

MISUSE AND ABUSE OF DRUGS: A CROSS-SECTIONAL SURVEY AMONG PHARMACY PROFESSIONALS IN SAUDI ARABIA

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ABSTRACT

Prescription and non-prescription medication misuse or abuse is a global problem that has a negative impact on all human life aspects, including health, social, economic, and security status. According to the United Nations Office on Drug and Crime reports, over 5% of adult people used drugs at least once in the year 2015, and 29.5 million of them were suffered from the consequences of inappropriate use of drugs. Information on the knowledge and perception among pharmacists regarding the misuse and abuse medications in Saudi Arabia are limited, and therefore, a study was conducted among pharmacy staff to assess their knowledge and awareness on drug misuse and abuse. A cross-sectional study was carried out in Eastern Province, Saudi Arabia. Pharmacy professionals with more than three months of experience were included in the study. A structured questionnaire was used to obtain the participant's responses. A Chi-square test was used to evaluate the association of socio-demographic factors with the participant's responses. Ninety pharmacy professionals were responded. Overall, 69 (76.7%) participants agreed that misuse and abuse are two different terms. In addition, the study showed different responses for patients who suspected to be medication abusers. In conclusion, this study provides an initial picture of pharmacy staffs' knowledge and opinion regarding the misuse and abuse of medicines in Saudi Arabia. Participants' reactions toward such behaviors were different and not consistent. Therefore, there should be a clear policy to define the role of the pharmacy staff toward the misuse and abuse of medication in Saudi Arabia.

Keywords: *Knowledge, Perception and Practice, misuse and abuse*

1. INTRODUCTION

World Health Organization (WHO) defined the rational use of medications as where patients receive medications suitable to their clinical needs, in doses that are optimal for enough period, and at the lowest price. Inappropriate use of drugs can be classified into either misuse or abuse (World Health Organization (WHO), 2002). Drug misuse is defined as the use of medications in a way other than that is stated by a physician, while drug abuse is the use of a substance for a purpose not consistent with legal or medical guidelines (Sadia, 2015).

Although the terms 'abuse' and 'misuse' are interchangeably used when talking about

illegal medications, the terms have to be differentiated when it comes to prescription or over-the-counter (OTC) medications (Sadia, 2015). The issue of misuse and abuse of medications has become a serious concern afflicting all countries, owing to the crucial dangers triggered to health, social, economic, and security (Ali, *et al.*, 2011).

According to the United Nations Office on Drug and Crime reports, over 5% of adult people used drugs at least once in 2015, and 29.5 million of them were suffering from drug use disorders (United nations office on drugs and crime, 2017). The magnitude of the impairment triggered by drug use is underlined by the estimated 28 million years of "healthy" life lost worldwide in 2015 (United

nations office on drugs and crime, 2017). There is a lack of data regarding the abuse of medications in Saudi Arabia. However, one study concluded that substance abuse could be a public health issue in Saudi Arabia, that was also linked to many psychiatric diseases (Bassiony, 2013).

Pharmacists are front-line health care providers, most accessible members of a health care team, the sentinel of the country's Schedule X drugs, dispenser of addictions pharmacotherapy, and drug educator (Lafferty, *et al.*, 2006). The American Society of Health-System Pharmacists (ASHP) clearly states, "ASHP believes that pharmacists have unique knowledge, skills, and responsibilities for assuming an important role in substance abuse prevention, education, and assistance" (American society of health-system pharmacist (ASHP), 2003). However, in Saudi Arabia, data pertaining to the knowledge and awareness of pharmacists and other pharmacy staff to problems related to drug abuse and misuse are limited. The aim of this study is to investigate the understanding of pharmacy professionals about the difference between words 'misuse and abuse' of medications, in addition to investigating pharmacists' belief about the misuse/abuse of medications in Saudi Arabia. We also evaluated the pharmacy staff's practice regarding dispensing medications to customers suspicious for misuse or abuse of the medications.

