of Health of Indonesia No IR.03.01 / 1/3860/2020

Results

People with NCDs were aged 0-111 years, with a median age of 49 years, and 59.7% were aged 45 years and older. Most of the respondents were female (60.9%), married (76.2%), and had 4-6 family members (51.9%). More than half of the respondents (52.7%) have low education primary or lower; while 61.4% were employed. The distribution of respondents based on area of residence is almost comparable with slightly more people living in rural areas (53.2%). Regarding the socio-economic conditions based on monthly family expenditure, the median expenditure was IDR 3,437,119. Based on the number of NCDs, most of the respondents (65.4%) have one type of NCDs (Table 1).

For insurance ownership, the majority of respondents (72.3%) have health insurance, the most common type of health insurance is national health insurance (*Jaminan Kesehatan Nasional/JKN*) at 69.4%. Based on the availability of health facilities closest to the neigh-

bourhood, over 90% said that there were community health centers and hospital facilities and 81.3% said there were clinics and doctors' practices nearby. However, more than 60% of respondents said it was either difficult or very difficult to access the closest health services such as the nearest public health center, clinic/doctor's practice, and hospital (Table 2)

Of the 127.198 individuals with NCDs, 38.7% have used traditional health services, 7.9% make self-traditional medication, and 43.4% never used any traditional health services or medication at all. Of the 49,172 household members with NCDs who have used traditional health services, the majority of service providers (97.9%) are traditional healers. The type of traditional health service most often used by NCDs sufferers is manual therapies such as massage and needling (60.9%). Meanwhile, use of pre-packed remedies and prescribed homemade remedies were 46.2% and 45%, respectively. In addition, 36.8% of families with NCDs have also used family medicinal plants (*tanaman obat keluarga/TOGA*). Meanwhile, based on the number of traditional health service types used, more than half (54.9%) NCDs patients used only one type of traditional health service, and a third (34.5%) used two types of traditional health services (Table 3). Based on sociodemographic characteristics, people with NCDs who have a greater tendency to utilize traditional health services are those who aged ≥ 25 years, have middle to high education, have worked (formal/informal), married/divorced, live in urban areas, have high and very high average family expenditure per month (Quintiles 4 and 5), suffer from 2 types of NCDs, have private insurance, know the existence of the nearest doctor's practice/clinic and hospital and have easy access to the nearest health facility with Crude OR > 1 and $p < 0.05$ (Table 4).

Based on the results of multiple logistic regression, factors related to the use of traditional health services in families with NCDs are age, gender, occupation, marital status, number of family members, family expenses per month, number of NCDs suffered, availability of the nearest clinic/doctor's practice, availability of the nearest hospital and accessibility to health facilities ($p < 0.05$). Meanwhile, the variables that do not relate to the use of traditional health services were education, residential area, and health insurance ownership ($p > 0.05$).

We found people with NCDs aged 35-64 years, have worked (formal/informal), have very high family expenses (quintiles 5), have two types of NCDs, know the existence of the nearest doctor and hospital practice, and have easy access to health facilities have a greater chance of utilizing traditional health services (adjusted odds ratio (AOR) > 1 and $p < 0.05$). Meanwhile, women and those having ≥ 4 family members, are less likely to utilize traditional health

