

A Qualitative study of the knowledge, attitude and practice of patients regarding the use of expired and disposal of unused medicine at Nimra Institute of medical sciences, Vijayawada.

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ABSTRACT

Introduction:

The study was conducted to explore the knowledge, attitude and practice toward disposal of unused medication among patients in Nimra Institute of Medical Sciences. The disposal of unwanted medications has been a concern globally, as pharmaceutical waste enters the ecosystem, ultimately effecting human health and environment

Drug wastage is considered as a better tool to measure the efficiency and success of health care system. Though the presence of drugs in the environment is mainly attributed to presence of drugs in human excreta, a significant role is played by improper methods of drug disposal

Materials & Methods:

This qualitative study was an in-depth interview conducted during the period from November 2016 to January 2017. A total of 150 patients participated in this study. Once the participants identified, an appointment was fixed to conduct the interview with them. Due to the small sample size the data were analyzed manually.

Results: A total of 150 patients attending General Medicine, Surgery, Obstetrics, and Gynecology OPDs were enrolled. Out of the 150 consumers 55% were men and 45% were women. Sources of medicines for patients included pharmacy stores (85, 56%) with or without (35, 24%) doctor's prescription, and unused medicine at home (20, 12.5%) or friends and relatives (10, 7.5%).

Conclusion: Majority of patients are aware about the need for safe disposal of unused medicines. But the right knowledge, attitude and practice of safe disposal of medicines is lacking. The existing guidelines should be implemented to ensure patients' safety and to preserve the ecosystem.

Keywords: Disposal medicines, expiry medicines, knowledge, attitude, practice, patients.

INTRODUCTION

Use of drugs for humans and veterinary practices is increasing daily, and most consumers are left with some unused medicines at one time or the other. A study in Ethiopia revealed that 89.1% of medicines purchased by consumers are never used.¹ Factors such as change of prescription by prescribers, adverse effects of the drug, unclear instruction, resolution of condition/clinical symptoms, and medicines reaching the expiry date contribute to non usage and disposal of medicines by consumers.^{1,2} The impact of improper disposal of expired medicines has not been studied in the literature. To minimize the adverse impact of pharmaceutical compounds on the environment, the challenges related to the improper disposal of unused and expired medicines needs to be addressed.^{3,4,5}

The present study aims to assess and compare the attitude and practice of patients regarding unused or left over drug disposal techniques and the knowledge about environment friendly techniques of disposal. The present study serves as an important measure for the policy makers and concerned environmental bodies for development of formalized protocol for accurate and safe drug disposal guidelines along with destruction of expired drugs and also a driving force to control the drug wastage. A recent review suggests that consumers use different methods for disposing unused medicines, most commonly throwing medicines in garbage, toilet, or sink.¹ In India, most consumers stated that they dispose medicines in garbage and sink.^[6,7,8] In United States, more than half of the patients surveyed reported storing unused and expired medications at their homes, and more than half had flushed these down a toilet. Despite being a large consumer of medicines, regulatory guidelines for safe disposal of medicines for consumers are lacking in India, and drug take-back programs are not functional/effective as in other countries.

Drug wastage is considered as a better tool to measure the efficiency and success of health care system. Though the presence of drugs in the environment is mainly attributed to

presence of drugs in human excreta, a significant role is played by improper methods of drug disposal. Not only the unused medicines but also the used medicines in the form of transdermal patches contribute to significant quantity of drug in the environment.^{9,10,11}

An Indian study on the knowledge, attitude, and beliefs of dental students about the disposal methods for expired and leftover medicines recommended the need to improve their awareness about safe and prudent disposal methods.^{12,13,14} While treating patients, HCPs including doctors, nurses, and pharmacists can apprise them and their attendants regarding the safety issues related to the use of out-of-date medicines and their disposal.

