

The Pattern of Herbal Medicine Prescribed by Medical Doctor for Ten Health Problems in Several Cities of Indonesia (Analysis of Jamu Registry 2016 and 2018 Database)

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ABSTRACT

Herbal medicine has been used empirically worldwide including in Indonesia but is not recorded properly yet. This analysis aimed to obtain the herbal medicine service patterns especially the combination of treatments, amount and types of herbal preparation. Jamu Registry was an observational study on electronic medical recording of herbal medicine services by medical doctor on 10 health problems in several cities of Indonesia. A total of 54 medical doctors participated in Jamu Registry 2016 and 2018 recorded 1660 visits of 565 patients aged 10 to 85 years old (mean 49,8), treated with herbal medicine. More than half patients (68.1%) were diagnosed with single diagnosis, 24.4% with one comorbidity, and 7.4% with two comorbidities. Most patients (70.4%) were treated with herbal medicine only, while others combined with conventional medicine (22.0%), other traditional modalities (4.6%), conventional medicine and other traditional medicine (3.0%). Numbers of herbal medicine prescribed were varied from one to five. The herbal preparation types were extracts in capsule (38.6%), infusion (31.5%), ground dried herbs in capsule (25.8%), and the others were decoction, syrup, fermentation liquid, ground dried herbs, or brewed herbs. The top 5 diagnoses recorded were dyspepsia, diabetes mellitus, hypertension, hemorrhoid, and arthritis. Almost three quarters patients had no comorbidity; most patients were treated with herbal only, mostly in form of capsule and infusion. Herbal medicine services need to be recorded continuously to enrich the traditional medicine health services data.

Keywords: *service pattern, herbal medicine, medical doctor, Jamu registry*

1. INTRODUCTION

Traditional health care is one of the 17 health efforts mentioned in Indonesian Law Number 36 Year 2009 on Health, chapter VI article 48, and herbal medicine is one of the practices (article 59) [1]. Government regulation number 103 year 2014 divided traditional health care into three categories: empirical, complementary, and integrated traditional health care [2]. Traditional and complementary medicine has been widely used in most countries including Indonesia and not only appealing to traditional healer but also medical doctors. Decree of ministry of health number 121/Menkes/SK/II/2008 rules the standard of herbal medicine services. It is now in revising process to accommodate current needs. This standard used to guide health worker in practicing herbal medicine services in health facilities. Herbal medicine services could be practiced to increase health status by promotive, preventive, curative, and rehabilitative efforts with high quality, safety, and effectiveness [3]. Herbal medicine is one of the complementary and alternative medicines in health care beyond the conventional medicine. It has been used nationwide but not recorded properly yet.

National Institute of Health Research and Development Institute (NIHRD), Ministry of Health, Republic of Indonesia developed Jamu Registry as an electronic recording tool for herbal medicine services by medical doctor. Jamu medical record was first developed in 2012 as manual recording, upgraded into electronic recording in 2014, and then revised in 2016 and 2018 [4-7]. Jamu Registry supported two of 10 developing strategy factors in Jamu developing roadmap year 2011—2015 which are developing information system and intellectual property rights as well as enhancing jamu usage and integration in health care [8]. Jamu Registry followed the patient registry concept. Patient registry is a file of documents containing uniform information about individual persons, collected in a systematic and comprehensive way, in order to serve a predetermined purpose. It is also defined as an organized system for the collection, storage, retrieval, analysis, and dissemination of information on individual persons who have either a particular disease, a condition (e.g., a risk factor) that predisposes (them) to the occurrence of a health-related event, or prior exposure to substances (or

circumstances) known or suspected to cause adverse health effects [9]. This analysis aimed to obtain the herbal medicine services patterns especially the combination of treatments, amount and types of herbal preparation from Jamu Registry dataset in 2016 and 2018.

