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The Factors that Influence Knowledge about Drug Management

Annisa Diyan Meitasari
Department of Pharmacy, Vocational School, Sebelas Maret University, Surakarta, Indonesia

Corresponding Author: **Annisa Diyan Meitasari**

Abstract
Dagusibu (Get, Use, Keep & Dispose) is one of the programs to realize the Drug Awareness Family Movement by Indonesian Pharmacists experts and educate the general public about healthy living behavior, especially about drugs. This program must be carried out because of the lack of public knowledge about medicine management and because of low public awareness of choosing safe drugs. The purpose of this study was to describe the knowledge and the factors that affect the knowledge about drug management in the community at Madiun. This type of research is cross-sectional with a purposive sampling method. This research was conducted in March 2023 in Melikan, Madiun. The data was collected by using a questionnaire method. Data were processed using SPSS with univariate and bivariate analysis (Chi-Square Test). Respondents in this study were people who were included in the inclusion criteria as many as 93 people. The results showed that the knowledge about drug management in the community at Madiun was average (46.2%). The factors that influence the knowledge about medicine management at home were age (0.000<0.05), education (0.000<0.05), and occupation (0.011<0.05).

Keywords: Knowledge, Management, Medicine, Get, Use, Keep

Introduction

The definition of medicine in the law of the Republic of Indonesia is a substance or combination of substances, including biological products that are used for diagnosis, prevention, cure, recovery, and contraception (Ministry Health, 2021) [10]. Knowledge of medication management is one of the fruitfulness keys to the cure of illness. DAGUSIBU is a program to realize the drug awareness family movement of medication management made by the community of pharmacy professionals in Indonesia. Dagusibu contains knowledge about how to get, use, keep, and dispose of medicine. The Dagusibu program outreach to provide information, education, and understanding to the public about medicine management. A questionnaire about Dagusibu was distributed in Palembang, and 49.49% of respondents answered incorrectly (Ramadhani *et al*., 2021) [14]. Based on the result it can be concluded that most people do not understand how to get, use, keep, and dispose of medicine properly. People's ignorance about using medicines can cause medication errors. Unsafe medication practices are the leading cause of avoidable patient harm in healthcare systems across the world (Wondmieneh *et al*., 2020) [19].

Regulations in Indonesia explain that medicines can be purchased and delivered by pharmacists based on a doctor's prescription except over-the-counter drugs. Examples of pharmaceutical facilities in regulations in Indonesia are pharmacy, hospital pharmacy installations, community health centers, clinics, and drug stores (Ministry Health, 2021) [10]. The results of a survey conducted in a village in Palopo city show that the level of dagusibu knowledge in the area is weak (Furqani, 2021) [7]. Another survey conducted by the Ministry of Health Republic of Indonesia in 2017 stated that the knowledge, attitudes, and behavior of people aged 15-65 years in three provinces in determining medicine that has good quality and safety with an index result of 4.65 from a ratio of 1-10. This proves that public understanding is still weak regarding the need to choose safe drugs (Siahaan *et al*., 2017) [15]. Based on WHO research, worldwide use of prescription of irrational drugs is more than 50%. This irrationality can be in the form of using excessive doses of drugs, insufficient doses, and inappropriate indications (Ministry Health, 2021) [10].

Based on the several cases above, the researcher wants to analyze the description of knowledge in the community at Madiun about medicine management and the factors that influence it. The research and education about medicine management at home will increase people's insight and awareness into managing medicines correctly.

Methodology

Research Plan

The type of this research is non-experimental research carried out in cross-sectional study. The data collection method used purposive sampling. Data was collected in March 2023 in a community at Madiun.

Collection of Data

Data was collected by questionnaire method. Before filling out the questionnaire the respondent must sign the confirmation letter. The inclusion criteria are respondents who are willing to fill out the questionnaire and respondents with an age range of 17-55 years old. The exclusion criteria are respondents who did not complete the questionnaire. Patient characteristic data include age, gender, last education, and occupation.

Data Analysis

Data analysis was carried out using SPSS. The data was analyzed by univariate and bivariate. Univariate was to see a description of knowledge about medicine management (high, intermediate, and weak). Bivariate analysis was to see the factors that influence the knowledge about DAGUSIBU.

Result and Discussion

The Characteristic Data

Table 1 shows the distribution of socio-demographic characteristics in the sample. The questionnaire was collected and included in the inclusion criteria was 93 and 71% graduated from Senior High School. In this community majority graduated from Senior High School because most of them had to work to improve their economy. The higher level of education made knowledge higher too (Pinchess *et al*., 2023) [12]. The data showed that the most respondents were an employee (31%) and housewife (27%). Indirectly, the occupation has a big influence on a person's knowledge because in their job there are social interaction factors that can involve the process of exchanging information (Siahaan *et al*., 2017) [15]. The table shows that more than half of the respondent was a woman (71%). Total 43% of respondents were 25-35 years old. The older person will be more knowledgeable than earlier (Notoatmodjo, 2010) [11].

