

Original Research Article

Knowledge, Attitude and Opinion of Drug Misuse and Abuse by Pharmacy Students: A Cross-Sectional Study in Jordan

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Abstract

Purpose: To assess the knowledge, attitude and opinion of final-year undergraduate and postgraduate pharmacy students regarding inappropriate drug use in a university campus, Amman, Jordan.

Methods: A cross-sectional survey using a self-completed validated anonymous questionnaire that consisted of two parts was adopted. The first part of the questionnaire pertained to respondents' demographic details, education level and any experience they might have had with drug misuse or abuse. The second part described students' knowledge, attitude and practice regarding the identification, prevention and management of drug misuse and abuse.

Results: A total number of 198 pharmacy students filled the questionnaire (N = 131 undergraduate, and N = 67 postgraduate students). A majority of the students strongly agreed/agreed that all pharmacy staff must be trained on recognizing drug abusers (92.0 %), informed of the kinds of drugs abused in the local area of the pharmacy (93.4 %) and trained on methods of dealing with drug abusers (92.6 %).

Conclusion: There is a need to implement a well-structured training on the identification, prevention and management of prescription and OTC drug misuse and abuse in undergraduate pharmacy curricula in Jordan. Modules should be updated regularly and tailored to meet the needs of pharmacy practice.

Keywords: Drug abuse and misuse, Knowledge, Attitude, Pharmacy curriculum

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INTRODUCTION

Inappropriate use of drugs of all kinds and by different age groups is a growing public health problem worldwide [1,2]. Inappropriate use of drugs can be classified into either 'abuse'; typically defined as use of a medication for nonmedical purpose (i.e., experience a mind altering effect) [3,4], or 'misuse'; which is the use of medications for a legitimate medical reason, yet in ways other than as directed, in most cases by alteration of either dose or duration of use [3,4]. While the terms 'abuse' and 'misuse' are

used interchangeably when talking about illicit drugs, differentiation between them becomes more important when talking about prescription or over-the counter (OTC) medications.

Research has shown that opioid analgesics, stimulants, psychotherapeutic drugs, antihistamines, stimulant laxatives and sympathomimetics were among the most widely misused and abused prescribed and OTC medications [5-8].

The United States National Institute on Drug Abuse (NIDA) in 2011 estimated that approximately 2.8 % of the population was using psychotherapeutic drugs for nonmedical purposes [9]. Similar results were confirmed by many researchers through the Middle East area [2,8,10]. Moreover, a number of studies in Jordan have highlighted the misuse and self-medication by systemic antibiotics [2,11-13]. Many reports showed an increase in the prevalence of prescription drug abuse [14-16]. Therefore, there is always a need for pharmacists to have the confidence and ability to offer psychosocial and medication recommendations to patients and other health care professionals about addiction-related issues and their associated hazards, particularly because of the difficulties involved in recognizing addiction [14-16].

To the best of the authors' knowledge, relatively little research attention has focused on pharmacy students' knowledge, attitude and practice towards the inappropriate use of medications [17,18]. Therefore, the aim of this study to assess pharmacy students' knowledge about drug misuse and abuse, explore their attitudes and practice with regard to the most commonly suspected misused and abused groups of drugs.

The specific objectives of the study were:

- 1) To investigate the level of knowledge of pharmacy students about: the terminology of, reasons behind, pattern of and prevalence of drug misuse and abuse.
- 2) To explore students' attitude, experience and expectations of pharmacy curricula regarding the issue of drug abuse/misuse.
- 3) To describe the ability of students to recognize suspected drug abusers and/or misusers in the pharmacy and their potential suggestions and willingness to deal with the problem.
- 4) To explore their opinion on currently implemented strategies to reduce drug misuse, and ask them to suggest new strategies to reduce this problem.

