

Management of Controlled Substances and Dependences by Pharmacists

Mazen El-Sakka*

Department of Pharmacognosy, Al Azhar University-Gaza, Saudi Arabia

Abstract

Introduction: Substance abuse is more than a health problem; it is a formidable moral, social and economic challenge with pandemic dimensions. Palestine is not exception and it suffers of this problem, and the trend of use is increasing. Healthcare providers, primary care physicians, and pharmacists, as well as patients themselves and their families, all can play a role in identifying and preventing prescription drug abuse.

Methodology: The study population included 205 of the public pharmacies in the Gaza Strip governorates. Data collection has been performed via interview questionnaire with the pharmacists working in the pharmacies.

Study objectives: were oriented to identify and verify several variables and attributes affecting the existence of drug abuse including: study and analysis of the drug abuse situation in the Gaza Strip, knowledge, attitude and practice of pharmacist.

Results: The majority of pharmacists (90.2%) agree about existence of drug addiction as phenomenon in Gaza strip society and 32.2% of pharmacists believe that the physician, the pharmacist and the inspection department all of them share the responsibility towards drug abuse existence. Most of pharmacists believe that the increased anxiety and tension in the community is the most reason for this demand increase. About (50.2%) of pharmacists don't believe that their colleagues dispense any of the controlled drugs without a doctor's prescription. About (89.8%) of pharmacists are convinced of the need to a medical prescription to dispense any of the drugs listed in all cases, and of these 89.8% there are (84.8%) of pharmacists who don't dispense any of these drugs to a person they doubt even if this person has a medical prescription, so the study show no significant relationship.

Conclusion: the study showed that drug abuse is an existing phenomenon in the Gaza Strip lacking the suitable care and attention to reduce its spread and impact on society. There are similarities between female and male pharmacists in the Gaza Strip in knowledge but differences in practice and attitude.

Recommendation: The physicians, pharmacists and inspection department, should assume their responsibilities towards drug abuse as being a shared responsibility to control the future of the entire community.

Keywords: Controlled substance; Addiction; Tramadol; Pharmacy

Introduction

Substance abuse is more than a health problem; it is a formidable moral, social and economic challenge with pandemic dimensions. Not a single country in the world can be called "drug free". The question we need to face and find an answer for is the following: Why, in spite of all efforts the issues related to substance abuse continue to increase in seriousness" (WHO report, 2004) [1].

The risks for addiction to prescribed drugs increased when the drugs are used in ways other than for those prescribed. Healthcare team, primary care physicians, and pharmacists, as well as patients themselves, all can play roles in identification and prevention of prescription drug abuse. Each of pharmacist, physician and patient has a role in the drug abuse problem,

Preventing or stopping prescription drug abuse is an important part of patient care. However, healthcare providers should not avoid prescribing or administering stimulants, CNS depressants, or opioid pain relievers if needed.

The American Society of Health-System Pharmacists (ASHP) believes that pharmacists have the unique knowledge, skills, and responsibilities for assuming an important role in substance abuse prevention, education, and assistance. Pharmacists, as health care providers, should be actively involved in reducing the negative effects that substance abuse has on society, health systems, and the pharmacy profession (ASHP, 2003) [2].

Greater attention has been given to integrating treatment for co-occurring psychiatric disorders; medical conditions such as HIV/

AIDS, hepatitis, and tuberculosis; and the psychosocial problems that complicate addictive illness.

Drug use in Egypt remains a problem. Estimates of drug users in Egypt range from one million to 6 million people, with most drug users being in the 15-25 age groups. Accurate statistics are difficult to obtain given the taboo nature of drug abuse and the stigma associated with being an addict (WHO, 2010) [3].