2. METHOD

Jamu Registry was an observational study on electronic medical recording of herbal medicine service by medical doctor. Medical doctors participated in Jamu Registry doing practice in 25 regencies/cities in Java, 2 regencies/cities in Bali, one city in South Sumatra, one city in East Kalimantan, and one city in Jambi. All medical doctors participated had practice license. Mostly the doctors had attended 50 hours Jamu Scientification training and workshop organized by Ministry of Health. They treated patient following the standard of services, no intervention from researchers, then input the patients' medical record into Jamu Registry website coordinated by NIHRD at <https://www.ina-registry.org>. Ten diagnoses recorded were dyspepsia, diabetes mellitus, hypertension, hemorrhoids, arthritis, cancer/tumor, hypercholesterolemia, obesity, hyperuricemia, and liver dysfunction with at least 2 consecutive visits of the same diagnosis. Jamu Registry differs from conventional medical records in its detail on herbal medicine usage and patients' quality of life. Data analyzed were extracted from Jamu Registry 2016 and 2018 database which had been approved by Research Ethical Committee of NIHRD with number LB.02.01/5.2/KE 412/2016 and LB.02.01/2/KE 119/2018. Data was analyzed in distribution frequency to provide herbal medicine service pattern.

3. RESULTS AND DISCUSSION

A total of 54 medical doctors participated in Jamu Registry 2016 and 2018 recorded 1660 visits of 565 patients aged 10 to 85 years old (mean 49,8), 227 males and 338 females, treated with herbal medicine. Patients treated were mostly adults with more females than males. This is quite similar with the characteristic of patients consulted to Chinese medicine practitioners (CMPs) in primary care in Hongkong. A total of 398 patients (70.4 %), ranged from 60.3% in hemorrhoid patients to 88.6 % in obesity patients, were treated with herbal only. Patients with comorbidity are more likely to be treated with combination of conventional medicine or other traditional modalities such as acupuncture, massage, acupressure, avasin, or cupping. Analysis on national health insurance research database in Taiwan for hepatitis C virus infection from 2000 to 2010 showed that herbal remedies (52.4%) were the most commonly used agents, followed by combination therapy/herbal plus acupuncture (46.4%), and acupuncture alone (1.2%) [11]. In previous study on 108 medical doctors who did herbal medicine practice showed that 88.9% of them prescribed herbal medicine as complement to conventional medicine but 79.6% of them also prescribed herbal medicine as alternative medicine,

which were mostly come with chronic disease and 30% of them had hypertension or diabetes mellitus [10]. More than half patients (68.1%) were diagnosed with single diagnosis, 24.4% with one comorbidity, and 7.4% with two comorbidities. The comorbidities are mostly one of the 10 diagnosis (diabetes mellitus, hypertension, hypercholesterolemia) and other diagnosis such as common cold, stroke, nephrolithiasis, asthma, and so on. About 49.7% patients were served in clinics, 29.9% in private practices, 18.8% in primary health centers, and 1.6% in hospitals. Only 56.8% patients came in third visit and 37.0% in fourth visit of the same period of illness.

Data collected were 90 patients with dyspepsia, 76 diabetes mellitus, 74 hypertension, 73 hemorrhoids, 63 arthritis, 60 cancer/tumor, 51 hypercholesterolemia, 35 obesity, 33 hyperuricemia, and 10 liver dysfunction. Most patients (70.4%) were treated with herbal only while others combined with conventional medicine (22.0%), other traditional modalities (4.6%), conventional medicine and other traditional medicine (3.0%) (Table 1).

Table 1. Patterns of herbal combination with conventional and other traditional modalities for 10 diagnoses in 565 patients at first visit

