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Socio-culture and Health Problem Factors on Traditional Medicine Use among Indonesian Adult: A Cross-sectional Analysis from National Survey

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Abstract Traditional medicines utilization has been significantly increased over the past years. Knowledge on traditional medicine use and its influencing socio-culture and health problem factors especially among generationally-related group in Indonesia is still limited. This study aimed to determine the prevalence and the association socio-culture and health problems factors and traditional medicine use among adults which were middle-aged (millennial) and elder-adult (generation X) in Indonesia while controlling other covariates. of traditional medicine use among This cross-sectional study used the data from the Indonesia Family Life Survey wave 5 (2014): a cross-sectional national population survey. This national survey used a multistage stratified random sampling to select the respondents to response to a structured questionnaire interview. There were 10,325 adults passed our inclusion criteria for the analysis. The adult who was born between 1960 to 1982 was called the Gen X, whereas the Millennial is for those who were born between 1983 and 2000. A multivariable logistic regression was used to identify the association. Among 10,325 respondents, 78.42 % were millennial while 21.58 % were generation X or older adults. Less than a quarter of the respondents used traditional medicine (13.37 %; 95% CI: 12.73-14.04). The factor significantly associated with traditional medicine used among Indonesian adults were; be Gen X (adj. OR = 1.24, 95%CI= 1.08 -1.43), female (adj. OR=1.27, 95%CI: 1.13 to 1.43, p<0.001) Islamic (adj. OR = 1.91, 95%CI= 1.47 -2.36), married (adj. OR = 1.64, 95%CI= 1.44 - 1.87), lived in urban area (adj. OR = 1.48, 95%CI= 1.31-1.68). Other covariate were unhealthy (adj. OR: 1.36, 95% CI: 1.18-1.58), experienced headache (adj. OR: 1.50, 95% CI: 1.31-1.47), experienced stomachache (adj. OR: 1.28, 95% CI: 1.12-1.47), and experienced fever (adj. OR: 1.30, 95% CI: 1.15- 1.47). Sociocultural and age group as well as health problems were associated with traditional medicine use.

Key Words: Health problems, Gen X, Millennial, Traditional medicine use, Socio-culture

Introduction

Traditional medicines' utilization in overseas has been significantly increased over the past years. Most developed countries use several forms of traditional medicine regularly (Australia 48%, US 42%, France 49% and Canada 70%, China 40%) while developing countries like Chile 71%, and more than 80% in the African nation. ¹

In 2013, data from the National Health Survey Indonesia, the number of households used of traditional health care was 30,4%.².

The increasing consumption of TM is perhaps likely because of generationally-related changes and differences such as increasing media and research attention directed towards TM as complement and alternative medicine³.

The examined study in complimentary usage in Australian Women between Generation X and Millennial showed the prevalence of TCAM use about 19.4% and 14.247% respectively. Besides, cross-sectional study .In US, CM use between older adults from different birth generation (silent and Baby boomer) the increasing of CM utilization in a subsequent younger generation. ⁴

Drawing from broad kinds of literature, argued that prevalence and predictors of herbal medicine use among adult in US Millennial and X generation had a high prevalence of 33.1% and 34.7% are prevented from using traditional medicines. The reports of the Natural Marketing Institute in 2013 showed that roughly 11 per cent of millennial consumed homoeopathic medicine. By comparison, only 6 per cent baby boomer and 7 per cent of Gen Xers in the United States. Today, in Indonesia the study about socio-culture such as the generational as well as health problem like headache, stomach, fever has not been done, nor is it have no special research who compare birth groups at the same point in both lives. ⁵

Objective

To determine the prevalence of traditional medicine use among millennial and generation X and the association between socio-culture factors, health problem and traditional medicine use among adults in Indonesia.