Permanent War's in the region (1948, 1967, 1973, and 2008) , sever critical political situation since the first Intifada 1987, and lack of border control led to thousands of young men in Gaza are becoming addicted to a prescription painkiller used to alleviate the stress of living in the besieged Palestinian territory. Students, laborers and even professionals are buying large quantities of tramadol, a synthetic opioid painkiller similar to morphine, although milder, on the black market. It is estimated that the number of drug abusers in the Gaza Strip and the West Bank and East Jerusalem 32000-45000 of whom 20% addicted. In spite of the number of residents of the Gaza Strip does not exceed 2

*Corresponding author: Mazen El-Sakka, Gaza-Palestine, Zip Code: 78000, Saudi Arabia, E-mail: sakkamazen@gmail.com

Received December 07, 2012; Accepted January 11, 2013; Published January 15, 2013

Citation: El-Sakka M (2012) Management of Controlled Substances and Dependences by Pharmacists. Clin Exp Pharmacol S5:006. doi:10.4172/2161-1459.S5-006

Copyright: © 2012 El-Sakka M. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

million, it is estimated in this region that up to 30% of men between 14-30 take tramadol regularly with some 15000 showing signs of addiction (ANGA, 2005) [4], because of many reasons related to political, lack of prescription regulation, abuse of psychoactive drugs administration, even the knowledge regarding the severity of narcotic drugs and the difference meaning between analgesic and opioid analgesic.

Hypothesis

Lack of management of controlled substances and dependences by the government, will affect the performance, interesting, and knowledge of the pharmacist.

Problem statement

Many studies and regulations from World Health Organization (WHO), and United Nation Office for Drugs and Crimes (UNODC) addressed the manipulation of substance abused.

Once we understand the correlation between controlled substance to many aspects of our life, health, socio-economic, even political, we'll begin to see the answer to the problem.

Goal

To reveal the relationship between the situations in Gaza Strip regarding to the availability of official lists for controlled medicines, the available regulations to control these medicines, and the level of implementation of these regulations.

Objectives

1. To evaluate the knowledge of the pharmacists in the private pharmacies regarding these medicines and the level of addiction induced by their use, the knowledge of the official regulation related to these medicines and how much the pharmacists are convinced to follow these regulations for these medicines.
2. To study the real life trends in dispensing these controlled medicines in the pharmacies, and the rationale behind such practices by the pharmacists.
3. To conclude the appropriate proactive and reactive strategies for dispensing and monitoring of these controlled medicines.

Subjects and Methods

A cross sectional study was conducted on the pharmacies in the Gaza Strip governorates.

They are selected in stratified random sampling method. The study was conducted from April to July 2009 in five governorates in the Gaza Strip. The number of pharmacies in Gaza strip is (411) pharmacies distributed in each governorate as following: (Palestinian Enterprise Development PED project, medicine consumption and supply study Nov 2007) [5].

Sample of (205) pharmacies in my study represented 49.87% distributed to all regions of Gaza Strip based on the proportion of pharmacies in each region (North Gaza (37), Gaza city (90), Middle governorate (26), Khanyounis (36) and Rafah (16). Tools of data collection have been performed via interview questionnaire with the pharmacists working in the pharmacies. Interviews were performed using the questionnaire to obtain information about knowledge, attitude, practice, socio- demographic factors, sex, age, number of years of experience, year of graduation, the University, the State from which he/she graduated, dealing with narcotic drugs and hazardous

materials in terms of: 12 medicines were selected and research whether these drugs available without prescription, whether the holder of this prescription is an addict, and the conviction of the need to a prescription for dispensing these drugs in all cases and the reasons in the case of non-persuasion and regard to the phenomenon of drug addiction to narcotic drugs and hazardous materials in terms of: The belief that the existence of the phenomenon of addiction, and who bears responsibility and knowledge of pharmacopoeia and legislation relating to medicines, and knowledge centers caring for addicts, and increase the demand for these drugs and why, finally we end with any comments or suggestions from the pharmacist.

Statistical analysis were performed with SPSS for windows, SPSS version 18, it included frequency distributions of the events of interest. Pearson chi square test was used for comparing categorized variables and p-value less than 0.05 was used for statistical significance.

Results

This study included 205 pharmacies distributed in Gaza strip governorates and are selected randomly according to stratified sampling procedure. Pharmacist's range age was 25-30 years (44.9%), and most of them male (59.5%) with 1 to 3 years of experience (35.6%). The Socio-demographic characteristics of pharmacists are presented in Table 1.

About (86.8%) of pharmacies their availability of information sources on books and journals, while (17.6%) on websites (Table 2).

Above age of twenty four shows the majority of demand drugs abuse (74.1%), most of them are workers (Table 3).

The study shows that the most times of the demand for such drugs is in the evening and night (39.02%) (Table 4).

Regarding to the reality of inspection (the department of drug control) to pharmacies in Gaza strip from pharmacist point of view shows in (Table 5).

