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Prevalence of self-medication practices and drug use in patients with diabetes mellitus type 2: A cross sectional study in Southeast of Iran

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ABSTRACT

Self-medication is one of growing concern among Iranian people especially among patients. This study was aimed to assess self-medication practices and to evaluate the types of drug that are used in patients with diabetes mellitus type 2. This cross-sectional study was conducted on 150 type 2 diabetic patients attending to diabetes clinic of Zahedan city in 2015. A well-validated questionnaire that included 3 sections about self-medication was administered to the subjects after introducing the term "self-medication" verbally. The subjects were selected using convenience sampling method. In this study 111 female (74%) and 39 male (26%) patients were assessed. The mean age of the subjects was 51.9±12.4 years. About 80.7% of the participants were reported self medication with different drugs. The self-medication was significantly related to female gender (OR=2.1, 95% CI: 1.21-8.9), unemployment (OR=3.03, 95% CI: 1.64-11.5) and illiteracy (OR=2.03, 95% CI: 1.16-11.02; illiterate patients compared to patients with academic education). Self-medication was highly common among patients with diabetes mellitus type 2 irrespective to their length of the disease. Obtaining medical knowledge increased the patients' awareness of the risk of self-medication which may result in practicing responsible self-medication. However, medical teaching institutions need to educate the patients about the proper use of medicines as a therapeutic tool.

Key words: Self-medication, Drug use, Diabetes mellitus type 2

INTRODUCTION

Self-medication is the consumption of any drug in order to treat self-diagnosed disorders without any medical command[1].However, using different drugs irrespective to physicians' prescriptions can cause many inappropriate outcomes such as prolong suffering, adverse drug reaction and increase in antimicrobial resistance[2]. It should be noted that Self-medication is general and widespread in developing countries due to drug accessibility, cultural background and saving of time and money to consult a doctor[3- 4].

The prevalence of self-medication varies from 12% to 90% in Iran and it is estimated that each Iranian uses 339 drugs annually [5–9]. As the results of a meta-analysis in Iran, the overall prevalence of self-medication was estimated to be 53%, so that the most important group of disease in which patients self-medicated was respiratory diseases and the most important group of medication was analgesics [10].

On the other hand, most of the patients with diabetes mellitus (DM) type 2 are susceptible to self-medication and self-prescription using medicinal plants, preparations and medicine [11]. On the other hand, Type 2 diabetes mellitus involves about 246 million people around the world and is expected to increase to 380 million by 2025. A Meta-analysis in Iran has shown that the prevalence of type 2 diabetes in over 40 years is 24% and it increased by 0.4% with each year after 20 years of age[12]. Due to this pretty large population, study about the different aspects of these patients is too important in Iran.

Unfortunately, many patients are prone to noncompliance of prescribed medications and convince to look for self-medication. Sometimes there is misbelieving among these patients that the self-medication and herbal remedies are totally safe, whereas, these remedies usually are contaminated with harmful substances[13-14]. As the result of a study 45% of the patients with diabetes type 2 were taking herbal remedies and self-medication[15].

There is a paucity of literature on the prevalence of self-medication practices among patients with diabetes mellitus type 2 in Iran, especially in southeastern area. This study aims to estimate and determine the prevalence of self-medication and drug use in patients with diabetes mellitus type 2 in Southeast of Iran, and characterizes its patterns and related factors. Due to lack of data in Sistan and Baluchistan province, the results of this study (as we know this is the first study in this region) can also provide the basis for comparison in future epidemiological studies.

MATERIALS AND METHODS

A cross-sectional survey was carried out on 150 type 2 diabetic patients attending to diabetes clinic in Zahedan city, southeast of Iran. The study was carried out from August to October 2015, using a questionnaire. The questionnaire consisted of three parts. The first part obtained demographic data of the respondents including age, gender, nationality, marital status, location of their home town (e.g. urban or rural), occupation, educational level, insurance status and duration of disease. The second part of the questionnaire contained questions about the different types and groups of the drugs that may have been used by patients. The third part of the questionnaire included few questions to study the reasons of self-medication and source of information used by the respondents while practicing self-medication. The questionnaire was developed by the authors after an extensive review of literature and was tested for ease of comprehension and readability. However, the data was collected using deep interview by one expert medical university student.

The subjects were selected using convenience sampling method. The informed consent was taken from the students before collecting the data. To enhance the validity of student's self-reports, they were assured strict confidentiality of their responses and they could not be recognized by their answers.

The collected data were entered into and analyzed using SPSS (Statistical Package for the Social Sciences) version 20 for windows. The prevalence of self-medication among respondents grouped according to demographic characteristics was compared using chi-square and fisher exact tests. Moreover, a multiple logistic regression was used to investigate the effect of predicting factors on self-medication among diabetic patients by controlling potential confounders. A p-value of less than 0.05 was taken as statistically significant.

