



Self Medication Problem in Egypt: A Review of Current and Future Perspective

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ABSTRACT

Self-medication is a common practice in developing countries, including Egypt, but little is known about its epidemiology as well as the future plan needed to overcome this problem. This future perspective article aimed to describe the current situation of this problem in Egypt and the prospective vision of the author about this problem and the future plan needed for its prevention and control. Egyptian literatures in English language about self medication from 1995 onwards were searched through a web-based medical database during September, 2015 and articles concerned with this issue was retrieved and reviewed. The reviewed literatures, although sparse, showed a considerable high prevalence of medication abuse among Egyptian population in the recent years which was as high as 86.4% in certain Egyptian governorate. Moreover, there has been lack of studies about other epidemiologic aspects of this problem in terms of its distribution and determinants, its health and economic impacts, and its prevention and control strategies. The present article pays the attention of public health personnel, university and medical researchers to carry out more studies and to increase awareness of general population, students, senior physicians, pharmacists, and organizations about this serious public health problem. In addition, the author presented his prospective view to combat this problem through short and long-term preventive and control plan.

Key Words: Abuse, Egypt, Intervention, Medications, Misuse, Prevention

INTRODUCTION

Self-medication is defined as the use of medications without consulting a doctor regarding indication, dose and duration of treatment (1). Self medication represents an aspect of self-care behavior in which the person does by himself to establish and maintain health, preventing and dealing with diseases (2). The public health importance of self-medication increased when in 1980s World Health Organization (WHO) approved switching of some medications to non prescription status to be sold over-the-counter (OTC) without any prescription in order to reduce the burden on health care professionals (2,3). Subsequently, patients can bypass the health care system and purchased most of medications from private pharmacies without prescription (4).

In Egypt, as in many Middle East countries, medications can easily be obtained over the counter and this is represented a serious public health problem in these countries. The prevalence of medication abuse was progressively increased in

Egypt during the last two decades. An earlier study on drug utilization among children in Alexandria in 1995 reported that 21.1% of purchased medications were not prescribed (5). One year later, the prevalence was 72% in a cross sectional study including 25 private pharmacies in Alexandria city (6). Much more recently, in a community-based survey in the same city, however, the prevalence of medication abuse was increased to be as high as 86.4%; the most commonly used drugs were analgesics (96.7%), and cough and cold preparations (81.9%), while antibiotics abuse was 53.9% (7). In Cairo, a cross-sectional study of antibiotic dispensing was carried out to describe the pattern of antibiotics dispensing in 36 pharmacies in greater Cairo. They found that 23.3% of the recorded antibiotics were dispensed upon pharmacist's recommendation and in the studied pharmacies and 13% upon patient request (13). Antipyretic misuse was also reported in a recent hospital-based study El-Shataby hospital, Alexandria city, where 140 out of the studied 200 women (70%) reported that they gave un-prescribed antipy-

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ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 11.01.2018

Revised: 25.01.2018

Accepted: 06.02.2018

retics for their children under 5 years complaining of fever, and common cold (9). Most common reasons towards self medication practice in the above mentioned studies was to avoid long waiting periods in hospitals, minor illness, and reduce cost to save money.

Up till now, however, there is no legislation or restrictions on self medication, particularly for antibiotics that may lead to the emergence and spread of antibiotic resistance of different types of pathogenic bacteria with a consequent failure of antibiotic therapy and higher mortality and morbidity and prolonged hospital stay (10,11). The literature showed shortcoming of the Egyptian studies concerned with health and economic impacts of self medication, and in particular antibiotics misuse.

This study aimed to review the current situation of self medication problem among Egyptian population in order to depict a prospective vision about this problem with the purpose to develop a *future plan to overcome this serious public health problem*.

METHODS

Studies about medication abuse were reviewed from several electronic databases, such as PubMed, Scopus, and Google Scholar. Egyptian articles published in English language from 1995 onwards and concerned with all health related aspects of this problem were retrieved and reviewed. The search was done during September, 2015. The search terms used in searching process was “Medication”, “Self medication”, “Antibiotics”, “Abuse”, “Misuse”, “Overuse”, “Antipyretics”, “Vitamins”, “Bacterial resistance”, “Antimicrobial resistance”, “Prevalence”, “Determinants”, “Impacts”, “Surveillance”, “Prevention” and “Intervention”. The word “Egypt” and “Egyptian” has been added to all terms used in the searching process, and reference lists of relevant articles and reports were checked. Visiting World Health Organization (WHO), Center of Disease Control (CDC), and ministry of health and population (MOHP), Pharmacy Syndicate websites were also done during searching process.