The study demonstrate the weakness of the system used in the inspection and control of these drugs to reduce the illegal dispensing and use (Table 6)

Table 7 shows that about 50.2% of pharmacists not believe that their colleagues dispense the items listed without a doctor's prescription but 45.4% of them believe the opposite.

On question if the pharmacist doubted that the person requesting one of these drugs is an addict and was in possession of a doctor's prescription, did you dispense medication to him? Only (14.1%) of the pharmacists dispense the medication to a person whom they doubt even though he had a doctor's prescription (Table 8).

This study shows that the most three common drugs demand in the pharmacy are Tramal, Pulmadrin compound and Xanagis (Table 9).

More than ninety percentages agree that there is a phenomenon of addiction to narcotic drugs, and more than one person bear the responsibility (Table 10).

Most of pharmacist (66.3%) did not attend any courses or seminars regarding drug addiction and (89.3%) from the pharmacist needs such courses and seminars. In spite of lack of these courses, the study shows that (51.7%) of pharmacists contribute to or think about a solution to this phenomenon of addiction.

Regarding to knowledge of the existence of centers caring for

Characteristics	Number (%)
Sex	
Male	122 (59.5%)
Female	83 (40.5%)
Age	
Less than 25	52 (25.4%)
25-30	92 (44.9%)
More than 30	61 (29.7%)
Years of experience	
1-3	73 (35.6%)
4-6	55 (26.8%)
7-10	36 (17.6%)
11 or more	41 (20.0%)
The country of graduation	
Palestine	160 (78.0%)
Arabic countries	21 (10.2%)
Others	24 (11.8%)

Table 1: Distribution of pharmacists by socio-demographic factors.

Availability of information resources	
Availability of books, journals	178 (86.8%)
Availability of computer	69 (33.7%)
Availability of websites	36 (17.6%)

Table 2: The availability of information resources in Gaza strip pharmacies included in the study.

Characteristics	Number (%)
Rich and affluent people	8 (3.9%)
Staff and middle-class income	36 (17.56%)
workers and artisans class	108 (52.68%)
The poor class	19 (9.27%)
Non specified	34 (16.59%)

Table 3: The classes of majority of whom demand these drugs according to the outer appearance of them.

Characteristics	Number (%)
The morning	6 (2.93%)
The afternoon until the evening	24 (11.71%)
The evening and night	80 (39.02%)
Unspecified	95 (46.34%)

Table 4: The most times of demand of these drugs.

Characteristics(Number of visit)	Number (%)
None	40 (19.5%)
Once a year	53 (25.9%)
Twice a year	62 (30.2%)
more than twice a year	50 (24.4%)

Table 5: The number of inspection department (department of drug control) visits to the pharmacy each year.

addicts in terms of treatment (medical), the study shows that 30.2% said yes, while (69.8%) don't know. Respectively, the study shows the strong lack of knowledge of the existence of centers caring for addicts in terms of education (92.2%).

More than seventy percentages (70.7%) of pharmacists note an increase in the demand for narcotic drugs in their pharmacies (Table 11).

Regarding to causes of drug addiction phenomena, the pharmacist show that increased anxiety and tension in the community is the most reason (67.6%) for the increase in demand for narcotic drugs in the Gaza Strip pharmacies (Table 12).

Discussion

The present study was conducted to investigate the socio-demographic characteristics, knowledge, attitude, practice of pharmacists. In addition; socio-demographic characteristics of drug abusers from pharmacist point of view in Gaza Strip are studied as being important indicators for the pharmacists practice.

Distribution of pharmacists by sex and age groups shows that male are predominant 59.5% against 40.5% female. It is known that Females after marriage do not accept the idea of working in pharmacies due to the long hours of work that do not fit with their married life and low salaries paid for this work, so they prefer staying at home in spite of male who have no choice due to the responsibility of spending on the marital home.

The study showed that the majority of pharmacists are of average age 25-30 (44.4%) where the minority of them are of average age less than 25 (24.9%), this is a logical consequence because the pharmacist when graduate is of average age 23-25 and those can't work directly they need more training to get a work, on the other hand the pharmacists of average more than 30 years old had obtained other jobs other than in public pharmacies so the most of pharmacists are of average age 25-30.

The major information scientific resources available in the pharmacies are the books and journals but the researcher noticed that the pharmacists consider that the medic book is an information resource but in fact the medic is (An alphabetical and pharmacological index not a scientific reference).

