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Current Self-Medication Practices and Literacy among People in Yogyakarta Province, Indonesia: A Cross-Sectional Study

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ABSTRACT

In developing countries, self-medication is now becoming a common lifestyle as primary health care. Despite the benefits, the current challenges of inappropriate self-medication practices have potential risks for drug abuse and can lead to drug resistance. Therefore, the aim of this descriptive cross-sectional study was to assess the practice of self-medication related to public knowledge and health literacy in Yogyakarta Province. A convenience sampling was applied among 954 Yogyakarta residents who are eligible and consented to fulfil a validated questionnaire. Descriptive analysis was performed to determine knowledge and practice of self-medication, and a chi-square test was used for bivariate analysis ($p<0.05$). The majority of respondents are female (62.58%) with age more than 50 years old (32.91%), and have chronic diseases (38.26%). Moreover, 43.29% of respondents have a low educational background. The results showed predominantly of the respondents had poor knowledge (51.39%) and lack of medicine literacy (53.88%). It seems educational background and chronic medical conditions are associated with the poor practice of self-medication. In conclusion, respondents in Yogyakarta had low knowledge and health literacy level of self-medication and it performs a poor practice. Health education of self-medication should be considered to improve the appropriate practices, especially among individuals with chronic diseases.
Keywords: self-medication practice; knowledge; health literacy; Yogyakarta

INTRODUCTION

Self-medication presents an essential role in health care. Self-medication is a widespread practice regarded by the World Health Organization (WHO) as being part of self-care. It has a positive impact on individual health and the health care system (4). Self-medication in the context of minor illnesses often provides a low-cost, fast, and convenient solution. Despite that condition, irrational self-medication practice may increase health risks such as misdiagnosis, drug resistance, and interactions, delays in seeking medical advice, adverse drug reactions, and polypharmacy (7).

World Health Organization (WHO) affirms that self-medication must be correctly taught and controlled in order to avoid drug-related issues such as antimicrobial resistance which is now a current problem worldwide particularly in developing countries (19). Mostly in the less developed countries, Over-the-Counter (OTC) medicine are often used for self-medication which are available without a doctor's prescription through pharmacies (11).

Considering inadequate medical facilities, the free accessibility of OTC medicine, it is now becoming a very common circumstance in numerous countries around the world. Furthermore, self-medication is often driven by factors such as the shortage of time to visit a physician, long distance of hospitals and clinics from home, and finally, the unaffordable doctor's fees (18). Moreover, eradication of much information from online sources makes people courageous about treating their own illnesses.

With all of the evidence in developing countries, self-medication is a common practice as primary health care, but it is also emerging as a significant public health issue (7,9). In Indonesia, between 2021 and 2023, approximately 80% of the Indonesian population engaged in self-treatment, although the practice of self-medication was not explicitly depicted. Yogyakarta province also has a similar trend (10). Hence, it is crucial to document the current practice and its determinants that influence self-medication in this province in order to effectively plan future interventions. Therefore, this study aims to assess the practice of self-medication related to public knowledge and health literacy of self-medication in Yogyakarta Province.

METHODS

Study design and sample size : A descriptive, cross-sectional design was aimed to evaluate the knowledge and self-medication practices among the Yogyakarta population using a convenience sampling method for ease of accessibility and proximity to the researchers. Eligibility criteria required individuals who live in Yogyakarta, have experience in self medication, age more than 18 years, and voluntarily consented to join the study. We excluded respondents who failed in fulfilling the questionnaire. The study was conducted in the period of June to September 2023 in four districts and one municipality of Yogyakarta Province, Indonesia. This sample size was calculated according to an equation by keeping the population size as 20,000, power as 80%, response distribution as 50%, while the confidence interval and margin of error were set at 95% and 5%, respectively. With the help of Raosoft sample size calculator, our target sample size was 954 respondents (5).

$$n = \frac{\frac{z^2 x\, P\,(1-p)}{e^2}}{1 + \left(\frac{Z^2 x\, P\,(1-p)}{Ne^2}\right)}$$

n: sample size; N: population size; e: margin of error, p: distribution, z: z-score