RESULTS

Of all the subjects, 111 (74%) were females and 39 (26%) were males. The average age of the patients in the sample was 51.9±12.4 (Min. 34 and Max. 79).In this study 49.3% (n=74) of the patients were illiterate and only 3.3 %(n=5) of them had university education. Only 3 patients (2%) were single and only 7 patients (4.7%) have not any insurance. The mean of the disease's duration (number of years from first diagnosis till now) and mean of the number of the children for patient was10.8±5.9 and 5.8±2.6, respectively. Regarding job status, 91.9% (n=102) of the female were housewife and 34.2% (n=24) of the males were retired.

This study showed that 80.7% (n=121) of the patients had self-medication practices. Table 1 indicates the distribution of self-medication based on the types of drugs and reasons for these practices according to patients' responses. As it brought in table one, Herbal drugs was the most frequently self-medication (72.6%) followed by antibiotics (46%).The most frequent reasons for self-medication included lack of knowledge about drugs' side effect (59.3%); persistency of acquaintance based on their good experience regarding self-medication(46%) and accessibility of drugs at owner home and acquaintances (44%).

Table1. Distribution of self-medication based on the types of drugs and reasons for these practices according to patients' responses among type 2 diabetic patients in Zahedan, southeast of Iran (N=150)

Self-medication N (%)			Reasons for Self-medication*	N (%)
No	29 (19.3)		Expensive Physicians' visit	
Yes	Types of the drugs(Drugs' group)		Accessibility of drugs at owner home and acquaintances	66(44)
	Analgesic and anti-inflammatory drugs	29(19.3)	Persistency of acquaintance based on their good experience regarding self-medication	69(46)
	Antibiotics drugs	69(46)	Easy preparation from drugstores	65(43.3)
	Anti allergic drugs	34(22.6)	Lack of confidence to physicians	35(23.3)
	Antidepressant drugs	21(14)	Lack of accessibility to physicians	33(22)
	Antipsychotic drugs	18(12)	Lack of insurance	4(2.6)
	Antiviral drugs	12(8)	Unbelief to drugs' complications	55(36.6)
	Sedative drugs	33(22)	Lack of knowledge about drugs' side effect	89(59.3)
	Herbal drugs	109(72.6)	Crowded clinics and private offices	45(30)
			Previous disease experience	33(22)
			Instructions of pharmacist	55(36.6)

**Irrespective to types of the drugs and according to patients' response*

In this study the self-medication (irrespective to type of used drugs and medication) was regarded as dependent variable. Table 2 shows the results of the relation between background variables and self medication in bivariate and multiple logistic regression analysis. The results of logistic regression analysis indicated that gender (OR=2.1, 95% CI: 1.21-8.9), job status (OR=3.03, 95% CI: 1.64-11.5) and educational level (OR=2.03, 95% CI: 1.16-11.02; illiterate patients compared to patients with academic education) were statistically significantly associated with self-medication and remained in the final model. As interpretation of the calculated ORs, it could be noted that the chance of self-medication among females is more than males. Also the likelihood of self-medication among illiterate patients and patients without job (retired or housewife) is more than the other ones (Table 2).

Table 2: Univariate and Multiple Exact Logistic Regression Analysis of the Factors Associated with the self-medication (Variables with P < 0.200 in the Bivariate Analysis entered in multiple regression models using Hosmer-Lemsho Method)

Factors		Total	Number (%) of self-medication	Univariate P. value	Multivariate OR (95% CI)
Sex	female	111 (74)	95(85.6)	0.036	2.1 (1.21, 8.9)**
	male*	39(26)	26 (66.6)		1
Education	Illiterate	74(49.3)	67 (90.5)	0.047	2.03(1.16,11.02) **
	Elementary or guidance school	49 (32.7)	39 (79.6)		1.83(0.96, 5.22)
	High school or University graduate*	27 (18)	15 (55.5)		1
Age (year)	>60	30 (20)	25 (83.3)	P=0.27	NS***
	40-59	89 (59.3)	73 (82)		
	<39*	31 (20.4)	23 (74)		
Job Status	Unemployed (retired or housewife)	126 (84)	109 (86.5)	P=0.031	3.03(1.64,11.5) **
	Employed*	24 (16)	12 (50)		1
Duration of the disease (year)	>5	87 (58)	71 (81.6)	P=0.65	NS***
	<5*	63 (42)	50 (79.3)		
Number of children	>4	85 (56.6)	72 (84.7)	P=0.31	NS***
	<4*	65(43.4)	49 (75.3)		
Insurance	Has	143(95.3)	116(81.1)	P=0.26	NS***
	Has not*	7(4.7)	5(71.4)		