Table 1: Characteristic Data

Characteristic	Frequency	Presentation
Gender		
Man	27	29%
Woman.	66	71%
Age		
17-25 years old	20	21,5%
26-35 years old	40	43%
36-45 years old	22	23,5%
46-55 years old	11	12%
Occupation		
Student	5	5%
Housewife	25	27%
Farmer	17	18%
Employee	29	31%
Civil servants	8	9%
Entrepreneur	7	8%
Jobless	2	2
Education		
Elementary School	-	-
Primary High School	9	10%
Senior High School	66	71%
College	18	19%

The knowledge DAGUSIBU

Table 2 shows that the level of knowledge is classified into 3 levels, there is good knowledge, average knowledge, and weak knowledge. Respondents with a level of knowledge weak is 18.3%, an average of 46.2%, and a level of good is 35.5%. The average knowledge of DAGUSIBU in the community at Madiun was average. Knowledge about DAGUSIBU medicine is the important thing because with the knowledge people can choose where to get medicine, how to use medicine, how to keep medicines, and how to dispose of medicine. People must know where to get medicine to ensure that people get the original medicines and get information about the medicine with the right informant. In Indonesia, people can get the original drug in a drug store that is registered and will be served by a pharmacist (Puspasari *et al*., 2018) [13].

Table 2: Knowledge DAGUSIBU

Knowledge Classification	Total (n)	Presentation (%)
Good	33	35.5
Average	43	46.2
Weak	17	18.3
Total	93	100

A medication administration route is often classified by the location at which the drug is applied, such as oral or intravenous (J & Jesus O, 2023) [8]. Based on this research, the community in Madiun keeps oral and topical drugs. Oral administration of medication is convenient, easy to administer, widely accepted by patients, cost-effective, and the most commonly used medication. The primary site of drug absorption is usually the small intestine, and the bioavailability of the medication is influenced by the amount of drug absorbed across the intestinal epithelium. The first-pass effect is an important consideration for orally administered medications. It refers to the drug metabolism whereby the drug concentration is significantly diminished before it reaches the systemic circulation, often due to the metabolism in the liver (J & Jesus O, 2023) [8]. Topical oral administration medication is a noninvasive method of administration, this benefit especially refers to topical routes, as this usually offers avoidance of potentially serious adverse effects when administered by systemic routes (Leppert *et al*., 2018) [9].

Normal storage conditions mean storage in a dry, well-ventilated place, at room temperature (15-25ºC), and not exposed to direct sunlight. The stability of drugs is highly essential to maintain the therapeutic efficacy of medicines. Temperature plays an important role in maintaining the efficacy of medicine. Temperature factors include material packaging, humidity, and sunlight. External stimulating substances such as heat, moisture, light, and dust can lead such reactions that are just not superfacial changes (change color) but also reactions that may affect the drug more seriously leading to reduction or loss of efficacy (Ali *et al*., 2018) [1]. Analgesics were the most common medicines stored at home, followed by adult cold remedies and antibiotics. The refrigerator was the most common place for storing medicines (50.6%). Most householders did not consult the package inserts. Many householders (53.6%) reported that they practiced self-medication, and the frequency of reuse of physician-prescribed antibiotics was

high (Foroutan & Foroutan, 2014) [6].

Awareness of proper disposal and management of unused and expired medication is important. The prevalence of unused medicine and their improper disposal were high in Malaysia (Wang *et al*., 2021) [18]. FDA recommends taking unused or expired medicine to a drug take-back location. FDA issues the flush list of medicines because there are medicines that can be sought-after for their misuse, and or abuse potential and can result in death from one dose if inappropriately taken by children, adults, or pets in the home. Because of that FDA recommends flushing these potentially dangerous medicines down the toilet. If the medicine is not on the flush list, people can dispose of most medicine in their trash at home, but before throwing the medicine (a) mix the medicine (liquid or pills do not crush tablets or capsules) with an unappealing substance such as dirt, cat litter, or used coffee grounds; (b) place the mixture in a container such as a sealed plastic bag; (c) throw away container in trash at home; (d) delete all personal information on the prescription label of empty medicine bottles or medicine packaging, then trash or recycle the empty bottle or packaging. Regarding disposal methods, 93.5% of the respondents indicated that they were not aware of proper methods to dispose of expired medications, 91.3% threw expired medications in household garbage, 4.35% donated medications to charities or returned them to the hospital, and 4.35% did not know how to dispose of medications (Alshehri & Banjar, 2022) [2]. The results from the survey show that 66.8% of the 310 participants had unneeded medications in their homes, and only 14.9% knew how to dispose of unusable medications. In comparison, only 6.5% knew how to dispose of expired medications. Overall, the research studied Saudi society's behavior regarding unused and expired medications, and we created a prototype of a knowledge-based system designed to increase awareness of proper disposal and management of unused and expired medications (Alshehri & Banjar, 2022) [2].

