Increasing Knowledge, Attitude, and Practice in using Traditional Medicines through Pharmacist's Education and Mentoring in Mojokerto

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ABSTRACT

Background: The use of traditional medicines globally continues to increase and must be balanced with increased knowledge, attitudes, and practice in using traditional medicines through pharmacist education and mentoring.

Objectives: This research aims to determine the description of the use of traditional medicine, the level of knowledge, attitudes, and practice of the community in using it, and the influence of pharmacist education and mentoring on it.

Methods: This research design was quasi-experimental with a pre-test and post-test control group with 406 community research subjects. It involved 14 pharmacists in providing education and mentoring through WhatsApp group media by providing material according to the modules prepared. The instrument used a questionnaire developed from previous research and tested for validity and reliability. Data collection was carried out prospectively by the participant-self, and analyzed using the Wilcoxon Signed Ranks Test.

Results: This study's total number of respondents was 406, divided into 203 as the intervention group and 203 as the control group. The description of the respondent's KAP level before the intervention is in the medium category and after the intervention is in the high category based on the Wilcoxon Signed Ranks Test results at a 95% confidence level (α=0.05) in the intervention group.

Conclusion: The use of traditional medicines in the phytopharmaca class is 3%, standardized herbal medicines are 35%, and jamu is 62%. The level of knowledge, attitudes, and practice of the community in using traditional medicine in Mojokerto Regency is, on average, in the medium category. This research also shows the influence of pharmacist education and mentoring on increasing knowledge, attitudes, and practice scores from medium to high.

Keywords: attitude; education; knowledge; practice; traditional medicine

INTRODUCTION

Traditional medicine has a long history and has been widely used for health maintenance, prevention, and treatment of disease even before modern medicines like today were discovered. Views on traditional medicines and complementary products globally have experienced a consistent increase. In the WHO Global Report on Traditional and Complementary Medicine, 88% of WHO member countries acknowledged the existence of the use of traditional medicine and complementary products.[1] The level of acceptance of the use of herbal medicine as an alternative treatment in general is high (58%).[2] Reports on the result of national basic health research show that the household population that uses traditional health services is more likely to use ready-made products by

48%.[3] The prevalence of traditional medicines and complementary products in Indonesia is high. One in four respondents (24.4%) uses traditional health services or medicine. [4]

Pratiwi et al.'s research shows that public knowledge about herbal medicine products containing hazardous chemicals that can harm health still needs to be higher.[5] Only 17.6% of respondents knew about hazardous chemicals in herbal medicine products but needed help recognizing the characteristics of herbal medicine that contained dangerous chemicals, and only 8.8% of respondents knew how to choose safe traditional medicine.[5] Research on knowledge, attitudes, and utilization of traditional medicine has been carried out in communities in Debre Tabor Town, Amhara Regional State, North Central Ethiopia, with the results that the community has good knowledge about traditional medicine. However, their attitudes and practices are poor even though traditional medicine is acceptable, easy to access, and affordable.[6] Cross-sectional research among communities in Merawi Town, Northwest Ethiopia, shows that community knowledge about traditional medicine is classified as good, and the prevalence and acceptance of traditional medicine are also high.[7]

Apart from assessing the level of knowledge, attitudes, and practices (KAP) of the community towards traditional medicines, this research will also provide interventions in the form of pharmacists' education and mentoring to increase KAP in the use of traditional medicines. Increasing public knowledge and awareness as part of the drug and food control system, including traditional medicine, is very important because the community or consumers determine whether to buy and use traditional medicine products.[8] Apart from that, the increasing use of traditional medicine in society has several problems, including hoaxes circulating in society regarding traditional medicine, especially during the Covid-19 pandemic, hazardous chemicals that are deliberately mixed in traditional medicine products, which can endanger health and traditional medicine without a distribution permit which is still found based on surveillance carried out by the National Agency Drug and Food Control in 2020 and 2021.[9]

Although the use of technology to obtain various information, including regarding traditional medicine, can be easily obtained, the knowledge and use of traditional medicine still need to be evenly distributed. It is still necessary to convey information directly to the public to avoid errors in obtaining information[5]. The research was conducted at Mojokerto Regency pharmacies to know the description of the use of traditional jamu, standardized herbal medicines, and phytopharmaca, assess the level of KAP of using traditional medicines, and know the effect of providing pharmacists's education and mentoring on KAP of traditional medicine among communities.

