

## SELF-MEDICATION AMONG UNIVERSITY STUDENTS: A PHENOMENOLOGICAL STUDY

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### ABSTRACT

Self-medication is recognized as a behavior of health management among university students. This study aimed to describe the practices of self-medication and explore the factors influencing self-medication practices among university students built upon by the experiences of students who were concerned with this issue. A phenomenological qualitative approach was applied by using a purposive sampling method consisting of 30 university students. Semi-structured interviews were used to collect data. The results showed the most common form to be purchasing non-prescription medications. Paracetamol and medications for treating the cold and flu were the most common types of self-medication. This behavior is influenced by a previous experience of self-medication, doctors and health services, influential persons, environmental factors, attitudes towards self-medication and doctors, cost, the perception of the disease and its symptoms, and self-medication information resources. Therefore, it is necessary to develop interventions and strategies to minimize the risks and harmful effects associated with the improper use of these medications based on influencing factors.

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### 1. Introduction

Self-medication is an increasing issue among populations all over the world [1]. There are many definitions documented in literature in which a popular suggestion is the use of medications to treat self-identified diseases or symptoms [2], or the irregular or continuous use of a prescribed medication for treating chronic or frequent symptoms or diseases [3]. There are many forms of self-medication including the use of herbs, pharmaceutical drugs, non-prescribed medications (or over the counter' (OTC), prescribed medicines to families, relatives, and friends, and remaining medicines from a previously prescribed treatment. It may also include the reuse of prescribed medications, direct purchasing of medications from pharmacies without doctors' prescription, and altering the dose of prescribed medicines [4, 5]. The World Health Organization (WHO) [6] recognized self-medication as an aspect of self-care and could assist in promoting individuals' health when used correctly [7]. Earlier literature documents that self-medication causes many problems including the side effects of drugs, interactions, resistance, and death in specific situations [5, 8, 9].

Researchers have identified many reasons for self-medication use which involves past experience, a minority of health problems or symptoms [10, 11], expensive treatment and high doctors' fees, availability of medications, incompetent healthcare professionals, and a long period of treatment [5, 9, 12]. Self-medication is increasing among youth, especially university students. This increase is associated with multiple factors including demographic, social, lifestyle pattern, increasing awareness, and advanced technology [10, 13, 14].

There is a difference in the lists of OTC drugs, supplying methods, and access to these medicines among countries which is based on the country's health system and laws [2]. In Jordan, there is a wider public accessibility of medications in some non-pharmacy stores. This practice is very common despite the laws which consider dispensing antimicrobial drugs of any formulation without a prescription as a criminal offense, and the violation of this law is subject to a financial penalty. Moreover, Jordanian clients may buy any medication, including antibiotics, without having a valid prescription, except controlled narcotics and major tranquilizers that need a medical prescription [15].

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There are many studies regarding self-medication practices in Jordan [15-17], but these studies did not explore the students' experiences with this phenomenon, qualitatively. This is the first study of its kind in Jordan and in Arab countries, whose results could help healthcare professionals and policy-makers be aware of these practices and implement the appropriate strategies to potentially minimize the harmful effects and risks of these medications. Therefore, this study purposes to describe the practices of self-medication and explore the factors influencing self-medication practices among university students built upon by the experiences of students.

## 2. Material and methods

A phenomenological qualitative approach was employed. The researchers performed an in-depth, direct analysis of informants' experiences. This study was conducted at the Al-Zaytoonah University of Jordan which is located in Amman. A purposive sampling method was used to perform this study as the selection of study informants depended on the purposes of the study. The informants who were believed to have rich information about their experiences with self-medication were selected. The inclusion criteria were as follows: a) age of 18 years or older, b) self-report of having self-medicated at least once in the past six months, c) absence of any problems which affect willingness and ability to communicate, and d) providing an informed consent. A total of 30 informants were recruited in this study. After agreeing with the informants, interviews with the students were conducted at the researchers' offices located in the university.

In-depth interviews were conducted by the researchers using semi-structured interviews. Interviews with the informants were recorded and began by talking about their experiences regarding self-medication in accordance with the interview guidelines developed by the researchers. Open-ended questions were posed regarding self-medication practices and factors influencing self-medication use. The interview period ranged between 20 and 30 minutes depending on the desire of the informants. Upon finishing the interview, the informants were asked if they would like to say anything else. In the end, informants were compensated with a USB flash memory drive (32 MegaByte) for their participation. Any prejudgment and expression of personal opinions were avoided during data collection and analysis.

