

A Descriptive Study of Self-Medication Practices among Palestinian Medical and Non-Medical University Students

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Abstract

Background: The implications of self-medication practices are increasingly recognized around the world; however, little has been reported on the extent of self-medication practiced in Palestine.

Objective: To determine the reasons, extent, and correlates of self-medication practices among university students in Palestine.

Methods: A self-administered questionnaire eliciting self-medication practices was distributed to university students in a cross-sectional design. The following four variables: gender, type of school, self-care orientation, and medication knowledge were investigated for possible correlation with self-medication practices. Multiple logistic regression and chi square statistics were employed in data analysis.

Results: Self-medication practices were reported by 98% of the surveyed students ($n = 1581$). Approximately two thirds of the respondents reported a high self-care orientation and one third reported “good” medication knowledge. Multiple logistic regressions indicated that self-care orientation, medication knowledge and gender were insignificant predictors of self-medication practices, while the type of school ($p = 0.012$) was. A significant relation between the four variables and the type of therapeutic class used in self-medication was observed. For example, males were more inclined to use anti-allergy medications ($O.R= 1.48$) than females. Medical students were more likely to use laxatives/anti-diarrheal agents ($O.R. = 1.49$) than non-medical students. Respondents with high a self-care orientation were more inclined to use headache relievers ($O.R= 2.22$) compared to those with low self-care orientation. The most commonly reported reason for self-medication practices was simplicity of the illness encountered.

Conclusion: Self-medication practices were common among the university students studied. Gender, type of school, self-care orientation, and medication knowledge are important personal factors that are associated with the selection of certain types of therapeutic classes used in self-medication.

Key words: Self-medication practice, Self-care orientation, Medication knowledge, University students, Palestine.

Introduction

Self-medication is a common practice worldwide.¹⁻⁵ In Palestine, self-medication practices are presumed to be common, given its regulatory climate in this regard.⁶ For example, people in Palestine can obtain medications like antibiotics or sedatives without a prescription. Based on this, practices such as the utilization of prescription and/or non-prescription medication without prior medical consultation is considered a part of self-medication's operational definition.⁷

Several personal factors could influence self-medication practices, including: gender, income, self-care orientation, and medication knowledge.^{5,8-9} Self-care oriented people are those who undertake activities without professional assistance to promote their own health.¹⁰ Both self-care orientation and medication knowledge are important factors in determining the attitudes towards and the consumption of medications.¹¹

There have been several reports addressing the extent of self-medication practices among university students in other countries,¹²⁻¹⁶ but none from Palestine. The current study was undertaken to (1) describe self-medication practices among university students, (2) to identify potential factors that are associated with self-medication practices, and (3) to identify reasons for self-medication practices. University students were chosen for this study for several reasons. They are highly influenced by the media and the internet which promotes self-medication behavior; some of those students will be future health care providers, so their health seeking behavior might influence their medical practice; and nothing has been previously published regarding self-medication practices among these persons in Palestine.

Moreover, this population was more easily accessible and more likely to respond than other populations.

Methods

Study Population

This cross-sectional descriptive study was carried out at An-Najah National University, the largest university in Palestine. Approximately 16,000 students are currently enrolled at 16 different medical and non-medical faculties (colleges/schools). A pre-validated questionnaire containing open-ended and closed-ended questions was developed at the Poison Control and Drug Information Center (PCDIC) and used for the study. A total of 1,600 questionnaires were distributed in November, 2006. The questionnaire was distributed to all students attending randomly selected classes at different faculties. Permission to carry out this project was obtained from the University administration and the medical research ethics committee. Students were given the questionnaire at the beginning of classes and were asked to deliver the completed questionnaire to the PCDIC mailbox located at the college of pharmacy.