Methodology

Study Design and Sampling

This study used a cross-sectional approach from the “Indonesia Family Life Survey (IFLS-5)“, a demographic and health survey, the fifth wave (IFLS-5) of which was completed in 2015. It was located in 13 provinces of 26 provinces in Indonesia. They were West Sumatra, North Sumatra, Lampung, South Sumatra, West Java, Jakarta, Yogyakarta, Central Java, East Java, South Kalimantan, South Sulawesi, Bali, and West Nusa Tenggara. This national survey used a multistage stratified random sampling to select the respondents to response to a structured questionnaire interview. There were 10,325 adults passed our inclusion criteria for

the analysis. The adult who was born between 1960 to 1982 was called the Gen X, whereas the Millennials is for those who were born between 1983 and 2000, free from missing data and individual who completed the questionnaire about traditional medicine.

Data Collection

The outcome of this study is that traditional medicine use (yes/no) was assessed with the question “During the last four weeks do you ever Traditional herbs or traditional medicine for treatment?”, those who responded with “yes” to any self-treatment were asked (BOOK III-37).

Socio-culture factors including born year categorizing generation as interest variable were assessed by the question, “what year were you born?”, they responded they are born of year. Then grouping into two groups, millennial for the group individual born around 1980 till 2000, and generation x people who born in 1960 -1980. The respondents were asked a query about age, sex, education and religion are on Book K (BK_AR2). The question was that “religion?” The place of residence is on Book K (BK_SC1). The question was that “urban/rural?”. and economic status assessed with the question “please imagine a six-step ladder where on the bottom (sixth step) stand the richest people. Then on which economic status steps are you today? The response option ranged from 1 “poorest” to 6 “richest” (BOOK IIIA-13).

Other covariates consisting of question about self-rated health “in general, how is your health?” answer option “ranged from 1 = very healthy, 4= unhealthy. The answer grouped into 1- somewhat unhealthy, 2= somewhat healthy, 3= very healthy (BOOK IIB-4). Symptom assessing with the question, “now we’d like to know about whether symptoms you have during the 4 weeks (Headache, Stomach ache, Fever, Health insurance measuring by the question, “Are you the policyholder/ primary beneficiary of health benefits, health insurance?” the answer option is “Yes or No”. Information Source includes information through internet access and reading newspapers. Internet access with code “dl03d” is on Book IIIA (B3A_DL1). The question was that “do you have internet access?”. Reading the newspaper with code “dl02a” is on Book IIIA (B3A_DL1). The question was that “can you read the newspaper?”.

Statistical Analysis

Data will be analyzed into the STATA software (Version 13.1) to find out and to analyze the determinants of traditional drug use among middle-aged (Millennial) and older adults (generation X) in Indonesia. Descriptive statistics are represented all of the characteristics in frequency and percentage. The bivariate analysis applied to simple logistic regression. Significant factors resulted from bivariate analysis (p -value < 0.25) and other factors which have been shown significant association in the previous studies. Multivariable analysis quantified the association between the outcome and the factors 95% confidence interval (95% CI) and Adjusted Odds Ratio (AOR).

Ethical considerations

The IFLS has been reviewed and approved by Institutional Review Boards in the United States and Gajah Mada University in Indonesia. Ethical approval letter for this study was obtained from Khon Kaen University Ethical Committee (KKUEC), reference number HE622148.

Result

The study was analyzed on 10.325 adult who born in 1960-2000 with 78.42% was millennial generation and 21.58% was Xers, female 50.85%, married 52.44% and other ethnicities (46.62%). Majority of this study were professed Moslem faith (89.99%), 43.13% of the respondent only attained elementary school, were middle-class economic (48.07%), live in an urban area (60.66 %), and individuals resided in Java island were 51.85.

