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RESEARCH ARTICLE

The association between knowledge level and common cold self-medication behaviour among students of non-health faculty

Devi Ristian Octavia [1], Pinasti Utami [2], Fitriana Yuliastuti [3]

[1] Health Science Faculty, Universitas Muhammadiyah Lamongan, Lamongan, East Java, Indonesia
[2] Health Science Faculty, Universitas Muhammadiyah Yogyakarta, Bantul, Yogyakarta, Indonesia
[3] Health Science Faculty, Universitas Muhammadiyah Magelang, Magelang, Central Java, Indonesia

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Correspondence
Devi Ristian Octavia
Health Science Faculty
Universitas Muhammadiyah Lamongan
Lamongan, East Java
Indonesia
devioctavia1987@gmail.com

Abstract

Background: Self-medication is common among students all over the world. The most common reasons for self-medication were prior illness experience, non-seriousness of the illness, and drug availability. About 72.44% Indonesians of practice self-medication. Adequate knowledge sharing on drug usage would ensure appropriate and rational treatment. **Objective**: To determine the relationship between the level of knowledge of non-health faculty students about the common cold and the habit of self-medication during its treatment. **Method**: This is an observational study using a descriptive cross-sectional research design. The participants in this study were non-health faculty students from the Muhammadiyah University of Magelang and Lamongan, Indonesia who met the inclusion criteria. Knowledge level and behaviour level questionnaires were used. The Spearman Rank correlation test was used to analyse the data. **Result**: About 69.2% and 64.9% of the respondents had good knowledge, and behaviour respectively in the case of common cold self-medication. The Spearman Rank test analysis indicated a correlation between respondents' knowledge and behaviour towards common cold self-medication. Meanwhile, the strength correlation indicated a weak relationship. **Conclusion**: Other factors could influence the self-medication habit besides knowledge status.

Introduction

The common cold is the most common, albeit mild, human disease. The most common causative agents are human rhinoviruses, but other viruses are also involved (Pappas, 2018). They are so common that viral colds have a significant impact on public health and quality of life, and they can also be fatal for vulnerable groups of patients (Passioti *et al*., 2014). According to the WHO (2020), the common cold mostly occurred in the United States from April to September 2020 in temperate climate areas. According to the findings of the 2018 Basic Health Research (*Riskesdas*), the prevalence of the common cold in Indonesia was approximately 25.0%, with 13.8% of the cases being diagnosed by a doctor. The total number of cases was 1,017,290 (Asrianto *et al*., 2022). Acute upper respiratory tract infections affect both adults and children, but there are only a few safe and effective treatments available. Therefore, people usually attempt self-medication to alleviate the common cold symptoms (DeGeorge *et al*., 2019).

Self-medication is common in many countries for a variety of reasons, including the prevention of simple diseases and symptoms, the prompt delivery of treatment, and lower costs for examinations by doctors (Ramadan, 2022). People self-medicate every day as a form of self-care for their health. Various studies in India have shown that more than half of the adolescent population self-medicates daily (Mathias *et al*., 2020). Although appropriate self-medication reduces acute symptoms, saves time, and is cost-effective, it also increases the risk of adverse drug reactions, resistance,

and disease masking (Khadka & Kafle, 2020). Self-medication can be extremely dangerous, especially when done irresponsibly (Octavia *et al*., 2019). Self-medication is typically used to treat common complaints and minor ailments such as fever, pain, dizziness, cough, influenza, stomach ulcers, worms, diarrhoea, skin diseases, and others (Harahap & Tanuwijaya, 2017).

Self-medication is common among students all over the world (Behzadifar *et al*., 2020). It was practised by 89.6% of people (Abdi *et al*., 2018). The most common reasons for self-medication were prior illness experiences, non-seriousness of the illness, and drug availability (Abdi *et al*., 2018). Common cold medications, analgesics, and antibiotics were among the most commonly used medications (Abdi *et al*., 2018). Students in medical and nonmedical disciplines at universities may have varying levels of health education (Alshogran *et al*., 2018). The prevalence of self-medication among university students is high, indicating a health issue that requires attention (Helal & Abou-ElWafa, 2017).

Regarding the common cold, there is no need to visit a medical facility if it is self-limiting and the afflicted person has good general health and no underlying primary illness (Tsutsumi *et al*., 2017). Despite its minor and transient nature, the common cold contributes to a high disease burden in the general population (Kloosterboer *et al*., 2015). People and students in Saudi Arabia and developing countries can easily buy over-the-counter (OTC) drugs due to malpractices among pharmacy dispensers *(*Alshahran*i et al*., 2019).

