Consumers' knowledge, attitude and practice of respiratory symptoms self-medication in community pharmacy during COVID-19 pandemic

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ABSTRACT

One of the impacts of contact restrictions during the COVID-19 pandemic is the increase in self-medication. This study aims to analyze the consumers' knowledge, attitudes, and practice in self-medication of respiratory system disorders at the community pharmacy in Surabaya during the COVID-19 pandemic. This study uses a quantitative survey method among 415 participants in 15 pharmacies in Surabaya. The KAP questionnaire as a research instrument was designed based on the Health Belief Model (HBM). In this study, 96.14% of participants had a high category of knowledge, 95.90% of participants had high attitudes, and 70.36% of participants had high practice. As many as 16.39% of participants answered that they had never done a swab examination if symptoms of respiratory tract disorders appeared or after close contact with COVID-19 sufferers. A total of 10.6% of participants answered never to take treatment for the initial symptoms and carry out intensive care if infected with COVID-19. A total of 9.64% of participants answered never to follow the health advice of a health care provider and seek medical care immediately if symptoms occur. The answer "never" to this parameter of alert symptoms in practice revealed a large percentage so the presence of pharmacists in the community to provide pharmaceutical care is very important.

Keywords: Knowledge attitude practice, Health belief model, COVID-19, Self-medication, Respiratory system disorders

Introduction

COVID-19 is a disease of the human respiratory system caused by a new type of coronavirus, where 'CO' stands for corona, 'VI' for the virus, and 'D' for disease. The COVID-19 virus is a new virus of the -coronavirus genus, the same genus as Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and several types of the common cold.

There are four generations of corona viruses, namely alpha-coronavirus, beta-coronavirus, gamma-coronavirus and delta-coronavirus. This disease has a very high prevalence so WHO declared it an international public health emergency on January 30, 2020, and on March 11, 2020, as a pandemic [1-5].

The positive cases of COVID-19 are increasing so fast and impact all circles of society. The high number of doctors and other medical personnel exposed to COVID-19 prompted IDI (Indonesian Doctors Association) to issue instructions to limit practice hours and recommendations not to practice for doctors and medical personnel who are not directly related to COVID-19. The Ministry of Health has also issued an appeal letter-number YR.03.03/III/III8/2020, the contents of which include, among other things, delaying elective services, developing remote services (telemedicine), or other online applications in providing services to patients and their families in need. The letter also contains that doctors, nurses, and other

health workers over 60 years old who have comorbidities should work at home by utilizing information technology (telemedicine) facilities [6, 7].

The doctors who reduce practice hours or do not practice at all also cause most people to look for information on various social media. They do it without knowing the truth. The increasing number of positive cases, the unavailability of drugs to treat COVID-19 infection, and the limited supply of COVID-19 vaccines caused confusion and public panic. So the number of self-medications in the community is increasing. People do self-medication without knowing the safety and effectiveness of the drugs they use [8-13].

Various studies have shown that self-medication is common practice with a prevalence of 32.5–81.5% worldwide. Limaye, *et al.* conducted a systematic review and meta-analysis of the implementation of self-medication in various countries. This study shows that countries in Europe have varying prevalence rates of self-medication. The Czech Republic 31%, Portugal and Lithuania 21% each, Romania 19.8%, and Spain 15.2%. The developing countries show much higher, namely India 79%, Pakistan 84%, Saudi Arabia 78%, and Nigeria 67% [8, 14].

Based on data from the Central Statistics Agency in 2019, the prevalence of self-medication in Indonesia shows a high number and is increasing every year. In 2017, the percentage of self-medication in Indonesia was 69.43%. In 2018, it was 70.74% and the increase in self-medication again occurred in 2019, which is 71.4%. Self-medication in East Java as one of the major provinces in Indonesia is also high in 2019, which is 71.04% [15].

Various studies related to sources of information and sources of medicines in self-medication have been carried out. Most studies show that the sources of information obtained in self-medication are pharmacists, friends or family, advertisements, successful use of previous medicines, and health brochures. Research also shows that the source of drugs is from pharmacies, drug stores, private hospitals, leftover drugs, and gifts from friends or relatives who do self-medication. For example, a study by Skliros (2010) showed that the largest source of drug acquisition in self-medication was the pharmacy (76.2%), then leftover medicine at home (15.3%) and from friends or relatives (7.2%) [16-18].

