**PUBLIC KNOWLEDGE AND PRACTICES OF SELF-MEDICATION IN NGAGLIK DISTRICT OF SLEMAN REGENCY**

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**Abstracts:**

**Background**: Self-medication is the use of medicines without a prescription or health professional advice. Over-the-counter (OTC) medicines are the most commonly used in self-medication. Knowledge and practices of self-medication is important to be assessed to assure the appropriate use of medicines.

**Objective**: To investigate public knowledge and practices of self-medication in Ngaglik District of Sleman Regency.

**Methods**: A Cross-sectional survey was conducted in 3 villages in Ngaglik District of Sleman Regency. A total of 339 participants were selected through cluster sampling. Data were collected using a self-administered questionnaire. Descriptive analysis and chi-square test were used to analyze the data.

**Results**: The majority of participants were female (61.7%) aged between 26-45 years (49.9%). More than fifty percent participants (59%) attended senior high school education, and 49.9% participants had good knowledge of OTC self-medication. The level of knowledge of self-medication was significantly associated with the level of education (p values<0.05). The most commonly used OTC medicines for self-medication were analgesics and antipyretics (48.4%), respiratory drugs (29.7%), and gastrointestinal drugs (9.6%). OTC medicine advertisement was the common source of information about medicines for self-medication (39.5%) whereas the source of information from health professional accounted for only 2.4%.

**Conclusion**: The public knowledge of self-medication still needs improving. Health professionals, especially pharmacists, should provide more information on OTC medicines for public to allow them to access other sources than medicine advertisements.

**Keywords:** knowledge, self-medication, Sleman Regency

**Abstrak:**

**Latar belakang:** Pengobatan sendiri atau swamedikasi adalah penggunaan obat tanpa resep dokter. Golongan obat bebas dan bebas terbatas merupakan obat yang paling sering digunakan untuk swamedikasi. Pengukuran pengetahuan masyarakat tentang swamedikasi penting dilakukan untuk menjamin penggunaan obat yang tepat.

**Tujuan**: Untuk Mengetahui tingkat pengetahuan dan perilaku masyarakat tentang swamedikasi di Kecamatan Ngaglik, Kabupaten Sleman.

Metode: Penelitian cross-sectional dilakukan di 3 desa di Kecamatan Ngaglik, Kabupaten Sleman. Jumlah responden sebanyak 339 yang dipilih menggunakan metode cluster sampling. Data diperoleh dari pembagian kuesioner yang telah tervalidasi kepada responden. Analisis data menggunakan analisis despriktif dan uji *chi-square*.

**Hasil**: Mayoritas peserta adalah perempuan (61,7%) dan berusia 26-45 tahun (49,9%). Lebih dari lima puluh persen responden (59%) berpendidikan SMA. Persentase responden yang memiliki tingkat pengetahuan baik tentang swamedikasi (49,9%). Pengetahuan tentang swamedikasi berhubungan dengan tingkat pendidikan (p<0,005). Obat yang sering digunakan untuk swamedikasi adalah analgetik dan antipiretik (48,4%), obat saluran pernafasan (29,7%), and obat pencernaan (9,6%). Responden paling banyak mendapatkan informasi tentang obat untuk swamedikasi dari iklan obat, sedangkan yang mendapatkan informasi dari tenaga kesehatan hanya 2,4%.

**Kesimpulan:** Pengetahuan masyarakat tentang swamedikasi masih perlu ditingkatkan. Tenaga kesehatan, terutama apoteker, harus lebih pro-aktif memberikan informasi kepada masyarakat terkait obat-obat yang digunakan oleh masyarakat.

**Introduction**

Self-medication is one of the self-care practices using non-prescription medicines commonly practiced by the public as an effort to maintain their health. Basic health research of 2013 showed that 35.2% households in Indonesia kept medicines at home for self-medication.(1) Meanwhile, 85% of them did not have appropriate knowledge of generic medicines. Based on Widayati’s research in 2011, 44% people in Yogyakarta Special Province practiced self-medication for some reasons, such as previous successful self-medication, minor illness perception, time saving, and money saving.(2) Self-medication is defined as the selection and use of medicines by individuals to treat self-recognized diseases or symptoms without prior medical consultation.(3) Some people choose self-medication by seeking OTC (Over The Counter) medicines to relieve symptoms.(4)

Self-medication requires a certain level of knowledge of medicines since it carries the risks of socioeconomic and individual health status. Self-medication may result in adverse drug events that require medical intervention.(5) There were 1.3% people experiencing adverse drug events while practicing self-medication, and three out of four were reported as severe.(6) Inappropriate self-medication can increase the risk of drug misuse and delay in obtaining medical intervention due to the masking of some symptoms.(7) Self-medication has an association with levels of education. Lacking knowledge of self-medication can lead to inappropriate self-medication that harms an individual’s health status.(8) The research about community knowledge on drug storage and disposal is limited, especially in Indonesia, so that we conducted the study about self-medication, include how to get, how to use, the storage, and the disposal of medicines. The objective of this study was to investigate the public knowledge and practices of self-medication in Ngaglik District of Sleman Regency.