Epidemiology of medication abuse problem in Egypt

The articles retrieved and reviewed from Egyptian literature concerning medication abuse were relatively few (10 studies) and are presented in table 1 (5-9, 12-16). Four of these studies were published as early as during the last years of 20th century (5,6,12,15) and 6 articles were published during the period from 2009 to 2015 (7-9, 13,14,16). Of these studies, there have been three studies involved private pharmacies (6,8,13), three studies were hospital-based (5,9,14), two studies among university students (12,16), one study was outpatient clinic-based (15), and one study was community-

based (7). Also, the published articles were found to be conducted in three Egyptian cities; five in Alexandria (5-9), four in Cairo (13-16), and one in Assuit city in Upper Egypt (12).

With the exception of one study (14) which studied only the prevalence of self medications, all other studies were studied the prevalence of self medications and some related factors of its practice. However, none of these studies have discussed the impacts of self medication in terms of antimicrobial resistance and economic impacts. Furthermore, no study has discussed the surveillance and strategies needed to combat this important public health problem, and most of these studies were concerned only with knowledge, attitude and practice of the studied subjects towards medication abuse.

Prevalence and determinants studies

Before 21st century, and according to the results of published studies during this period, the prevalence of medication abuse among Egyptian population was ranged from 21.1% to 72% (5,6,15). Among university students, medication abuse was found to be 66.1% in a sample of Assuit university students (12). The abused medicines in these studies include analgesics, antipyretics, antibiotics, cough sedatives and medications for diarrheal diseases.

There has been a gap of knowledge about the prevalence of medication abuse in the Egyptian literature during the period from 1998 to 2008. Thereafter, the prevalence of self medications showed wide variations with the highest prevalence was found in a recent community-based survey including 1100 adults in Alexandria city, where the prevalence of medication abuse was 86.4%. Among these subjects, the most commonly used drugs were analgesics (96.7%), and cough and cold preparations (81.9%), while antibiotics abuse was found in only 53.9% of the studied subjects (7). The lowest prevalence, however, was reported a cross-sectional study of antibiotic dispensing was carried out to describe the pattern of antibiotics dispensing in 36 pharmacies in Greater Cairo. They found that 23.3% of the recorded antibiotics were dispensed upon pharmacist’s recommendation and 13% upon patient request in the studied pharmacies (8), with overall self medication prevalence was 81.1%.

A high prevalence of self medication was also reported in a recent university study conducted on a random sample of 330 medical students from Ain Shams University (16). In that study, the overall prevalence of self medication among the studied students was 55.2%, and it was 58.8%, 54.4% and 87.2% for antibiotic, vitamins and analgesics, respectively. A significant higher rate of analgesic (62.7%) and vitamins (91.5%) misuse were also found among the studied female students (16). For other medications abuse, the prevalence of antipyretic misuse was high among women attending El-Shataby and El-Ramal children hospitals, Alexandria city. Out of the studied 200 women, there have been 140 women

(70%) reported that they gave un-prescribed antipyretics for their children under 5 years complaining of fever, and common cold (9). With the exception of only one study (14), all other studies have reported some reasons of self medications. The most common reasons towards self medication practice cited in the above mentioned studies was to avoid long waiting periods in hospitals and/or clinics, minor illness, and reduce cost to save money, clients claimed that they knew the treatment from a previous prescription, had confidence in the pharmacist, and recommendation from the pharmacist. Other reported factors were related to level of education, and lack of knowledge and health education about the dangerous effects of medications without physician prescription. However, these factors were presented in proportions and no further analyses were done to get the exact risk of these factors on the practice of medication abuse among the studied subjects. Other factors related to accessibility and affordability of health services, public and environmental and lifestyle factors, however, were not discussed in the previous studies and have to be considered by the researchers in the upcoming studies.

Impacts of self medication

The impacts of medication abuse have been globally restricted to the impacts of antibiotics misuse on the microbial resistance and its associated health and economic effects. In Egypt this issue has been reported in only one study (17). This study has reported a high resistance rate to antimicrobial agents in surgery and intensive care units in Cairo university hospitals, and attributed this to the bad hospital hygiene and misuse of antibiotics. In that study, the highest resistance rate was shown by *Staphylococcus Aureus* (23.8%), *Pseudomonas* (14.9%) and *Escherichia coli* (10.5%).