Diagnosis	Patients with Herbal only		Patients with herbal + conventional		Patients with herbal + other traditional		Patients with herbal + conventional + other traditional		Total
	n	%	n	%	n	%	n	%	
Dyspepsia	08	75.6	15	16.7	5	5.6	2	2.2	90
No comorbidity	53	77.9	11	16.2	4	5.9	0	0.0	68
One comorbidity	13	68.4	3	15.8	1	5.3	2	10.5	19
Two comorbidity	2	66.7	1	33.3	0	0.0	0	0.0	3
Diabetes Mellitus	50	65.8	20	26.3	3	3.9	3	3.9	76
No comorbidity	34	75.6	11	24.4	0	0.0	0	0.0	45
One comorbidity	11	50.0	7	31.8	2	9.1	2	9.1	22
Two comorbidity	5	55.6	2	22.2	1	11.1	1	11.1	9
Hypertension	53	71.6	18	24.3	1	1.4	2	2.7	74
No comorbidity	30	76.9	9	23.1	0	0.0	0	0.0	39
One comorbidity	18	69.2	7	26.9	0	0.0	1	3.8	26
Two comorbidity	5	55.6	2	22.2	1	11.1	1	11.1	9
Hemorrhoid	44	60.3	28	38.4	1	1.4	0	0.0	73
No comorbidity	39	68.4	18	31.6	0	0.0	0	0.0	57
One comorbidity	5	33.3	9	60.0	1	6.7	0	0.0	15
Two comorbidity	0	0.0	1	100	0	0.0	0	0.0	1
Arthritis	40	63.5	13	20.6	7	11.1	3	4.8	63
No comorbidity	31	77.5	5	12.5	4	10.0	0	0.0	40
One comorbidity	6	37.5	4	25.0	3	18.8	3	18.8	16
Two comorbidity	3	42.9	4	57.1	0	0.0	0	0.0	7
Cancer/tumor	48	80.0	8	13.3	1	1.7	3	5.0	60
No comorbidity	43	84.3	7	13.7	0	0.0	1	2.0	51
One comorbidity	2	40.0	0	0.0	1	20.0	2	40.0	5
Two comorbidity	3	75.0	1	25.0	0	0.0	0	0.0	4
Hypercholesterolemia	37	72.5	8	15.7	3	5.9	3	5.9	51
No comorbidity	28	82.4	4	11.8	1	2.9	1	2.9	34
One comorbidity	5	41.7	4	33.3	1	8.3	2	16.7	12
Two comorbidity	4	80.0	0	0.0	1	20.0	0	0.0	5
Obesity	31	88.6	1	2.9	2	5.7	1	2.9	35
No comorbidity	26	92.9	0	0.0	2	7.1	0	0.0	28
One comorbidity	4	80.0	1	20.0	0	0.0	0	0.0	5
Two comorbidity	1	50.0	0	0.0	0	0.0	1	50.0	2
Hyperuricemia	20	60.6	10	30.3	3	9.1	0	0.0	33
No comorbidity	13	68.4	3	15.8	3	15.8	0	0.0	19
One comorbidity	6	46.2	7	53.8	0	0.0	0	0.0	13
Two comorbidity	1	100	0	0.0	0	0.0	0	0.0	1
Liver dysfunction	7	70.0	3	30.0	0	0.0	0	0.0	10
No comorbidity	4	100	0	0.0	0	0.0	0	0.0	4
One comorbidity	2	40.0	3	60.0	0	0.0	0	0.0	5
Two comorbidity	1	100	0	0.0	0	0.0	0	0.0	1
TOTAL	398	70.4	124	22.0	26	4.6	17	3.0	565

es, onal medicine [12]. According to study in 2010 and 2012 by NIHRD of Indonesia, 50% and 91.2% medical doctors said that one of the reasons they prescribed herbal medicine was patient request [12, 13]. Number of conventional medicine prescribed ranged from 1-4 items in 141 patients at first visit (67, 55, 15, and 4 patients respectively). Only 40 patients were combined with one kind of other traditional modality and 3 patients with 2 kinds of other traditional modality.

Other traditional modalities were mostly acupuncture (29 patients), some others were avasin, cupping with fire, massage, acupressure, or far infrared therapy.

Table 2. Numbers of herbal prescribed by numbers of comorbidity in 565 patients at first visit

Numbers of herbal	No comorbidity		One comorbidity		Two comorbidities		Total	
	n	%	n	%	n	%	n	%
	1	235	61.0	79	57.2	17	40.5	331
2	73	19.0	28	20.3	7	16.7	108	19.1
3	54	14.0	21	15.2	13	31.0	88	15.6
4	17	4.4	7	5.1	5	11.9	29	5.1
5	6	1.6	3	2.2	0	-	9	1.6
Total	385	100	138	100	42	100	565	100

Table 2 showed numbers of herbal medicine given to patients at first visit, varied from one (58.6%), two (19.1%), three (15.6%), four (5.1%), to five items (1.6%). About half patients were given one herbal medicine, mostly to patients without or with one comorbidity. Patients with two comorbidities showed more numbers of herbal medicines

given. The herbal medicine preparations were extracts in capsule/caplet/pill/tablet (38.6%), infusion (31.5%), ground herbs in capsule (25.8%), and the others were decoction, syrup, fermentation (liquid or solid), ground herbs, or brewed herbs. The combination of herbal preparation types by numbers of herbal showed in table 3.