The study showed that most of drug abusers are of average age 24

Characteristics(Effectiveness)	Number (%)
Effective	43 (20.98%)
Not effective	140 (68.29%)
Don't know	22 (10.73%)
Total	205 (100%)

Table 6: The effectiveness of the system used in the inspection and control of these drugs to reduce the illegal dispensing and use.

General trend	Repetition(%)
No	103 (50.2%)
Yes	93 (45.4%)
Neutral	9 (4.4%)
Total	205 (100%)

Table 7: To what extent do you think that the pharmacist's colleagues dispense the items listed without a doctor's prescription? (This question does not mean you actually do so).

General trend	Repetition (%)
No	158 (77.1%)
Yes	29 (14.1%)
Neutral	18 (8.8%)
Total	205 (100%)

Table 8: If you doubted that the person requesting one of these drugs is an addict and was in possession of a doctor's prescription, did you dispense medication to him?.

Drug	Order	No (%)
Tramal	1	201 (32.8%)
Pulmadrin compound	2	116 (18.9)
Xanagis	3	69 (11.3)

Table 9: Choose the most three types of medicines in demand in your pharmacy from the following list.

Who bears the responsibility of this phenomenon	
Physician	3 (1.5%)
Pharmacist	34 (16.6%)
Inspection service and the general administration of pharmacy	46 (22.4%)
Physician and pharmacist	56 (27.3%)
Others: more than one	66 (32.2%)

Table 10: The responsibility of this phenomenon.

There is a marked increase in the demand for narcotic drugs in your pharmacy	
Yes	145 (70.7%)
No	48 (23.4%)
Don't know	12 (5.9%)
Total	205(100%)

Table 11: Increase in the demand for narcotic drugs.

Decline in the prices of these drugs	11 (7.6%)
Increased anxiety and tension in the community	98 (67.6%)
Both reasons	25 (17.2%)
Other reasons	11 (7.6%)

Table 12: The reason for the increase from pharmacist's point of view.

or more years old but the pharmacist note an increase in number of drug users of average age less 24 which means a dangerous situation in Gaza schools and universities. It is known from many published studies that most of drug users are of this average age Proglar [6].

The majority of who demand these drugs is workers and artisans (52.7%) and this would be due to two main reasons:

- The years they worked and lived in Israel and between Israeli people leading to a particular culture have made them go on addiction.
- The difficult economic conditions and unemployment, which suffer from following the closure of the borders making their life so difficult leading to a state of despair and frustration so as normal consequences to their bad situations and the culture they learned as said before they go on addiction.
- Political, economic and social conditions have changed in recent years. Rapid changes impact the lack of country's situation stability, and citizens have a lot of problems in adaptation processes. Adaptation problems lead to other problems, which affect the weakest population's members. Such conditions are the best for spreading drugs in society (Stonkutė and Magnus, 2000) [7], but it is noticed an increasing number of pharmacists (16.6%) believe that the drug users are of all strata of the society (Research and Social Survey Unit of Democracy watch, 2001) [8]. Socioeconomic factors related to drug use include low educational levels, early school leaving and drop-out; unemployment, low salaries and difficult jobs; low income and debt; insecurity of accommodation and homelessness; mortality and drug-related diseases; poor access to care; and social stigma (The state of drugs problem in the European Union and Norway, 2003) [9].

The most times of the demand for such drugs are the evening and night, this reflect three main reasons:

- The pharmacist knows that the inspection mainly is at the morning and afternoon times so he will be more flexible in dispensing these drugs without a prescription at the evening

and night time and this may reflect a trend of the pharmacist himself

- The second reason that the drug users can note that the pharmacist is more flexible in dispensing drugs at this time, also the pharmacist himself may tell the drug users about the time of inspection so they avoid these times for their drug demand.
- Third as known in Gaza, pharmacists working at the morning and afternoon times are usually female who mostly not agree to dispense these drugs without a prescription so the drug users can note this easily.

In spite of most of pharmacists (30.2%) note that the inspection department visits the pharmacies twice a year but on the other hand 68.3% of pharmacists believe that the inspection is not effective. From the pharmacist point of view inspection is routinely, non-serious and usually resume on non-register Egyptian medication and tramadol, also they recommended that inspection should also done to stores and pharmaceutical companies and of doctor's clinics and reviewing their prescriptions. The researcher noticed that the drug abuse is increasing so the inspection is not effective.

