

Awareness and Practices of Disposal of Unwanted Medicines among Patients Visiting the OPD and Healthcare Professionals

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Abstract

Pharmaceuticals play a very substantial part in the treatment of various diseases and related problems. After the treatment, it is necessary to dispose the remnant medicines properly. The disposal of unused and expired medicines in a proper way is important, to evade buildup. Therefore, awareness and knowledge of drug disposal is essential. The pharmaceutical waste in water affects the health of humans. This study aims to evaluate the awareness of disposal among medical healthcare professionals and patients visiting hospitals. The contamination of pharmaceutical waste in the environment is due to the absence of awareness and knowledge among people. Proper disposal of pharmaceutical waste can prevent environmental contamination. In this study, about 100 participants from various categories were considered. The survey included different sections, such as demographics and questions pertaining to awareness. The survey was completed by 500 volunteers, of which 45% were male and 55% female. According to the study, 21% of the participants dispose expired/unused medicines by flushing them down the toilet/sink. Maximum awareness, of approximately 96%, was found among the nurses, about the importance of improper disposal. If the wastage of medication is controlled by the healthcare professionals, the ecological trail of medicines can be greatly reduced. There is a strong requirement for increasing awareness about safe disposal of medications among professionals in the healthcare system. This paper will be a vital tool to initiate effective medical waste management programmes in India.

Keywords: Unused Medicines, Waste, Expired Medicines, Drug Disposal

Introduction

The consumption of medicine is growing globally, particularly in India, followed by China (World Health Organization, 2012). Users should consume medicines as per the prescription. Medications are sometimes unused due to change in treatment, side effects, and improvement in the condition, leading to termination of the treatment. Self-medication is not safe; medicines may be used as per the guidance of healthcare professionals (Kheir et al., 2011). Storing unwanted drugs in the household increases the risk of drug-related problems, including adverse drug reactions (Medhi & Sewal, 2012). These unused medicines should be disposed properly.

Inappropriate discarding of unused/expired drugs leads to contamination of the environment and pollution, resulting in problems related to health. As of now, high amount of waste, particularly from pharmaceuticals, enters the environment globally, merging into the land. Worldwide, the consumption of medicines is growing gradually (Daughton, 2007). Pollutants may cause a threat in the future (Rehan & Noman, 2008). As per WHO, medications are prescribed and traded inappropriately, leading to storage and threat. It has been observed that waste is produced due to unwanted drugs (Swaroop, Charabarty & Virupakshaiyah, 2015), owing to ineffective disposal through improper routes (Aditya, 2013). To address this issue, proper handling of unwanted drugs is of utmost importance. Improper drug disposal leads to accidental usage and resale while sorting (National Formulary of India, 2011). One of the preventive measures to protect the surroundings is by creating an awareness of ways of disposal to avoid polluting the environment. The only way to protect nature and the surroundings from the pollution

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caused by pharmaceutical waste is by making people aware of the proper disposal methods (Umamageshwari, GuruScindia, PristleyVivekkumar & Geetha, 2017). Most of the medical professionals were not mindful of drug disposal. It is an issue of concern; therefore, the study was executed to find the awareness and disposal practices of unwanted medicines, pertaining to patients visiting the OPD, by healthcare professionals.

Method

The study was based on a cross-sectional survey, which included volunteers such as doctors, students, nurses, and medical interns, along with patients visiting OPD (out-patient department) in B R Ambedkar Hospital, Delhi, from August 2020 to March 2021. Around 100 volunteers from every category were interviewed. The purpose of the survey was briefed. To fill the survey questionnaire, 20-30 minutes was provided.

The questionnaire encompassed different sections: section I included demographic details, section II was related to knowledge, and section III awareness and practices of disposal. The completed questionnaires were then analysed.

Results

A total of 550 participants were selected; however, only 500 participants filled the survey study, which comprises 225 (45%) males and 275 (55%) females (Fig. 1).

The date of expiry mentioned on the medicine is checked in Table 1.

by nearly 90% of the doctors before procuring them through a prescription; 96% of the nurses, 93% of the medical interns, 80% of the medical staff, and 70% of the patients visiting the OPD did the same (Fig. 2).

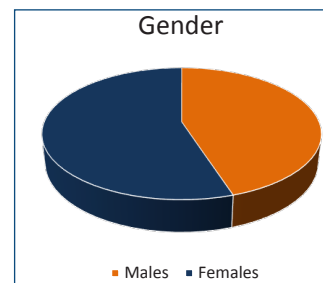


Fig. 1: Participant's Gender

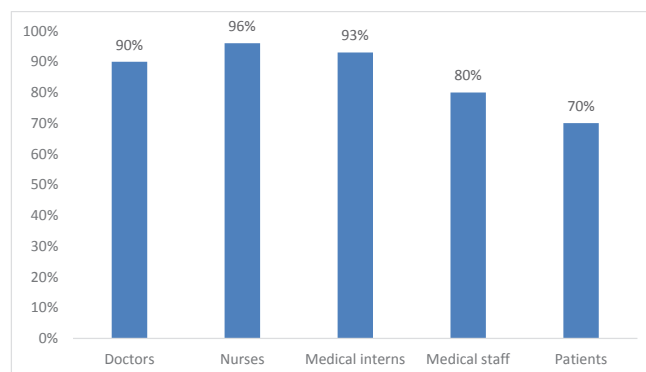


Fig. 2: Awareness among Healthcare Professionals and Patients Visiting OPD

The reasons for leftover unused medicines were: discontinuation of medication after improvement in medical condition (24%); change in treatment (18%); and because of side effects of the medicine (23%), as shown

Table 1: Leftover Unused/Expired Medications Reasons

Sr. No.	Healthcare Professionals and Patients	Change in Treatment (%)	Purchased more than Required (%)	Remnant OTC Purchase Drug (%)	Discontinued after Improved Condition (%)	Side Effect (%)
1.	Doctors	15	24	7	20	24
2.	Nurses	10	19	13	25	33
3.	Medical interns	18	20	10	27	25
4.	Medical staff	23	17	18	20	22
5.	Patients Visiting OPD	24	22	15	28	11

Around 154 (31%) participants mentioned that they returned the medicines to the medical stores in

exchange for other medications, as shown in Fig. 3.