Based on the increasing prevalence of self-medication in the community, the amount of information about treatment that is not necessarily valid, the reduced operational time of health facilities during the COVID-19 pandemic, and pharmacies are one of the main places to obtain medicines as well as a means for pharmacists to provide pharmaceutical care in the community, it is necessary to conduct community-based research. This study was conducted to analyze the knowledge, attitudes, and practice of pharmacy consumers in self-medication of respiratory system disorders using the HBM (Health Belief Model) approach.

Materials and Methods

Study design
This research is a descriptive observational study, using quantitative methods with a cross-sectional research design and prospective data collection with the consecutive sampling method.

Study duration and location
This study analyzes survey data collected from pharmacy consumers with self-medication of respiratory system disorder during September 2021-October 2021. The data were collected from 15 pharmacies in Surabaya City and both of method of the google form survey method and hard copy questionnairewas adopted.

Participants
The consecutive sampling method was used to collect a sample of participants until the minimum number of samples was reached. Using the Lemeshow formula, it is estimated that a minimum of 385 consumers should be sampled to get a 95% confidence level, with a maximum allowable difference of 0.05 in detecting KAP for self-medication consumers during COVID-19.

The inclusion criteria for the participant in this survey were (1) consumers aged over 18 years, (2) consumers are willing to participate in research, (3) consumers can read, write and communicate well, (4) consumers who come in person or by telephone/WhatsApp intend to buy antibiotics/antiviruses/non-OWA drugs/OWA drugs/limited over-the-counter drugs for the prevention and or treatment of respiratory system disorders without a prescription (self-medication). The exclusion criteria were (1) consumers aged over 70 years, (2) consumers who buy medicines for respiratory disorders not for themselves.

Measures
A structured questionnaire on knowledge, attitudes, and practices about COVID-19 was prepared. The questionnaire was developed by the author in the local language and has been tested for validation and reliability tests previously. The questions were built based on Health Belief Model (HBM) which covers five concepts which are severity, susceptibility, perceived barrier, perceived benefit, and self-efficacy.

Knowledge about COVID-19, attitudes towards COVID-19, and practices against COVID-19 each consists of 6 questions about being aware of symptoms, transmission routes, promotive, preventive, and curative. The knowledge item was rated on a 4-point Likert scale ranging from 1 (false) to 4 (true). The attitude item was rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The

practice item was rated on a 4-point Likert scale ranging from 1 (never) to 4 (always).

The questionnaire developed by the authors was also designed to collect socio-demographic information from the participants including age, gender, marital status, work status, education level, monthly income, comorbidities, medication history, health worker status, COVID-19 vaccine status, survivor status, and people living together.

Data analysis

Data collected from the questionnaire were analyzed using statistics such as mean, standard deviation, frequency, percentage, and ratio. All questions were assessed individually using a scoring system based on Likert points. Each part is given a score and summed. Participants are considered to have a high category of knowledge, a high category of attitude, and a high category of practice if totaled 76% in each part.

Results and Discussion

In this study, 415 participants met the criteria and fill out the questionnaire completely. **Table 1** describes the socio-demographics of the participants. The mean age of the participants was 36.52 years (SD = 10.91) and most of them were women (73.49%, n = 305). The majority of our sample declared they never got COVID-19 previously (80.48%, n=334) and 335 (80.72%) participants have been vaccinated against COVID-19.

Based on the latest educational history, as many as 225 (36.87%) participants are graduates of an associate degree, bachelor, master, and doctor. A total of 167 (40.24%) participants are private employees and 66 (15.9%) participants are entrepreneurs. Based on monthly income, there are 121 (29.16%) participants with income above five million rupiahs. In this study, 148 (40.48%) participants lived with children under 18 years old, 58 (13.98%) participants lived with COVID-19 risk groups and 39 (9.4%) participants lived with children under 18 years old and groups at risk of COVID-19.