Study Tool: The Questionnaire

The questionnaire consisted of five sections. The first section contained questions regarding demographic information such as age, gender, type of school, and place of residence. In addition, participants were asked whether they had access to a health center, a physician, and/or a pharmacy nearby, whether or not they have health insurance, and if they have ever practiced self-medication in general, and in the past month in particular. Students enrolled in pharmacy, medicine, or nursing colleges were designated as “medical” students, whereas the remaining students were

designated as non-medical students. The second section of the questionnaire consisted of questions related to the therapeutic classes that respondents reported using in self-medication practices. Respondents were presented with a list of therapeutic classes and a brand example for each class from which to choose. The third section of the questionnaire focused on the health conditions that respondents would self-treat. This part also was used to assess respondents' level of self-care orientation, Respondents who indicated that they would self-treat 5 or more conditions of the presented list were considered to have high self-care orientation, while those who selected less than five cases were considered to have low self-care orientation. The rationale for this cut-off point was based on previously published research ¹¹ where respondents reporting 30% of the listed health conditions were considered to have high self-care orientation.¹¹ In the fourth section of the questionnaire, respondents were asked to select and state the reason(s) for practicing self-medication. The fourth part also contained questions regarding who recommended the self-treatment for the respondent. The last section was designed to assess respondents' medication knowledge based on Isacson and Bingefors methodology.¹¹ Respondents were presented with six questions that could be answered by 'yes', 'no', or 'I do not know'. Medication knowledge was determined by the number of correct answers. One point was given for each correct answer, one point was deducted for each wrong answer, and selecting 'I do not know' did not affect the grade. Respondents with a total of 1 and above were considered to have good medication knowledge, while those with a total of zero and below were considered to have poor medication knowledge. Respondents who answered less than four questions were excluded.

Statistical Analysis:

The data were coded, entered, and analyzed using the statistical package for social sciences program (SPSS) version 13. Descriptive results were expressed as frequency, percentage, and mean \pm S.D. Linear multiple logistic regression was used to identify predictors of self-medication practices among the four tested variables (gender, type of school, degree of self-care orientation, and level of medication knowledge). Chi-square statistical analysis was used to test for significant associations between each variable and the different therapeutic classes reported.

RESULTS

Characteristics of the Study Population:

A total of 1581 out of 1600 questionnaires were completed and returned, giving a response rate of 98.8%. The mean age of respondents was 19.9 ± 1.7 years, with a range of 18 -24 years. Most (63.4%) respondents were females (Table 1) studying at non-medical colleges. It is noteworthy that 58% of the students registered at An-Najah University are females, and 12 out of the 16 faculties are non-medical. Most respondents reported living in either villages (50.3%) or cities (46.5%). Fifty-eight percent of the respondents reported having health insurance, and 84.9% reported living within an area where a clinic or a pharmacy is nearby. One third of the respondents reported high self-care orientation, and about two thirds were deemed to have good medication knowledge. Chi square statistical analysis indicated that the level of self-care orientation was insignificantly associated with gender or the type of school. Medication knowledge was significantly associated with type of school ($p < 0.01$), but not gender.

Approximately 98% of the respondents reported that they do practice self-medication. Of those, 37.7% reported having done so at least once in the past month. Self-medication was practiced by 96.6% of the medical students, 98.6% of the non-

medical students, 97.6% of males and 98.2% of females. Additionally, self-medication was practiced by 98.8% of respondents with high self-care orientation, and 97.5% of respondents with low self-care orientation. Finally, self-medication was practiced by 98.1% of respondents who have good medication knowledge, and by 97.7% of those with low medication knowledge (Table 1).

Therapeutic Classes Used

The total number of medications reported by the respondents was 4073, resulting in an average of 2.63 ± 1.38 medications per respondent, with a range of 1-11 medications. The percentage use of certain therapeutic classes was also investigated. The percentage use was calculated by dividing the number of respondents reported using that class over the total number of respondents who practiced self-medication ($n= 1546$). Headache relievers were the most common class used in self-medication, followed by decongestants (45.3%), and antibiotics (19.9%).

Many respondents were taking several different medication classes simultaneously. Approximately 23% of respondents reported using one class of medications, 29.3% reported using two different classes, 22.4% reported using 3 different classes, and 12.7% reported using 4 different classes of medications. For example, it was noted that respondents who were self medicating with anti-allergy medications were using simultaneously an average of 4.28 ± 1.38 medications; a mean of 2.79 ± 1.37 simultaneous medications was reported among those taking headache relievers. Table 2 contains detailed information about the percentage use of the different therapeutic classes and the average number of simultaneous medications used. Respondents reported 18 different health conditions for which self-medication were practiced. The most commonly reported health condition for which respondents

practiced self-medication was headache. The least commonly reported health conditions for which respondents practiced self-medication were for losing weight (6.1%) and respiratory problems (8.7%). There was a positive correlation between the number of health medications reported to be consumed and the number of health conditions that respondents would treat by self-medication ($r = 0.78$).