METHODS
Research Design
The research used quasi-experimental research with pre-test and post-test design using a control group by measuring KAP using traditional medicine. The research was conducted from April to July 2022 among community users of pharmaceutical services at Mojokerto Regency pharmacies.

Population and sample
The population in this study was people in Mojokerto Regency. The number of respondents in this study was calculated based on the prevalence of traditional medicine use of 48%. Z = 1.94 is a table value with a confidence level of 95% with e (margin of error) 5%. Using the formula $n = Z^2 P (1-P)/e^2$, the minimum sample size is 376. The number of respondents involved in this research was 406. Sampling was carried out at simple random. The inclusion criteria for respondents in this study are people living in Mojokerto Regency who use pharmaceutical services at pharmacies, adults aged 18 years and over who can read, write, and communicate well, who use or not use traditional medicines and in the future, it is possible to use traditional medicines and those who willing to contribute to this research by filling out informed consent. The exclusion criteria in this study were people who decided not to use traditional medicine currently and in the future, pharmacists, and pharmacist assistants. This research also involved pharmacists as providers of education and mentoring with the criteria of being the pharmacist in charge of the pharmacy as well as the owner of the pharmacy facility, providing traditional medicine information products and services.

Control and Intervention Groups
In this study, there were control and intervention groups, the respondents have a chance to choose where they are belong to which group. The intervention group received pharmacist education and mentoring. The intervention was carried out for one month using learning media and discussions via WhatsApp group. In this

stage, it is hoped that respondents will actively participate in all the material and discussions provided. The material provided by the pharmacist is from the module that has been prepared. Material consist the definition of traditional medicines, classification of traditional medicines, dosage forms of traditional medicines, identification of traditional medicines through labels, distribution permits for traditional medicines, awareness of the existence of counterfeit traditional medicines and without distribution permits, how to choose and use traditional medicines, awareness of the presence of hazardous chemicals in traditional medicine and side effects, an application to see the guarantee of the safety of traditional medicine and awareness of hoax traditional medicine information on the internet media.

Instruments and data collection

The instrument used is a questionnaire developed from previous research.[5,10,11] The questionnaire developed consists of 28 question items which are divided into three domains namely the knowledge domain consists of 15 Question items that have answer options "True," "False," and "Do not know," the attitude domain consists of 7 statements with 5 point Likert scale response options starting from "Strongly Disagree" to "Strongly Agree," the practice domain consists of 6 statements with a 5-point Likert scale response option ranging from always, often, sometimes, rarely to never. Apart from that, this questionnaire also has an initial section which concerns data on the sociodemographic characteristics of the respondents. Validity and reliability tests were carried out by distributing questionnaires to 30 respondents outside the research respondents. The results of the validity test in the KAP domains show that each question/statement is valid, with corrected item-total correlation > r table, namely 0.361 with a confidence level of 95%, and reliability test results for the KAP domains obtained a Cronbach's alpha value > 0.6. Data collection was carried out prospectively, starting with all respondents filling out a questionnaire (pre-test). In the intervention group, they participated in pharmacist education and mentoring. After that, respondents filled out the final questionnaire (post-test).

Data analysis

The intervention and control groups assessment was the community's KAP level in using traditional medicine. Determining the level of KAP is divided into three categories: the excellent/high category, the medium/fair category, and the poor/low category. How to determine the categorization using the guidelines contained in Table I.[12]

Descriptive statistical analysis was carried out to describe the use of traditional medicine and the level of KAP, and the Wilcoxon Signed Ranks Test statistical test was used to see differences in the level of KAP in each group using SPSS for Windows Version 25.