A qualitative content analysis was used for interpretation of textual data through the process of coding and identification of subcategories, categories, and theme. After each interview, researchers listened to the records again and verbatim transcriptions were prepared. Each interview was considered as a separate analysis unit. The researchers read the transcribed script several times to be familiar with the context then identification of the meaning units was performed. After that, the meaning units were condensed. Finally, these meaning units were extracted and assorted using a code as shown in Table 1. These codes were contrasted depending on differences and similarities, which then classified into categories and subcategories [18] as shown in Table 2.

Meaning unit	Condensed meaning unit	Code
I heard about this medication from my friends who told me that this medication was effective in treating flu. I tried it and was good.	My friends advise me to take medications	Choosing medicines recommended by friends
I use Lexotanil 3 mg to relieve stress and anxiety and to enhance sleep according to advice of my aunt who uses it according to doctor's prescription. She buys her medication with prescription from the pharmacy and gives me one bar.	My aunt gives me medication	Sharing and supplying medications by relatives
I watch online advertising especially those related to cosmetics and skin care. I would buy some of these medications and I purchased.	Online advertising provides any medications I want	Purchasing medications through online advertising

**Table 1 - Examples of meaning units, condensed meaning units, and codes drawn from content analysis of the informants' experiences.**

Theme	Self-medication	Environmental factors
Categories	Influential persons	- Availability and accessibility
Subcategories	- Family - Relatives - Friends - Neighbors - Coach	- Advertising
Codes	- Selecting medications based on family suggestions. - Sharing and supplying medications by relatives. - Choosing medicines recommended by friends. - Selecting medications based on neighbors suggestions - Choosing medications recommended by coach	- Purchasing medications from the pharmacy without prescription - Pharmacies prescribing medications for clients - Availability of medications in pharmacy and other outlets - Purchasing medications from pharmacy with discount - Availability of medication at home - Obtaining medications in large amounts - Purchasing medications through online advertising - Purchasing medications through mass media

**Table 2 - Examples of codes, subcategories and categories extracted from content analysis of informants' experiences**

To enhance the trustworthiness of this study, researchers applied the following methods: in-depth interviews were conducted with informants to obtain rich information about their experiences and a checker was employed to assure credible findings; the transcripts were then reviewed and double checked to confirm accurate translation. An external investigator reviewed the transcripts and the content analysis process, and a rich and clear description of the results was provided to be inspected by other researchers.

Ethical considerations have adhered to all stages of the study. Permission to conduct the study was obtained from the Deanship of Scientific Research at the Al-Zaytoonah University of Jordan. The informants were informed about the purpose of the study before being asked to participate. A written consent was obtained from each participant before beginning the study. The assurance of confidentiality was addressed prior to a request for participation. In addition, the informants were reassured that their participation in this study was voluntary. Moreover, confidentiality was maintained by data coding to eliminate identifying data with personal information. Safe storage of data was maintained throughout the study period. After data analysis and final report writing, the data sheet was shredded and disposed of.

## 3. Results

A total of 30 informants were interviewed. Table 3 shows the demographic characteristics of study informants.

Characteristic	Number	Percentage (%)
<b>Age</b>		
< 20 years	6	20.0
20-24	20	66.7
> 24	4	13.3
<b>Gender</b>		
Male	17	56.7
Female	13	43.3
<b>College</b>		
Engineering	5	16.7
Pharmacy	5	16.7
Nursing	3	10.0
Law	2	6.6
Literature	5	16.7
Economic	6	20.0
Science	4	13.3
<b>Year</b>		
First	4	13.3
Second	6	20.0
Third	9	30.0
Fourth	7	23.4
Fifth	4	13.3
<b>Health status</b>		
Excellent	3	10.0
Very good	13	43.4
Good	12	40.0
Fair	2	6.6
<b>Working</b>		
Yes	10	33.3
No	20	66.7

**Table 3 - Demographic characteristics of study participants (n=30)**

**Forms and practices of self-medication**

The informants reported the following forms of self-medication: purchasing non-prescribed medications and OTCs from pharmacies, using alternative medicines such as herbs, purchasing non-prescribed prescription medications suggested by healthcare professionals (e.g., pharmacist, doctors, and nurses), using prescription medications recommended by family members, relatives, and friends, using remaining drugs from old prescriptions, and prescription medications bought by using old prescriptions. The majority of informants documented non-prescription medications bought from pharmacies as well as herbs.