For other impacts of medication abuse; such as economic impacts, The Egyptian literature showed no studies about this issue. Only one study calculated the mean cost of drugs per encounter which was LE 7.29 (8). Of course, this finding was not actually representing the meaning of economic impacts as result of health related problems (higher morbidity and mortality and prolonged hospital stay) encountered in medication abuse, particularly with antibiotics misuse.

Antibiotics abuse is known to be associated with bacterial resistance, and the United States has reported at least 2 million people become infected with bacteria that are resistant to antibiotics and at least 23,000 people die each year as a direct result of these infections (18). The Institute of Medicine has estimated the annual cost of infections caused by antibiotic-resistant bacteria to be US \$4 to \$5 billion, and the misuse of antibiotics increases antibiotic resistance infections and costs the US health care system over \$20 billion each year (19).

Future perspective of upcoming studies about self medication in Egypt

From the epidemiologic points of view, the Egyptian literature about self medication was sparse, and the published studies showed several limitations. Of these limitations, the studies were restricted to only three cities in Egypt; Cairo, Alexandria, and Assuit, and accordingly, their results did not reflect the exact magnitude of this problem among Egyptian population. Also, the included small sample size found in some studies in terms of; included pharmacies, hospitals, health care workers as well as general population, and the vagueness about the sampling size and techniques in other studies might threaten the representativeness of the samples and the potential of selection bias. According to the last human resources for health in Egypt, published in 2011 by MOHP in collaboration with WHO, the number of licensed pharmacies was 139,479 in all sectors, the number of pharmacists in public sector was 15,457 and the number of physicians and nursing personnel in all sectors was 223,203 and 280,561 respectively (20). Moreover, the study population, hospitals and pharmacies included in these studies were only from urban communities. No data about self medications were found for rural communities which represent 50.9% of the Egyptian population, according to the World Bank data in 2014 (21).

Many risk factors which are known to influence this problem were not examined in the published Egyptian population, and the studied factors were presented in simple proportions with no calculation of the exact risks was done in almost all studies. Finally, there has been a great lack in studies concerned with the economic and health impacts of medication abuse and there were very few studies investigated bacterial resistance associated with antibiotics misuse which represent the most important misuse in the self medication issue, not only in Egypt but also worldwide.

Understanding the epidemiologic aspects of any public health problem in terms of its dynamic (prevalence), distribution, and determinants, represents the cornerstone in its prevention and control. Accordingly, the first step in dealing with this problem in the future is to conduct a well designed large national study through the Ministry of Health and Population (MOHP) to know the exact magnitude of the problem all over the country. As such studies need a big fund and the only institution in Egypt capable of funding such large national study is the MOHP, its role is mandatory. Also, universities in different Egyptian governorates, particularly medical faculties, have to carry its responsibility to search such problem in its governorate using a large well designed stratified multistage sample including primary health care centers and pharmacies (private and governmental) in urban and rural areas, different sectors of population, and physicians from different hospitals in the studied governorate. Also, collaboration of different medical departments such as commu-

nity medicine, microbiology, may be of value in studying the bacterial resistance resulted from antibiotics misuse. Economists from faculties of commerce and economy have to be invited to participate in studies concerned with the economic aspects of this serious public health problem.

Prevention and control

In Egypt, the prevention and control studies about medication abuse were lacking and there was no clear protocol for surveillance and intervention of this problem in terms of prevention and control. On the other hand, however, Several Western studies have investigated the intervention strategies against medication abuse, although most of these studies have stressed on planning of surveillance and intervention protocols to reduce antibiotic misuse and its impacts (22-25). These protocols included health education campaigns; professional education as well as public awareness campaigns.

The best intervention protocol should relay on discovering the most influencing factors associated with this problem, patients' knowledge and behavior, professionals' knowledge and routines, and the organization of care (26). It is pertinent here to note that epidemiologic studies have to play an important role in choosing the suitable intervention program; through descriptive and analytic studies of all problem aspects, and to evaluate the effect of the chosen program later on.