EXPERIMENTAL

This study adopted a cross-sectional survey methodology using a self-completed validated anonymous questionnaire. The questionnaire was adopted from Hughes *et al* and modified to

be applicable in Jordan [3]. The instrument was translated to Arabic and then back-translated to English in order to assure validity. Every effort was made during literature review to ensure content validity. Moreover, various drafts of the questionnaire were evaluated individually by two clinical pharmacists, one statistician and one sociologist in order to ensure face validity.

The University of Jordan is the largest and oldest university in the country; notably, only students with the highest grades could be accepted into the programs of Healthcare specialties (Medicine, Pharmacy, Dentistry and Rehabilitation) in Jordanian universities. Thus, it is thought that UJ students' background, skills, and abilities may be a good representation of those of pharmacy students in Jordan.

The study was piloted on 5 undergraduate and 5 postgraduate students before the official start of the definitive study. Few questions were added/deleted accordingly and the data of the pilot part were excluded from the final analysis.

A simple random sample of 3 modules for final year undergraduate students (N = 165) was used to recruit respondents, whereas the questionnaire was distributed to all postgraduate students (N = 70) in the faculty. The study was carried out after the end of each selected lecture, when questionnaires were distributed and then collected after completion. The questionnaire was distributed to all final year students in the randomly picked modules using a 'drop and pick' (after obtaining verbal informed consent of the student to participate in the study and permission of the module lecturer to take 15 minutes at the end of the lecture). Students were assured that all the information provided by them is confidential and will be used only for research purposes by the team at the University of Jordan (UJ).

The questionnaire consisted of two parts: The first part, described respondents' demographic details such as age, gender, level of education (postgraduate or undergraduate). They were also asked if they had witnessed any member of their family/friends having a history of substance misuse/abuse problems. Students were asked if they have ever attended any training courses on drug misuse/abuse during their 5-6 year pharmacy study period.

In the second part, pharmacy students were asked to answer some questions about their attitudes, opinions and practice (if postgraduate and had work experience) towards the

prevention, identification and management of the problem of drug misuse and abuse.

Statistical analysis

Data were coded and entered into a custom-designed SPSS© (Version 17.0) database for statistical analysis. Descriptive measures presented included frequencies, percentages and corresponding 95 % confidence intervals (CIs). X² - square and Fisher exact tests were used to test for statistical difference present among variables ($p < 0.05$).

RESULTS

A total number of 198 pharmacy students responded and filled the questionnaire (N = 131 undergraduate, and N = 67 postgraduate students). The majority of respondents (76.8 %) were female and undergraduate students (66.2 %). The average age of respondents was 23.76 (± 3.58).

With regard to students' experience of drug problem among families/friends, a little more than one-quarter of students (27.3 %) reported to have family/friends with substance misuse problems. The majority of students (63.6 %) reported that they had received training about drug misuse and abuse during their pharmacy studying years. These data are presented in Table 1.

On the 5 point Likert scale, the majority of students agreed/strongly agreed (N = 186, 93.3 %) that it is suitable for a pharmacist to advise suspected drug misusers (in a written or verbal form) about the risks or the way of treating the risks of their behavior, whereas 77.3 % stated to be willing to do that. More than a third of

respondents (35.4 %) agreed/strongly agreed that dispensing controlled drugs without a medical recipe is an important source of money for the pharmacy. Females were more likely to consider themselves more suitable to provide such advice than males ($p = 0.02$). Students younger than 24 years were more willing to advise suspected drug misusers and abusers about the risks of their behavior than their older counterparts ($p < 0.0001$). Undergraduate students more frequently strongly agreed/agreed than postgraduate ones that dispensing controlled drugs without a medical prescription is an important source of money for the pharmacy ($p = 0.015$). The attitudes and opinions of respondents are summarized in Tables 2(a) and 2(b).

Students were asked whether they had been able to identify suspected drug misusers and abusers during their training in community pharmacy (if undergraduate) or during their work experience (if postgraduate). The most commonly reported methods were strong and persistent request for the controlled drug (37.4 %) followed by the use of drugs outside the guidelines (26.3 %). More results are presented in Table 3.

As demonstrated in Table 4, 23.2 % of students would advise drug misusers and abusers about the expected ADR associated with certain drugs, and 24.2 % of them would suggest safer alternatives.