Regarding self-medication practices, all of the interviewed informants reported using Panadol/Paracetamol (simple form of NSAIDs) for pain relief (e.g., abdomen, tooth, and headaches) and fever, in addition to medications for the cold and flu (e.g., Antihistamine), 24 students used antibiotics, five female informants used NSAIDs (e.g., Diclofenac Sodium, Voltaren, and Brufen) for menstrual pain, three of them used protein for muscle building, two students used sedatives (e.g., Lexotanile and Valium) for anxiety, sleep problems, and stress, three females used vitamin D because of vitamin D deficiency, three females used weight reduction pills, four females used weight gain medications, one female used a medication for treating acne, five students (three females and two males) used vitamin C to enhance body functioning, five informants (one female and four males) used muscle relaxants, 15 students (13 females and two males) used sunblock, 20 of them used herbs such as Sage, Thyme, and Anise as a treatment for abdominal pain and other problems, and one female used Brewer's yeast pills to gain weight.

**Factors influencing self-medication**

The experiences of self-medication and its influencing factors were expressed in six categories: previous experience towards self-medication, doctors, and health services, influential persons, environmental factors, attitudes towards self-medication and doctors, cost, perception of disease and symptoms, and self-medication information resources (Table 4).

Theme	Self-medication						
	Previous experience towards self-medication, doctors, and health services	Influential persons	Environmental factors	Attitudes towards self-medication and doctors	Cost	Perception of disease and symptoms	Self-medication information resources
Categories							
Subcategories	<ul style="list-style-type: none"> <li>- Positive experience towards self-medication/doctors</li> <li>- Negative experience towards self-medication/doctors/health services</li> </ul>	<ul style="list-style-type: none"> <li>- Family</li> <li>- Relatives</li> <li>- Friends</li> <li>- Neighbors</li> <li>- Coach</li> </ul>	<ul style="list-style-type: none"> <li>- Availability and accessibility</li> <li>- Advertising</li> </ul>	<ul style="list-style-type: none"> <li>- Advantages/ Effectiveness/ knowledge of self-medication</li> <li>- Disadvantages and laws regarding self-medication</li> <li>- Positive/negative attitudes towards doctors</li> <li>- Avoiding taking medication without consultation</li> </ul>	<ul style="list-style-type: none"> <li>- Money</li> <li>- Financial status</li> <li>- Time</li> <li>- Distance</li> </ul>	<ul style="list-style-type: none"> <li>- Severity and minority of disease/ symptoms</li> <li>- Understanding of disease/ symptoms</li> <li>- Treatment of disease/ symptoms</li> </ul>	<ul style="list-style-type: none"> <li>- Healthcare professionals</li> <li>- Internet</li> <li>- Family</li> <li>- Reading leaflets</li> <li>- Friends</li> </ul>

**Table 4 - Theme, categories, and subcategories of drawn from analysis of the informants' experiences**

**Previous experience towards self-medication, doctors, and health services**

The effects of previous experiences on self-medication practices were focused on positive and negative responses towards self-medication use, doctors, and health services. These experiences influenced their decisions in using self-medication in the future. The positive experiences towards self-medication were associated with the effectiveness of medications in relieving the symptoms or decreasing the severity of clients' symptoms or illness, lacking side effects, and safety of these medications. On the contrary, negative experiences were related to decreasing the effectiveness of medication after continuing use, range of side effects, misuse/ improper use of medications, and ineffective/ poor healing or recovery process of medications. Negative experiences related to the inability of doctors to diagnose diseases and misdiagnose diseases, in addition to the failure of doctors to provide the proper treatment. However, the negative experiences of health services included overcrowding of clients, poor quality of prescribed medications, delay of treatment, and lack of competent doctors. Therefore, the informants developed a self-guided way to self-medicate that was based on their previous experiences.

**Influential persons**

Influential persons who enhanced the use of self-medication in this study were family members, relatives, friends, neighbors, and coaches at the gym. Friends were the most mentioned influential factor among study informants. University students who seek healthy behaviors share their experiences with their friends like medications and their effectiveness. The influence of family and relatives was also noted as an important factor in promoting this behavior.

**Environmental factors**

The environmental factors reported by informants were advertising, availability and accessibility. Advertising that included purchasing medications through online advertising and purchasing medications through mass media was reported to have a positive influence on self-medication use among informants. Moreover, medications are made accessible and available to the community population without any restrictions, which enhance this health care behavior.

The study informants had the experience of purchasing any medications they needed from the pharmacy without prescription or pharmacists prescribed medications for the clients, availability of medication at the pharmacy and other outlets, purchasing medication from a pharmacy with a discount, availability of medication at home, and obtaining medication in large amounts. Easy access to these medications at pharmacies and availability of these medications without doctors' prescription promote this behavior.