RESULTS AND DISCUSSIONS

This study's total number of respondents was 406, divided into 203 as the intervention group and 203 as the control group. The sociodemographic characteristics of the respondents can be seen in Table II. Based on this table shows that the respondents in this study were spread across the age range of fewer than 25 years as much as 29.6%, 26 - 44 years, as much as 30%, 35 - 44 years, as much as 25.4%, 45 – 54 years as much as 11.3% and over 55 years as much as 3.7%. The educational level of respondents in this study varied from the lowest elementary school/equivalent to the highest with postgraduate education. Most of the respondents in this study (51.5%) had completed senior high school/equivalent education. Most respondents work in the private sector (64.3%), with the highest income level being less than 3 million rupiah per month (62.6%). People's KAP towards an object is influenced by factors including education, age, and occupation/income level.[13–15]

Traditional medicinal products in Indonesia circulating in pharmacies are classified into jamu, standardized herbal medicine, and phytopharmaca [16] From observing data in pharmacies in this study, the use of traditional Indonesian medicines based on their classification can be seen in Figure 1. Only 3% of phytopharmaca products, 35% of standardized herbal medicine products, and 62% of jamu are used by the community in Mojokerto Regency. The most widely used phytopharmaca are preparations with indications to restore the immune system, while standardized herbal medicines and jamu are preparations for symptoms of colds. The use of phytopharmaca still needs to be improved. The limitations in the use of phytopharmaca are in line with research conducted by Sari Dewi et al., which produced data on the use of phytopharmaceuticals of 4.17%, much more than standard herbal medicinal products of 43.45% and herbal medicines of 52.38%.[17] The limited use of phytopharmaca by the community is caused by several factors, including the fact that the number of phytopharmaca products registered at National Agency Drug and Food Control is much smaller, only 25 items,

Table I. Details of KAP Assessment Levels (Azwar, 2012)

|	Knowledge	Attitude	Practice
Number of questions	15	7	6
Minimum score/percentage	0 / 0%	7 / 20%	6 / 20%
Maximum score/percentage	15 / 100%	35 / 100%	30 / 100%
Low category (%)	< 33,3	< 46,7	< 46,7
Medium category (%)	33,3 – 66,7	46,7 – 66,7	46,7 – 66,7
High category (%)	>66,7	73,3	73,3

compared to standardized herbal medicine and jamu.[18,19] Phytopharmaca in Indonesia must prove their safety and efficacy through clinical trials on humans, which requires high costs and a long time. This is a factor in the slow pace of phytopharmaca in Indonesia.[20] Research and development of phytopharmaca are still quite popular, but there are obstacles to standardizing natural ingredients and limited research funds. [21]

The community's level of KAP in using traditional medicines on the market was assessed by filling out validated questionnaires. The respondents' KAP levels are shown in Figure 2. Description of the level of community knowledge in using traditional medicines in pharmacies in Mojokerto Regency: Most respondents (48.8%) have a medium level of knowledge, 42.6% have a high level of knowledge, and a small portion (8.6%) have a low level of knowledge. The results of this research are in line with research conducted by Zulkarni et al., which concluded that the majority (65%) of the people of Sapiran Village, Aur Birugo Tigo Baleh District, Bukittingi City, have a sufficient level of knowledge about traditional medicine.[22] An illustration of the level of attitude of respondents regarding the use of traditional medicine in pharmacies in Mojokerto Regency: 38.4% of respondents had a good attitude, 58.4% had a moderate attitude, and only 3.2% of respondents had a bad attitude toward the use of traditional medicine. Most respondents (59.9%) have good practices in using traditional medicine. As many as 29.8% had moderate practice, and 10.3% had poor practice regarding traditional medicine. The level of community KAP towards an object related to health, including the use of traditional medicine, can increase or decrease their health status. A low KAP level tends to reduce health status, and conversely, a high KAP level can improve health status.[23] Research conducted by Yanti et al., also shows that good knowledge, positive attitudes, and good behavior can also overcome health problems related to preventing disease transmission during the COVID-19 pandemic in Indonesia.[24] High public awareness of choosing traditional medicinal products that meet the requirements for safety, quality, and efficacy is one of the factors in avoiding material loss or even the threat of danger to life due to the continued circulation of traditional medicines that contain hazardous chemicals[25]. Good practice in choosing traditional medicine or herbal supplements based on the Guidelines for the Use of Herbs and Health Supplements in Facing COVID-19 19, issued by the National Agency Drug and Food Control, is to apply the "Cek KLIK" principle. The principle of "Cek KLIK" is to check the packaging, label, distribution permit, and product expiration before using it.[26]