Instrument : The instrument for this study is a comprehensive questionnaire which is divided into four sections: socio demographic, knowledge about self medication, self medication literacy, and self medication practice. An initial draft of the questionnaire was designed by the authors after an extensive literature review. This questionnaire was then subjected to content validity, for which it was sent to a panel of four subject experts who then screened the questionnaire for its relevance and significance. All the experts were academicians with teaching and/or research experience in social pharmacy. The corrections suggested by the panel were then incorporated into the questionnaire. The revised version was sent to a small group of 10 non-sample respondents for face validity, who gave their opinion on making the questionnaire easier to understand and brief. The reliability coefficient of the questionnaire was determined by Cronbach's alpha value of 0.825.

Data collection : The questionnaire was set to collect data on demographic information, knowledge, literacy, and practices of self-medication. Section demographic information consists of sex, age, education, household income, occupation, experience in self medication, and health symptoms. The data presented in frequency and percentage (Table I). Section 'knowledge about self medication' contains eight (8) questions. Respondents have to answer whether each question is correct or not. Question 1, 2, 3, 6, 7, and 8 have favourable responses and question 4 and 5 have unfavourable responses. We calculated final scores in percentage and summed up the total (Table II). Section self medication literacy has six (6) yes / no questions, with 5 favourable responses and one unfavourable response. We summed up their positive responses only and calculated them in frequency and percentage (Table III). Section self medication practices consist of 7 items. Respondents were asked to respond using a 5-point Likert scale ranging from strongly agree, disagree, neutral, agree, strongly agree. Six (6) items required unfavourable responses and one item required favourable response. We calculated the scores and measured the mean and standard deviation for each item (Table IV).

Data analysis : Data was entered into SPSS, version 20 for Windows. We analysed each section of the questionnaire. Descriptive analyses were carried out to express the results as frequencies and percentages in three sections : demographic information (Table I), knowledge about self medication (Table II), and self medication literacy (Table III). In addition, descriptive analyses also applied in section self medication literacy and presented in mean and standard deviation (Table IV). A chi-square test was performed to investigate the relationship between sociodemographic characteristics and the practice of self-medication. Multivariable logistic regression analyses were used to identify which factors can affect opting for self-medication (Table V).

Ethical consideration : This study was approved by the Ethical Committee of Medical and Health Research, UGM number KE/FK/0945/EC/2023. Each of the respondents consented to join the study by signing informed consent. We kept the respondent's personal data confidentiality.

RESULTS AND DISCUSSION

Results

Socio-demographic characteristic of studied participants

A total of 954 respondents of this study were involved. Around a half of the respondents were female (62.58%) in the middle age and older people (80.18%) with middle (44.13%) to low (43.29%) educational background. The most respondents were employed in private companies (41.72%) have middle to low household income (76.94%). Roughly, 38.26% of the respondents have chronic disease, half of the respondent have experienced in using OTC products last month (59.12%) with the common health symptoms which seek for self-medication were headache/fever (75.47%), and cold/cough (66.04%) (Table I).

Knowledge about self-medication

The respondents were thrown eight statements to assess their knowledge about self-medication, which is shown in Table II. The majority of the respondents followed the instructions given by the doctor or pharmacist when taking medication (76.73%). Approximately one-third of the respondents know that excessive use of paracetamol will cause liver damage (36.16%), and more than half of the respondents do not agree that storing ointments and syrup dosage forms in the refrigerator can extend the expiration date (64.15%). Most of the respondents agree that some medicines cannot be taken together with food (70.23%), but the least of respondents (33.54%) agree that some medicines should not be taken together with herbal medicines. Additionally, less than half of the respondents said that certain medicines or supplements can cause adverse drug reactions (42.03%).

Medication literacy

The findings of this study revealed that from the total of 954 respondents, slightly less than half (47.48%) read the printed information on the drug packaging before they took the medicine and almost 36.48% of surveyed participants are well-educated about the drug expiration date. The majority of the respondents understood about drug classification (71.28%), and more than a half of them consulted their symptoms to the pharmacists (59.54%) in order to seek OTC medicine. Furthermore, the literacy about one type of OTC brand for cough medicine was common for the respondent. There were around (70.23%) respondents who used this OTC for cough (Table III).

