



General public's perspectives of issues relating to misuse of medicines: a cross-sectional survey in Jeddah, Saudi Arabia

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Received: 24 April 2019 / Accepted: 10 August 2019 / Published online: 1 October 2019
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Abstract

Background Misuse of prescription medicines is a global issue potentially resulting in severe consequences including adverse drug reactions, dependence, tolerance, increased healthcare utility and mortality. **Objective** To assess the public's perspectives of issues relating to medicines misuse. **Method** A survey of members of the public (≥ 18 years) attending medication safety awareness campaigns in Jeddah, Saudi Arabia. The questionnaire comprised: issues relating to misuse of prescription medicines; medicines used without being prescribed by a physician; and suggestions to reduce misuse. Potential participants were approached opportunistically during the campaigns, with those agreeing to participate administered the questionnaire and responses recorded electronically. **Results** Of the 511 respondents, 59 (11.5%) did not always have their prescription medicines prescribed by a physician, and 196 (38.4%) were uncertain. Commonly cited medicines obtained from sources other than a physician were analgesics ($n = 375$, 73.2%), antibiotics ($n = 57$, 11.2%), antipyretics ($n = 33$, 6.5%) and narcotics ($n = 4$, 0.8%). More than half ($n = 282$, 55.2%) claimed to know someone who had misused medicines, some with serious consequences including hospitalization ($n = 96$, 34.0%) and death ($n = 14$, 5.0%). **Conclusion** This general public survey has identified that issues of misuses of medicines in Jeddah, Saudi Arabia persist and may compromise safety and effectiveness of care.

Keywords Adverse drug reactions · Analgesics · Antibiotics · Misuse of medicines · Saudi Arabia · Survey

Impacts on practice

- There is a need for health professionals and the general public to be aware of the prevalence and issues associated with the supply of prescription medicines from unauthorised sources.
- Healthcare systems should be responsive to issues of misuse of medicines, particularly in areas with consequences for public health such as antimicrobials and analgesics.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s11096-019-00893-5>) contains supplementary material, which is available to authorized users.

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Introduction

Misuse of prescription and non-prescription medicines is a global issue associated with morbidity and mortality [1, 2]. While a vast array of terms and definitions describe misuse, one commonly used definition is 'the inconsistent usage of medicines, contrary to the physician's recommendations, or the irrational self-administration of medicines' [3]. Misuse can result in severe consequences including mortality,

adverse drug reactions (ADRs), dependence, tolerance, resistance to antibiotics and increased healthcare utility [4, 5]. In 2017, an estimated 18 million people in the United States misused prescription opioids, central nervous system depressants and stimulants at least once in the past year [6]. In Saudi Arabia, a systematic review of studies determining the prevalence of misuse of antibiotics reported four studies with misuse prevalence of around 70% and three studies of 40–55% [7]. Further research on the perspectives of the general public on issues relating to misuse is therefore warranted.

Aim of the study

The aim was to assess the general public's perspectives of issues relating to the misuse of medicines.

Ethics approval

The study was approved by the Faculty of Medicine Ethics & Scientific Committee at the University of Jeddah.

Method

In August 2017, the Department of Clinical Pharmacology at the Faculty of Medicine, University of Jeddah, delivered two medication safety awareness campaigns for the public in two large shopping malls in Jeddah.

Study design

The research design was a cross-sectional survey of members of the public attending the medication safety awareness campaigns.

Questionnaire development

The questionnaire comprised items of: demographics; source of any medicines; issues relating to misuse of prescription medicines; a tick list from which respondents could indicate any of the named medicines used without being prescribed by a physician; and suggestions to reduce misuse of medicines in Saudi Arabia. Item types included both open and closed questions. The tick list was derived from a combination of previous research on misuse of prescribed medicines [6], and commonly used prescribed medicines in Saudi Arabia, with respondents permitted to add any non-listed medicines.

Prior to use, the questionnaire was reviewed for face and content validity by a panel of ten individuals representing

academic, healthcare and administrative staff. The administrative staff were included to provide the general public perspective. Validity testing was followed by piloting with ten shoppers at the two malls. As no changes were made to the questionnaire post-piloting, the pilot responses were included in the analysis dataset. The questionnaire was in Arabic and items translated to English for reporting.

Recruitment

Potential participants were approached opportunistically by a researcher during the medication safety campaigns and invited to participate. Participants had to be 18 years of age and over; there were no exclusion criteria. Each potential participant was provided an information leaflet, and those agreeing administered the questionnaire by the researcher who recorded the responses electronically.

Analysis

Data analysis was undertaken using SPSS (SPSS Inc., Cary, NC version 21.0). Chi-square was used to determine any association between (i) level of education (dichotomized into school and university) and (ii) gender, and perceptions of the consequences of misuse; $p < 0.05$ was considered statistically significant.

Results

Five hundred and eleven completed questionnaires were received, with almost equal numbers of females ($n = 251$, 49.1%) and males ($n = 260$, 50.9%). One quarter were educated to secondary school level ($n = 125$, 24.5%), just over half ($n = 283$, 55.4%) possessed a bachelor's degree, with a minority completing a postgraduate degree ($n = 30$, 5.8%).

Responses to questionnaire items on aspects of medicines misuse are given in Table 1. While almost all ($n = 478$, 93.5%) usually obtained their medicines from a pharmacy, a small number usually obtained from relatives and friends ($n = 7$, 1.4%) and the internet ($n = 4$, 0.8%). Only half ($n = 256$, 50.1%) always had their prescription medicines prescribed by a physician, with the remainder stating either 'no' ($n = 59$, 11.5%) or 'uncertain' ($n = 196$, 38.4%).