Many drug-related problems persist in the community due to the lack of knowledge about the rational use of drugs (Octavia *et al*., 2022). Knowledge is an important domain for developing human actions (over behaviour). Self-medication knowledge is linked to self-medication practice (Octavia *et al*., 2019). In addition to not providing optimal results, improper selection of common cold medications will increase treatment costs. According to previous research, the common problems associated with self-medication for common cold cases are the inability to self-diagnose the common cold (1.3%), lack of knowledge of the main causes of the common cold (88.8%), lack of adequate knowledge of the symptoms of the common cold (3.8%), and failure to differentiate between the symptoms of the common cold from those of other closely related respiratory tract diseases (95.6%). (Handayani, 2015). This implies that the knowledge of proper medications for the common cold remains low.

In Indonesia, there are still frequent issues, such as how to select common cold medications. Most people believe that all common cold medications are the same, and they frequently use antibiotics to treat the common cold (BPOM, 2015). One study in Indonesia was conducted by Damayanti (2017), who found that 93.9% of health students had high knowledge of self-medication, 6.1% had moderate knowledge, and no students had low knowledge. Among non-health students, 7.5% had high knowledge, 8.69% had moderate knowledge, and 83.8% had low knowledge when it came to self-medication. This study was conducted to determine the relationship between the level of knowledge of non-health faculty students about the common cold and the habit of self-medication during its treatment.

Methods

Design

This is an observational descriptive cross-sectional research design study. Probability and systematic random sampling techniques were used. The data was analysed using the Spearman rank correlation test. The population studied were the non-health faculty students at the Muhammadiyah University of Magelang and Muhammadiyah University of Lamongan between October 2021 and March 2022. The samples consisted of 122 non-health faculty students who met the inclusion criteria; students between the ages of 18 and 24 students who had histories of the common cold disease; those who practised or were currently practising common cold self-medication and were willing to participate in research as evidenced by informed consent. The independent research variable in this study is the level of knowledge of respondents, and the dependent variable is the self-medication behaviour.

Assessment

In this study, a knowledge-level questionnaire and a behavioural-level questionnaire were used. The information was then edited, coded, tabulated, and scored. There were three levels of knowledge: good (76-100%), fair (56-75%), and poor (≤55%). This study passed the ethical feasibility test and was declared ethically worthy by letter number 212/EC/KEPK-S2/06/2022.

Results

Table I provides information about the respondents. More than half of the respondents in this study (77.05%) were female. Almost half of the respondents (31.15%) were under the age of 20, and nearly all

(75.41%) lived at home with their parents. The respondents for this study came from the faculties of Economics and Business and Science and Technology Education. The results of the level of knowledge of respondents (Table II) revealed that the majority of the respondents, 69.2%, had good knowledge about common cold self-medication, and 64.9% had good behaviour towards common cold self-medication. The data analysis showed that the Spearman rank test results indicated a *p*-value of 0.044, a significant correlation between the knowledge and self-medication behaviour of respondents for the common cold. The obtained correlation coefficient value was 0.226, which indicated a weak relationship.

Table I: Characteristic respondent

Variables	Sub-variables	Frequency	Percentage (%)
Gender	Female	94	77.1
	Male	28	22.9
Age (year)	17	4	3.3
	18	11	9.0
	19	32	26.2
	20	38	31.1
	21	24	19.7
	22	9	7.4
	23	4	3.3
Domicile status	Boarding house	22	18.0
	Living with parents	92	75.4
	Own house	7	5.7
Faculty of origin	Business Economics	44	36.0
	Science and Technology Education	78	63.9

Table II: Knowledge and behaviour of common cold self-medication

Variable	Frequency (%)			Correlation coefficient	
	Good	Fair	Poor	*r*	*p*
Knowledge	69.2	40.30	0.0	0.226	0.044
Behaviour	64.9	26.52	8.57		

As observed in (Table III), the highest percentage of respondents who gave correct answers for an indicator is about nasal lozenges or decongestants used to treat nasal congestion, with 98.8%.

Meanwhile, 77.4% of respondents did not know that the common cold was accompanied by a fever >38.5°C. Furthermore, nearly all respondents (82.35%) were unaware that consuming vitamin c can help relieve the common cold. In the indicators of drug use rules, drug side effects, and drug stability, a small number of respondents were unaware of drug dosing rules.

The results of respondent behaviour measurement (Table IV) revealed that the indicators of “dose accuracy” and “interval of drug administration” had relatively high percentages of correct answers for respondents (i.e. 98.8% and 93.8%).