2. MATERIALS AND METHODS

2.1 Study setting, recruitment and data collection

A cross-sectional study was conducted from January–May 2017 among pharmacy professionals, working in different public sectors hospital and community pharmacies in Dammam and Al Khobar regions, Eastern Province, Saudi Arabia. A convenient sample of 13 pharmacies, including three hospital pharmacies and ten community pharmacies, in the region was selected. All pharmacy professionals, including pharmacists (having a bachelor's degree in pharmacy) and pharmacy technicians (not having a bachelor's degree in pharmacy) from the selected pharmacies, were considered for screening. Pharmacy professionals with less than three months of experience are most likely to be under training, and thus, they were not included in the study. Pharmacy professionals working in

more than one pharmacy outside the sector were also excluded from the study. A study researcher visited the participated pharmacies and encouraged the participants to fill up a study questionnaire on the spot. Each pharmacy's director and the participants were briefed about the aim and the objectives of the study. A total of 100 pharmacy professionals agreed to participate in the study. Informed consent letters were obtained from the participants before completing the questionnaire. Participants were assured about the confidentiality of their personal information and response.

2.2 Study instrument

A questionnaire was developed through the review of literature and researches available in this field and was used to obtain participants' socio-demographic information and their response. The primary draft of the questionnaire was distributed to members of the research team for their feedback, and modifications were carried out as per the suggestions. Based on a pilot study, which was carried out on 20 pharmacists before the definitive study, some questions were modified. The questionnaire had three sections; the first section was about participants socio-demographic details. The second section was discussing pharmacy professionals' understanding of the difference between word misuse and abuse of medications and their belief about the misuse/abuse of medications in Saudi Arabia. The participants were also asked to list the name of commonly abused or misused drugs from their experience. The final section was about pharmacy professionals' practice regarding dispensing medications to customers suspicious for misuse or abuse of the medications.

2.3 Ethical approval

The study was approved by the Institutional Review Board of Imam Abdulrahman Bin Faisal University, Saudi Arabia (IRB-UGS201805210).

2.4 Data processing and analysis

Participants' socio-demographic information and their response to the questionnaire items were presented using frequencies and percentages. Chi-square test was used to test the association of gender, age, place of work, nationality, and years of experience of pharmacy professionals with their responses. A 2-tailed significance test was set at the 0.05 level for

all analyses. All statistical analyses were performed using SPSS Statistics version 24.

3. RESULTS AND DISCUSSION:

3.1 Results

Among the 100 pharmacy professionals who agreed to participate, 90 had returned filled questionnaires. The refusal for participation was due to either pressure of time or administrative commitments. The socio-demographic characteristics of the participants were summarized in (Table 1). The sample was comprised of 61.1% males, 43.3% aged less than 30 years, 62.2% Saudi nationals, 72.2% with a bachelor's degree or more, 77.8% from hospital pharmacies, and 34.4% with more than ten years of experience.

Table 1. Socio-demographic characteristics of participants

Socio-demographic variables	N	%
Gender		
Male	55	61.1%
Female	35	38.9%
Age		
20-30 years	39	43.3%
31-40 years	31	34.4%
41 years or older	20	22.2%
Nationality		
Saudi	56	62.2%
Other	34	37.8%
Educational qualification		
Pharmacy technicians*	25	27.8%
Bachelor's degree	55	61.1%
Master's degree or higher	10	11.1%
Graduated from		
Saudi university	46	51.7%
Non-Saudi university	43	48.3%
Working place		
Hospital pharmacy	70	77.8%
Community pharmacy	20	22.2%
Years of experience		
1-5 years	31	34.4%
6-10 years	28	31.1%
11-15 years	13	14.4%
16 years or more	18	20.0%
Overall	90	100%

*Not having a bachelor's degree in pharmacy

The participants were asked about their understanding of the difference between terms of misuse and abuse of medications (Figure 1). Overall, 69 (76.7%) participants agreed that there is a difference between these terms. As shown in Figure 1, the agreement was less than 70% among pharmacy technicians or among those who aged less than 30 years; whereas the agreement was 80% or more among the participants aged more than 30 years, graduated from Saudi universities, having a bachelor's degree or more, or having 11-15 years of experience.

