Original Article

Prevalence and association of self-medication practices with personal and educational factors among university employees of Saudi Arabia: A cross-sectional study

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ABSTRACT

Background and Objective: Self-medication (SM) is an emerging practice in both developing and developed countries. The commonality of this behavior is observed in patients with specific environments. The current study endeavored to determine the prevalence of SM practices and their correlated factors among academic employees in Saudi Arabia. **Methods:** A cross-sectional study was conducted at King Saud University Hospital, recruiting 383 participants. The participants received an online survey on self-medication practices. The data were analyzed using descriptive statistics and regression analysis. **Results:** In the study, all the participants reported practicing SM at least one time. Of those who practiced SM, 66.7% (102) were unmarried with a significant difference ($P = 0.036$) while 68.0% (117) had no children ($P = 0.003$). Non-Government employees and unemployed participants had the highest percentage of experiencing SM (70.5%, $n = 31$, $P = 0.036$). Our results reveal that health perceiving, life satisfaction, and religious reasons were not significantly associated with practicing SM with P value = 0.704, 0.535, and 0.482, respectively. In the univariate model, gender, marital status, and the number of children revealed a significant correlation with SM (P value = 0.136, 0.058, and 0.040), respectively. SM was 1.4 times as likely if the participant was female and 1.3 if the participant was unmarried. The multivariate regression model shows that gender and marital status lost their significance while number of children ($P = 0.023$) was significantly correlated with SM. Our results also show the main reasons for self-medication were prior knowledge (25%), time-consuming consultations (21.6%), the belief that the condition did not require a doctor (22.4%), and previous experience with similar symptoms (23%) while major causative clinical conditions involved in SM is pain (37.5%) and fever (28.4%). It also shows that 33% experienced no side effects and 34% experienced shortness of breath as a side effect of practicing SM. **Conclusion:** Our study spotted a significant frequency of SM behavior with high prevalence among University employees. Our study shows that gender, marital status, and number of children have a significant correlation with SM. The pharmacist's role is pivotal in promoting awareness for the safe utilization of over-the-counter drugs, and their proactive engagement is paramount. Educational health programs should be implemented to minimize SM malpractice.

Keywords: Education, self-medication, social factors, university employees

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Introduction

The practice of self-medication (SM) is progressively being adopted in developed and developing countries.[1,2] It confers an intake of medicines without consulting a physician. According to the World Health Organization (WHO), SM is defined as 'the use of over-the-counter medication (OTC) for the intervention of disorders with self-diagnosed symptoms.[1,2] Several forms of SM include employing previous prescriptions for similar symptomatology and intake of medicines available at home. The causative factors involve inadequate information about the disease, scarcity of time for consultation, and accessibility to medicines and others.[3] This malpractice is often exacerbating pre-existing clinical traits. Clinical complications could be the consequences of SM including increased antimicrobial resistance, drug reactogenicity, physical health problems, social difficulties, criminal justice, and mental health problems.[1,3,4]

The stats of SM prevalence may vary with various regions worldwide. Amongst developing countries, it ranges from 95% and even more.[2] In Saudi Arabia, several studies have reported a high prevalence of SM among university students, with percentages ranging from 19.61% to 98.7%.[5-7] With reference to the United Arab Emirates population, a cross-sectional study has revealed that a substantial proportion of university students engaged in self-medication without seeking the advice of a pharmacist (57.5% practiced SM). The probability of consulting a pharmacist when utilizing an over-the-counter medication was found to be lower among medical students compared to their non-medical counterparts and among individuals who do not peruse the accompanying drug information leaflets.[8] In addition, a study from Kabul reflected divergent data matrices, where the SM pervasion among medical students was 25.16%.[9] The reasons for low medicine use among Afghans may stem from poverty, limited access to health care, low education and awareness, cultural beliefs, and inadequate government funding for public health. Many may resort to traditional remedies instead of seeking medical care. Most of these studies were conducted in relatively high educational level persons, which alarms healthcare providers and governmental authorities to take serious actions to understand the malpractice of SM as well as steps to minimize its impact on public health.