**Materials and Methods**

*Study design*

A cross-sectional study was conducted in 3 villages in Ngaglik District of Sleman Regency. This study was approved by the Medical and Health Research Ethics Committee (MHREC) of the Faculty of Medicine Gadjah Mada University (KE/FK/0641/EC/2018).

*Sample size*

A total of 339 participants were selected using the clustered random sampling method. The inclusion criteria were individuals aged 18-65 years old who agreed to fill out the inform consent and have used OTC medicines for a minimum of one month. Healthcare professionals were excluded from the study. The participants became the representative of each household visited by the researcher.

*Study setting*

A structured questionnaire was developed upon completing the literature review, consisting of three sections of sociodemographic characteristics, OTC self-medication knowledge, and self-medication practices. The knowledge section contained 4 domains, including how to get, how to use, the storage, and the disposal of medicines. In addition, the self-medication behavior questions included the most commonly used medicines for self-medication and the source of information about OTC medicines. Content validity was done to ensure the questionnaire validity. The questionnaire was also distributed to 30 respondents who met the inclusion criteria for a pilot study to confirm the validity and reliability. Some of the wording was modified in a number of questions to achieve high consistency and reliability (Cronbach’s alpha = 0.84).

The data were collected through a self-administered questionnaire. Only one person could be the participant from each household. The aims of this study and confidentiality were explained to the participants, and they should fill out the questionnaire on the spot accompanied by the researcher or facilitator.

*Data analysis*

A descriptive analysis and chi-square test were performed to analyze the data. The knowledge questions had two responses (“yes“ and “no“). Each response was scored for data analysis where score 1 was given to correct answer and score 0 was for incorrect answer. The level of knowledge was categorized based on mean cumulative score ( = 12.17). Participants who had a cumulative score equal or above the mean score were categorized into “good knowledge“, whereas those with a cumulative score below the mean score was considered in “poor knowledge“. Chi-square test was used to analyze the association between level of knowledge and socio-demographic characteristics (p<0.05).

**Results**

**Demographic characteristics**

The total number of participants in this study was 339 respondents, and most of them were female (61.7%) with only 38.3% male. The age distribution was 17-25 years (22.7%), 26-45 years (49.9%), and 46-65 years (27.4%). More than fifty percent participants (59.0%) attended senior high school, and the rest attained the highest level in university (18.9%), junior high school (13.3%), and elementary school (8.8%).

**Participant’s Practices of Self-medication**

All of the participants in this study used OTC medicines for self-medication. A total of 202 participants (48.4%) used analgesics and antipyretics for self-medication, followed by respiratory drugs taken by 124 participants (29.7%). The other medicines included gastrointestinal medicines (40 participants/9.6%), herbal preparation (33 people/7.9%), and anti-allergic drugs (4 people/1%). The analgesics and antipyretics were most likely used to treat headache and fever with paracetamol as the most commonly used medicine. The sources of information about OTC medicines came from advertisements (39.5%), family (23.6%), friends (18.3%), references (2.4%), healthcare professionals (2.4%), and others (13.9%).

Table 1. Percentage of correct response about knowledge of self-medication

|  |  |  |
| --- | --- | --- |
| **Questions Domain** | **Correct Response from participants** | |
| **Frequency** | **Percentage (%)** | |
| How to get medicines  All medicines can be bought in a supermarket  We can get medicines from family or friends  Antibiotics can be bought in a supermarket | 279  270  262 | 82.3  79.6  77.3 | |
| The use of medicines  Paracetamol is used for fever only  The meaning of twice daily is taking medicines in the morning and afternoon  Syrup is allowed to be used anytime as long as its physical appearance does not change  Sore throat is treated using mucolytics  Povidone iodine is used to treat wound before it is cleaned  Eye-drop medicines can be directly dripped on the cornea | 143  61  226  184  253  125 | 42.2  18  66.7  54.3  74.6  36.9 | |
| Medicine storage  Suppositories are stored in the medicine cabinet  All OTC medicines can be stored in the refrigerator  Medicines can be stored in a non-original packaging  Eye drops can be stored for more than one month after opening the seal  Liquid dosage form medicines are stored in the refrigerator to maintain their stability | 245  238  289  210  162 | 72.3  70.2  85.3  61.9  47.8 | |
| Medicine disposal  Medicines must be removed from the packaging at the time of disposal  Liquid medicines in the package can be directly disposed of in the trashcan  All expired medicines can be disposed of in the trashcan  Drug packaging in a cardboard form must be cut before disposal  Tablets must be crushed before disposal  Tablets are disposed by being buried in the ground | 200  189  141  226  205  218 | 59.0  55.8  41.6  66.7  60.5  64.3 | |

\*Total number of participants: 339 respondents

**Knowledge of self-medication**

The level of knowledge of OTC medicines for self-medication is explained in Table 1. Overall, 49.9% participants had good knowledge whereas 50.1% had poor knowledge. There was a correlation between knowledge and level of education (p<0.05), while gender, age, and occupation had no relationships with knowledge (p>0.05) (Table 2).