Table 1. Socio-demographics of participants

Variabel	Mean (SD)	Frekuensi (n=415)	Persentase (%)
Age	36,52 (10,91)		
Gender			
Male		110	26.51
Female		305	73.49
Marital status			
Single		110	26.51
Married		289	69.64
Divorced		16	3.86
Education Level			
Primary		11	2.65
Lower secondary		26	6.27
Upper secondary-Certificate		153	36.87
`		225	54.22
Work status			
Enterpreneur	66	15.9
Private employee	167	40.24
Civil service employee	7	1.69
Pharmacist	7	1.69
Pharmacy assistant	9	2.17
Doctor	1	0.24
Nurse	1	0.24
Physiotherapies	1	0.24
Tocologist	1	0.24
Teacher	12	2.89
Housecleaner	3	0.72
Housewife	107	25.78
Student	9	2.17
Unemployed	24	5.78
Monthly income (IDR)		
<500.000	8	1.93
500.000-1.000.000	28	6.75
1.000.001-2.500.000	91	21.93
2.500.001-5.000.000	100	24.1
>5.000.000	121	29.16
No income	67	16.14
Survivor status		
Yes	81	19.52
No	334	80.48
Vaccine status		
Already	335	80.72
Not yet	80	19.28
Comorbidities		
Yes	48	11.57
No	319	76.87
Unknown	48	11.57
Health worker		
Yes	72	17.35
No	343	82.65
People living together		
Alone	31	7.47
Children under 18 years old	148	40.48
Group at risk of COVID-19	58	13.98
Other	119	28.67
Children under 18 years old and group at risk of COVID-19	39	9.4

On the knowledge responses, the answers to the questionnaire using a four-point Likert Scale where 4 points are for true answers, 3 points for uncertain answers, 2 points for answers do not know, and 1 point for false answers. The percentage of the frequency of each questionnaire item on the knowledge can be seen in **Table 3**. Participants' answers to the questionnaire items numbered 2 and 4 indicated that none of the participants answered with the false choice. All questionnaire items indicate that the true answer has the largest response frequency, namely 89.88% (item number 1), 90.12% (item number 2), 88.43% (item number 3), 88.92% (item number 4), 88.43% (item number 5) and 91.81% (item number 6).

On the attitude responses, answers to the questionnaire use a five-point Likert Scale where 5 points for strongly agree, 4 points for agree answer, 3 points for somewhat disagree answers, 2 points for disagree answer, and 1 point for strongly disagree. The percentage of the frequency of each questionnaire item on the attitude can be seen in **Table 4**. Based on the table,

it is known that there are four questionnaire items (1, 2, 4, and 6) with a frequency of 0% for 'strongly disagree' answers. The frequency of 0% is also indicated in the 'disagree' answer for questionnaire item number 6.

In the practice responses, the answers to the questionnaire used a four-point Likert Scale where 4 points for always answers, 3 points for often answers, 2 points for sometimes answers, and 1 point for never answers. Based on **Table 5**, it is known that the percentage of frequencies for 'always' answers to each questionnaire item is 62.17% (number 1), 66.02% (number 2), 52.29% (number 3), 69.16% (number 4), 50.6% (number 5), and 79.76% (number 6). Question number 5 has a response frequency of 16.39% for 'never' answers.

The KAP category for each variable is divided into three, high, moderate, and low. Determination of category based on the sum of the Likert Scale on each variable per participant. All KAP questionnaire items are favorable so that for the knowledge variable, the maximum number of each participant is 24 (100%). For the attitude variable, the maximum number of each participant is 30 (100%). And for practice variables, the maximum number is 24 (100%) for each participant.

Based on our result **(Table 2)**, from 415 participants, the majority of participants (n=399, 96.14%) had a high category of knowledge, 398 (95.90%) participants had a high category of attitude, and 292 (70.36%) participants had a high category of practice. There are 45 (10.84%) participants who had a low category of practice.