Table 1. Baseline characteristics of an adult who was born in the year 1960 until 2000

Characteristics	Number	%
Age group		
1960-1982 (Gen X)	2,228	21.58
1983 -2000 (Millennial)	8,097	78.42
Gender		
Female	5,250	50.85
Characteristics		
Male	5,075	49.15
Marital Status		
Unmarried	4,911	47.56
Married	5,414	52.44
Ethnicity		
Others (Sumatera,,East Nusa Tenggara, West Nusa Tenggara, Bali, Kalimantan, Ambon,Papua, and Sulawesi)	4,814	46.62

Javanese	4,216	40.83	
Sundanese	1,295	12.54	
Religion			
Islam	9,291	89.99	
Others (Protestant, Catholic, Hinduism, Buddhism, Konghucu, etc.)	1,033	10.01	
Formal Educational level			
Elementary	4,453	43.13	
Junior high school	2,995	29.01	
Senior high school	2,206	21.37	
University	671	6.50	
Province Area			
Java island	5,354	51.85	
other islands	2,561	24.80	
Sumatera island	2,410	23.34	
Resident area			
Rural	4,062	39.34	
Urban	6,263	60.66	
Economic status			
Low	2,169	21.01	
Medium	4,963	48.07	
High	3,193	30.92	
Information through the Internet			
Yes	6,615	64.07	
No	3,710	35.93	
Information through Newspaper			
Yes	8,950	86.68	
No	1,375	13.32	
Health status (self-rated health)			
Healthy	8,679	84.06	
Unhealthy	1,646	15.94	
Health insurance			
Yes	4,858	47.05	
No	5,467	52.95	
Headache			
No	4,002	38.76	
Yes	6,323	61.24	
Stomach ache			
No	8,049	77.96	
Yes	2,276	22.04	
Fever			
	Characteristics	Number	%
No		6,497	62.92
Yes		3,828	37.08

Logistic regression was used to identify the associated factors with TM use. The result of bivariate analysis revealed the effect of each interest with significant factor P-value <0.25 which taken into analysis in initial model. Table 2 figure the association with TM. Individual

who was born between 1960 and 1982 (generation X) 1.54 (OR = 1.56, 95% CI: 1.37 to 1.77, P<0.00) , married respondents (OR= 1.72, 95% CI: 1.53 to 1.93; p<0.001), Javanese (OR= 1.47, 95% CI: 1.3 to 1.66), Sundanese (OR=1.51, 95 % CI: 1.26 to 1.8, p<0.001), Islamic religion (OR= 1.91, 95% CI: 1.51 to 2.42, p<0.001), Junior high School (OR= 1.02, 95% CI: 0.87 to 1.19), Elementary (OR= 1.26, 95% CI: 1.1 to 1.44, P<0.001), people who come from Java Island (OR:1.76, 95 % CI : 1.52 to 2.05), lived in urban area (OR:1.44,95% CI: 1.28 to 1.63), in Medium economic condition (OR: 1.20, 95% CI: 1.05 to 1.38) and in low economic status (OR: 1.21, 95 % CI: 1.03 to 1.43).

Internet user (OR:1.13, 95 %CI: 1.07 to 1.19, P<0.001). information through newspaper (OR:1.07, 95% CI: 1 to 1,16, P=0.091). unhealthy condition (OR:1.62, 95% CI: 1.41 to 1,82, P<0.001). Having health insurance (OR: 1.00, 95% CI: 0.95 to 1.06, P=0.918). suffering headache (OR: 1.88, 95% CI: 1.66 to 2.14, P<0.001), Stomachache (OR: 1.61, 95 %CI: 1.42 to 1.82, P<0.001), fever (OR: 1.48, 95% CI: 1.33 to 1.67, P<0.001).

Table.2. The odds ratio for each category of determinants of traditional medicine use on simple logistic regression.