Importantly, 75.6% (n=68) think that both narcotics and non-narcotics medications are misused/abused in the country while remaining responded that either only narcotic medications (12.2%) or only non-narcotic medications (12.2%) are misused/abused.

Participants practices at pharmacies was also discussed, (Figure 2) and (Table 2) summarize practice at a pharmacy regarding dispensing medications to customers suspicious for misuse or abuse of the medications. The key finding is that three-quarter (n=68) of participants claimed that they never dispensed medication to customers if misuse/abuse was suspected. Among the remaining 22 participants, nearly half of participants claimed that they had reacted to situations where misuse/abuse of medications was suspected before dispensed the medications. That is, in total, 87% of participants had reacted to customers suspicious for misuse or abuse of the medications. Importantly, 12 (13.3%) participants accepted that they had failed to react before dispensing medications to suspicious customers. In details, the proportion of the non-reacted pharmacy professionals, a high percentage was reported among female (26%), aged less than 40 years (16%), Saudi nationals (14%), pharmacy technicians (36%), graduated from a Saudi university (17%), working in a hospital pharmacy (14%), and having experience 6-10 years (25%) (Table 2). Importantly, more females and pharmacy technicians tended to dispense medication without reacting to suspicious situations ($P < 0.05$). However, the study did not show a statistical association between other socio-demographic characters and this practice ($P > 0.05$).

Participants were also asked about the possible effective solution from their experience that can limit misuse/abuse of medications. Overall, 83.3% (n=75) think that awareness programs to both pharmacy professionals and

customers may limit the misuse/abuse of medications. In addition, implementation of punishment (50.0%, n=45) and limit easy access to medications (47.8%, n=43) were also effective solutions to control the misuse/abuse of medications from the pharmacist point of view.

3.2 Discussion

Pharmacists and pharmacy technicians in retail and hospital pharmacies are important stakeholders for the dispensing of medicines. Thus, they share equal responsibility for substance abuse/misuse detection and prevention (American society of health-system pharmacist, 2003). Being aware of this problem, having sufficient knowledge to identify medication abuse/misuse and playing a crucial role in educating individuals with substance abuse problems are important points that pharmacists should consider.

Previous studies revealed that pharmacists receive scant information on substance abuse/misuse during their undergraduate courses, and few professionals from this area can be considered experts in the area of misuse or abuse (American society of health-system pharmacist, 2003; Tomko and Giannetti, 2013). However, study results showed that pharmacists' and pharmacy technicians' knowledge in this area was respectable; more than three-quarters of participants agreed that they are aware of the differences of abuse and misuse terminologies. Though it wasn't statistically significant. Young ages (20–30 years old) were unaware of the difference in the terminology compared to higher ages (more than 40 years) (33% vs. 15% respectively). The possible reason for the increased understanding among higher ages might be due to the existence of well-established practice-based-knowledge. It is well documented that pharmacists will gain knowledge by focused training or more often gained through personal experience (Wagner, 2010). Similarly, a higher proportion of pharmacy staffs having fewer years of experience were also unaware of the difference in the terminology compared to those having higher years of experience. This could be due to the reasons that pharmacists in the country are periodically undergoing continuous medical education. Also, over the last few decades, an extensive change was observed in the medical education and medical services in the Arabian

countries, and it has been reflected in medical research activities that pertains to substance-related issues also (Jon, 2010). A substantial proportion of pharmacy technicians were unaware of the difference in terminology, possibly because of the lack of education and training offered to the technicians. Another reason could be due to the un-offered courses that could help in understanding the medication misuse during their study. Interestingly, high percentages of Saudi graduates were aware of the difference than those who graduated from non-Saudi universities.