A range of studies have recognized several factors in this context including age, educational background, self-care orientation, medicinal information, monthly income, distant healthcare facilities, limited approach to pharmacies, aspects of religion, in-home availability of medicines, marital status, family pressure of peer, emergency illness, and the deferral of hospital services.[10-13] In addition, media influentially contributed to invigorating this behavior.[13]

Academia is a place where the majority of the employees are qualified and are aware of the harms of self-medication. Even so, high work-related stress scores may increase the propensity of SM practices.[14] Unfortunately, there are no studies in the literature that assess the reasons as well as the impact of SM in specific society gatherings. In addition, there are no studies that elaborate on the effect of a person`s education toward the practice of SM.

Category	Subcategory	Frequency % n=383	No% (n), n=150	Yes% (n), n=233	P
Age	Less than 30	35.5 (136)	33.1 (45)	66.9 (91)	0.067
	31-40	17.5 (149)	37.6 (56)	62.4 (93)	
	41-50	38.9 (67)	50.7 (34)	49.3 (33)	
	51 – 60	8.1 (31)	48.4 (15)	51.6 (16)	
Gender	Male	71.0 (272)	41.5 (113)	58.5 (159)	0.084
	Female	29.0 (111)	33.3 (37)	66.7 (74)	
Marital Status	Married	60.1 (230)	43.0 (99)	57.0 (131)	0.036*
	Unmarried	39.9 (153)	33.3 (51)	66.7 (102)	
Number of children	None	44.9 (172)	32.0 (55)	68.0 (117)	0.003*
	1	11.2 (43)	39.5 (17)	60.5 (26)	
	2 to 3	26,9 (103)	38.8 (40)	61.2 (63)	
	More than 3	17.0 (65)	58.5 (38)	41.5 (27)	
Education level	High school	19.8 (76)	39.5 (30)	60.5 (46)	0.638
	Bachelor	53.5 (205)	40.5 (83)	59.5 (122)	
	Masters	17.0 (65)	32.2 (21)	67.7 (44)	
	PhD	9.7 (37)	43.2 (16)	56.8 (21)	
Monthly Income	Less than 5000 SAR	12.0 (46)	34.8 (16)	65.2 (30)	0.923
	5000-10000 SAR	40.7 (156)	40.4 (63)	59.6 (93)	
	10000-20000 SAR	38.1 (146)	39.0 (57)	61.0 (89)	
	More than 20000	9.1 (35)	40.0 (14)	60.0 (21)	
Job type	Retired	5.7 (22)	77.8 (14)	22.2 (8)	0.036*
	Government employee	82.8 (317)	38.8 (123)	61.2 (194)	
	Non-Government employee	11.5 (44)	29.5 (13)	70.5 (31)	

Table 1: Demographic details and comparison between those who said yes and no in the study participants (*n*=383)

*Significant

Thus, the current study endeavored to determine the prevalence of SM practices among academic employees of Saudi Arabia and its relation to social and educational factors.

Methodology

Study settings

A self-administered online survey was used to compile the data. We employed a non-probability sampling technique in this cross-sectional study. Ethical approval was procured from the Institutional Review Board (IRB) No E-21-6439 of King Saud University, Riyadh, Saudi Arabia. All participants signed an informed consent form outlining the study's goals, relevance, and confidentiality provisions prior to any data collection. All information provided by participants was kept private and anonymous. In addition, participants were enabled to decline participation or withdraw at any moment. Participants were not guaranteed any financial or other benefits. Over the course of 6 months, 383 university employees filled out the questionnaire. Employees of Riyadh universities were included, whereas people under eighteen, non-university employees, and illiterate individuals were excluded from the study. All the participants were guided on how to fill out the questionnaire.

Study instruments

The participants were analyzed against two sections: sociodemographic features and practices on the use of medicines in the cohort. Sample characteristics were examined by age, sex, marital status, number of children, education level, monthly income, and practice and frequency of unadvised medicinal intake. Practices on the use of medicines were assessed by asking if they had any misuse event (unadvised intake of medicines) happened in their life, the frequency of misuse events (MUE), causes of MUE, and a few other related queries.