Correlates of Self-Medication Practices:

Gender, type of school, level of self-care orientation, and level of medication knowledge were the four main variables tested for potential correlation with self-medication practices. Multiple logistic regression indicated that only the type of school was a significant predictor ($p = 0.012$) for self-medication practices, with non-medical students reporting a greater likelihood of self-medication (O.R = 1.42) . On the other hand, gender, level of self-care orientation, and medication knowledge were insignificant predictors ($p>0.05$) of self-medication practices. Chi square statistical analysis indicated that the four investigated variables had a significant influence on self-medication practices within specific therapeutic classes (Table 3). For example, students with a higher self-care orientation were more inclined to use headache relievers (O.R = 2.22) and decongestants (O.R=2.11). Males were more inclined to use anti-histamine and sedatives (O.R = 1.48 and 1.33, respectively) than females. Medical students were more inclined to use antibiotics and medications for diarrhea/constipation compared to non-medical students (O.R = 1.35 and 1.49, respectively). Finally, non-medical students tended to use more sedatives compared to medical students (O.R = 1.44). Students with good medication knowledge were more inclined to use medications for diarrhea/constipation and herbs than those with poor medication knowledge (O.R = 1.14 and 1.09, respectively).

Reasons for Self-Medication Practices:

When respondents were asked why they practice self-medication, the majority (58%) indicated that they did so because their illnesses were simple, or because they have experience from previous episodes (29%). A lesser percentage of respondents reported that they practice self-medication because of lack of trust in medical services, or to save money. When asked about who recommended self-medication to them, the majority reported that they did so based on self-decision (47%), or based on advice from family and friends (41%). The rest practiced self-medication based on the media or herbalist advice.

DISCUSSION

This study showed that self-medication practices are very common among university students in Palestine. Unfortunately, there is no data available regarding self-medication practices among the general public in Palestine, which makes it difficult to compare the extent of self-medication among university students with those in the general public. The net average number of medications consumed in self-medication practices among university students was 2.63 ± 1.38 per respondent. This is relatively higher than those reported elsewhere.¹⁷ In this study, headache relievers were the most commonly reported therapeutic class consumed through self-medication. Similar results were found by other researchers in other countries.^{8,12,16-18} Among headache relievers, paracetamol was the most common. NSAIDs were also commonly reported in self-medication. These results were similar to those obtained in other studies conducted in other countries.^{15,17} Potential problems that could be associated with self-medication with headache relievers are nephropathy and

hepatotoxicity.^{20,21} Using antibiotics were also commonly reported in self-medication practices. Self-medication with antibiotics could result in several unwanted health consequences on the individual and the health system. The most common health conditions treated by self-medication were headache, sore throat, flu, and menstrual pain. Such health conditions were also reported to be commonly self treated in other parts of the world.^{12,19} The reasons cited for self-medication by respondents in this study were similar to those reported in other studies.^{12,15}

Previous studies reported controversial results regarding the influence of factors such as education, gender, age, socioeconomic status, and availability of drugs on self medication practices.^{5,8-9,19} In this study, although gender, level of self-care orientation, and level medication knowledge were insignificant predictor of self-medication practices, they were significantly influential in the selection of therapeutic class used in self-medication practices. Self-care orientation had a significant influence in the utilization of all reported therapeutic classes. Students with a high self-care orientation always had higher odds of using any therapeutic class than students with a low self-care orientation. This is expected because respondents with high self-care orientation are usually more confident and consequently select any therapeutic class more easily than those with low self-care orientation. Gender had a significant influence in the selection of 4 out of 10 therapeutic classes. The common use of herbs by females is consistent with other studies published elsewhere. Studies in other parts of the world have revealed sometimes conflicting results on the influence of gender on self-medication practices.^{15,22}

Medication knowledge was also a significant factor in the selection of two therapeutic classes. Students with good medication knowledge preferred to use herbs and laxatives more than those with poor medication knowledge. This might reflect

high level of awareness towards potential adverse effects of other therapeutic classes. Finally, the type of school was also a significant factor in the selection of 5 out of 10 therapeutic classes reported. It was noteworthy that students at medical school have higher odds for using antibiotics compared to those in non-medical school. This might be due to the academic background which acquaints them with the various types of antibiotics and their indications.