Increased KAP before and after being given pharmacist education and mentoring can be seen in Table III, IV, and V. Based on the data, intervention in the form of pharmacist education and mentoring influenced increasing KAP of using traditional medicine from the medium category to the high category in the intervention group (significance Value (2-tailed) < 0.05) and there was no increase in the control group. One of the responsibilities of a community pharmacist is to provide the best information about the use of traditional medicines, provide information on potential side effects, drug interactions, and the risk of harm from using traditional medicines, provide professional services about the use of traditional medicines in self-medication services for OTC medicines. This shows that pharmacists are professionals and experts in traditional medicine.[27,28]

Providing education and mentoring to respondents is supported by facilities and infrastructure such as learning modules and pictures in booklets to facilitate respondents' understanding. These infrastructure facilities are a fact that can be linked to increased KAP in the use of traditional medicine. Research in Saudi Arabia regarding the effectiveness of using booklets as an educational medium by providing Patient Discharge Information booklets to patients who have undergone cesarean section and the results of the research show an increase in KAP of experimental participants regarding diagnosis, medical procedures, treatment, lifestyle, eating patterns, and psychological health. In contrast, the control group in this study showed a decrease in KAP in control participants from pre-test to post-test scores regarding medical procedures, medication, signs and symptoms of awareness, lifestyle, eating patterns, and psychological health[29]. Other research shows that the use of illustrated pocketbooks has been proven to increase the knowledge of patients and supervisors about taking medication from pulmonary tuberculosis patients in the Jember area, Indonesia[30]. Another study aimed to
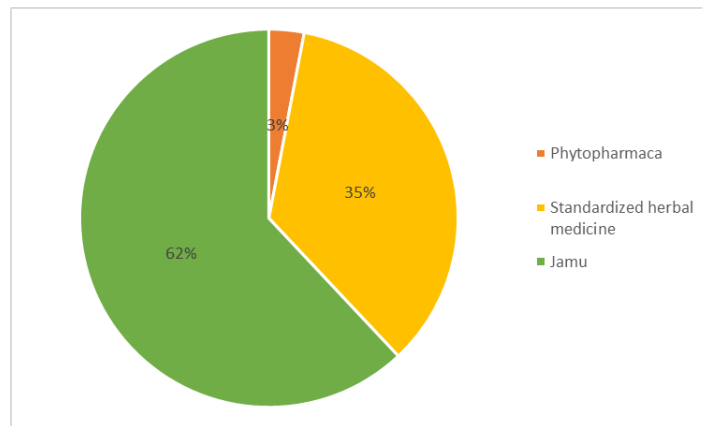
Figure 1. Use of Traditional Medicine Based on Classification
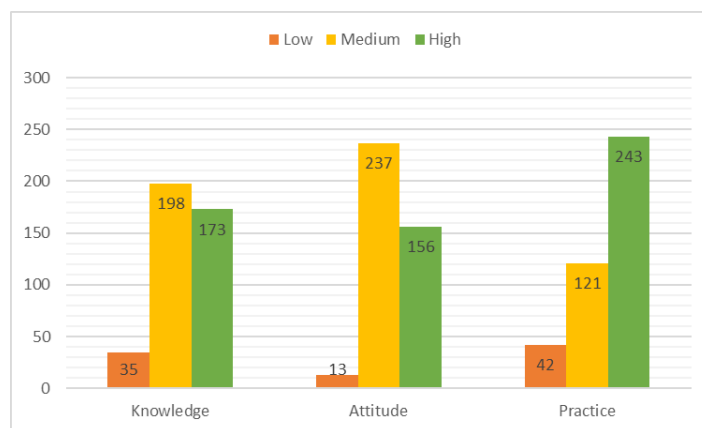
Figure 2. Categories of Level of KAP

Table II. Sociodemographic characteristics of respondents (n=406)

Sociodemographic characteristics		Number of persons (%)
Age of respondent (years)	< 25	120 (29,6)
	26 – 34	122 (30,0)
	35 – 44	103 (25,4)
	45 – 54	46 (11,3)
	> 55	15 (3,7)
Education of respondent	Elementary School/Equivalent	11 (2,7)
	Junior High School/ Equivalent	23 (5,7)
	Senior High School/ Equivalent	209 (51,5)
	Diploma	52 (12,8)
	Bachelor	101 (24,9)
	Postgraduate	10 (2,5)
Occupation of respondent	Government employee	26 (6,4)
	Private sector	261 (64,3)
	Self-employed	59 (14,5)
	Retired	2 (0,5)
	Unemployed / Housewife	58 (14,3)
Monthly income (million rupiah)	< 3	254 (62,6)
	3 – 5	126 (31,0)
	6 – 10	21 (5,2)
	>10	5 (1,2)