Table 1. Socio-demographic characteristics of people with NCDs in Indonesia

Variable	n=127,198	Weighted %
Age (years)		
Median± IQR, Min – Max	49 ± 22, 0-111	
• ≤ 24	12040	9.5
• 25-34	15265	12.0
• 35-44	23969	18.8
• 45-54	29764	23.4
• 55-64	26196	20.6
• > 64	19964	15.7
Gender		
• Male	49681	39.1
• Female	77517	60.9
Marital status		
• Single	11938	9.4
• Married	96894	76.2
• Divorced	2633	2.1
• Widowed	15733	12.4
Number of family member		
Median± IQR, Min- Max	4 ± 2, 1-23	
• 1-3 people	49811	39.2
• 4-6 people	66035	51.9
• > 6 people	11352	8.9
Education		
• Never attended school	10288	8.2
• Didn't complete primary school	21572	17.1
• Completed primary school	34471	27.4
• Completed junior high school	19764	15.7
• Completed senior high school	27347	21.7
• Completed Diploma	4221	3.4
• Hold university degree	8260	6.6
Occupation		
• Unemployed	44321	35.6
• Attending School	3759	3.0
• Government employees	6921	5.6
• Private employees	7371	5.9
• Entrepreneur	16902	13.6
• Farmers	28372	22.8
• Fishermen	1215	1.0
• Housemaid / drivers / helpers	7362	5.9
• Others	8204	6.6
Monthly family expenditure		
Mean± SD*	4,487,742 ± 4,067,543	
Median ± IQR	3,437,119 ± 3,224,958	
Min-Max	177,023-186,192,171	
Residential area		
• Urban	59509	46.8
• Rural	67689	53.2
Number of NCDs		
• 1 NCDs	83264	65.4
• 2 NCDs	18544	14.6
• 3 NCDs	22971	18.1
• 4 NCDs	2141	1.7
• ≥5 NCDs	278	0.2

* Weighted average, NCDs=non-communicable diseases, IQR=inter-quartile range

Table 2. Health Insurance Ownership and Access to Health Services among people with NCDs in Indonesia

Variable	(n=127,198)	Weighted %
Health Insurance Ownership		
• Government (National Health Insurance)	88232	69.4
• Private / corporate insurance	4321	3.4
• Don't have	34645	27.2
Availability of Community Health Center	(n =127,198)	
• Yes	125346	98.5
• No	318	0.3
• Don't know	1534	1.2
Availability of a Clinic / Doctor's Practice		
• Yes	103457	81.3
• No	9838	7.7
• Don't know	13903	10.9
Availability of Hospital		
• Yes	117442	92.3
• No	2928	2.3
• Don't know	6828	5.4
Accessibility to Community Health Center*	n =125,346	
• Easy	43825	35.0
• Difficult	38492	30.7
• Very difficult	43029	34.3
Accessibility to Clinic / Doctor's Practice*	n =103,457	
• Easy	34904	33.7
• Difficult	35326	34.1
• Very difficult	33227	32.1
Accessibility to Hospital *	n =117,442	
• Easy	23824	20.3
• Difficult	54264	46.2
• Very difficult	39354	33.5

* A jumping question, only if the answer was Yes to the availability of the nearest health facility (community health care/ clinic / doctor's practice / hospital) then it will proceed to access to the health facility (community health care / Clinic / doctor's practice / hospital)

services (AOR <1 and p <0.05) (Table 5).

Discussion

This study found that 38.7% of people with NCDs have used traditional health services in the past year before the nationwide survey. This figure is higher than the finding reported in three South East Asian countries on the utilization of traditional complementary alternative medicine (TCAM) among people with NCDs, namely in Thailand (26.3%), Vietnam (23.9%), and Cambodia (27%) [14]. We also found a significant association between age, gender, occupation, marital status, number of family members, family expenses, number of NCDs suffered, availability of nearest hospital and clinic /practice of doctors, and access to a health facility with the use of traditional health services in people with NCDs. However, it is important to note that the study has a big sample of 127.198, which increases the chance to get a statistically significant finding, hence, a measure of the association should also be considered.

The older the people with NCDs, there is the tendency

to slightly increase utilization of traditional health services by 10-19% compared to the reference group below 24 years old. The results of the study are in line with several studies, which state that older people have a greater chance of utilizing traditional health services [9,14,16,17,18]. Older people who have suffering from NCDs for a longer time and have been consuming medicine are more likely to find complementary therapies that are non-pharmacologic. We found women with NCDs are less likely to use traditional health services than men. The results of this study are similar to a study in Ghana which found, that among people with hypertension, men accessed the traditional medicine more than women [19]. On contrary, studies in Vietnam, Cambodia, and Australia and the results of a systematic review found women are more likely to use TCAM than men [7,14,15]. These differences could be related to cultural and traditional practices or preferences for the type of services; however, it is important to note that the measure of association found in our analysis is pretty weak, hence, there may be no significant differences