Pharmacists may have an important role to play in helping people seeking self medication. People who practice self medication may not be adequately knowledgeable to judge, for example, the choice or dose of the drug or how long the treatment should continue. Several medical articles have reported that common medications have been associated with adverse health reactions.^{23, 24 and 25} Furthermore, Hughes *et al.*²⁶ have indicated that becoming used to self-medication can cause one to slip towards the self-medication of prescription medications and/or inappropriate drug use.

LIMITATIONS:

This study had several limitations. The most important limitation is that the answers reported by the respondents cannot be validated. Some studies have shown that respondents may tend to underestimate their actual use of some medications.²⁷ However, other studies related to health conditions have shown that respondents' answers can be trusted and can be used in epidemiological studies.²⁸ Another important limitation in this study is the cut off point used in the methodology for determining the level of self-care orientation. This cut off point was adopted from a Swedish study which might not be the same in the Palestinian situation. As previously mentioned, the self-medication practices of Palestinian may well be different than those of the general population of Palestinians.

CONCLUSION:

Self-medication practices were common among the university students. Factors like gender, type of school, self-care orientation, and medication knowledge significantly influenced the therapeutic classes to be used. The results suggest a significant role for pharmacists to get more involved in patient education regarding practicing self medication.

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Table1: Characteristics of the study population.

Variable	Number (%) (n=1581)	Practiced Self-medication (%)
Gender		
Male	577 (36.5)	564 (97.6)
Female	1001 (63.3)	984 (98.2)
Type of school		
Medical	468 (29.7)	453 (96.6)
Non-Medical	1112 (73.3)	1096 (98.6)
Availability of medical services near residence.		
Yes	1092 (69.1)	1069 (97.9)
No	489 (30.1)	477 (97.6)
Have health insurance		
Yes	922 (58.3)	904 (98.0)
No	651 (41.2)	637 (97.8)
Self-care orientation		
High	529 (33.5)	523 (98.8)
Low	1052 (66.5)	1026 (97.5)
Medication Knowledge		
Good	1016 (64.3)	997 (98.1)
Poor	562 (35.5)	549 (97.7)

Table 2: Therapeutic classes reported in self-medication practices.

Therapeutic classes used	Number (%)	Average number of medications taken simultaneously ± SD
Headache relievers (paracetamol)	1370 (86.6)	2.79 ± 1.37
Decongestants	715 (45.3)	3.47 ± 1.30
Herbal remedies	512 (32.4)	3.26 ± 1.42
Antibiotics*	314 (19.9)	3.89 ± 1.38
Laxatives/anti-diarrheal agents	295 (18.7)	4.09 ± 1.34
Topical treatments	284 (18)	3.89 ± 1.38
Back-pain relievers (NSAIDs)	221 (14)	4.04 ± 1.47
Ulcer medications	159 (10.1)	4.27 ± 1.4
Anti-allergic medication	105 (6.6)	4.28 ± 1.38
Sedatives*	69 (4.4)	3.72 ± 1.53
Do not remember	52 (3.3)	2.29 ± 1.65
Others	22 (1.4)	3.82 ± 1.89

*Prescription-only medications. Other classes maybe classified as prescription-only or over-the-counter medications, depending on their active ingredient(s) and dosage strength.

Table 3: Analysis of the most commonly reported therapeutic classes, and the factors that affected their utilization.