Statistical analysis

Data were statistically analyzed using SPSS 21, and descriptive statistics were employed to determine the characteristics of the data set. Frequency distribution rendered cumulative percentages to delineate the prevalence of the self-medication practice. We also employed logistic regression to appraise the relationship between the dependent variable (SM practices) and the independent variables. Data estimation was performed at a 95% Confidence Interval (CI), and $P < 0.05$ was considered significant. If the P value in the univariate was 0.2 or less, the variable was eligible for the multivariate model. Odds ratios were assessed with 95% confidence intervals. The data output was finally presented in the form of tables and charts. Pearson's Chi-square was used to evaluate the association between variables.

Results

In this study, we collected data from university employees with 71% (272) male and female 29% (111) while the majority were under 41 years old (53%, $n = 285$). More than half of the participants 53.5% (205) have a bachelor's degree and ~19% independently rated for high-school and master-level qualifications, while 52.7% (202) have a monthly income of 10000 SAR and below. Of those who practiced SM, 66.7% (102) were unmarried with a significant difference ($P = 0.036$) while 68.0% (117) had no children ($P = 0.003$). Non-Government employees have the highest percentage of experiencing SM (70.5%, $n = 31$, $P = 0.036$) [Table 1].

Table 2 reveals that health perceiving, life satisfaction, and religious reasons were not significantly associated with practicing SM with P value = 0.704, 0.535, 0.482, respectively.

Univariate and multivariate regression models of the variables are shown in Tables 3 and 4. In the univariate model, gender, marital status, and the number of children revealed a significant correlation with SM (P value = 0.136, 0.058, and 0.040), respectively. SM was 1.4 times as likely if the participant was female and 1.3 if the participant was unmarried.

Table 4 shows univariate regression models for other risk factors with no religious reasons for avoiding medications is 1.1 times referenced to the presence of religious reasons with P value = 0.788.

Table 5 revealed the multivariate regression model. Gender and marital status lost their significance while the number of children ($P = 0.023$) was significantly correlated with SM.

Table 2: Estimate of self-medication (SM) risk variables (n=383)					
SM-Risk Variables	Estimate Points	Frequency % (*n*)	No, *n*=150	Yes, *n*=233	*P*
Health Perceiving	Poor	2.6 (10)	30.0 (3)	70.0 (7)	0.704
	Fair	11.2 (43)	32.6 (14)	67.4 (29)	
	Good	44.9 (172)	39.5 (68)	60.5 (104)	
	Excellent	41.3 (158)	41.1 (65)	58.9 (93)	
Life satisfaction	Not at all satisfied	5.2 (20)	25.0 (5)	75.0 (15)	0.535
	Moderately satisfied	10.3 (74)	39.2 (29)	60.8 (45)	
	Very satisfied	34.5 (132)	37.9 (50)	62.1 (82)	
	Completely satisfied	40.7 (156)	41.7 (67)	58.3 (91)	
Religious reasons for avoiding medications	Yes	5.0 (19)	42.1 (8)	57.9 (11)	0.482
	No	95.0 (364)	39.0 (142)	61.0 (222)	

Table 3: Univariate logistic regression models for demographic variables				
Category	Subcategory	OR	95% Confidence Limits	*P*
Age	Less than 30	Ref	-	0.701
	31–40	0.821	0.5–1.3	
	41–50	0.48	0.26–0.87	
	51–60	0.52	0.23–1.1	
Gender	Male	Ref	-	0.136*
	Female	1.407	0.89–2.25	
Marital Status	Married	-	-	0.057*
	Unmarried	1.323	0.988–2.313	
Number of children	None	Ref	-	0.040*
	1	0.719	0.361–1.434	
	2–3	0.740	0.445–1.232	
	>3	0.334	0.185–0.601	
Education level	High school	Ref	-	0.641
	Bachelor	0.959	0.560–1.642	
	Masters	1.366	0.683–2.736	
	PhD	0.856	0.386–1.899	
Monthly Income	<5000	Ref	-	0.924
	5000–10000	0.787	0.397–1.563	
	10000–20000	0.833	0.417–1.663	
	>20000	0.800	0.322–1.985	
Job type	Retired	Ref	-	0.630
	Government employee	5.52	1.12–27.0	
	Non-Government employee	8.34	1.525–45.67	