In the part of the questionnaire that asked about pharmacy students' opinions about the strategies used to reduce drug misuse and abuse, the majority of students strongly agreed/agreed with

Table 1: Experience of participating students regarding the problem of drug misuse/abuse (N = 198)

Variable	N (%)
Do you have any friends or relatives who faced problems in using drugs	
Yes	54 (27.3)
No	138 (69.7)
Have you ever received training about drug misuse at the Faculty of Pharmacy	
Yes	67 (33.8)
No	126 (63.6)
Have you had any course about drug abuse during your study	
Yes	79 (39.9)
No	116 (58.6)
Do you like to receive training on drug misuse in the future	
Yes	157 (79.3)
No	31 (15.7)

Table 2(a): Knowledge and attitudes of respondents towards misuse and abuse of drugs in community pharmacy (N = 198)

Variable	N = 198	P-value	Comment
Do you know the difference between the terms 'drug abuse' and 'misuse'			
Yes	153 (77.3%)	0.005	Females more frequently considered themselves knowledgeable regarding the difference between the terms 'abuse' and 'misuse' than males
No	41 (20.7%)	Males vs. Females	
It is suitable to advise suspected drug misusers (in a written or verbal form) in a pharmacy about the risks or the way of treating the risks of their behavior			
Strongly agree/Agree	186 (93.9%)	0.022	Females were more likely to consider themselves more suitable to provide such advice than males
Strongly disagree/Disagree	3.0 (1.5%)	Males vs. Females	
Not Sure	3.0 (1.5%)		
I am willing to advise suspected drug misusers (in a written or verbal form) about the risk or the way of treating the risks of their behavior			
Strongly agree/Agree	153 (77.3%)	< 0.0001	Students younger than 24 years are more willing to advise suspected drug misusers and abusers about the risks of their behavior than their older counterparts
Strongly disagree/Disagree	10 (5.0%)	< 24 yrs vs older students	
Not sure	35 (17.7%)		

Table 2(b): Beliefs of respondents towards misuse and abuse of drugs in community pharmacy (N = 198)

Variable	N = 198	P-value	Comment
I believe that controlled drugs must be dispensed through the pharmacy instead of a central clinic			
Strongly agree/Agree	70 (35.4%)	NS	
Strongly disagree/Disagree	85 (42.9%)		
Not Sure	35 (17.7%)		
I believe that it is unethical to sell misusers controlled drugs			
Strongly agree/Agree	163 (82.4%)	NS	
Strongly disagree/Disagree	11 (5.5%)		
Not sure	15 (7.6%)		
Dispensing controlled drugs without a medical recipe is an important source of money for the pharmacy			
Strongly agree/Agree	70 (35.4%)	0.015	Undergraduate students more frequently strongly agreed/agreed than postgraduates that dispensing controlled drugs without a medical prescription is an important source of money for the pharmacy
Strongly disagree/Disagree	86 (43.4%)	Undergraduate vs postgraduate students	
Not sure	35 (17.7%)		
I deal with suspected drug misusers the same way as I deal with other customers			
Strongly agree/Agree	24 (12.1%)	NS	
Strongly disagree/Disagree	115 (58.1%)		
Not sure	26 (13.1%)		

NS = No statistical significance

Table 3: Reported methods of identifying suspected drug misusers and abusers in community pharmacy (N = 198)

How can you suspect drugs misusers and abusers?	N (%)
Strong and persistent request for the controlled drug	74 (37.4)
Report of lost or stolen supply of the prescribed drug	38 (19.2)
Report of a controlled substance as the only effective one	46 (23.2)
Using the drug outside its guidelines of use	52 (26.3)

the suggestions that all pharmacy staff must be trained on recognizing drug abusers (92.0 %), informed of the kinds of drugs abused in the local area of the pharmacy (93.4 %), trained on methods of dealing with drug abusers (92.6 %), informed of drugs liable to abuse (90.4 %), and 76.2 % of them suggested that all suspected abusers should be referred to a physician as summarized in Tables 5a and 5b.