**Reference group. **Significant at level P<0.05. ***No Significant*

DISCUSSION

This study showed that the prevalence of self-medication is high among diabetic patients in southeast of Iran. The overall prevalence of self-medication in our study was 80.7%. This result is consistent with the previous studies in Nepal [16], India [17] and in Serbia [18], which were about self-medication among students. On the other hand a study in Kuwait [19] has reported the self-medication practices among diabetic patients about 13% that is too lower than present study. The prevalence of self-medication in Iran has estimated 53% in a Meta-analysis [10] that is too lower than present study. In this study Herbal drugs was the most frequently self-medication (72.6%) followed by antibiotics (46%). As a comparison in the study conducted among medical students in Bahrain the proportions were

analgesic (81.3%), antipyretics (43%), antibiotics (6%) and anti-allergies (13%) [20], that is different with the results of our study. The previous studies around the world [21-23], have reported the prevalence of using herbal supplements from 14% to 67%, which are lower than present study. However, using herbal supplement and alternative medicine is constantly increasing throughout the world, especially in developing countries and there is a need to create awareness among the prescribers and patients regarding the dangers of concomitant intake of herbal remedies for diabetes. There are various herbal supplements in Sistan-Baluchistan province in southeast of Iran that people may alleviate themselves with conventional medications, irrespective to probable side effects. Therefore, higher use of herbal supplements in Zahedan, southeastern Iran is expected. However, increasing public awareness and improvement cultural background, supervision of physicians' and pharmacies' performance can have beneficial effects in this regard.

As a result of present study the prevalence of self-medication significantly differs according to gender but it is not related to age. This result is fairly in line with the previous study in Serbia where prevalence of self-medication was dependent on age and gender [18].The previous study in India reported no significant association of self-medication with gender in medical students [17].In this study the self-medication prevalence among illiterate patients was significantly higher compared to the patients with academic education. Also the chance of self-medication among patients without job (retired or housewife) was more than the employed or in work patients. However these results are not parallel with the previous study among diabetic patients in Kuwait [19].

In this study most of the unemployed patients (68%)were females that stayed at home and amused to housekeeping, which could be explanation for increasing the chance of self-medication by both female gender and unemployed job status. In Iran the women that stayed at home, have more time to communicate and transfer the information to each other when their husbands go to work. Therefore, the women encourage each other to do common experiences. Hence, the probability of self-medication among housewife women (unemployed ones) was too high. On the other hand, most of the Iranian housewives have not high level of education and easily believes each other words immediately. So it seems that the relation between educational level and self-medication could be due to low awareness about the reality of drugs and their complications and side effects.

Although the self-medication was also higher among the elderly than in the other age groups but it was not statistically significant. As the results of previous studies in Iran, the prevalence of self-medication among the Iranian elderly is higher than among the elderly in the world (38%) [24-27]. As most of the elderly patients were illiterate in this study and on the other hand low level of awareness increases the chance of self-medication [28], hence, health officials should raise awareness among this group.

In this study the duration of the disease and lack of insurance were not related to self-medication that is parallel with the results of study in Kuwait [19]. Therefore, it seems that the patients' needs should be respected based on the cognitive and physiologic changes that take place during aging [29]. Self-care education is emphasized because it leads in active role in treatment process and accepting responsibility for individual health [30]. Social networks are used for behavior improvement, educational performance and other self-care education [31].

The most frequent reasons for self-medication included lack of knowledge about drugs' side effect (59.3%); persistency of acquaintance based on their good experience regarding self-medication (46%) and accessibility of drugs at owner home and acquaintances (44%). It should be noted that the diabetes mellitus is a problem that needs to high care and management so that the self-medication may have some irreversible determents for these patients. Therefore, generally, there is more need to increase knowledge of the prescribers and patients regarding the complications of the self-medication with different drugs for diabetes. On the other hands the pharmacists should be explained about consequences of the self-medication and they should not give the drugs to patients without reliable physician's prescription. Otherwise, "reduction of treatment expenditures, creation of facilities for simple and inexpensive access to physicians, appropriate notification through mass media, raising public awareness of self-medication and limiting the sales of drugs without prescriptions" [10] could be effective manners to decreasing self-medication regarding all disease including diabetes mellitus.

There are several limitations to our study. First, although the cross-sectional nature of the study provided evidence of association between predictor variables and self-medication, the causal inference it not clear. Second, due to convenience sampling design method in this study, our findings should not be generalized to all patients in this region. Third, low level of education among the subjects was another limitation regarding response to the questions.

CONCLUSION

The overall prevalence of self-medication among type 2 diabetes patients in Zahedan, southeast of Iran is high. Unfortunately, most of the time the patients are not aware about the complications of self-medication, therefore, the authorities in the health system should try to educate and explain the patients to use the drugs with supervision of the reliable physicians. Improvements in physician' visit system and increase the knowledge of the patients regarding complications of unduly self-medication may mitigate self-medication among the patients. It seems that collaboration between patients and their families in warning and changing students' attitude towards self-medication, especially in the beginning of the disease, could more effectively address the phenomenon of self-medication. However, more studies are required to look into this remedy-seeking behavior of patients so as to minimize self-medication while envisaging safety of long-term treatment of diabetes.

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