*significant. If the *P* value in the univariate was 0.2 or less, the variable was eligible for the multivariate model

| Table 4: Univariate regression models of estimate of self-medication (SM) risk variables				
Category	Subcategory	OR	95% confidence Limits	*P*
Health Perceiving	Poor	Ref	-	0.706
	Fair	0.888	0.199 – 3.960	
	Good	0.655	0.164 – 2.623	
	Excellent	0.613	0.153 – 2.460	
Life satisfaction	Not at all satisfied	Ref	-	0.547
	Moderately satisfied	0.517	0.170-1.577	
	Very satisfied	0.547	0.187-1.596	
	Completely satisfied	0.467	0.162 – 1.348	
Religious reasons for avoiding medications	Yes	Ref	-	0.788
	No	1.137	0.446 – 2.895	

Table 5: Multivariate regression model in university employees who used self-medication practice				
Variable	Level	OR	95% Confidence limits	*P*
Gender	Male	Ref		0.484
	Female	1.191	0.731-1.941	
Marital status	Married	Ref		0.506
	Unmarried	0.763	0.344 – 1.693	
Number of children	None	Ref		0.023*
	1	0.602	0.236-1.533	
	2 to 3	0.620	0.270 – 1.424	
	More than 3	0.279	0.113-0.693	

*Significant

Figure 1 shows the main reasons for self-medication were prior knowledge (25%), time-consuming consultations (21.6%), the
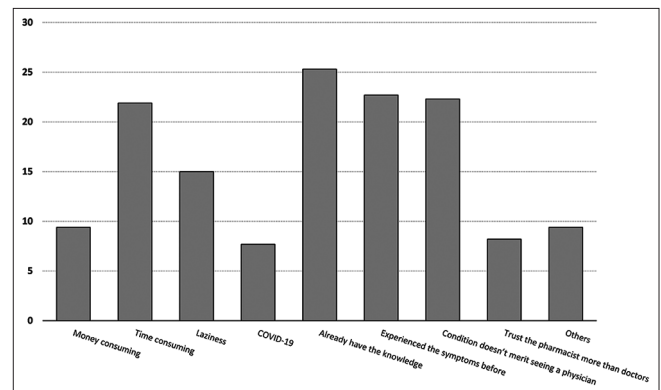
Figure 1: Percentage distribution of reasons for self-medication practice in university employees (*N* = 383)

belief that the condition did not require a doctor (22.4%), and previous experience with similar symptoms (23%).

Figure 2 shows major causative clinical conditions involved in SM are pain (37.5%) and fever (28.4%) while Figure 3 reveals the side effects of practicing SM in that 33% experienced no side effects and 34% experienced shortness of breath.

Discussion

The phenomenon of self-medication (SM) is prevalent globally, both in developed and developing countries.[2,5] As mentioned previously, several reasons might lead to SM practices. We found that prior knowledge, time-consuming consultations, the belief that the condition did not require a doctor, and previous
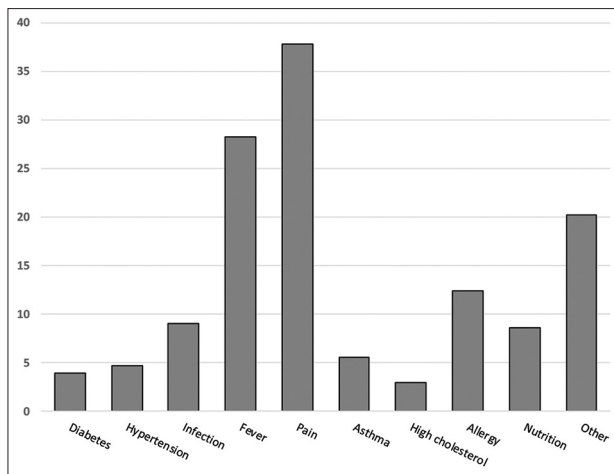
Figure 2: Percentage distribution of the major causative clinical conditions involved in self-medication (*N* = 383)