Factors	Sample (%)	% of TM Use	Crude OR	95% CI	P-value
Age group					<0.001
1983 -2000 (Millennial)	8,097(21.8)	12.16	1		
1960-1982 (Gen X)	2,228(78.2)	17.77	1.56	1.37 -1.77	
Gender					0.071
Female	5,250(50.5)	12.78	1		
Male	5,075(49.1)	13.99	1.11	1 -1.24	
Marital Status					<0.001
Unmarried	4,911(47.6)	10.16	1		
Married	5,414(52.4)	16.29	1.72	1.53 -1.93	
Ethnicity					<0.001
Others	4,814(46.2)	11.00	1		
Javanese	4,216(40.83)	15.39	1.47	1.3 -1.66	
Sundanese	1,295(12.54)	15.72	1.51	1.26-1.8	
Religion					<0.001
Others (Protestant, Catholic, Hinduism, Buddhism, Konghucu, others)	1,033(10.01)	7.84	1		
Islam	9,291(89.99)	13.99	1.91	1.51 - 2.42	

Formal Educational level					<0.001
Senior high school& University	2,877(27.87)	12.17	1		
Junior high school	2,995(89.99)	12.35	1.02	0.87- 1.19	
Elementary	4,453(89.99)	14.84	1.26	1.1 - 1.44	
Province area					<0.001
Sumatera island	2,410(51.85)	10.12	1		
other islands	2,561(24.80)	9.76	1	0.8 - 0.16	
Java island	5,354(23.34)	16.57	1.76	1.52 -2.05	
Recidence					<0.001
Rural	4,062(39.34)	10.88	1		
Urban	6,263(60.66)	14.99	1.44	1.28 - 1.63	
Economic status					0.012
High	3,193(48.07)	14.11	1		
Medium	4,963(48.07)	14.00	1.2	1.05 -1.38	
Low	2,169(21.01)	11.90	1.21	1.03 -1.43	
Source of information					
Internet					<0.001
Yes	6,615(64.07)	12.32	1	1.07 - 1.19	
No	3,710(35.93)	15.26	1.13		
Newspaper					0.091
Yes	8,950(35.93)	13.15	1	1- 1.16	
No	1,375(13.32)	14.84	1.07		
Health status (self-rated)					<0.001
Healthy	8,679(84.06)	12.37	1		
Unhealthy	1,646(15.94)	18.65	1.62	1.41- 1.86	
Health insurance					0.918
No	5,467(52.95)	13.34	1		
Yes	4,858(47.05)	13.34	1.00	0.95 - 1.06	
Health problem					
Headache					<0.001
No	4,002(38.76)	9.20	1		
Yes	6,323(61.24)	16.02	1.88	1.66 -2.14	
Stomach ache					<0.001
No	8,049(77.96)	12.05	1		
Yes	2,276(22.04)	18.06	1.61	1.42 -1.82	

Factors	Sample (%)	% of TM Use	Crude OR	95% CI	P-value
Fever					<0.001
No	6,497(62.92)	11.62	1		

Yes	3,828(37.08)	16.35	1.48	1.33 -1.67
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Multivariable analysis revealed that adult who were Gen X (adj.OR: 1.24, 95% CI: 1.08 to 1.43 P<0.001), married (adj.OR : 1.64, 95% CI: 1.44 to 1.87 P<0.001), faith in Islam (adj. OR: 1.91, 95% CI: 1.47 to 2.36 P<0.001), unhealthy self-rated (adj.OR: 1.36, 95% CI: 1.18 to 1.1.58, P<0.001), headache (adj.OR: 1.50, 95% CI: 1.31 to 1.47,P<0.001), stomachache (adj.OR: 1.28, 95% CI: 1.12 to 1.47, p<0.001), and fever (adj.OR: 1.30, 95% CI: 1.15 to 1.47, P<0.001).

Table 3. Adjust Odd ratio for each category of determinants of traditional medicine use on multi logistic regression.