Table III. Pre-test and Post-test Knowledge of Control and Intervention Groups

Knowledge Variable	Control Groups		Intervention Groups	
	Pre-test	Post-test	Pre-test	Post-test
Average score	8,81	8,87	8,58	11,86
Standard deviation	3,128	3,154	2,981	2,528
Average score percentage	58,73	59,13	57,20	79,07
Level	Sedang	Sedang	Sedang	Tinggi
significance value (p)	0,741		0,000	

Table IV. Pre-test and Post-test Attitudes of Control and Intervention Groups

Attitude Variable	Control Groups		Intervention Groups	
	Pre-test	Post-test	Pre-test	Post-test
Average score	24,50	24,26	24,44	26,89
Standard deviation	3,781	4,119	3,674	3,267
Average score percentage	70,00	69,31	69,83	76,83
Level	Sedang	Sedang	Sedang	Tinggi
significance value (p)	0,205		0,000	

Table V. Pre-test and Post-test Practice Control and Intervention Groups

Practice Variable	Control Groups		Intervention Groups	
	Pre-test	Post-test	Pre-test	Post-test
Average score	21,21	21,45	21,50	25,51
Standard deviation	4,975	4,378	4,783	3,421
Average score percentage	70,70	71,50	71,67	85,03
Level	Sedang	Sedang	Sedang	Tinggi
significance value (p)	0,172		0,000	

measure the effectiveness of knowledge, attitude, and practice (KAP)-based rehabilitation education in KAP patients with intervertebral disc herniation, resulting in an increase in KAP after being given health education, thereby encouraging good rehabilitation behavior and changing KAP patients.[31]

According to Alonzo, and Khoso et al., there are four dimensions of health behavior.[32] The first is preventive health behavior, preventing health problems and distancing oneself from health hazards. This action includes selecting and using traditional medicines whose safety and efficacy have been proven empirically and scientifically. The second dimension of health behavior is detective health behavior. In this dimension, the act of obtaining traditional medicine products through official places, one of which is a pharmacy, and carrying out the "Cek KLIK" action before deciding to use traditional medicines circulating on the market. The principle of "Cek KLIK" is checking packaging, labels, distribution permits, and expiration. The distribution permit approval as a guarantee of safety and efficacy can be done via the "BPOM Mobile" application. The third dimension of health behavior is health promotion. This dimension is almost the same as the first dimension. However, it is aimed more at improving the health status of individuals using traditional medicinal products to maintain health or improve the body's immune system. Finally, the fourth is Health Protector. By increasing KAP in using traditional medicines, it is hoped that individuals in the community can protect themselves and their families from health problems related to traditional medicines containing hazardous chemicals, traditional medicines without distribution permit approval, or other problems.

The results of the research can provide an evaluation of the vital role of pharmacists in providing education and mentoring to the community in using traditional medicines on the market so that they can increase KAP regarding traditional medicines and improve people's behavior in using traditional medicines to meet the requirements of safety, quality, and efficacy in efforts to improve the level of public health. Community pharmacists have essential responsibilities, one of which is providing the best information about the use of traditional medicines, providing information on potential side effects, drug interactions, and the risk of harm from using traditional medicines, providing professional services about the use of traditional medicines in self-medication services for OTC medicines.[27,28] The limitations of this research are not analyzing the relationship

between sociodemographic and KAP of using traditional medicines, using the module as an educational guide but not examining how the module influences increasing KAP of using traditional medicines as well as educational and mentoring methods via WhatsApp group media cannot ensure that all respondents actively follow all the material provided in education and mentoring.

CONCLUSION

Communities in Mojokerto Regency use 3% of the phytopharmaca, 35% of standardized herbal medicines, and 62% of jamu. The level of knowledge, attitudes, and practices of the community in using traditional medicine in Mojokerto Regency is, on average, in the medium category. This research also shows that there is an influence of pharmacist education and mentoring on increasing knowledge, attitude, and practice scores from the medium to high category in the intervention group.

STATEMENT OF ETHICS

This research has undergone ethics testing at Dr. Moewardi Hospital Surakarta with number 952/X/HREC/2021.

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