The study showed that most of pharmacists (83.9%) are convinced that dispensing any of medication in the list need a medical prescription in all cases, on the other hand 77.1% of the pharmacists don't dispense the medication to a person whom they doubt even though he had a doctor's prescription, in practice this mean that there is a gap between the pharmacist and the doctor in terms of confidence and collaboration due to absence of regulation in prescription that mean it is facile to get a prescription.

Pharmacists noticed that tramadol tablets or capsules are the most drugs demanded then Pulmadrin compound syrup then Xanagis tablets. Gazans can't travel outside the Strip, have few places to go for fun and are faced with a failing economy. Thus the boom in the popularity of tramadol, a painkiller known here by a common brand name, "Tramal". The drug's popularity has been encouraged by its availability, since large quantities have been smuggled through tunnels under the Gaza-Egypt border. Tramadol has spread widely and very fast because, unfortunately, it is available over the counter in pharmacies until 2009, but unfortunately it's also available in the illegal marketing.

The highest number of drug users is between 24-34 years of age. There are 8000 cases of drug use in courts, 3000 cases of trafficking and distribution. Most drug crimes are committed by men. There are about 40,000 drug users in Gaza. There are usually more drug users in places where police is absent (UNODC, 2008) [10].

Most of pharmacists believe that more than one bear the responsibility of this phenomenon (32.2%), this means that the physician, the pharmacist and the inspection department all of them share this responsibility, this is very logical because all of them has an active role on this phenomenon and we cannot exclude one of them.

Pharmacists and physicians need more efficient methods to communicate with each other to more effectively share information about specific clients/patients, and to access more general community and province-wide trends in fraudulent prescriptions and prescription drug abuse and misuse.

Furthermore, while some health professionals may contribute to the misuse and abuse of prescription drugs because of inappropriate prescribing behaviors, others may provide inadequate pharmacotherapy

for pain and other conditions because of fear that their patients will become addicted or that they will incur regulatory scrutiny (NIDA, 2008) [11].

The study showed that 51.7% of pharmacists contribute to or think about a solution to this phenomenon, but the researcher notice that the solution method mostly used is the refusal of dispensing the drugs nothing else.

Inferential Analysis

Data showed that however 85% of pharmacists said that they are convinced of the need to a medical prescription in all cases they claimed that they don't dispense medication to a person they doubt he is an addict so Pharmacist have another considerations in dispensing other than the medical prescription is the outer appearance of the patient.

Several studies associated quality of dispensing with factors such as pharmacist's age, educational background and social and demographic factors of the practice. The pharmacists' opinions about their activity have been proposed as potential determinants of the quality of dispensing. However, these factors have been analyzed individually and so far, no comprehensive theoretical model has been proposed to explain their effect **Darlene** [12].

The study showed that the pharmacists who have the less years of experience (3 years or less) are the most pharmacists who note the increase in narcotic drugs demand in their pharmacies (81.4%) this is due to the fact that the pharmacist with years of experience most have been known the drug user face so he will refuse his request and at the same time the drug user note this so he avoid going to this pharmacist and try to look for another one who is new graduated and exploited his lack of experience to ask for one of these drugs based on lack of expertise of the pharmacist and that he did not know this person if he is addicted or not.

The study showed that Rafah is the governorate that had the opportunity of most inspection (75% twice annually) Because of its proximity to the border with Egypt, and therefore considered a center for smuggling of narcotic drugs through the tunnels so the inspectors keen to search Rafah pharmacies more than others.

The tunnels have been used to smuggle foreign currency, weapons, cigarettes, narcotics, alcohol, electronic items, and prostitutes from Egyptian Rafah to the Palestinian areas of the Gaza Strip at the same time it is noticeable that weapon smuggling is in concern from the world governments in comparison with narcotics smuggling and this due to relation of weapon smuggling to Israel security Jeremy M Sharp [13].

Conclusion

This cross sectional analytic study was conducted in the Gaza Strip pharmacies over the period April 2009 to July2009. An overall conclusion could be summarized in the following topics:

- The drug abuse is an existing phenomenon in the Gaza Strip which lacks the suitable care and attention and the search for solutions to reduce its spread and reducing its impact on society, particularly young people also it is considered as public health issue in the region but it is not declared as such by the governments.
- The drug abuse is predominant among males of average age 24 years old or more although the growing rise in the number of drug users among school and universities students.