Table 3. The Distribution of traditional health services types utilized by people with NCDs in Indonesia

Use of Traditional Health Services	n=127,198	Weighted %
• Yes	49172	38.7
• No, but do self-medication	22761	17.9
• Not at all	55265	43.4
Provider of Traditional Health Services*	n=49,172	Weighted %
Doctor/Health Worker		
Yes	2065	4.2
No	47107	95.8
Traditional Healer		
• Yes	48155	97.9
• No	1017	2.1
Type of Traditional Health Services**	n=71.933	Weighted %
Pre-Packed Remedies		
• Yes	33256	46.2
• No	38677	53.8
Homemade Remedies		
• Yes	32339	45.0
• No	39594	55.0
Manual Therapies (massage, needling)		
• Yes	43792	60.9
• No	28141	39.1
Hypnotherapy / thinking skills		
• Yes	1598	2.2
• No	70335	97.8
Inner Energy Skills		
• Yes	1798	2.5
• No	70135	97.5
Have Ever Consumed Family Medicinal Plants		
• Yes	26437	36.8
• No	45496	63.2
The number of Traditional Health Services Types Used		
• 1 type	39481	54.9
• 2 types	24822	34.5
• 3 types	6924	9.6
• 4-5 types	706	1.0

*Traditional health service providers were only responded by those who had accessed traditional health services.

** Types of traditional health services, responded by who had access to traditional health services (n=49,172) and who didn't access traditional health services, but did self-medication (22,761)

Table 4. Traditional health services utilization based on socio-demographic, insurance ownership and access to health services among people with NCDs in Indonesia

Variable	Using traditional health services				Crude OR	(95% CI)	P value
	Yes		No				
	n	%	n	%			
Age (years)							
• ≤ 24	3790	31.5	8250	68.5	Ref	Ref	
• 25-34	5822	38.1	9443	61.9	1.32	(1.22-1.43)	<0.001
• 35-44	9540	39.8	14429	60.2	1.39	(1.29-1.49)	<0.001
• 45-54	12220	41.1	17544	58.9	1.49	(1.40-1.60)	<0.001
• 55-64	10596	40.4	15600	59.6	1.44	(1.35-1.54)	<0.001
• > 64	7204	36.1	12760	63.9	1.20	(1.11-1.29)	<0.001