The future perspective of prevention and control strategies for medication abuse has to go through two parallel plans; short-term and long-term plans. The short-term plan will be dependent on the role of physicians, pharmacists and other governmental and nongovernmental organizations in the community. The aim of this plan is to increase awareness of the public towards the hazards of self medication and its adverse health and economic impacts through well designed and effective short messages delivered through mass media, as well as primary health care centers, pharmacies and hospitals. There must also be proper legislations and regulations to limit the sale of medication without prescription. Moreover, the role of pharmacist is essential in this short-term plan as a communicator, a quality drug supplier, and as a trainer and supervisor. The establishment of the new clinical pharmacy program in some faculties of pharmacy in Egypt may help to graduate pharmacists with proper knowledge and skills to perform such functions necessary to reduce the problem of self medication among population.

The long-term plan should stress on the current situation of the magnitude of this problem and its influencing factors in the Egyptian community. This step could be carried out through conducting a large national study as previously mentioned. According to the results of this proposed national study, the policy makers will have a clear view to design intervention strategies to be applied all over the country. The strategies have to include:

Students: Introducing curriculum courses about this problem for university students including medical and paramedical students. Also, educational training program about the hazards of self medication should be tailored for preparatory and secondary school students

Physicians: Training courses about this problem through the continuing medical education programs.

Pharmacists: The pharmacist must be encouraged to participate in continuing professional development activities such as continuing medical education programs. The pharmacist is often assisted by non-pharmacist staff and those must follow pharmacy educational and training courses.

General population: Increasing their awareness about this issue through different methods of mass media. As mothers, one of the most important population sectors, appeared to have a great impact on the success of any prevention and control programs, special care should be given to them through well designed health education courses delivered in Maternal Child Health (MCH) care units distributed all over Egypt.

Introducing a monitoring and surveillance unit in both MOHP and pharmacists syndicate. Monitoring has to include the advertisements of medicines both in print and electronic media, particularly for vitamins, tonics and herbal medicines.

Expanding health insurance coverage to involve all Egyptian population.

Enhancing the role of family medicine, family physicians and clinical and community pharmacists.

Establishing Pharmaceutical Supreme Council with its aim: To review and refine over-the-counter (OTC) in Egyptian pharmaceutical constitution, rationalization of drug utilization, and to put the new policies and legislations that suits the magnitude and impacts of self medication problem in Egypt at the present and future time.

Re-distributing the Budget of health research projects provided by Egyptian MOHP to include those projects proposed to probe this public health problem in its different health and economic aspects.

CONCLUSIONS

Medication abuse is a serious public health problem worldwide, particularly in developing countries. Although sparse, Egyptian literature showed a considerable high prevalence of self medication, particularly for antibiotics, analgesics and vitamins. On the other hand, however, there is great lack of studies regarding other epidemiologic aspects of this problem. Furthermore, no surveillance and intervention studies were found in the reviewed Egyptian literature.

The prospective vision should include the conduction of a large national study all over the country to get sound and accurate epidemiologic data about all aspects of this problem. The proposed prevention and control measures should go in two parallel plans; short-term and long-term plans. The short-term plan should stress on increasing awareness of the public, and developing proper legislation and regulations.

The long-term plan should be primarily based on the conduction of national large study to help policy makers to apply the intervention strategies and policies suitable for Egypt and according to the contributing factors of this problem. The long-term plan has to include measures to refine over-the-counter, enhance monitoring and surveillance systems, including self medication problem in the curriculum of health sciences faculties, encourage the researchers to carry out more studies about this problem in different Egyptian governorates, expand the health insurance coverage, enhance the role of family medicine, and provide more funds for self medication researches.

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Table 1: Prevalence and determinant studies of medication abuse in Egypt

References	Study time	Place	Institute	Prevalence %
1. El Nimr et al ⁷	2015	Alexandria	Community-based	86.4%
2. Sabry et al ³	2014	Cairo	Pharmacies	61.0%
3. Zohour et al ⁹	2014	Alexandria	Hospitals	70.0%
4. Ibrahim and Ayad ⁴	2012	Cairo	Hospitals	50.0%
5. El Ezz and Ez-Elarab ⁶	2011	Cairo	University	55.2%
6. Sallam et al ⁸	2009	Alexandria	Pharmacies	81.1%
7. Aboul Fotouh et al ¹⁵	1998	Cairo	Outpatient clinics	80.0%
8. Fadel and Qayed ¹²	1997	Assuit	University	66.1%
9. Benjamin et al ⁶	1996	Alexandria	Pharmacies	72.0%
10. Ibrahim ⁵	1995	Alexandria	Hospitals	21.1%