Table 2 gives the names of prescribed medicines obtained from sources other than a physician's prescription. The most commonly cited medicines were analgesics ($n = 375$, 73.2%), antibiotics ($n = 57$, 11.2%), antipyretics ($n = 33$, 6.5%) and narcotic analgesics ($n = 4$, 0.8%). More than half of the respondents ($n = 282$, 55.2%) claimed to know someone who had misused medicines. While for the majority, the most common consequence was perceived to be minor ($n = 199$, 70.6%), a number also cited more serious consequences

Table 1 Responses to items on aspects of misuse of medicines (n = 511)

Question	Response	Frequency	Percent (%)
From where do you usually obtain your medicines?	Pharmacy	478	(93.5)
	Hospital	11	(2.2)
	Clinics	1	(0.2)
	Relatives/friends	7	(1.4)
	Internet	4	(0.8)
	Self-medication	6	(1.2)
	Others	4	(0.8)
Are your prescription medicines always prescribed by a physician?	Yes	256	(50.1)
	No	59	(11.5)
	Uncertain	196	(38.4)
Do you believe that misuse of medicines could result in illness or death?	Yes	475	(93.0)
	No	36	(7.0)
Do you think that anyone else you know has misused medicines?	Yes	282	(55.2)
	No	229	(44.8)
If yes, do you think misuse resulted in any of the following adverse events? (n = 282)	Minor adverse events	199	(70.6)
	Hospitalization	96	(34.0)
	Addiction	12	(4.3)
	Disability	5	(1.8)
	Death	14	(5.0)

Table 2 Prescription medicines obtained from sources other than a physician's prescription

Medicine	Frequency	Percent (%)
Analgesics	375	73.2
Antibiotics	57	11.2
Antipyretics	33	6.5
Multivitamins	17	3.3
Narcotic analgesics	4	0.8
Anabolic steroids	3	0.6
Oral contraceptives	1	0.2
Oral antidiabetics	1	0.2
Peptic ulcer medicines	1	0.2
Others/non-specified	19	3.7

including hospitalization (n = 96, 34.0%) and death (n = 14, 5.0).

Suggestions for minimising misuse of medicines in Saudi Arabia were: the introduction and implementation of strict penalties by the Ministry of Health (n = 167, 33%); increasing public awareness through media and social communication applications (n = 221, 43%); establishing an effective reporting scheme run by the Ministry of Interior (n = 40, 7.8%); and providing school-based education on the safe and optimal use of medicines (n = 44, 8.6%).

There were no statistically significant associations between (i) the level of education ($p=0.41$) and (ii) gender

($p=0.23$) and the proportion of participants who believed that misuse of medicines would result in illness or death.

Discussion

The small study has identified that just over half of the participants always had their prescription medicines prescribed by a physician. Interestingly, more than one third of participants were unsure if their prescribed medicines were always prescribed by a physician. Prescribed medicines obtained from sources other than a physician were largely analgesics (including narcotic analgesics), antibiotics and antipyretics. More than half also knew someone they believed to have misused medicines with an array of consequences which, although were largely minor, also included more serious consequences.

While this study has added to the literature on the perspectives of the public on misuse, there are a number of biases including recruitment (participants were attending in a medication safety campaign and may not have been representative of the general population in Jeddah), response (the number of refusals to participate was not recorded) and issues of generalizability to other countries and settings. For the items on beliefs around medicines misuse, an option of 'uncertain' was not provided hence participants had to select either 'yes' or 'no'. Furthermore, medicines misuse covers a wide spectrum of behaviours, [1–5] and this study

focused only on issues of accessing prescription medicines and consequences.

Despite these limitations, this study has realised several important findings, some of which are consistent with previous publications in Saudi Arabia and elsewhere [7–10]. A systematic review of studies conducted in Saudi Arabia reporting use of antibiotics in children without a prescription reported that around 50% of children were given antibiotics by parents without prescription, largely sourced from private pharmacies [7]. While the factors influencing this behaviour were complex, issues of culture, socioeconomic status, and level of education were thought to be important. A survey of 1596 high school and university students in Saudi Arabia reported that 80% believed that the sedative effect of antihistamines contained in flu medicines and perceptions of safety led to misuse, typically during exam period [10]. A recent survey of 1000 members of the public in the United Kingdom highlighted the lifetime prevalence of non-prescription misuse was 19.3% [8]. Younger age, having a long-standing illness requiring regular non-prescription use and ever having used illicit drugs or legal highs were predictive of misuse. A survey of over 1000 community pharmacists in Scotland in 2014 reported that 80.8% suspected non-prescription medicine misuses, with codeine-containing products were most frequently perceived to be misused [9].

There is clearly a need for further interventions to raise the public's awareness of aspects of prescribed and non-prescribed medicines misuse. There may be merit in exploring the likely feasibility and effectiveness of the interventions suggested in this study. Of note, participants' gender and level of education was not associated with responses to items of misuse hence it is likely that the intervention should be delivered to the general population and not targeted to groups. However, other possible influencing factors, such as behavioral and cultural effects, were not considered in this study and may have contributed to questionnaire responses, as identified by others [8].

Misuse of antibiotics was identified in this study, as in other studies in Saudi Arabia and beyond [7]. Given the issue of antibiotic resistance and the emphasis on antimicrobial stewardship, this is of concern. Further research in this particular area is warranted.

Conclusion

Responses from the general public participants in this study indicate that issues of misuse of medicines in Jeddah, Saudi Arabia persist and may compromise patient safety and

effectiveness of care. Further attention to these issues is required.

Acknowledgements The authors acknowledge the contribution of all study participants.

Author's contribution M.T., D.S. and M.R. conceived the study and, together with A.H.A. and L.F.B. designed the questionnaire and performed the study. The manuscript was written by all authors. M.T. acts as guarantor for the study.

Funding None.

Conflicts of interest None.

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