Table 2. The categories of knowledge, attitude, and practice responses

Variable	n	%
Knowledge % (category)		
76-100 (high)	399	96,14
60-75 (moderate)	8	1,93
<60 (low)	8	1,93
Attitude % (category)		
76-100 (high)	398	95,90
60-75 (moderate)	15	3,61
<60 (low)	2	0,48
Practice % (category)		
76-100 (high)	292	70,36
60-75 (moderate)	78	18,80
<60 (low)	45	10,84

Table 3. Responses of knowledge items

No	Item	Frequency (%)				Ratio
		True	Uncertain	Do not know	False	
	Perceive benefit					
1	There is currently no effective treatment for COVID-19. but overcoming symptoms and intensive care can help people with COVID-19 recover.	373 (89.88)	18 (4.34)	21 (5.06)	3 (0.72)	124 : 6 : 7 : 1
2	Data on COVID-19 treatment is still limited. so the use of drugs in treating COVID-19 should be monitored by competent health workers.	374 (90.12)	17 (4.1)	24 (5.78)	0	220 : 10 : 15 : 0
	Perceive barrier					
3	Avoiding touching your nose. mouth. and eyes is one of the ways to prevent COVID-19 infection.	367 (88.43)	28 (6.75)	16 (3.86)	4 (0.96)	92 : 7 : 4 : 1
	Self-efficacy					
4	OTG (people without symptoms) can also be a source of transmission of COVID-19.	369 (88.92)	26 (6.27)	20 (4.82)	0	190 : 13 : 10 : 0
5	People who are confirmed positive for COVID-19 and are at risk of infecting others but have no symptoms are called OTG.	367 (88.43)	22 (5.3)	22 (5.3)	4 (0.96)	92 : 6 : 6 : 1
6	Obeying all government recommendations in terms of health protocols is an effort to break the chain of the spread of COVID-19.	381 (91.81)	27 (6.51)	6 (1.45)	1 (0.24)	381 : 27 : 6 : 1

Table 4. Responses of attitude items

No	Item	Frequency (%)					Ratio
		Strongly agree	Agree	Somewhat disagree	Disagree	Strongly disagree	
	Perceive severity						
1	I have to check myself to see if I have COVID-19 if I have a serious respiratory problem.	207 (49.88)	188 (45.3)	17 (4.1)	3 (0.72)	0	69 : 63 : 6 : 1 : 0
2	I believe that self-isolation when exposed to COVID-19 or after close contact with people with COVID-19, can minimize the transmission of COVID-19.	248 (59.76)	154 (37.11)	11 (2.65)	2 (0.48)	0	124 : 77 : 6 : 1 : 0

Perceive benefit

No							
3	I realize that there is currently no effective treatment for COVID-19, but with early treatment and intensive care, COVID-19 can be cured.	228 (54.94)	167 (40.24)	15 (3.61)	4 (0.96)	1 (0.24)	228 : 167 :15 : 4 : 1
4	I know that COVID-19 can be fought with a good immune system.	267 (64.34)	140 (33.73)	7 (1.69)	1 (0.24)	0	267 : 140 : 7 : 1 : 0
5	I know that the data on COVID-19 treatment is still limited so the treatment of COVID-19 should be monitored by competent health workers.	221 (53.25)	177 (42.65)	12 (2.89)	4 (0.96)	1 (0.24)	221 : 177 : 12 : 4 : 1

Self-efficacy

6	I realize the importance of taking preventive measures such as adopting a healthy lifestyle, taking supplements that aim to help the body's immune system and reduce symptoms caused by COVID-19.	248 (59.76)	158 (38.07)	9 (2.17)	0	0	28 : 18 : 1 : 0 : 0