Medication practice

Self-medication practice of the respondents can be shown in Table IV with seven parameters using a five-likert scale method. The respondents were taking the drugs exceeding (3.78±1.36) and less than (3.21±1.08) dosage was recommended by the doctor/pharmacist. Average of the respondents reported that they read the drug's labels or instructions before they use the drug (2.34±1.72). Most of the respondents intend to share the drugs with other people who have similar symptoms (4.06±1.75), take medicine with advice from others (4.38± 1.48) and re-purchase the doctor's prescription when they get the same clinical symptoms (4.54±1.29).

Among all the respondents, only 24.89% of the respondents have good practice on self-medication, while 48.51% of the respondents have good knowledge, and 53.88 % of them have good literacy. Table V offers a visual representation of the factors that are associated with the inappropriate application of self-medication. Multivariable logistic regression analyses were used to identify which factors can affect opting for self-medication. The results showed that different education backgrounds (low versus high education background) (OR 1.62, CI 1.21-2.43) and medical health conditions of the respondents with chronic disease (OR 1.45, CI 1.11-1.80) had significant results ($p < 0.05$). Both of these factors have an impact on the respondents' knowledge, literacy, and practice of self-medication.

Discussion

Self-medication constitutes an important part of self-care, and the World Health Organization (WHO) defines self-care as the primary public health resource in the healthcare system (6,13). This study attempted to assess self-medication knowledge, literacy, and practice among the community

Table I. Characteristics of respondents (n = 954)

Characteristics	Category	n	%
Sex	Male	357	37.42
	Female	597	62.58
Age	18-30	189	19.81
	31-40	210	22.01
	41-50	241	25.26
	>50	314	32.91
Education	High	120	12.58
	Middle	421	44.13
	Low	413	43.29
Household income	High	220	23.06
	Middle	305	31.97
	Low	429	44.97
Occupation	Government employee	198	20.75
	Private company employee	398	41.72
	Unemployed	358	37.53
Chronic diseases	Yes	365	38.26
	No	589	61.74
Experience in using OTC products last month	Yes	564	59.12
	No	390	40.88
Health symptoms for self-medication	Headache/fever	720	75.47
	Cold/cough	630	66.04
	Stomach disorders	216	22.64
	Dysmenorrhea	185	19.39
	Arthritis pain	175	18.34
	Others	104	10.90

Table II. Knowledge about self-medication (n = 954)

Items	Correct (n)	%	Incorrect (n)	%
Generic drugs (example: paracetamol) are available with a different brand.	438	45.91	516	54.09
I follow the instructions given by the doctor or pharmacist when taking medication.	732	76.73	222	23.27
Excessive use of paracetamol will cause liver damage.	345	36.16	609	63.84
Vitamins that are consumed inappropriately will not cause negative effects on the body.	462	48.43	492	51.57
Storing ointments and syrup dosage forms in the refrigerator can extend the expiration date.	342	35.85	612	64.15
Some medicines cannot be taken together with food.	670	70.23	284	29.77
There are some medicines that should not be taken together with herbal medicines.	320	33.54	634	66.46
Certain medicines /supplements can cause adverse drug reactions.	401	42.03	553	57.97
Total		48.61		51.39

in Yogyakarta Province, Indonesia. According to our findings, half of the respondents have a good knowledge and literacy on self-medication, while the practice is poor.

The results showed among studied prevalence of self-medication on used OTC medicine within the last month is alarmingly high (59.12%) in Yogyakarta, Indonesia. Some higher rates of

Table III. Self-medication literacy (n = 954)

Items	Literate	%
Before you take medicine, do you read the information printed on the drug packaging?	453	47.48
Do you know what classification of the drug is?	680	71.28
When is the drug expiration date?	348	36.48
When you see a pharmacist, do you consult your symptoms?	568	59.54
If a five-year-old child has a fever, can he use the medicine?	365	38.26
If you have a cough, do you use the medicine?	670	70.23
		53.88

Table IV. Self-medication practice (n = 954)