MATERIALS AND METHODS

The study was conducted at the out patients department (OPD) Nimra teaching hospital in Vijayawada for 3 months of period. It was a descriptive cross sectional study interview based study conducted among patients. The study was approved by Institutional ethics committee. An interviewer administered questionnaire consisting of 10 questions including 2 to assess knowledge, 3 to assess attitude, and 5 to assess practices of patients regarding the disposal of unused medicines was prepared and pre validated. The modified questionnaire was administered to a total of 150 patients attending General medicine, Obstetrics and Gynecology and Surgery OPDs after obtaining written informed consent. Patients not willing to participate in the study or did not provide written informed consent were excluded from the study. Sampling was done on a convenient basis. Responses of participants data was recorded and entered.

RESULTS

A total of 150 patients attending Medicine, Surgery, Obstetrics, and Gynecology OPDs were enrolled. Out of the 150 patients, 55 (77.5%) were men and 45 (22.5%) were women. Mean age of the participants was 30-65 years. Patients belonged to varied background and middle to lower socioeconomic status of the society. 45% patients gave history of chronic diseases in the family. The most common chronic diseases cited were diabetes mellitus 30%, hypertension 25%, and others 55%. Sources of medicines for patients included pharmacy stores (85, 56%) with or without (35, 24%) doctor's prescription, and unused medicine at home (20, 12.5%) or friends and relatives (10, 7.5%).

Knowledge of disposal and unused medication among patients: A total of 39% patients responded that they were aware of methods and sites of disposal of medicines. The method of disposal considered as best by participants included throwing in household trash 17%, flushing in toilet 10%, throwing in river or lake 2%, returning to pharmacist 8% or

prescriber 1%, and donating the medicines to hospitals or voluntary organizations 1%. Seven 5% participants were aware of institution or organizations which collect unused medicines. Institutions suggested by these participants included pharmacy stores 1.5%, municipality hospitals 1%, neighboring health centers, and public health centers 1%.

Attitude of disposal and unused medication among patients:

A total of 80% patients opined that safe disposal of medicines is necessary. Reasons for considering the safe disposal as necessary are illustrated in Majority 76% of the patients felt the need for a program to collect unused medicines from home. In addition, majority 77% of the patients opined that should be made more aware about the hazards of unsafe disposal and methods of safe disposal. Measures suggested by patients to improve awareness included patient education by pharmacists, doctors, or nurses 28.5%, provision of information in newspapers 19.5%, television 16%, or posters 9%, awareness programs by the government 1.5%, education by village health workers 1.5%, and written instructions on medicines 1%. A total of 80% patients opined that safe disposal of medicines is necessary. Reasons for considering the safe disposal as necessary are illustrated in Majority 76% of the patients felt the need for a program to collect unused medicines from home. In addition, majority 77% of the patients opined that should be made more aware about the hazards of unsafe disposal and methods of safe disposal. Measures suggested by patients to improve awareness included patient education by pharmacists, doctors, or nurses 28.5%, provision of information in newspapers 19.5%, television 16%, or posters 9%, awareness programs by the government 1.5%, education by village health workers 1.5%, and written instructions on medicines 1%.

Practice of disposal and unused medication among patients:

A total of 68% patients had unused medicines at home. The reasons for stocking unused medicines included frequent change of prescription by doctors 20%, prescription of more number of drugs than required 10%, purchase of more medicines by consumers for possible future use 7.5%, stoppage of treatment on symptomatic relief 29%, and noncompliance to therapy 1.5%.

DISCUSSION

The current study was an observational, cross sectional, interview based study conducted in 150 patients of medicines attending the OPD of hospital in Vijayawada. The knowledge, attitude, and practice of patients regarding the disposal of unused medicines were evaluated using a prevalidated investigator administered questionnaire. In the present study, majority 55% of the participants were men, 45% were women and the mean age of participants was 30 to 65 years. This may

be ascribed to the fact that participants were enrolled from OPDs of three departments, i.e., Medicine, Surgery, Obstetrics, and Gynecology. Young women attended OPD of Obstetrics and Gynecology in larger numbers, contributing to relatively young cohort. Sampling, however, was done on a convenient basis, and its influence on these characteristics cannot be ruled out. Further more, the younger male patients were more forthcoming in their providing consent to participate in the study. In the present study, majority 60.5% of the patients responded that they acquire medicines from pharmacy stores with the doctor's prescription.