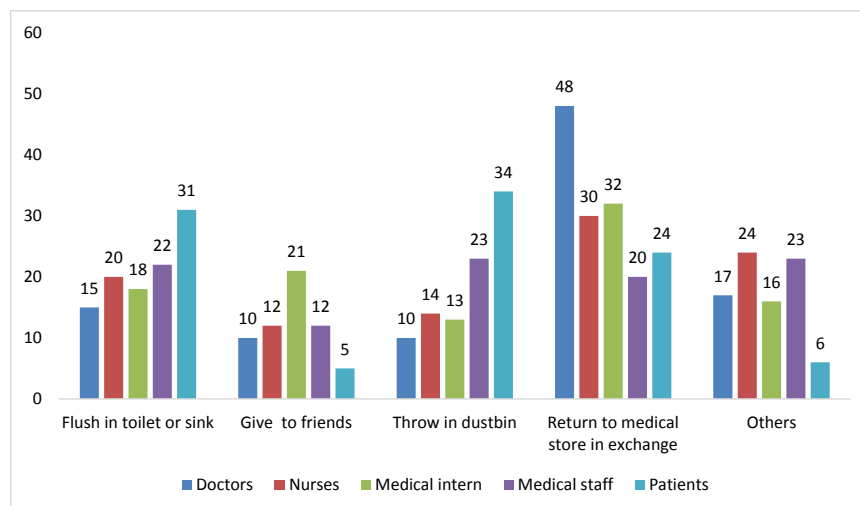


Fig. 3: Methods Adopted by Healthcare Professionals for Improper Drug Disposal

According to the study, for 116 (23%) participants the potential source of awareness in society for drug disposal was the instructions written on the medicines, as shown in Table 2.

Table 2: The Potential Source of Awareness in Society for Drug Disposal

Sr. No.	Healthcare Professionals & Patients Visiting OPD	Instructions Written on Medicines (%)	Information through Social Media (%)	Pharmacist (%)	Newspapers (%)	Training Programmes (%)
1.	Doctors	25	27	15	10	23
2.	Nurses	30	13	25	19	13
3.	Medical interns	18	20	27	15	20
4.	Medical staff	23	18	20	14	25
5.	Patients visiting OPD	20	25	27	10	18

According to the study, 111 (22%) participants stated that lowering the prescribed medicines by doctors and returning the unused/expired medicines to the pharmacist (121, 24%) may minimise or reduce the unsafe effect (Table 3).

Table 3: The Method to Reduce the Unsafe Effect of Unwanted Medicines

Sr. No.	Healthcare Professional & Patients	Lowering Prescribed Medicines by Doctors (%)	Donation (%)	Providing Guidance to the Consumers (%)	Return to the Pharmacist (%)
1.	Doctors	15	34	27	24
2.	Nurses	25	29	23	23
3.	Medical interns	28	30	22	20
4.	Medical staff	23	37	20	24
5.	Patients visiting OPD	20	40	10	30

Discussion

Most of the volunteers preferred to obtain drugs via prescription, and almost all the nurses checked the expiry

date of the medicine. The nurses play an important role in dispensing medicines. Hence, they are the foundation for educating and highlighting the importance of awareness. As per previous studies, all drugs are not always toxic

nearer to their expiration date. The medicine may lose its efficacy over time (PremSwaroop & Varun, 2001). The expiry date ensures that the manufacturer guarantees the safety and efficacy of the medication (Basha, Gopinath, Madhu & Babu, 2015). As per the present study, alertness in checking the expiry date was more than 90% (PautKusturica, Tomas & Sabo, 2017; Aditya, 2013; Vellinga et al., 2014).

The participants were aware of the risks to the surroundings due to improper disposal. However, nowhere was a provision for collection of discarded medicines from residential area stated. The need of the hour is to challenge the situation through an appropriate awareness programme/training.

As per FDA guidelines, unwanted medicines should not be flushed down the toilet. Before flushing these medicines, it is advised to mix it with coffee grounds, and mix the liquid medications with turmeric. In the USA, the programme of drug take-back is initiated for the disposal of drugs. Pharmacies are encouraged to take back the unused/expired medications.

In India, discarded medicines from hospitals are collected by the registered disposal facility, as per the regulations, in yellow bags and disposed accordingly. However, there is no alternative for collecting discarded waste medicines from households. They are mostly thrown in the trash.

Conclusion

Participants were following non-appropriate ways of disposal; however, they were aware of the impact. Lack of proper guidance renders them susceptible to such practices. The government should implement drug take-back programmes, by collecting the unwanted drugs from the pharmacist or a specified allocated place. Awareness programmes should be conducted for healthcare professionals/users of the medicine, which may influence safe disposal. Social networks, media, and NGOs should be utilised to publicise the problem, which has an impact on the environment. Moreover, it should be sustained through training and education.

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