In addition, while asking about their opinions in some suggested solutions that may be effective in solving the problem of drug abuse in the pharmacy, 28.3 % of students think that raising public awareness about this problem through media, and 23.7 % of students think that

assigning a responsible authority to monitor pharmacists are useful solutions to reduce drug misuse and abuse problems. Lastly, 77.8 % of the students expressed that they were confident about their answers as shown in Table 5.

DISCUSSION

Overall, this study revealed a strong inclination of pharmacy undergraduate and postgraduate students at UJ to receive more training about the identification and management of the problem of drug misuse and abuse, despite reporting the reception of some information scattered in different modules.

Table 4: Suggested strategies by respondents to reduce drug misuse/abuse in community pharmacies (N = 198)

Variable	N (%)
<i>I warn/advise patients about the expected ADR associated with certain drugs</i>	
Yes	46 (23.2)
No	4 (2.0)
<i>I suggest safer alternatives for the abused drug</i>	
Yes	48 (24.2)
No	6 (3.0)
<i>Do you call nearby pharmacies to inform them about a suspected abuser?</i>	
Yes	23 (11.6)
No	35 (17.7)

Table 5(a): Opinions of respondents on strategies used to reduce drug misuse and abuse in community pharmacy (N = 198)

Variable	N (%)
<i>How would you rate the level of control over drugs by official authorities in the pharmacy you have been trained or working in?</i>	
Strongly controlled	17 (8.6)
Controlled to some extent	26 (13.1)
Badly controlled	15 (7.6)
<i>All pharmacy staff must be trained on recognizing drug abusers</i>	
Strongly agree/Agree	182 (92.0)
Strongly disagree/Disagree	2 (1.0)
Not Sure	3 (1.5)
<i>All pharmacy staff must be informed of the kinds of drugs abused in the local area of the pharmacy</i>	
Strongly agree/Agree	185 (93.4)
Strongly disagree/Disagree	1 (0.5)
Not Sure	1 (0.5)
<i>All staff should be trained on methods of dealing with drug abusers</i>	
Strongly agree/Agree	184 (92.6)
Strongly disagree/Disagree	2 (1.0)
Not Sure	2 (1.0)
<i>All staff should be informed of drugs liable to abuse</i>	
Strongly agree/Agree	179 (90.4)
Strongly disagree/Disagree	4 (2.0)
Not Sure	3 (1.5)
<i>All suspected abusers should be referred to a physician</i>	
Strongly agree/Agree	151 (76.2)
Strongly disagree/Disagree	10 (5.0)
Not Sure	25 (12.6)

Table 5(b): Opinions of respondents on strategies used to reduce drug misuse and abuse in community pharmacy (N = 198)

Variable	N (%)
Pharmacists should cooperate with each other and with all other members of the medical team in dispensing some kinds of drugs	
Strongly agree/Agree	144 (72.7)
Strongly disagree/Disagree	17 (8.6)
Not Sure	24 (12.1)
Pharmacists should not sell drugs to people who appear to abuse those drugs	
Strongly agree/Agree	135 (68.2)
Strongly disagree/Disagree	19 (9.6)
Not Sure	33 (16.7)
Do you think that some OTC drugs must be reclassified to prescription-only status	
Yes	57 (28.8)
No	122 (61.6)
Do you think that some OTC drugs can be sold outside pharmacies	
Yes	29 (14.6)
No	145 (73.2)
How much are you confident in answering this questionnaire	
Confident	154 (77.8)
Some doubts	23 (11.6)
Unconfident	5 (2.5)

In fact, many pharmacy students do not receive during their study the effective training in the drug misuse and abuse and in the management of patients with dependence and addiction problems, although curricular guidelines have long been established to address drug misuse and abuse education as a mandatory course in pharmacy schools [19].