National Institute of Health (NIH) reports that nearly one-fifth of people in the United States have used prescription medicines for non-medical reasons (Sweileh, *et al.*, 2014). The issue is substantial in the Middle East, and it could be a matter for serious concern in Saudi Arabia (Khalifeh, *et al.*, 2017; Sammon, 2017). With regards to our participants' knowledge about which type of medications can be abused or misused, a majority (88%) of them stated that narcotics and/or non-narcotic medications could have the chance to be misused or abused. This finding is consistent with the results of a previously published study (Abood and Wazaify, 2016). More specifically, study participants enlisted the common substance that can be misused or abused, such as Pregabalin, Gabapentin, Benzodiazepines, Tricyclic Antidepressants, Tramadol, and other Analgesics, Trihexyphenidyl, Metformin, and Antibiotics. Similarly, over the counter medications like Mentex Syrup (Ammonium Chloride, Dextromethorphan, Diphenhydramine, Menthol, Pseudoephedrine, and Sodium Citrate) Lactulose Syrup, Bisacodyl, Solpadine (Paracetamol, ibuprofen, caffeine, and codeine), and Caffeine can be abused or misused. Some of the medications listed are consistent with a recent study that reported the top 10 medications that are used between 2010 and 2015 (AlKhamees, *et al.*, 2018). Most of the study participants believe that misuse and abuse issues can have significant economic as well as clinical consequences. Globally, a total of \$35 billion spending is used to treat the drug users annually (AlKhamees, *et al.*, 2018). A recent published study reported that analgesics abuse by adult patients in primary care settings is associated with around \$53.4 billion in costs every year (International Narcotics Control Board, 2014; Sheree, 2017).

Pharmacies have a critical role in preventing and protect patients from drug misuse or abuse problem (American society of health-system pharmacist, 2016). Pharmacists must use

their professional judgment to screen patients for drug misuse or abuse, intentionally ignoring a dubious prescription, when there is a concern over its legitimacy, may not be ethical and acceptable (American society of health-system pharmacist, 2016). Pharmacists reaction towards customers' suspicious requests for medications were different based on gender. A quarter of female pharmacy staff, compared to 5% among male staffs, were reluctant to respond to the situation. The cultural, religious, and gender-specific differences in the country may have been influenced the attitude. Most of the male participants affirm that they would deny prescriptions if they had a serious concern about a prescription, and they would never dispense medication to a customer suspicious to be a misuser. More than one-third of pharmacy technicians claimed that they would not have the chance to face such a situation, and the reason might be the fact that they have limited access to talk directly to the patients when they come to the pharmacy.

Lack of responsibility, the dearth of effective communication between the health care providers and patient and their family, missing follow-ups with doctors, wrong information about the euphoric effects of drugs, multiple prescribers and lack of restriction of prescription of drugs by physicians were all possible reasons reported for abusing or misusing medications, which was consistent with the findings observed in a recently published study (Alshomrani, *et al.*, 2017). A recently published report reveals that unemployment, lack of physical activity, self-treatment of depression, and simply boredom are also the reasons for drug abuse (Nazaraliev Medical Center, 2015). In addition to implementation of education programs and punishment, participants recommended different solutions such as restrictions in prescribing of medication based on the prescribers disciplines, increasing the price of the medication or including them in the insurance plan, restriction on quantity prescribed, implementing good unified electronic networking of records and tracking system of substance abusers, more involvement of health care providers including physicians and pharmacists in this sensitive issue. Moreover, according to American society of health-system pharmacist, pharmacists should be enrolled to limit substance abuse problems as this is their responsibilities as healthcare providers either by preventing, educating or assisting through performing different activities such as providing and participating in substance abuse prevention and assistance programs, initiating educational programs for patients, technicians, colleges, other

healthcare providers, under graduated students and community. In addition, the referral of patients and their families to support groups, contributing to identifying patients who may suffer from substance abuse and providing optimum counseling sessions for those patients.