#### *Attitudes towards self-medication and doctors*

Attitudes towards self-medication and doctors were grouped into eight subcategories: advantages of self-medication, the effectiveness of self-medication, disadvantages of self-medication, positive attitudes towards doctors, negative attitudes towards doctors, laws regarding self-medication, knowledge regarding self-medication, and avoiding taking medications without consultation.

The informants reported that self-medication was the most preferred because of several advantages. The biggest advantages of self-medication indicated by the informants included: saving both time and money, availability and accessibility, safety, and easy to use. The availability of these medications at pharmacies without prescription facilitates the purchasing process.

#### *Cost*

The cost includes money, time, financial status, and distance, which leads the informants to use self-medication and avoid visiting doctors. Self-medication is a cost-effective method in saving time and money instead of a doctor's visit for seeking health care and treatment. Furthermore, around one-third of informants had been working to complete their studies and help their families, therefore, attaining money was mentioned as a basic element of their lives.

#### *Perception of disease and symptoms*

Perception of disease and symptoms requires self-appraisal including severity and minority of the disease/symptoms, understanding the disease/symptoms, and treatment of this disease/symptoms. This appraisal should be conducted before taking action to seek health care. The outcome of this self-appraisal is playing an important part in self-medication use. For the informants who believed that their diseases/symptoms are minor, not urgent, not requiring doctors, well-known/familiar, and need general or usual treatment options, self-medication would be their suitable choice. On the contrary, if the health problem is severe and needs immediate treatment, acute and intense, recurrent, unfamiliar, and unresponsive to self-medication, the study informants would prefer to visit a doctor and seek health care. Some of the study informants reported that if they faced a health problem for the first time, they would visit a doctor. Therefore, when they suffer from the same problem in the future, they would use the same prescribed treatments. Therefore, informants tried to integrate the benefits of doctors' visits and self-medication for treatment of future health problems.

#### *Self-medication information resources*

These resources of information included healthcare professionals, internet, family, friends, and reading leaflets. The majority of informants showed a desire to receive information regarding self-medication from the

healthcare professionals (e.g., pharmacists, doctors, and nurses) before purchasing any medication, and the majority of them reported seeking information from pharmacists. Some of them prefer to search the internet for the best medications. However, few informants reported family, friends, and reading leaflets as information sources. Most informants reported that information obtained by healthcare professionals were effective.

## 4. Discussion

The results of this study showed that self-medication is a common phenomenon among university students. The different forms of self-medication documented in the previous studies were indicated in this study. The most reported form of self-medication by the study's informants was purchasing medications without doctors' prescriptions from pharmacies. This form is also demonstrated in previous literature [2, 19]. Furthermore, the majority of the study informants consumed herbs. The herbs' modality is considered as a valuable remedy in many cultures. It is a folk tradition used for therapeutic purposes among a large number of people worldwide [20].

All of the study informants practiced using Paracetamol and cold and flu drugs for treating pain (e.g., abdomen, tooth, and headache), fever, cold, and flu. This result was reported in previous studies [2, 10, 21, 22]. Moreover, the current study showed that self-medication was used for minor and non-serious symptoms that were documented in previous studies [2, 19].

The current study showed that the past experiences towards self-medication, doctors, and health services varied among study informants. Self-medication could be promoted by positive experiences and satisfaction with these medications. In our study, satisfaction was demonstrated in relieving the symptoms or minimizing the severity of informants' symptoms or illness, lacking side effects, and the guaranteed safety of these medications. In our study, the negative experiences towards doctors was considered as a factor for promoting self-medication use. These experiences included misdiagnosis of diseases and inability to prescribe proper treatment. A previous study demonstrated that mistrust in doctors who were involved in misdiagnosis and unnecessary diagnostic procedures is an important factor in self-medication [2]. Moreover, the negative experiences towards health services and dissatisfaction with these services may enhance the practice of self-medication. Dissatisfaction with health services involved an overcrowding of clients and poor quality of these services. This result was documented in a previous study which indicated dissatisfaction with the quality of healthcare services that included time spent for treatment, quick consultation, and lack of care provided by doctors all of which encourage self-medication use [12, 23]. Furthermore, Hayati et al. [24] and Mortazavi et al. [2] documented a relationship between overcrowding of clients and self-medication and considered it as a predictor of self-medication.

The current study revealed that friends were the most influential persons of practicing self-medication. Furthermore, families are considered as another factor for intention to self-medicate. Mortazavi et al. [2] indicated the positive attitudes of friends towards self-medication and their recommendations to use these medications is a factor for initiation of self-medication.