Table 5. Responses of practice items

No	Item	Frequency (%)				Ratio
		Always	**often**	**Sometimes**	**Never**	
	Perceive susceptibility					
1	I follow the health advice of a health care provider and seek medical care immediately if symptoms occur.	258 (62.17)	61 (14.7)	56 (13.49)	40 (9.64)	65 : 15 : 14 : 10
2	I follow the advice of health workers to maintain a healthy lifestyle by eating foods that contain a variety of nutrients to meet the nutritional needs of the body so that the body's immunity is well maintained.	274 (66.02)	95 (22.89)	44 (10.6)	2 (0.48)	137 : 48 : 22 : 1
	Perceive severity					
3	I ask other people to keep their distance from me.	217 (52.29)	103 (24,82)	66 (15,9)	29 (6,99)	75 : 36 : 23 : 10
	Perceive benefit					
4	I take treatment for the initial symptoms that arise and carry out intensive care if infected with COVID-19.	287 (69.16)	63 (15.18)	21 (5.06)	44 (10.6)	137 : 30 : 10 : 21
	Perceive barrier					
5	I perform a swab examination if symptoms of respiratory tract problems appear or after close contact with a COVID-19 patient.	210 (50.6)	85 (20.48)	52 (12.53)	68 (16.39)	40 : 16 : 10 : 13
	Self-efficacy					
6	I comply with all government recommendations to carry out health protocols properly in the hope that it can help break the chain of the spread of COVID-19.	331 (79.76)	63 (15.18)	18 (4.34)	3 (0.72)	110 : 21 : 6 : 1

This research has an advantage over the previous KAP survey. In this study, the subjects were very specific, namely consumers of self-medication for respiratory system disorders as participants. Of course, it gives hope that the results of this study will provide important information considering that COVID-19 is included in the respiratory system disorder.

Based on our result **(Table 2)**, the majority of participants (96.14%) in this study had the high category of knowledge. This is different from the KAP study in Iran where the majority of participants had a moderate category of knowledge about the disease (46.5% for Knowledge Test A and 56.2% for Knowledge Test B). The KAP study in Iran was significantly influenced by age, gender, marital status, and education level. In this study, the relationship between participant demographic factors and knowledge was not seen. However, there are interesting things that can be seen based on the demographic percentage of participants. As many as 54.22% of participants were graduates of the Associate degree, Bachelor, Master, Doctor and 36.87% of participants were graduates of Upper secondary - Certificate. In contrast to the research in Iran, 75.1% of the participants were academic graduates and 17.5% were diploma graduates. In this study, the percentage of participants' education level which is equivalent to that of participants in Iran is lower, but the majority of participants had a high level of knowledge. It means other factors affect individual knowledge. Notoatmodjo (2017) illustrates the

process of behavior formation in the picture of the determinants of human behavior on page 194. It shows that experiences, beliefs, environment, and socio-culture affect knowledge, perceptions, attitudes, motivations, and intentions of individuals to produce behavior. According to Marathe, knowledge is obtained from education and experience. The high incidence of COVID-19 in Indonesia in July reached 3,287,727 confirmed cases with 47,791 new cases and the death rate due to COVID-19 reaching 88,659 deaths with 1824 new deaths before this research data was taken, was an experience for participants. This encouraged participants to have knowledge related to disease, disease progression, and the necessary actions for themselves to control the disease [19-22].

The participant's answer 'never' on the practice responses with the symptom alert parameter shows a large percentage compared to other questionnaire items **(Table 5)**. As many as 16.39% of participants answered that they had never done a swab examination if symptoms of respiratory tract disorders appeared or after close contact with COVID-19 sufferers. A total of 10.6% of participants answered never to the questionnaire item "I take treatment for the initial symptoms that arise and carry out intensive care if infected with COVID-19". A total of 9.64% of participants answered never to the questionnaire item "I follow the health advice of a health care provider and seek medical care immediately if symptoms occur". The percentage showed that there were still many

participants who were still minimal in being aware of symptoms. Elimination of COVID-19 is a world priority, because the risk of disease will increase mortality if no control of the spread of the virus is carried out. It is a concern, especially as pharmacists in the community provide education so that people can be more aware of early symptoms and it helps to reduce the spread of COVID-19. The results of this study indicate a global need to build better public health and preparedness to combat future pandemics. This unprecedented public health crisis acted as a major stimulus for increasing preventive medicine. The importance of the pharmacist's role is also stated in the guidelines issued by the FIP including educating the public on infection control and preventive measures to reduce transmission of COVID-19 [9, 23-29].

Conclusion

Overall, 96.14% of participants have high category knowledge, 95.90% of participants have high attitude categories, and 70.36% of participants show high category practices. The answer "never" to the parameter of alert symptoms in practice revealed a large percentage so the presence of pharmacists in the community to provide pharmaceutical care is very important.

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