Factors	Sample (%)	% of TM Use	Crude OR	Adjust OR	95% CI	P-value
Age group						<0.001
1983 -2000	8,097(21.8)	12.16	1	1		
1960-1982 (Gen X)	2,228(78.2)	17.77	1.56	1.24	1.08 - 1.43	
Marital Status						<0.001
Unmarried	4,911(47.6)	10.16	1	1		
Married	5,414(52.4)	16.29	1.72	1.64	1.44 - 1.87	
Religion						<0.001
Others (Protestant, Catholic, Hinduism, Buddhism, Konghucu, others)	1,033(10.01)	7.84	1	1		
Islam	9,291(89.99)	13.99	1.91	1.86	1.47 - 2.36	
Recidence						<0.001
Rural	4,062(39.34)	10.88	1	1		
Urban	6,263(60.66)	14.99	1.44	1.48	1.31 - 1.68	
Health status (self-rated)						<0.001
Healthy	8,679(84.06)	12.37	1	1		
Unhealthy	1,646(15.94)	18.65	1.62	1.36	1.18 - 1.58	
Health problem						<0.001
Headache						<0.001
Factors	Sample (%)	% of TM Use	Crude OR	Adjust OR	95% CI	P-value
No	5,467(52.95)	9.20	1	1		
Yes	4,858(47.05)	16.02	1.88	1.5	1.31 - 1.72	

Stomach ache						<0.001
No	8,049(77.96)	12.05	1	1		
Yes	2,276(22.04)	18.06	1.61	1.28	1.12 - 1.47	
Fever						<0.001
No	6,497(62.92)	11.62	1	1		
Yes	3,828(37.08)	16.35	1.48	1.3	1.15 - 1.47	

Discussion

The purpose of this study was to determine the prevalence of traditional medicine use and the association between socio-culture factors, health problem and traditional medicine use among among Indonesian adult which divided to millennial and generation X.

Based on study result indicated that Socio Culture was associated with using Traditional medicine, the highest magnitude of association with traditional medicine use was generation x. In line with previous findings, the current result of this study revealed that the prevalence of traditional medicine use in Indonesia, the generation x is more likely to use traditional medicine than millennial. Unlike with other studies, the generation x was fewer than millennial. It was because the sample of populations was women only, which may affect the statistical result due to the variance of the population. As demand for health service, X generation will seek new approaches to self-treatment to address their illness. In 1970 when X generation where is still young, the preference to use TM might be attributed to the emergence of the holistic health movement.⁴⁻⁷

In fact, Indonesians are well-known for the faith in TM. The research showed that the knowledge of the TM tends to drive the individual decision in TM treatment.⁸ Traditionally, TM such as herbal medicine has therapeutic effect not only for cure the common complain but also enhance the immune. Nevertheless, the young-adult and middle-aged are prevented to this tradition due to rational reasons such as having emphasized the harmful effects can cause problems when it involves specific diseases which need specific intervention.⁹

Hence, the millennials prefer to come to conventional treatment moreover in Indonesia the number of electronic Health is increasing significantly that makes the millennium generation can access their medication through their smartphone. The married individuals tend to use traditional medicine compared to the individual which single or divorced. Various

studies have shown consistently that married individual was more likely to use traditional medicine than unmarried individuals.¹⁰⁻¹³

The phenomenon was the effect of partner or spouse in a household became the important influence to someone. This study shows that individual residing in a rural area is less of traditional usage than the urban area. It is surprising because frequently, accessibility and affordability are as the reason for choosing medication. Similar to the previous study, urban society has become more informed about their health benefitting from print media, television, and the Internet to get information on which to base their health decisions. As a result, alternative medication appealed because they are more natural and therefore safer compared to “manufactured” pharmaceutical products.²

Other reason because in urban area mostly herbal medicine like *jamu gendong*. it popular in big most of big city of Java, Sumatera and Kalimantan island. *Jamu* is liquid herbal medicine which is sorted in bottles. Normally it sold by women who carry out the bottles in the bamboo baskets slung on their backs.⁹

