



Assessment of Knowledge, Attitude and Practice regarding Drug Disposal of Unused Medications: Online Survey



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Background

- Medication waste is a public health problem affecting developed and developing countries. According to the World Health Organization, a large amount of medicine is inappropriately prescribed or sold, resulting in tons of solid waste of expired and unused medications leading to medication disposal burden.
- People keep unwanted, unused, or expired medications in their home, while others dispose of them in general municipal waste bins or sink, or flush them down the toilet.

Objective

- The aim of the study is to assess the knowledge and awareness, practices and attitudes toward safe disposal of unused or expired medication in Egypt: A cross sectional study

Methodology

- A survey study was conducted within two months in Alexandria from 15th March to 15th May 2023. the questionnaire was distributed to participants via social media channels.
- Participants were eligible to be included if they were above 18 years old
- The questionnaire was constituted of 22 items divided into four sections: demographic information, knowledge, attitude and practice regarding the disposal of unused or expired medication.

Results

Section 1 The survey involved 408 responders with nearly two thirds were female and about 96% have university education. About 72% of the responders were between 18-24 years. Male to female ratio was about 2:1.

Age (years)	No	%
18-24	293	71.81
25-34	71	17.40
35-44	18	4.41
45-55	17	4.17
>55	9	2.21
Gender		
Male	148	36.3
Female	260	63.7
Education		
University education	390	95.59
Intermediate education	15	3.68
No education	3	0.74
Occupation		
Employed	92	22.55
Student	277	67.89
House wife	2	3.68
Unemployed	3	5.88

Section 2 : Concerning the knowledge regarding waste disposal: A 69% of the respondent had a previous knowledge about medicine waste and 97% responded that unsafe disposal of unused or expired medicine poses a threat to human health and can harm the environment

Table 2. Shows respondents' knowledge regarding waste disposal (n=408)

Knowledge	Yes	No
	n (%)	n (%)
Q1. Do have any knowledge regarding waste disposal?	282 (69%)	126 (31%)
Q2. Have you ever read medicine disposal instructions ?	217 (53.2%)	191 (46.80%)
Q3. Improper disposal of unused and expired medicines can affect the environment and health.	398 (97.55%)	10 (2.45%)

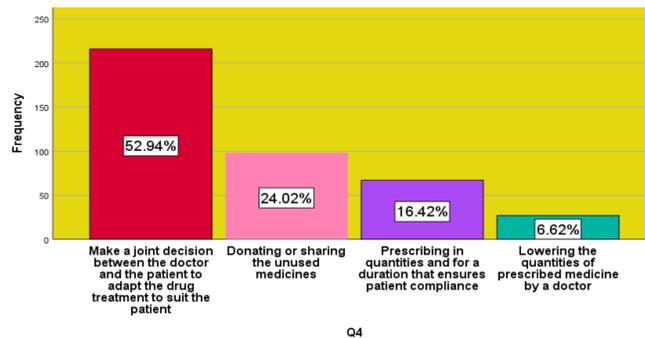


Figure 1. Shows the knowledge of responders regarding how the quantity of unused or expired medication be minimized or controlled

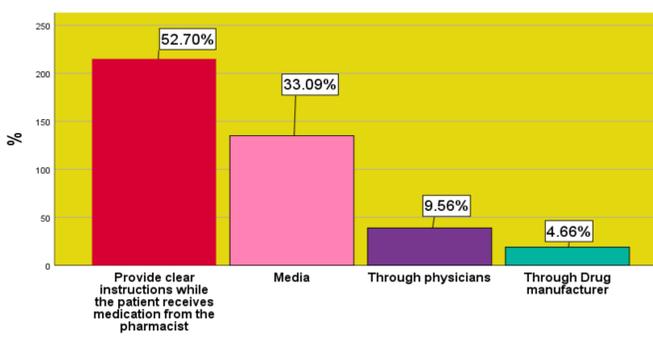


Figure 2. Shows the knowledge of responders regarding who is responsible for raising about the proper disposal of unused and expired medicines.

Section 3 Concerning the attitude towards the unused and expired medication: The majority of respondents believed the risk stemmed from the presence of an undesired drug in the home, the potential harm to children, a lack of proper information on safe disposal practices, and the necessity for a take-back program. A (92%) of the participants agreed on that the health care professionals should provide advice on safe drug disposal and awareness program should be initiated.