- Actually, the tramadol is the most drugs demanded in the Gaza Strip pharmacies and is the most important medication in terms of inspection and control compared to other drugs that didn't receive the same attention.
- Most of pharmacists lack the knowledge about recent regulations and rules.
- The majority of pharmacists had never attended to lectures or seminars about the subject of drug abuse even though they are convinced about the importance of these lectures or seminars.
- No adequate treatment for drug abusers in the Gaza Strip.
- Socioeconomic factors related to drug use include low educational levels, early school leaving, unemployment, low salaries and difficult jobs; low income and debt; insecurity of accommodation and homelessness and bad political situation, all of these factors are included in the increase of drug abuse in Gaza society.
- Although the inspection visits to pharmacies are mostly twice a year but the inspection is still ineffective against the drug abuse increase from pharmacist point of view.
- More than one bear the responsibility of drug abuse phenomenon including the physician, the pharmacist and the inspection department all of them share this responsibility, no one is excluded.
- The majority of pharmacists don't advise people who request these controlled substances all the time; it is based on the extent of their belief in a patient's response to their advice about the danger of the addiction.

Recommendations

- More attention and focus on the phenomenon for the increased in number of drug abusers between students in the schools and universities and work to find a logical and practical solutions to reduce them.
- More work for pharmacists to provide adequate information regarding this subject in terms of laws of exchange and the classification schedules their own assemblies through workshops, courses and specialized seminars
- College of pharmacy must offer the resources to prepare students to care for these patients. In addition to strengthening the undergraduate experience, college of pharmacy must develop residency programs that produce experts in the field.
- Doing sessions to educate new graduates and students of Faculty of Pharmacy and medicine to be sensitized to the dangers of this phenomenon and what can be inflicted upon them through practical training in pharmacies and clinics respectively.
- Full awareness programs should be done to sensitize various segments of society for addiction risks, symptoms and ways to overcome it by syndicates and universities.
- All parties, physician, pharmacists and inspection department, should assume their responsibilities towards this phenomenon and does not load on the other party because this is a shared responsibility to control the future of the entire community.
- There must be limitation for who has the right to write the

prescription containing any of these controlled substances through MOH new laws.

Acknowledgements

My special thanks to all my pharmacists colleagues for their cooperation and interest byfilling in the questionnaire accurately and objectively and for all support and guidance and encourage.

Special thanks for my college WafaKanan who helped in the competition of this research

Special thanks are extended for Mr. Riad El-Afffi for his important role in statistical analysis.

References

1. World Health Organization (WHO) (2004) Report on neuroscience of substance abuse.
2. American Society of Health-System Pharmacists (ASHP) (2003) Statement on the Pharmacist's Role in Substance Abuse Prevention, Education, and Assistance.
3. World Health Organization (WHO) (2010). Country progress report.
4. Anti-Narcotics General Administration (2005), Palestine.
5. Palestinian Enterprise Development PED project, medicine consumption and supply study (2007).
6. Yusef Progler (2010) Drug addiction in Gaza and the illicit trafficking of tramadol, media report.
7. Monika S, Vytautas M (2000) Development of civil responsibility in drug addiction prevention programs. University Michigan Social work.
8. Research And Social Survey Unit of Democracy watch (2001) Drug Addiction and Social Damage: A Case Study at Comilla Town.
9. European monitoring center for drugs and drug addiction (2003) Annual report: the state of the drugs problem in the European Union and Norway.
10. United Nations Office on Drugs and Crime (UNODC) and World Health Organization (WHO) (2008) Discussion paper. Principles of drug dependence treatment.
11. NIDA (2008) Prescription Drugs: Abuse And Addiction, USA 8.
12. Darlene F, Inciardi JA (2008) Prescription Drug Abuse and Diversion.
13. Jeremy M Sharp (2008) The Egypt-Gaza Border and its Effect on Israeli-Egyptian Relations.

This article was originally published in a special issue, [Pharmacology and Toxicology for Safe and Effective Therapy](#) handled by Editor(s). Dr. Peter R. Martin, Vanderbilt Psychiatric Hospital, USA