Table 2. Correlation between sociodemographic characteristics and knowledge of self-medication

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sociodemographic**  **characteristic** | **Knowledge Score** | **Self-medication knowledge level** | | | **Total** | **P-value** |
| **Mean ± SD** | **Good** | **Poor** | |  |  |
| **Gender** |  |  | |  |  |  |
| Male | 12.23 ± 3.39 | 62 (47.7) | | 68 (52.3) | 130 (100) | 0.606 |
| Female | 12.13 ± 3.17 | 107 (51.2) | | 102 (48.8) | 209 (100) |
| **Years of age** |  |  | |  |  |  |
| 18 - 36 | 12.19 ± 3.09 | 84 (49.4) | | 86 (50.6) | 170 (100) | 0.957 |
| 37 - 65 | 12.15 ± 3.42 | 85 (50.3) | | 84 (49.7) | 169 (100) |
| **Educational attainment** |  |  | |  |  |  |
| Lower than Senior High School | 11.12 ± 3.37 | 26 (34.7) | | 49 (65.3) | 75 (100) | 0.004\* |
| Senior High School and University | 12.47 ± 3.17 | 143 (54.2) | | 121 (45.8) | 264 (100) |
| **Occupation** |  |  | |  |  |  |
| Employed | 12.11 ± 3.33 | 98 (49.5) | | 100 (50.5) | 198 (100) | 0.963 |
| Unemployed | 12.25 ± 3.14 | 71 (50.4) | | 70 (49.6) | 141 (100) |

\*Significant value: p<0,05

**Discussion**

This study revealed that analgesics and antipyretics were the most commonly used in OTC self-medication practices followed by respiratory drugs. Other studies showed a similar result in that the majority of people used paracetamol to treat headache and fever, whereas respiratory drugs were for treating common cold.(9–11) The primary source of information about the medicines used for self-medication was medicine advertisements while only a few participants sought information from pharmacists. This result contradicted a study in Taiwan which found that pharmacists became the primary source of information on medicines.(7)

Most of the participants already had good knowledge of the place for getting OTC medicines. More than half bought OTC medicines from a pharmacy (74.6%), and others went to a drug store and supermarket. The source to obtain drugs for self-medication was the same as that revealed in a study in Purbalingga and systematic review by Limaye et al. in which most of the respondents purchased medicines at the pharmacy.(12,13) The public should be more encouraged to buy medicines at the pharmacy to ensure that the medicines are of good quality and the public receives information about medicines from pharmacists.

The knowledge of medicine use among the community members in Ngaglik should be improved. Most of them did not understand that paracetamol is not only for fever but also for pain treatment. A study in India showed a similar result in that only 6.8% participants had good knowledge of paracetamol use.(14) Moreover, only 18% participants gave correct response about the time to administer medicines. This has to be an essential concern since the appropriate time of medicine administration is correlated with the dosage.(15) Medicine indications, interactions, side effects, and other information must be clearly understood for the efficacy and safety of OTC self-medication. Therefore, health professionals, especially pharmacists, should provide medicine information for patients or community members about how to practice self-medication appropriately and the impacts if it is not done properly, thereby improving health literacy.

Medicine storage and disposal are also essential to be understood by the public practicing self-medication. The participants still had a lack of knowledge of liquid dosage form and eye drops storage. More than 50% participants thought that all liquid dosage form could be stored in the refrigerator. A study in Taiwan also found that some people believed that all types of medicine could be stored in the refrigerator.(7)  Furthermore, the knowledge of medicine disposal should be improved because inappropriate medicine disposal will lead to pollution, thus putting the public at risk.(16,17)

The participants’ knowledge of self-medication can be affected by sociodemographic characteristics.(18) In this study, the knowledge was significantly associated with level of education. The highest score of knowledge was achieved by the participants who had a university background. Previous studies revealed the relationship between education and knowledge.(18–20) People with higher education are more likely to access different sources of information compared to those with low education attainment.(18)

*Strengths and Limitations of the Study*

This study has the strength of the topic of knowledge measurement. It measured not only the knowledge of how to use OTC but also that of how to get, how to store, and how to dispose OTC medicines used in self-medication. The limitation of the study, on the other hand, is caused by the lack of funding. The area of the study only covered 3 villages in Ngaglik District while it would be far better if the study was carried out over a wider area.

**Conclusion**

The public knowledge of self-medication still needs improving. Health professionals, pharmacists in particular, should give more information to the public about OTC medicines to prevent them from obtaining information only from medicine advertisements. A quasi-experimental study is required for the future research to investigate the improvement in the knowledge among participants after receiving education intervention using a pre-test and post-test.

**Conflict of Interest**

Theres is no conflict of interest in this study.

**Acknowledgement**

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