3.2.1 Limitations

The present study was done in Eastern Province, and thus results of the study could not be generalized to all the regions of Saudi Arabia. A similar study on the national level can give a clearer picture of whether medication abuse or misuse is a serious issue in Saudi Arabia or not. Other participants from different backgrounds should have been included in this study, such as physicians and nurses. Knowing the differences can give a clear picture of the level of the knowledge and awareness of pharmacists. Another research should be conducted in this regard and compare the differences in knowledge and awareness among health care providers in Saudi Arabia.

4. CONCLUSIONS:

This study provides an initial picture of pharmacists and other pharmacy staffs' knowledge and opinion regarding the misuse and abuse of medicines in Saudi Arabia. There is still a lack of knowledge among some participants about the differences between misuse and abuse of medications. Abuse and misuse can involve both OTC and prescription medications, and the participants' reactions toward such behavior were different and not consistent. Therefore, there should be a clear policy to define the role of the pharmacist toward the misuse and abuse of medication in Saudi Arabia.

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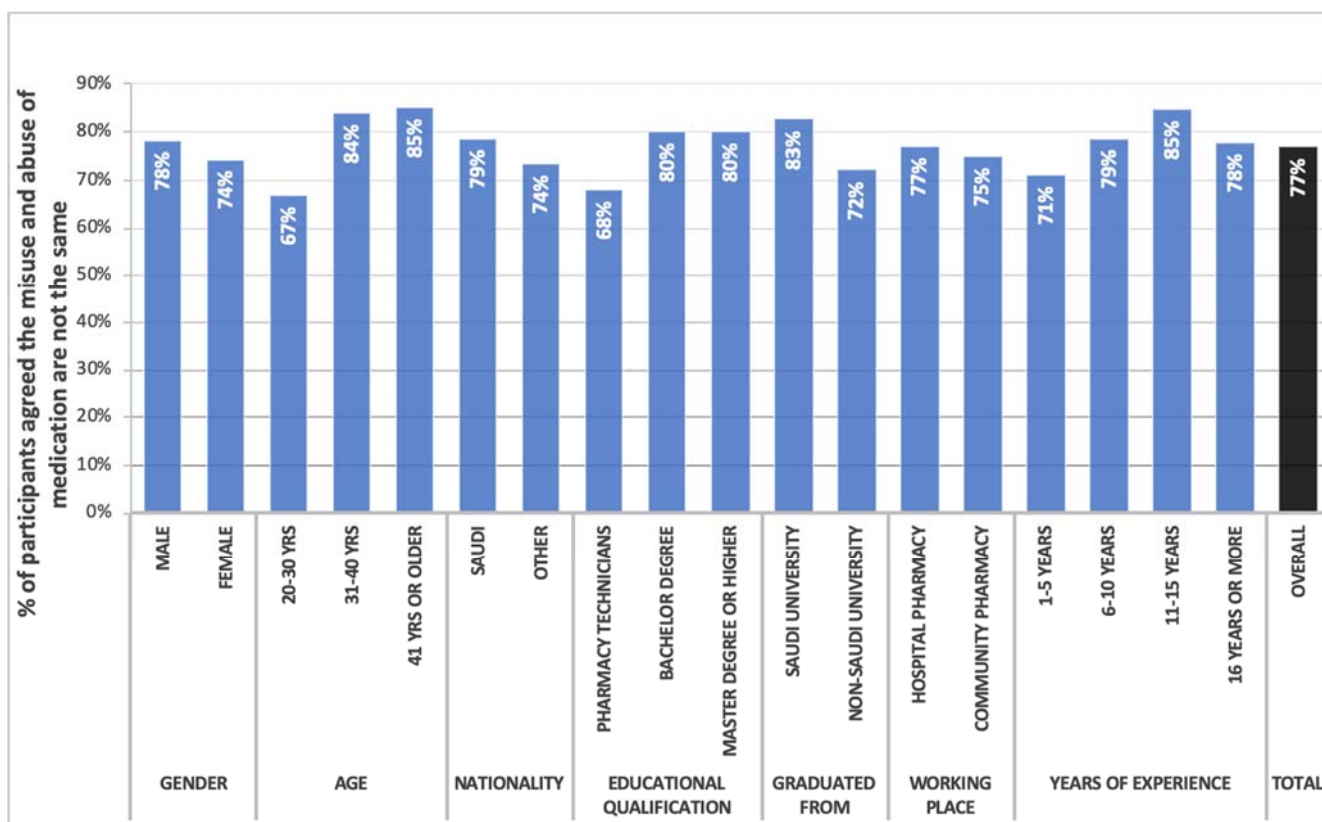


Figure 1. Pharmacy professionals' understanding of the difference between word misuse and abuse of medications.