Therapeutic classes that were used	Type of Variable	Number of respondents (%)	P value	Chi Square P value*	O.R
Headache relievers (Paracetamol)	Males	503 (89.2)	P= 0.5	NS	
	Females	869 (88.3)			
	Medical	406 (89.6)	P= 0.5	NS	
	Non-medical	966 (88.1)			
	High Self-care orientation	495 (94.6)	P=0.00	S	2.22
	Low self-care orientation	877 (85.5)			
Back-pain relievers (NSAIDs)	Good medication knowledge	889 (89.2)	P= 0.3	NS	
	Poor medication knowledge	481 (87.6)			
	Males	73 (12.9)	P= 0.26	NS	
	Females	148 (15.0)			
	Medical	68 (15.0)	P= 0.7	NS	
	Non-medical	153 (14.0)			
Antibiotics	High Self-care orientation	129 (24.7)	P=0.00	S	1.98
	Low self-care orientation	92 (8.9)			
	Good medication knowledge	154 (15.4)	P= 0.16	NS	
	Poor medication knowledge	67 (12.2)			
	Males	117 (20.7)	P= 0.4	NS	
	Females	196 (19.9)			
Herbs	Medical	118 (26.0)	P= 0.00	S	1.35
	Non-medical	196 (17.9)			
	High Self-care orientation	165 (31.5)	P=0.00	S	1.83
	Low self-care orientation	149 (14.5)			
	Good medication knowledge	209 (20.9)	P= 0.5	NS	
	Poor medication knowledge	104 (18.9)			
Decongestants	Males	275 (48.8)	P= 0.09	NS	
	Females	441 (44.8)			
	Medical	217 (47.9)	P= 0.3	NS	
	Non-medical	499 (45.5)			
	High Self-care orientation	346 (66.2)	P=0.00	S	2.28
	Low self-care orientation	370 (36.1)			
Laxatives/anti-diarrheal agents	Good medication knowledge	472 (47.3)	P= 0.43	NS	
	Poor medication knowledge	243 (44.3)			
Laxatives/anti-diarrheal agents	Males	90 (16.0)	P= 0.008	S	
	Females	206 (20.9)			1.12

	Medical	120 (26.5)	P= 0.000	S	1.49
	Non-medical	176 (16.1)			
	High Self-care orientation	173 (33.1)	P=0.000	S	2.11
	Low self-care orientation	123 (12.0)			
Ulcer medication	Good medication knowledge	211 (21.2)	P= 0.016	S	1.14
	Poor medication knowledge	85 (15.5)			
	Males	67 (11.9)	0.1	NS	
	Females	92 (9.3)			
	Medical	56 (12.4)	0.08	NS	
	Non-medical	103 (9.4)			
	High Self-care orientation	91 (17.4)	0.0001	S	1.86
	Low self-care orientation	68 (6.6)			
Anti-allergy medications	Good medication knowledge	116 (11.6)	0.2	NS	
	Poor medication knowledge	43 (7.8)			
	Males	55 (9.7)	0.0001	S	1.48
	Females	50 (5.1)			
	Medical	23 (5.1)	0.04	S	
	Non-medical	82 (7.5)			1.12
	High Self-care orientation	65 (12.4)	0.0001	S	1.97
	Low self-care orientation	40 (3.9)			
Topical treatments	Good medication knowledge	65 (6.5)	0.7	NS	
	Poor medication knowledge	40 (7.3)			
	Males	98 (17.4)	0.2	NS	
	Females	186 (18.9)			
	Medical	90 (19.9)	0.2	NS	
	Non-medical	194 (17.7)			
	High Self-care orientation	157 (30.0)	0.0001	S	1.93
	Low self-care orientation	127 (12.4)			
Sedatives	Good medication knowledge	179 (18.0)	0.6	NS	
	Poor medication knowledge	105 (19.1)			
	Males	33 (5.9)	0.03	S	1.33
	Females	36 (3.7)			
	Medical	14 (3.1)	0.050	S	
	Non-medical	55 (5.0)			1.44
	High Self-care orientation	32 (6.1)	0.016	S	1.41
	Low self-care orientation	37 (3.6)			
	Good medication knowledge	37 (3.7)	0.15	NS	
	Poor medication knowledge	32 (5.8)			

*NS: statistically not significant. The percentage for each therapeutic class was calculated as follows: each sub group was divided on the total number of that subgroup who reported practicing self-medication.

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