However, a significant number of patients had also bought medicines from pharmacy without doctor's prescription 20% or from friends and relatives 7%. Remaining patients agreed to having used previously stored medicines instead of buying new ones. Unsupervised use of medicines associated with an inherent risk of adverse effects can be harmful to patients. Further, it may lead to therapeutic failure and should be discouraged. In the current study, majority 68% of the patients stated that they store unused medicines at home. Major reasons suggested by participants in the present study for this practice included stoppage of therapy on symptomatic cure, frequent change of prescription by doctors, and prescription of more medicines than required. Disease/condition improved 42.4%, forgetfulness 5.8%, and side effects 6.5% were reasons cited for their nonuse.¹⁶ Not just does this practice lead to unnecessary stocking of medicines, but also indicates a lack of awareness among consumers regarding the importance of completion of therapy.

Patient education in this regard, primarily by prescribers and pharmacist, is recommended. The findings of the present study also suggest that doctors should choose medicines judiciously during the first prescription itself, and minimize or avoid frequent changes in prescriptions to counter the problem of stocking of medicines by patients. They should also counsel the patients regarding disposing or avoiding reuse of unused medicines or seek advice if the patient wishes to reuse these medications. Some patients bought more medicines for future use, which should be addressed by patient counseling. Majority of the participants 61% in this study were not aware about the methods and sites of medicine disposal, implying a very poor awareness. Of the remaining patients, majority perceived disposal in household trash 17% and flushing in toilet 10% as the best methods of disposal. Only 8% of the patients in the current study perceived returning unused medicines to pharmacy as the best method of drug disposal.

In addition, few 3.5% patients were aware of organizations or institutions such as pharmacy, hospitals, or health centers that collect unused medicines, implying a poor level of knowledge. In similar studies conducted in majority of

the respondents 32.1% and 54%, respectively stated that returning medicines to pharmacy was the best method of disposal of medicines. Raising awareness through various educational interventions should be considered to improve the disposal practice. Most participants 80% in the present study comprehended the importance of safe disposal and hazards associated with unsafe disposal of medicines such as illegal/unintended use of medicines, adverse reactions, and environmental pollution. Most participants also felt the need of increased awareness among patients regarding these issues. The patients sought education by pharmacist, nurses, and doctors, which could hint toward faith of patients in these health professionals. A novel suggestion that emerged from the study was the establishment of a program/facility to collect unused medicines from homes, among parents of school going children to evaluate the knowledge, attitude, and practice of unused medicine disposal. Pharmacy, doctors, nurses and health workers were suggested as a source of information in this study.

CONCLUSION

The study reflects that patients do not use all the medications available at their houses due to side effect, dosage changes, discontinuation of the drug, or due to expiration date. Expired medications need clear guidance about safe disposition into the environment. If health professionals become aware and educated about safe disposal of medication, or have the right attitude regarding the same, and agree to practice guidelines, they can educate the patients. Patients perceive that safe disposal of medicines is necessary. However, the requisite knowledge and practice of safe methods of disposal are currently inadequate. Educational interventions to improve awareness and regulatory interventions in this regard are recommended. The study reflects that patients do not use all the medications available at their houses due to side effect, dosage changes, discontinuation of the drug, or due to expiration date. Expired medications need clear guidance about safe disposition into the environment. If health professionals become aware and educated about safe disposal of medication, or have the right attitude regarding the same, and agree to practice guidelines, they can educate the patients. Patients perceive that safe disposal of medicines is necessary. However, the requisite knowledge and practice of safe methods of disposal are currently inadequate. Educational interventions to improve awareness and regulatory interventions in this regard are recommended.

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