Gender							
• Male	19456	39.2	30225	60.8	Ref	Ref	
• Female	29716	38.3	47801	61.7	0.94	(0.91-0.97)	0.002
Education							
• Low	24943	37.6	41388	62.4	Ref	Ref	
• Middle	18637	39.6	28474	60.4	1.08	(1.04-1.12)	<0.001
• High	5226	41.9	7255	58.1	1.27	(1.19-1.35)	<0.001
Occupation							
• Doesn't work	17793	37.0	30287	63.0	Ref	Ref	
• Formal	5940	41.6	8352	58.4	1.27	(1.19-1.35)	<0.001
• Informal	24649	39.7	37406	60.3	1.16	(1.11-1.20)	<0.001
Marital status							
• Single	3649	30.6	8289	69.4	Ref	Ref	
• Married	38574	39.8	58320	60.2	1.45	(1.36-1.55)	<0.001
• Divorced	6949	37.8	11417	62.2	1.37	(1.27-1.48)	<0.001
Number of family							
• 1-3 people	19808	39.8	30003	60.2	Ref	Ref	
• 4-6 people	25450	38.5	40585	61.5	0.97	(0.94-1.01)	0.176
• > 6 people	3914	34.5	7438	65.5	0.85	(0.78-0.91)	<0.001
Residential area							
• Rural	24956	36.9	42733	63.1	Ref	Ref	
• Urban	24216	40.7	35293	59.3	1.10	(1.06-1.16)	<0.001
Family Expenses							
• Quintile 1	9516	37.4	15923	62.6	Ref	Ref	
• Quintile 2	9492	37.3	15947	62.7	0.99	(0.93-1.05)	0.729
• Quintile 3	9734	38.3	15707	61.7	1.02	(0.97-1.08)	0.373
• Quintile 4	10016	39.4	15424	60.6	1.11	(1.04-1.17)	<0.001
• Quintile 5	10414	40.9	15025	59.1	1.19	(1.12-1.27)	<0.001
Number of NCDs							
• 1NCDs	33756	39.3	50508	60.7	Ref	Ref	
• 2 NCDs	7671	41.3	10873	58.6	1.08	(1.03-1.13)	0.002
• 3 NCDs	7793	33.9	15178	66.1	0.79	(0.76-0.83)	0.000
• 4 NCDs	837	39.0	1304	60.9	0.91	(0.79-1.03)	0.166
• ≥ 5 NCDs	115	41.3	163	58.6	0.92	(0.65-1.29)	0.628
Health insurance ownership							
• Don't have	13356						
• Government	33985	38.6	21289	61.4	Ref	Ref	
• Private	1831	38.5	54247	61.5	1.04	(0.99-1.08)	0.068
		42.4	2490	57.6	1.11	(1.01-1.22)	0.038
Availability of community health center							
• No/don't know							
• Yes	684	36.9	1168	63.1	Ref	Ref	
	48488	38.7	76858	61.3	1.05	(0.90-1.21)	0.515
Availability of hospital							
• No/don't know							
• Yes	3530	36.2	6226	63.8	Ref	Ref	
	45642	38.9	71800	61.1	1.13	(1.04-1.22)	0.002
Availability of a clinic / doctor's practice							
• No/don't know							
• Yes	7841	33.0	15900	67.0	Ref	Ref	
	41331	39.9	62126	60.1	1.29	(1.22-1.36)	<0.001
Accessibility to health facilities							
• Very difficult	14495	37.2	24502	62.8	Ref	Ref	
• Difficult	18541	38.0	30188	62.0	1.10	(1.05-1.15)	<0.001
• Easy	16136	40.9	23336	59.1	1.23	(1.17-1.29)	<0.001

in the utilization of traditional health services by gender in Indonesia.

People with NCDs from a family with more than four family members are also less likely to use traditional health services compared to families consisting of 1-3 people. The family that has a smaller members

will usually pay more attention to the health of other family members which may influence their perception of the importance of being regularly checked by health service providers including traditional health services. The results of this study align with the finding from a study in Cengkareng, Indonesia that

Table 5. Factors Associated with utilization of traditional health services among people with NCDs in Indonesia