Wen et al. [9] indicated that peers and friends' suggestions were significant factors to accessing self-medication. Another study revealed that friends and families were responsible for positive attitudes of consuming self-medication [25].

The majority of the informants indicated that self-medication was effective and lacked side effects, which may motivate the continuation of use. Other informants reported that there were many disadvantages of self-medication, which were that self-medication is a problem, causing problems (e.g., addiction, abuse, drug allergy, low resistance to bacteria, and death), and causing side effects. This result was consistent with previous studies which have documented that self-medication could lead to many side effects, drug resistance, death [2, 9, 25], and continuation of its use leads to addiction [19]. There was an agreement between studies that self-medication leads to many risks despite the fact that the rate of this phenomenon is increasing.

Some informants indicated the necessity of applying laws regarding self-medication. In developing countries, many of the medications are sold without a prescription [26]. In Jordan, there are restrictive laws and rules regarding medications, however, all medications are sold without prescription except for narcotics and sedatives [13]. This factor contributes to the practice of self-medication. In this current study, most of the informants indicated that knowledge of self-medication is necessary.

Knowledge enhances students' awareness regarding the indications, effectiveness, and risks of any medication. It could help them avoid the health hazards resulting from the improper use and overdose or underdose. In our study, consultation about medications was expressed by most of the informants. The consultation could enhance the use of the most effective treatment for the disease or symptoms.

Environmental factors could enhance the practice of self-medication. Previous literature documented this result [2, 9]. The use of non-prescription medications is based on easy access and availability in pharmacies and other outlets. All informants indicated that it is easy to get access to medications that are purchased from pharmacies, which is in agreement with previous studies [2, 9, 25]. Furthermore, the informants reported the medications are available. Thus, the availability of medications could contribute to using this self-management practice, which was reported in a previous study [2, 27]. Moreover, the availability of these medications may lead to many hazards and risks resulting from the misuse of these medications. The informants also mentioned the role of advertisements in self-medication use. Advertising of medications is displayed in various media such as television, magazines, and online websites. Earlier literature showed that advertisements have an effect on individuals' use of self-medication and there was a positive correlation between advertisement and this health-seeking behavior [28].

Another factor contributing to self-medication was the cost. All of the students reported high doctors' fees as a significant factor for self-medication use. Earlier literature supported this factor [26, 27, 29, 30]. Seeking health care by visiting doctors is perceived as a financial burden on participants who are students and around one-third of them are working in addition to studying. Therefore, they prefer to obtain non-prescription medications from pharmacies to save time and money. This issue was discussed in previous studies as well [2, 31, 32].

The current study showed that students' perceptions about disease and symptoms were significant factors in consuming self-medication. Students

with the minority of symptoms and diseases (e.g., flu, cold, menstrual pain, and headache) perceive that a visit to the doctor is not required, which encouraged them to use self-medication. On the contrary, when the disease and symptoms were severe, serious, and recurrent, they preferred to visit a doctor. Another factor influencing self-medication was the commonality and familiarity of symptoms/ diseases among students that reflect their understanding of the disease and symptoms. These familiar symptoms and diseases were preferred to be treated with previously prescribed or non-prescribed medications. These results were similar to previous studies [9, 16, 26, 33, 34] and confirm the role of this factor in self-management behavior. This behavior could be a problem if the symptoms are not diagnosed accurately.

In our study, the informants reported many resources of information for self-medication, but the majority of them reported the pharmacist as being the main source of information regarding medicines, which is consistent with a previous study [26]. Thus, this result enhances the role of the pharmacist in providing consultation and awareness regarding this phenomenon. The previous studies documented that pharmacists have important roles in public health in most developed and many developing countries [9, 35, 36]. On the contrary, previous studies revealed that families and friends were the main sources of information [24, 25, 37]. Furthermore, some study informants reported the internet as a source of information. University students have a high level of education, therefore they search the internet for any health information. This also promotes the role of the internet and online health sites in health-seeking behaviors.

To prevent self-medication, especially for the flu and cold, it would be useful to inform and educate students, especially in health professions, on the importance of seasonal influenza vaccination to prevent infection [38-43].

In conclusion, self-medication is recognized as a health-managing behavior of university students. The discussed practices and factors should be taken into consideration when developing health care strategies and interventions regarding self-medication to minimize the risks and harmful effects associated with the improper use and misuse of these medications. Laws regarding purchase of these medications should be stricter.

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