Table 3 . Shows respondents' attitudes towards the unused and expired medication

Attitude items	Agree %	Not sure %	Not agree %
Q1. Unused and expired medications are potential hazard in the home	77	16.9	6.1
Q2. Children are more vulnerable to the risks of associated with unused and expired household medicine	86.8	9.8	3.4
Q3. There is a lack of adequate information on safe disposal of unused medicine	84.3	12.3	3.4
Q4. Doctors and health care professional should provide advice on safe disposal of unused and expired household medicine	92.2	6.4	1.5
Q5. Take-back programs of unused and expired medicines should be mandatory	89.2	8.6	2.2
Q6. outreach and awareness programs about how to dispose unused or expired medications should be initiated	93.4	3.9	2.7

Section 4: Practices of respondents towards drug disposal of unused or expired medications.

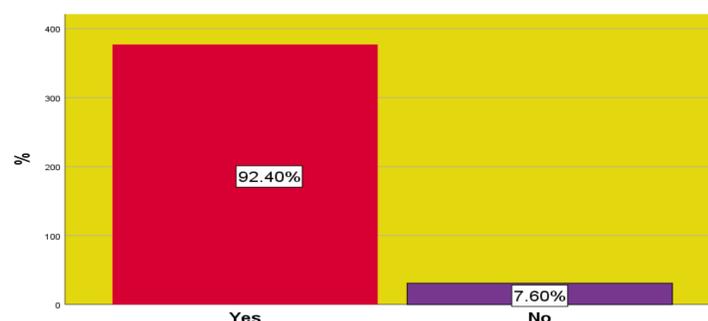


Figure 3. Shows the percentage of respondent's that have left unused medicine at home

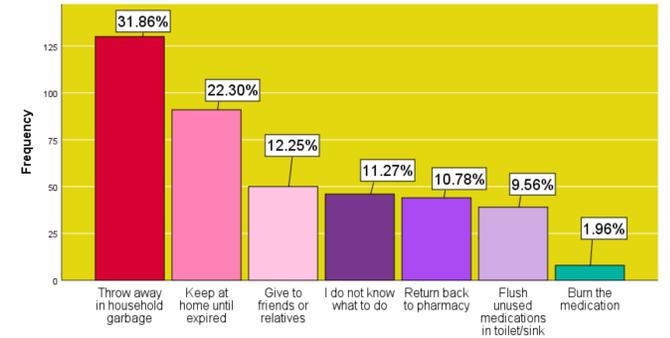


Figure 4. Shows the % distribution of different fate of unused medication

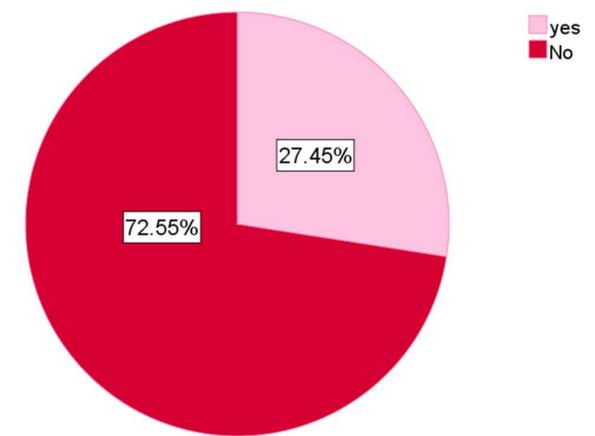


Figure 5. Shows the % of responder that search the official sources for information regarding safe disposal of medicines.

Conclusion

In conclusion, patients' education regarding safe medication disposal and availability of medication disposal program is necessary to improve appropriate medication waste methods and decrease possible environmental harm

Recommendations

- Raise awareness of population regarding how to minimize the quantity of medication at home.
- Extend expiration date
- Avoid medication oversupply to patients
- Manufacturers should facilitate more variety in package sizes and avoid large packages specially in anticancer drugs
- Shared decision-making could help prescribers to tailor pharmacotherapy to patient's individual preferences (to increase adherence of patients to taking medication.
- Appropriate stock management is essential for managing internal waste in pharmacies
- Smaller-sized vials to avoid wastage
- scheduling patients that receive the same medication simultaneously to prevent leftovers from being discarded

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