Meanwhile, on the indicators for “drug indications”, almost all of the respondents (41.8%) did not pay attention to the content of the most commonly used cold medications. According to the correct indicator of drug use rules, only 3.31% of respondents did use the information on the drug packaging as a source of information to treat the common cold.

Table III: Distribution of respondent answers on common cold self-medication knowledge indicators

Indicator	Answer frequency	
	True (%)	False (%)
Common cold disease general information		
The common cold (runny nose, cough) is an upper respiratory disorder.	98.1	1.9
Common cold symptoms and causes		
The common cold can be characterised by a sore throat.	96.4	3.6
The common cold can be characterised by mucus in the nose and sneezing.	98.8	1.3
The common cold is accompanied by a fever >38.50°C.	22.6	77.4
Most common colds are caused by viruses.	95.1	4.9
Changes in weather cannot cause the common cold.	53.6	46.4
Transmission of the common cold can be through direct contact with sufferers.	93.2	6.8
Pharmacological and nonpharmacological therapy		
Nasal lozenges or decongestants are used to treat nasal congestion.	98.8	1.3
Common cold medicines are antibiotics.	29.7	70.3
Taking vitamin c can relieve the common cold.	17.6	82.4
Drinking lots of water can reduce the common cold.	91.5	8.5
Knowing the rules for using drugs, drug side effects, and drug stability		
The time limit for using common cold drugs is less than four months.	83.5	16.5
If you forget to take your medicine, you can take two doses at once.	73.7	26.3
Drug indication is the use of a drug.	96.3	3.7
Contraindications for drugs are conditions that do not allow a drug to be used by someone.	96.9	3.1
A drug side effect is an unwanted and dangerous reaction caused by a medication.	93.7	6.3
Common cold medicine has a side effect of drowsiness.	90.9	9.1
If the drug has exceeded the expiration date, it should not be taken.	99.4	0.6
If the tablet has changed colour, the drug can still be taken.	82.7	17.3
Average	**80.1**	**19.9**

Table IV: Distribution of respondent answers on common cold self-medication behaviour indicators

Indicator	Answer frequency	
	True (%)	False (%)
Exact drug indication		
I conclude that a common cold occurs when symptoms of sneezing and nasal congestion occur.	93.9	6.1
I did not pay attention to the content of the common cold medicine used.	58.2	41.8
Correct rules for using drugs		
I do not use the information on the drug packaging as a source of information to treat the common cold.	66.9	33.1
Before taking the common cold medicine, I read the instructions for use and the warnings.	97.5	2.5
Right dosage		
Before taking medicine, I read the rules of use (drug dosage) first.	98.8	1.2
Appropriate interval of drug administration		
Before taking the medicine, I read the interval of taking the medicine.	93.8	6.2
Right time of administration		
If the symptoms of the common cold do not go away in more than 3 days, then I go to the doctor.	87.8	12.2
Drug side effects		
When I travel long distances, I have a common cold and still take medication.	13.3	86.7
Right follow up		
If I do not understand how to use the drug, I ask the pharmacist.	98.2	1.8
Average	**80.7**	**19.3**

Discussion

Self-medication, typically with OTC medication, has been identified as a community health issue affecting millions of people worldwide. The majority of self-medication begins during adolescence (Al-Bashtawy *et al*., 2015). Self-medication is common among university students, indicating a health issue that needs to be addressed (Helal & Abou-ElWafa, 2017). Self-medication is very common among non-healthcare university students. The incidence of self-medication in the community is reported to be up to 89.6%. It was also reported by Abdi *et al*. (2018) that cold medicine is one of the most widely used drugs for self-medication. Students have adequate knowledge of the benefits and risks of the practice, as well as an understanding of when to seek medical advice. More efforts, however, are needed to raise student awareness of responsible self-medication (Sharif & Syarif, 2014).

Inappropriate self-medication not only burdens the patient but also results in negative health outcomes such as drug resistance, side effects, drug interactions, and even death (Rashid, 2019). Misdiagnosis, delaying medical advice, rare but severe adverse reactions, dangerous drug interactions, incorrect route of administration, incorrect dosage, incorrect therapy selection, masking of severe illness, and the risk of dependence or addiction are all potential risks of self-medication abuse (Ruiz, 2010).