Variable	Model	Initial Model			Final Model		
	AOR	95% CI	P value	AOR	95% CI	P value	
Age (years)							
• ≤ 24	Ref	Ref	Ref	Ref	Ref		
• 25-34	1.08	(0.98-1.19)	0.105	1.09	(0.98-1.20)	0.080	
• 35-44	1.12	(1.02-1.23)	0.017	1.12	(1.02- 1.23)	0.014	
• 45-54	1.18	(1.07-1.30)	0.000	1.19	(1.08-1.30)	<0.001	
• 55-64	1.16	(1.05-1.28)	0.003	1.16	(1.05-1.28)	0.002	
• > 64	0.99	(0.89-1.10)	0.931	0.99	(0.90-1.10)	0.977	
Gender							
• Male	Ref	Ref		Ref	Ref		
• Female	0.94	(0.90-0.97)	0.002	0.94	(0.90-0.97)	0.002	
Education							
• Low	Ref	Ref					
• Middle	1.01	(0.97-1.05)	0.617				
• High	1.07	(0.99-1.15)	0.083				
Occupation							
• Doesn't work	Ref	Ref		Ref	Ref		
• Formal	1.07	(1.00-1.15)	0.033	1.10	(1.03-1.17)	0.003	
• Informal	1.12	(1.07-1.17)	0.000	1.11	(1.07-1.16)	<0.001	
Marital status							
• Single	Ref	Ref		Ref	Ref		
• Married	1.25	(1.14-1.37)	0.000	1.25	(1.13-1.37)	<0.001	
• Divorced	1.29	(1.16-1.44)	0.000	1.29	(1.15-1.43)	<0.001	
Number of family							
• 1- 3 people	Ref	Ref		Ref	Ref		
• 4-6 people	0.95	(0.91-0.98)	0.013	0.95	(0.91-0.98)	0.008	
• > 6 people	0.85	(0.78-0.92)	0.000	0.85	(0.78-0.91)	<0.001	
Residential area							
• Rural	Ref						
• Urban	1.03	(0.98-1.08)	0.178				
Family Expenses							
• Quintiles 1	Ref	Ref		Ref	Ref		
• Quintiles 2	0.97	(0.92-1.03)	0.399	0.98	(0.92-1.03)	0.471	
• Quintiles 3	1.00	(0.94-1.06)	0.891	1.01	(0.95-1.07)	0.733	
• Quintiles 4	1.05	(0.99-1.12)	0.071	1.07	(1.00-1.14)	0.030	
• Quintiles 5	1.11	(1.03-1.19)	0.003	1.13	(1.06-1.21)	<0.001	
Health insurance ownership							
• Don't have	Ref	Ref					
• Government	0.99	(0.95-1.04)	0.984				
• Private	0.97	(0.87-1.07)	0.568				
Number of NCDs							
• 1 NCDs	Ref	Ref		Ref	Ref		
• 2 NCDs	1.06	(1.00-1.11)	0.022	1.06	(1.00-1.11)	0.023	
• 3 NCDs	0.80	(0.76-0.84)	0.000	0.80	(0.76-0.84)	0.000	
• 4 NCDs	0.91	(0.79-1.04)	0.167	0.91	(0.79-1.03)	0.161	
• ≥ 5NCDs	0.90	(0.65-1.26)	0.567	0.90	(0.65-1.26)	0.569	
Availability of a clinic / doctor's practice							
• No/don't know	Ref	Ref		Ref	Ref		
• Yes	1.36	(1.28-1.44)	0.000	1.37	(1.29- 1.44)	<0.001	
Availability of hospital							
• No/don't know	Ref	Ref		Ref	Ref		
• Yes	1.13	(1.04-1.23)	0.004	1.14	(1.05-1.24)	0.002	
Accessibility to health facilities							
• Very difficult							
• Difficult	Ref	Ref		Ref	Ref		
• Easy	1.15	(1.10-1.21)	0.000	1.15	(1.10-1.21)	<0.001	
	1.34	(1.27-1.41)	0.000	1.35	(1.28-1.42)	<0.001	

NCDs = non communicable diseases

the number of family members living in a house has a significant relationship with traditional medicine-seeking behavior in urban communities [20]

People with NCDs who are working, both formal and informal, married and from the highest expenditure quintile have a greater likelihood of utilizing traditional health services. This may reflect that people with NCDs with better economy and support from partners pay more attention to health, so, that opportunities to use health services including traditional health services will also be higher [21], especially when the service may be perceived as having fewer side-effects. The results are also confirmed by another study in Indonesia and China that families with higher socioeconomic [9,15,22], married [23,24], and already have a job [25] will be more likely to use traditional medicine, both empirical and complementary.