Bivariate Analysis

Bivariate analysis aims to see the factors that influence the knowledge about DAGUSIBU. The bivariate analysis compares the knowledge with gender, age, education, and occupation. The result is gender has no association with knowledge about how to get, use, keep, and dispose of the medicine. There is a statistically significant relationship between age and knowledge of DAGUSIBU (p-value 0.000). Sulistyawati *et al*. prove that having an age of more than 50 years was associated with 0.59-fold higher odds of good knowledge of COVID-19 compared to people aged 18–29 years (P< 0.05) (Sulistyawati *et al*., 2021) [16].

Table 3

Variable	Knowledge DAGUSIBU						P value
	Good		Average		Weak		
	n	%	n	%	n	%	
Gender							
Man	4	14.48	13	48.1	10	37	0.585
Woman	10	15	33	50	23	35	
Age							
17-25	-	-	9	45	11	55	0.000*
26-35	2	5	21	52	17	43	
36-45	2	9	15	68	5	23	
45-55	10	91	1	9	-	-	
Education							
College	-	-	2	11	16	89	0.011*
Senior High School	26	9	42	65	17	26	
Primary High School	8	80	2	20	-	-	
Occupation							
Student	-	-	-	-	2	100	0.000*
Housewife	6	24	10	40	9	36	
Farmer	11	65	5	29	1	6	
Entrepreneur	2	7	16	55	11	38	
Jobless	1	50	1	50	-	-	

*P-value <0.05

In this research education is divided into three levels, there is college, senior high school, and primary high school. After conducting a bivariate analysis education has a significant association with knowledge about DAGUSIBU. In line with research in Iran shows a significant association between self-medication and educational level but not with age, sex, marital status, occupation, and type of insurance. Better public knowledge and information about the storage and risks of reuse of prescription medications is needed (Foroutan & Foroutan, 2014) [6]. Research in Indonesia shows that respondents who graduated from higher education have 1.98-fold higher odds of knowing about Coronavirus than people who hold senior high school education (Sulistyawati *et al*., 2021) [16]. In terms of education level and title, a higher education degree or higher title could predict HCPs' awareness of the HPV vaccine and a higher knowledge level of HPV and HPV vaccine (Chen *et al*., 2022) [4]. There was a significant association between self-medication and educational level. Lower-educated householders were more likely to self-medicate. Self-medication provides a lower-cost alternative for people who cannot afford the cost of clinical services (Foroutan & Foroutan, 2014) [6].

Occupation is associated with knowledge about DAGUSIBU with a p-value of 0.000. Psychologically, a worker's knowledge will be greatly influenced by the environment in which the work. That makes someone tend to learn quickly based on conditions that occur in their work environment. The result of the statistical calculation R2 value is 0.042 indicating that education and occupation have an influence of 4.2% on knowledge (Ekadipta *et al*., 2021) [5]. Among the demographic variables, education level, occupation, and area of residence (locality) were significantly associated with mean knowledge about hepatitis scores ($p < 0.05$) (Ul Haq *et al*., 2013) [17]. Different from the results in the United Kingdom and Nigeria, there were no significant differences between occupation groups in their total knowledge (Banwat *et al*., 2018; Pinchess *et al*., 2023) [3, 12].

There is a need for more patient awareness about the safe handling and storage of medicines at home. A high prevalence of self-medication was also noted among householders, especially those who were less well-educated. Doctors have to take into account that their patients are likely to keep several prescription medicines in their homes. These patients are potential providers to their friends and relatives of medicines that are potentially unsafe for self-medication. Better public knowledge and information about the risks of the reuse of prescription medications is needed (Foroutan & Foroutan, 2014) [6]. Because of the level of public knowledge about DAGUSIBU, the community needs to be given information about how to get, use, keep, and dispose of medicines to increase the knowledge and decrease the misuse of medicine.

Conclusion

The knowledge about how to get, use, keep, and dispose of medicine in the community at Madiun was intermediate (46.2%). The factors that influence the knowledge about the management of drugs were age (0.000<0.05), education (0.000<0.05), and occupation (0.011<0.05).

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