Most of respondents believe in Islamic religion are more use TM than other religions in Indonesia. As a majority of Indonesians are Muslims, therapy based on the Islam’s practices are reasonably common. It is possible that people with strong religiosity hold beliefs that are congruent with traditional and complementary medicine use and are thus more attracted to using those forms of medicine. In other parts of the world, people use botanical and natural products, mainly based on their cultural beliefs. For instance, in Turkish people frequently use carob and grape molasses to prevent or treat anemia.^{14,15} In most Africa dwellers religion has always enjoyed high favour with this could be responsible for the increased number of people who used prayer/faith healing to ease unfavourable health conditions.¹⁶

Health Support factor closely correlated with TM, in agreement with other studies,¹⁷ individual with a health problem or unhealthy condition extent to use TM than conventional. This finding is predictable. This was not the case for the adult than those who reported good health were significantly less likely to utilize TM compared to those with excellent health. This finding may suggest a change in the way TM is used among generations, for instance, the accessing TM as a part of their wellness strategy and for health maintenance or enhancement rather than to address a specific health concern. These potential difference in motivation and use of TM among those, if TM use has reduced among those with poor health or shifted away from use as a way to address specific health conditions, it is possible that those who may benefit

most from TM practices are either not utilizing the approaches by choice or have less access to potentially beneficial treatment. If so, these patterns have broader implications beyond TM use to population health behaviour more common.⁴

Health Problem had high change to use TM, the respondent who had some symptoms such as headache,¹⁸ stomachache,¹⁹ and fever²⁰ were more likely to utilize traditional medicine. The finding of this study was relevant with proceeding study in Canada, people had migraine (headache) uniformly user of CAM service because currently, conventional care paradigms for diseases tend to be holistic and requiring the individual to be active in preventing further symptom.²¹

In some cases, a substantial level of evidence underpinning the clinical effectiveness of TM for pain conditions such as back pain¹⁹ or headaches. Headache the most common diseases for the use of HM, it also notes similarities other findings from result forum group discussion on TCAM usage because of dissatisfaction with conventional medicine and looking for alternative treatment methods as a consequence. Several participants provided detail accounts of long-term illness histories, including failed conventional treatment efforts, frustration, and disappointments. It is found many side-effects of TCM as well, a lack of treatment effect.²²

Other studies consistently revealed that people use TM not due to unsatisfactory respond to industry product, so they turn to traditional medicine for healing abdominal pain syndrome but also the effectiveness of the medication. Chinese medicine clinically proved efficacy for healing some symptoms like a digestive problem.¹⁹ Similarly, several research in Indonesia showed the effectivity of the TM materials for nutrition and anti-bacterial substances.

^{23,24}

Study in India shown that knowledge is commonly associated with the utilization of traditional medicine for fever medication. The medicinal value of the plants used it found that some the people indeed were found to be having some benefits from fever treatment, likewise in Lohit district and rural of Tamil Nadu also use the traditional medicine for healing fever and cough. The influenced factor of TM use is the long-side effect that traditional medicine is safer than conventional medicine.²⁰

Furthermore, the respondent dominantly on the stage medium and low economics which lead the people to use traditional medicine because the affordability reason as their

treatment for some symptom. As the result people prefer to use Traditional medicine instead of go to healthcare service.

Conclusion

The usage of traditional medicine among adults in Indonesian residents has been rocketed over the years. Socio-culture factors as a generation x, married individuals, Moslem, residing in an urban area, having an unhealthy condition, suffering pain such as headache, stomachache and fever were significant positive predictors of use of herbal medicines.

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Data Availability

The data that support the findings of this study are openly available in <https://github.com/Dhigram/tradmedicine>

Disclosures

Authors contribution

Yeni Indriyani, Dihram Tenrisau, Paricha Nippanon, Anootnara T Kuster, and Dwi Linna Suswardany were responsible for designing the research project. Yeni Indriyani, and Dihram Tenrisau performed data analysis and interpretation. Paricha Nippanon, Anootnara T Kuster, and Dwi Linna Suswardany, performed the writing and critical review of the manuscript; all authors approved the final version.

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Conflict of Interest

All authors declare that they have no conflicts of interest.

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