Items*	Mean	SD
I take the drug that exceeds the dosage recommended by the doctor/pharmacist.	3.78	1.36
I take the drug less than the dosage recommended by the doctor/pharmacist.	3.21	1.08
I read drug labels or instructions before use	2.34	1.72
I share drugs with other people who have similar symptoms.	4.06	1.75
I use herbal medicine when I am undergoing treatment.	3.98	1.65
I take medicine with advice from others.	4.38	1.48
I refill the doctor's prescription when I get the same symptoms.	4.54	1.29
	3.75	1.31

Table V. Factors associated with poor practice of self-medication

		OR	CI
Sex	Male vs Female	1.21	0.93-1.45
Age	≤50 vs >50	1.11	0.92-1.39
Education	Low vs High	1.62*	1.21-2.43
Household income	Low vs High	1.22	0.78-1.63
Occupation	Unemployed vs Employed	1.09	0.68-1.34
Chronic diseases	Yes vs No	1.45*	1.11-1.80
Knowledge	Poor vs Good	2.89	1.35-3.24
Medicine literacy	Illiterate vs Literate	2.31	1.23-3.27

self-medication were reported in Iran (61.60%) (12), Vietnam (83.30%) (8), China (45.40%) (1), and Chile (75.00%) (8).

Majority of the respondent's health symptoms of headache/fever (75.47%) and cold/cough (66.04%) were the commonest illnesses for which self-medication was taken. The same finding in Ethiopia, a systematic review reported that fever/headache, gastro-intestinal tract diseases, and respiratory diseases were the highest practice for self-medication. Besides that fever and headache were indicated as the most frequent health complaints that led to self-medication in different studies (3). The most common types of diseases reported in Iran by patients who self-medicated were respiratory diseases, common cold, and headaches (2).

The right use, dose, time, and duration of every medication is a concern to elicit a beneficial response. The majority of the respondents in our study followed the instructions given by the doctor or pharmacist when taking medication (76.73%). Based on the survey results which indicate that common cold and headache are the most common symptoms leading to self-medication, this study assesses the knowledge of paracetamol and common cold combination medicine in the community. In our study, the respondent's awareness that excessive use of paracetamol will cause liver damage was alarmingly low (36.16%), but this is consistent with findings from other studies (6).

Respondents' knowledge about adverse drug reactions in this study is quite low (43.03%). A study in China showed that eighteen percent of respondents who self-medicated reported a self-perceived adverse drug reaction (13). Meanwhile, other findings showed that fear of adverse/side effects was the most frequent cause for not self-medicating among students in Egypt (9).

Self-medication literacy in this study was found that only slightly half of the respondents (47.48%) read the printed information on the drug packaging before they took the medicine. However, there were different findings in China; among the respondents, 79.50% had read the instructions (i.e., the 'directions for use of the over-the-counter medication') (13). Almost 36.48% of surveyed participants are well-educated with the drug expiration date and the majority of the respondents understood about the drug classification (71.28%). A community-based study in Iran reported that the importance of health literacy in self-medication was determined by the behaviours of people. The reasons for self-medication reported in previous studies may pertain to inadequate health literacy (12).

The survey results indicate that chronic illness (38.26%) has a significant impact on self-medication knowledge, literacy, and practice. People with chronic diseases regularly comply with prescribed treatment regimens. Concurrent use of their medications with OTC products can lead to drug interactions and potentially cause adverse effects, thereby exacerbating their health condition. A review highlighted a high proportion of people with hypertension who self-medicated. During their regular antihypertensive treatment, they used OTC medicine and complementary and alternative medicines (CAMs), which increased the risk of drug interactions (16). It can be more complex for the elderly population who self-medicate and have chronic disease (14,15). Therefore, pharmacists play an important role in providing information and education to raise awareness on self-medication among people with chronic disease.

CONCLUSION

Yogyakarta residents showed poor health literacy and knowledge about self-medication, which led to inadequate practices. It is even more problematic for those respondents who have chronic medical conditions who are affected by this condition. Henceforward, it is important to prioritise health education on self-medication for individuals with chronic diseases in order to enhance the appropriate practices.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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