Family members who have two types of NCDs also have a greater chance of utilizing traditional health services compared to those with only one disease, although we found no significant association when the number of diseases is above two, probably due to a low number of samples that fall into these categories. People who suffer from more than one chronic disease such as stroke and cancer have a greater tendency to access traditional health services [7,8]. This is similar to previous studies which stated that someone who has two or more types of diseases has a greater chance of utilizing traditional health services [8,14,16,26,27]

Respondents who know the existence of the nearest hospital, clinic/doctor's practice and have easy access to health facilities have a greater chance of utilizing traditional health services. This is because there have been many health facilities such as hospitals and clinics/doctors' practices that provide traditional health services available, and there are more variety and choices for people with NCDs. The results of this study are in line with findings from South Africa and Indonesia where NCDs sufferers who reported a nearby health facility had a greater chance of accessing traditional health services compared to those who did not [18,28]

People with NCDs who opt for traditional health services could do so because they want more natural treatments, have less side effects, are cheaper, and have socio-cultural values [10,11,12,13]. The trust of the community and word of mouth spread may also influence people to access traditional health services. From the perspective of health services, the decision to access traditional health services may also be due to dissatisfaction with conventional health services that were previously accessed, fear of not receiving health services or receiving inappropriate care at the hospital, and doubt toward health care professionals for some symptoms of illness are several reasons for the community [10,22]

Based on the types of traditional health services used by people with NCDs in our study, the most popular services were those that acquire manual therapies (massage/needling) such as acupuncture, and acupressure, utilized by around 60.9% of people with NCDs. The results also showed that 97.9% of traditional health service providers were traditional healers. In Indonesia, more than 280,000 traditional and alternative medicine practitioners have been registered by the MoH [29]. Most of these practitioners (96.2%) were using traditional treatment methods, and 3.8% were using complementary healthcare techniques such as acupuncture treatment methods [30].

The education level of traditional healers in Indonesia varies depending on the type of practices and backgrounds. Some traditional healers have formal education, especially those who specialize in treatments such as acupuncture or herbs. Some also have certifications from certain educational institutions or professional associations. Meanwhile, there are traditional healer without formal education who acquire their expertise through hands-on experience and learning from previous generations. They usually inherit knowledge and skills from their families or communities without formal education. Based on the MoH data until 2021, the number of community health centers that provide traditional health services was 262 out of 10,374 (0.025%). A number of government hospitals that organize integrated traditional health service activities is 16 out of 2522 (0.005%) hospitals in Indonesia [31].

Looking at the relatively high utilization of traditional health services by people with NCDs, several measures must be considered. First, improvement of the quality of traditional health services and standardization of the services. This is essential to improve public perception and trust toward traditional health services. Second, engagement of these traditional health services providers to support the NCDs program. These services can be involved to provide brief health education regarding NCDs self-management, and behaviors to improve their condition including nutritional intake, physical activities, and other supportive measures.

The study provides a representative result on the use of traditional health services among people with NCDs in Indonesia with a large sample size (N = 127,198); however, it is also subject to some limitation mainly related to the use of secondary data. There are a limited number of variables included in the analysis and some important predictors could not be assessed. Another limitation is the measurement of the dependent variable; it was only regarding access to the service without any further elaboration on whether some type of traditional health services is

perceived better or more effective. So, future research can explore types of traditional health services that are considered beneficial to support the NCDs control program and perceptions of the patient's condition after using traditional health services.

Conclusion

This study found almost four out of ten people with NCDs in Indonesia had ever used traditional health services. The type of service most frequently accessed was manual therapies such as massage and needling. The use of traditional health services was dominated by those with NCDs who are at an older age, male, married, employed, have two types of NCDs, have upper socioeconomic status, know the existence of the closest health facilities, and have easy access to the closest health facilities. Better socialization of traditional health services especially to the groups who have low utilization is important. The information should include the availability of traditional health services types, benefits, and advantages of using these services. In addition, it is also necessary to improve the quality and standardization of traditional health services to enhance public trust and to increase the utilization of the services. Since a certain proportion of people with NCDs rely on traditional health services, engagement of these facilities or services to the NCDs control program should be explored, for instance by involving the services to provide education on self-management for people with NCDs.

Data Availability Statements

The data that support the findings of this study are available from Ministry of Health, Republic of Indonesia, the *Badan Penelitian dan Pengembangan Kesehatan (Balitbangkes)*.

Conflict of Interests

The authors have no conflicts of interest associated with the material presented in this paper.

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