Figure 3: Percentage distribution of the side effects accompanying self-medication (*N* = 383)

experience with similar symptoms were the most important reasons that led to such practices. These results are comparable to other studies that found similar results.[10-13] Time-consuming was one of the driving forces for SM because it is a major concern when you plan to visit healthcare providers in Saudi Arabia. Our results reveal that money consumption was not a major reason for practicing SM (8%). This could be due to the relatively high monthly income of university employees compared to other countries.

Even though our participants did not show critical side effects, that does not mean SM is a safe practice and has no hazardous implications. Some studies reported very critical side effects.[15-17] Healthcare providers should take educational responsibility through several media applications to explain the detrimental impact of SM.

The prevalence of SM in our study was astonishing compared to other studies,[18-20] even though most of our participants are highly educated (more than 50% have bachelor's degrees). We found that 100% of the participants practiced SM at least one time in their lives. Long hospital waiting lists and delayed appointments could lead to such practices in similar situations.

Our study shows that gender, marital status, and number of children have a significant correlation with SM was 1.4 times as likely if the participant is female and 1.3 if the participant is unmarried. A busy schedule of females with family and work duties might be the driving force for practicing SM. A similar study found a high prevalence of women practicing SM.[21] The multivariate regression model shows that the number of children was significantly associated with SM. The larger the family, the more demand upon parents which leads to short cut of treatment instead of going to hospitals.

Particularly important findings were health perception, life satisfaction, and religious reasons were not significantly associated with practicing SM. The daily personal characteristics
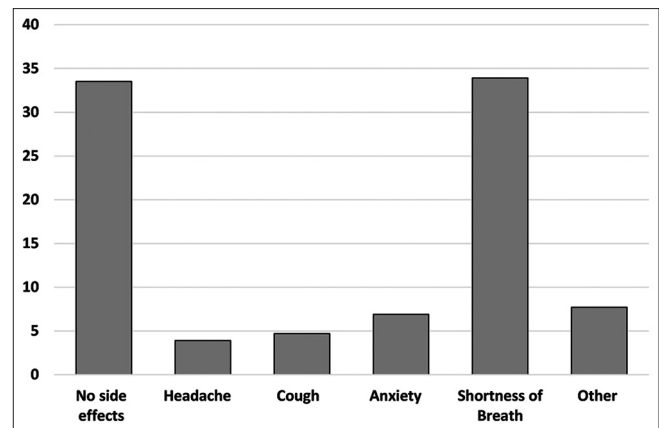
were more correlated with SM due to its immediate influence on personal schedules and the need for immediate relief of medical problems.

We admit that the small sample size is a weakness in addition to its very specified section of society (University employees). On the other hand, detailed sociodemographic features were analyzed in this study and various aspects were assessed. One of the limitations and weakness of this study is that it did not assess the traditional treatment practices such as herbal treatment and homeopathic and also their impact on driving the public toward SM which is an area of future research.

Conclusion and Recommendations

Our study spotted a significant frequency of self-medication behavior with high prevalence among university employees. Our study shows that gender, marital status, and number of children have a significant correlation with SM. The pharmacist's role is pivotal in promoting awareness for the safe utilization of over-the-counter drugs, and their proactive engagement is paramount. Educational health programs should be implemented to minimize self-medication malpractice. We also recommend financial support for parents who sponsor children to reduce SM and also invent feasible ways of reaching healthcare providers without obstacles.

The astonishing fact of our findings is the practice of SM in highly educated population (university employees). Therefore, intensive educational programs in various society gatherings as well as collaboration with ministry of education to highlight the side effect of improper medication usage.

In addition, further research is needed to evaluate the causes as well as the impact of SM our society at large scales and at all levels.

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Conflicts of interest

There are no conflicts of interest.

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