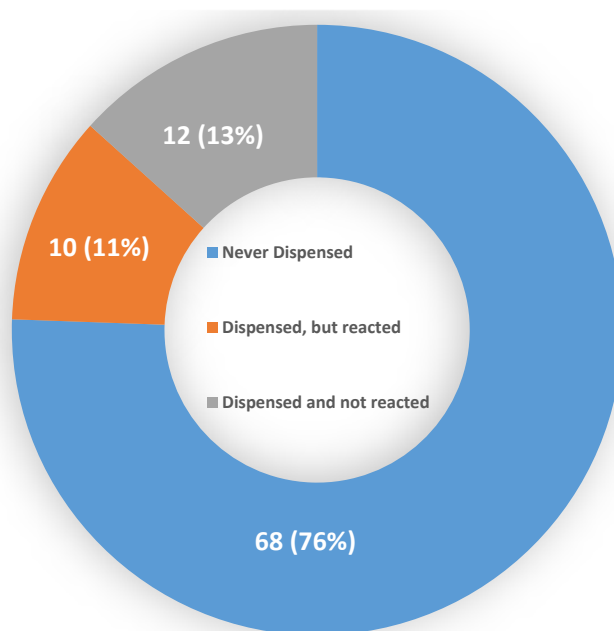


Figure 2. Pharmacy professionals' response to dispensing medications to customers suspicious for misuse or abuse of the medications.

Table 2: Pharmacy professionals' practice on dispensing medications to customers suspicious for misuse or abuse of the medications.

Socio-demographic variables	Practice on dispensing medication if misuse/abuse was suspected			P-value [#]
	Never Dispensed (n=68)	Dispensed, but reacted ¹ (n=10)	Dispensed and not reacted ¹ (n=12)	
Gender				
Male	44 (80%)	8 (15%)	3 (5%)	0.02*
Female	24 (69%)	2 (6%)	9 (26%)	
Age				
20-30 years	31 (80%)	2 (5%)	6 (15%)	0.22
31-40 years	23 (74%)	3 (10%)	5 (16%)	
41 years or older	14 (70%)	5 (25%)	1 (5%)	
Nationality				
Saudi	40 (71%)	8 (14%)	8 (14%)	0.44
Other	28 (82%)	2 (6%)	4 (12%)	
Educational qualification				
Pharmacy technicians ²	13 (52%)	3 (12%)	9 (36%)	0.004*
Bachelor's degree	46 (84%)	6 (11%)	3 (5%)	
Master's degree or higher	9 (90%)	1 (10%)	0 (0%)	
Graduated from				
Saudi university	31 (67%)	7 (15%)	8 (17%)	0.21
Non-Saudi university	36 (84%)	3 (7%)	4 (9%)	
Working place				
Hospital pharmacy	50 (71%)	10 (14%)	10 (14%)	0.18
Community pharmacy	18 (90%)	0 (0%)	2 (10%)	
Years of experience				
1-5 years	25 (81%)	3 (10%)	3 (10%)	0.19
6-10 years	20 (71%)	1 (4%)	7 (25%)	
11-15 years	10 (77%)	3 (23%)	0 (0%)	
16 years or more	13 (72%)	3 (17%)	2 (11%)	

[#]Based on Fisher's Exact Test; * statistically significant at 5% level

¹Reaction defined as either talking or expressing the issue to a concerned patient, doctor, or pharmacy director.

²not having bachelor's degree in pharmacy