This study revealed that the levels of knowledge and behaviour of respondents were mostly in the "good" category. Age, gender, income, expenditure, self-care orientation, education level, medical knowledge, satisfaction, and perception of illnesses all have tendencies to influence self-medication patterns in different populations. The type and extent of self-medication, as well as the reasons for its use, may differ from country to country (Ayalew, 2017). More than half of the respondents in this study were female, 77.1%. Today, most people have easier access to medicines than before, which can be dangerous for health, especially if poor-quality and inadequate medications are used. Moreover, Behzadifar *et al*. (2020) found that the prevalence of self-medication was higher in women than in men. This could be because women may use medications to prevent the onset of illness. Female folks use more medicines because of menstruation pain and gynaecological problems and consult physicians more often (Chen *et al*., 2018).

In determining the respondents' knowledge of about self-medication to treat the common cold (Table III), it became clear that almost all respondents gave the correct answer. The respondents already knew the symptoms of the common cold, one of which is mucus discharge from the nose accompanied by sneezing (Gómez *et al*., 2018). Recognising the symptoms correctly is important in self-medication practice. It allows the patient to determine the rational use of drugs (Octavia *et al*., 2019). In terms of pharmacological and nonpharmacological therapy for self-medication of the common cold, 82.4% of respondents were unaware that consuming vitamin C could alleviate symptoms. The common cold causes significant morbidity all over the world, and there are no effective treatments. Consuming vitamin C during a cold episode is thought to help reduce the duration and severity of symptoms (Quidel *et al*., 2018).

Furthermore, as an indicator for rational self-medication use in pharmacological and nonpharmacological therapy, the majority of respondents were unaware of the use of antibiotics for the common cold. Antibiotics are unnecessary for self-limiting diseases or minor illnesses that heal on their own, such as the flu, cough, or fever. According to Ivoryanto *et al*. (2017), microbial resistance is caused by the irrational use of antibiotics in society.

When the behaviour of non-health students in practising common cold self-medication was evaluated (Table IV), it was discovered that almost all respondents had good behaviour in common cold self-medication, with 80.7%. According to the WHO, drug use is rational if the patient receives the right drug for clinical needs, with the appropriate dose required in a sufficient time and at an affordable cost for both individuals and society (Octavia *et al*., 2019). The findings of this study also support the findings of a previous study report by Mirza & Ganguly (2016), where it was found that 30% of prescribed medications were not taken as prescribed. In Rohtak, India, 59.0% of housewives did not follow the prescribed instructions regarding dose, frequency of administration, and duration of treatment. This could be due to inadequate communication between health professionals and patients, which often results in the accumulation of unused medications at home (Mirza & Ganguly, 2016). To avoid overdose, as well as drug ineffectiveness due to underdose, the doses must be taken exactly as prescribed (Ilmi *et al*., 2021).

Data analysis revealed a significant correlation between respondent knowledge of the common cold and self-medication behaviour for the common cold. The obtained correlation coefficient value was 0.226, indicating a weak relationship. The results of this study are different from the report of Laili *et al*. (2021), where there was a relationship between the level of knowledge and the behaviour of self-medication of the common cold. The level of knowledge about self-medication is directly related to self-medication practices (Alves *et al*., 2021). Self-medication can be a

health risk due to a lack of drug knowledge, which can influence the behaviour of a person. Mittal *et al*. (2018) found that individuals who practised self-medication had stronger beliefs about the benefits of medicines and weaker beliefs in viewing medicines as harmful and overused. Knowledge is one of the factors that can influence the actions of a person. Knowledge-based behaviour will be more consistent than non-knowledge-based behaviour (Notoatmodjo, 2012). As a result, a higher level of knowledge for respondents means better self-medication behaviour, and conversely, a lower level of knowledge for respondents means worse self-medication behaviour.

The findings in this study were that there was a significant relationship between knowledge and self-medication behaviour for the common cold in nonmedical students, but the relationship found was relatively weak. This is because other factors influence a person's self-medication. Studies suggest that self-medication is influenced by many factors, such as education, family, society, law, availability of drugs, exposure to advertisements and others (De Sanctis *et al*., 2020). Individuals are not always responsible regarding how they practice self-medication and often do not have adequate ability to deal with the symptoms caused by their self-medication (Lee *et al*., 2017).

Conclusion

There was a significant correlation between respondent knowledge of the common cold and self-medication behaviour for the common cold. The obtained correlation coefficient value was 0.226, indicating a weak relationship. Other factors affect a person's self-medication besides knowledge, such as education, family, society, law, availability of drugs, exposure to advertisements and others. Individuals are not always responsible for how they practice their self-medication and often do not have sufficient ability to cope with the symptoms caused by their self-medication.

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