In Jordan the majority of pharmacists (approximately 93 %) work in community pharmacies which are considered the most accessible primary health care facilities with over 2000 registered pharmacies distributed throughout the country [11]. This fact has contributed to the responsibility of community pharmacists towards the controlled drug supply to the public, in addition to the prevention, identification and management of prescription and OTC drug abuse and misuse in their pharmacies [20,21].

Of the notable results that the majority of students had mentioned was the suitability to advise suspected drug misusers/abusers in pharmacies about the risk of drug misuse/abuse. This may be easier said than applied since a less proportion said that they would be ready to do it. This fact can be explained by the fact that many drug-seeking individuals can be perceived as "dangerous" people and sometimes may carry weapons or cause trouble in the pharmacy, the fact that may deter pharmacists from wanting to engage in confrontation. Threatening and violent incidents in community pharmacies has been reported in a study done by [22], where

the participant pharmacists reported effects on their general dispensing and advice-giving activities due to the lack of security and safety specially at late-night shifts. According to the Pharmacists' Defense Association in the United Kingdom, dealing with the risk of violent and abusive behavior should be a major part of the policies and procedures of pharmacy practice. In addition, appropriate policies and procedures will considerably reduce risk, such as installing safety screens where staff is most at risk, providing personal attack alarms for high risk staff, employing security staff in serious situations, and providing special training for pharmacists on how to deal with suspected abusers [23].

One of the results that may raise a question regarding the ethical frame students have regarding the dispensing of controlled drugs is that 34.4 % of respondents strongly agreed/agreed that dispensing controlled drugs without a medical recipe was an important source of money for the pharmacy, while 17.1 % of respondents were "unsure". Albsoul-Younes *et al* mentioned in their survey that according to the Jordanian Drug and Pharmacy Practice Law since 1972 that inspectors from the Ministry of Health (MOH) frequently visit community pharmacies to check any violation in general and check special prescriptions for medicines, such as opioids, opioid derivatives, or opioid-containing preparations classified as Schedules 1 – 4 drugs, for which the pharmacist is required to keep the record of these special prescriptions for MOH inspection. As such, it is a rare

incidence for a community pharmacy to sell such products [2].

Benzodiazepines (with the exception of alprazolam), barbiturates and some psychotherapeutic agents, however, are classified in Schedule 8 where the law does not require the pharmacist to keep record of such prescriptions and aborts the chance to trace any violation and allows some pharmacists to sell such preparations without a prescription [2]. Again, this appeared in 13.1 % respondents who either disagreed/strongly disagreed or were unsure that it was unethical to sell controlled drugs to suspected misusers/abusers. Part of the problem is cultural as the uncontrolled consumption and monitoring of consumption of medicines in Jordan is one reason of confusion among responding students. This practice has also been reported in other Arab countries like Egypt, Kuwait, and Palestine [10,24,25].

Haddad *et al* surveyed a 400 high school students of both gender in Irbid, a large urban city at the north of Jordan, only to find that the students lacked in-depth knowledge of substance abuse [26].

More than half of respondents said that they deal with suspected drug misusers different from the way they deal with other customers. This can either be due to the fact that students are usually taught to deal with suspected misusers/abusers as patients who need help rather than criminals OR, on the contrary, because they fear suspects, threat of harm, especially in case of female or novice pharmacists [2].

Limitations of the study

In Jordan, the postal system is not reliable. The authors had to use hand delivery for the questionnaire and obtained the required information with the aid of research assistants. Although this was reflected in the high response rate, it could have affected the tendency of pharmacy students to report freely. It is also recognized that most of the data are based on students' perceptions of day-to-day events, which is highly subjective and captures only a single point of view.

CONCLUSION

There is a need to implement a well-structured training on the identification, prevention and management of prescription and OTC drug misuse and abuse in university pharmacy curricula. Although, there are some topics scattered across some curricular modules, they

should be updated regularly and tailored to meet the needs of pharmacy practice in Jordan. A continuing pharmacy education program for practising pharmacists is also needed since the majority of Jordanian pharmacists work in community pharmacies which are considered the most accessible primary health care facilities.

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