Table 3. Pattern of herbal preparation prescribed in 565 patients at first visit

Types of herbal preparation	Patients with										Total patients	
	One herbal		2 herbals		3 herbals		4 herbals		5 herbals		n	%
	n	%	n	%	n	%	n	%	n	%		
Extract (capsule)*	133	40.2	48	44.4	19	21.6	10	34.5	8	88.9	218	38.6
Infusion	119	36.0	38	35.2	24	27.3	4	13.8	0	-	185	32.7
Ground herbs (capsule)	45	13.6	0	-	23	26.1	5	17.2	0	-	73	12.9
Decoction	21	6.3	0	-	0	-	0	-	0	-	21	3.7
Ground herbs (brewed)	6	1.8	0	-	0	-	0	-	0	-	6	1.1
Extract (syrup)	5	1.5	0	-	0	-	0	-	0	-	5	0.9
Fermentation (liquid/solid)	2	0.6	0	-	0	-	0	-	0	-	2	0.4
1 extract (capsule) & 1 infusion	0	-	12	11.1	0	-	0	-	0	-	12	2.1
1 extract (capsule) & 1 ground herbs (capsule)	0	-	7	6.5	0	-	0	-	0	-	7	1.2
1 infusion & 1 ground herbs (capsule)	0	-	1	0.9	0	-	0	-	0	-	1	0.2
1 extract (capsule) & 1 extract (syrup)	0	-	1	0.9	0	-	0	-	0	-	1	0.2
1 extract (capsule) & 1 ground herbs (brewed)	0	-	1	0.9	0	-	0	-	0	-	1	0.2
1 extract (capsule) & 2 Ground herbs (capsule)	0	-	0	-	12	13.6	0	-	0	-	12	2.1
2 extract (capsule) & 1 infusion	0	-	0	-	5	5.7	0	-	0	-	5	0.9
2 extract (capsule) & 1 ground herbs (capsule)	0	-	0	-	4	4.5	0	-	0	-	4	0.7
1 ground herbs (capsule) & extract (syrup) & ground herbs (brewed)	0	-	0	-	1	1.1	0	-	0	-	1	0.2
1 extract (capsule) & 3 ground herbs (capsule)	0	-	0	-	0	-	5	17.2	0	-	5	0.9
1 extract (capsule) & 2 ground herbs (capsule) & 1 infusion	0	-	0	-	0	-	1	3.4	0	-	1	0.2

2 extract (capsule) & 2 ground herbs (capsule)	0	-	0	-	0	-	1	3.4	0	-	1	0.2
3 extract (capsule) & 1 infusion	0	-	0	-	0	-	1	3.4	0	-	1	0.2
3 extract (capsule) & 1 ground herbs (capsule)	0	-	0	-	0	-	1	3.4	0	-	1	0.2
3 extract (capsule) & 1 decoction	0	-	0	-	0	-	1	3.4	0	-	1	0.2
1 extract (capsule) & 3 infusion & 1 decoction	0	-	0	-	0	-	0	-	1	11.1	1	0.2
TOTAL	331	100	108	100	88	100	29	100	9	100	565	100

Extract in capsule/caplet/pill/tablet, infusion, and ground dried herbs were the most common herbal preparation prescribed. Herbal medicines produced by industry should have registration number and distribution permission form authority (National Agency of Drug and Food Control) [14]. Self-made herbs are not for sale and only allowed to be prescribed by the practitioner himself. Preparation in capsule or caplet or pill or tablet is more convenient than infusion or decoction for patients. Although regulation of Indonesian National Agency of Drug and Food Control on traditional medicine quality mentioned that ground dried herbs are not allowed to be prepared in capsule, more than 12.9% were prescribed so. Extract in capsule are usually single compound, therefore herbal medicine prescribed with more than one kind are mostly extract in capsule.

Traditional medicine is actually an important part of health care but still often underestimated. Traditional medicine was used by 30.4% Indonesian households, 60% Taiwanese population, and 76% Japanese population [15-17]. World Health Organization (WHO) published WHO Traditional Medicine Strategy 2002—2005 and then updated it into WHO Traditional Medicine Strategy 2014—2023 [18,19] as many countries have gradually come to accept the contribution of traditional medicine in individuals health and wellbeing. Not only herbal medicines but also other traditional and complementary medicine practices are increasing in demand. Capturing the pattern of services and proper record on traditional medicine become important to ensure it is done in a safe, respectful, cost-efficient, and effective manner.

4. CONCLUSION

The top 5 diagnoses recorded were dyspepsia, diabetes mellitus, hypertension, hemorrhoid, and arthritis. Almost three quarters patients had no comorbidity, treated with herbal only, and mostly in form of capsule and infusion. Herbal medicine services need to be recorded continuously to enrich the traditional medicine health services data.

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