



## An audit on parental attitudes towards medicines used in children

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### ABSTRACT

**Introduction:** There is growing concerns regarding the use of medicines in children. Therefore, many strategies were implemented to improve such use and make safe and effective medicines more available for children. Enhancing interaction between parents and health care providers plays an important role in insuring the proper use of medicines. In order to optimize such interaction, the attitudes, beliefs and practices of parents toward medicine use in children need to be explored.

**Methods:** A validated questionnaire was administered via face to face interviews to 1000 parents attending pediatric outpatient clinics with their children in order to investigate their attitudes toward children's medicines.

**Results:** The majority of respondents (83.2%) were mothers. The majority participants (84.4%) agreed that medicines are necessary in treating illnesses, 80% of the parents had worries about the side effects and interactions of medicines, and 60% of the parents said they try to avoid giving medicines to their children. Moreover, parents in this study varied considerably in their views toward prescription and over-the-counter medicines. More than half of the participants (55.2%) declared that doctors in Jordan prescribe antibiotics to children too easily.

**Conclusion:** Participants had positive attitudes toward the necessity of medicines for ill children. However, a considerable proportion of the parents had negative attitudes toward children's medicines with respect to their side effects and interactions, their capability of disturbing the body's own capability of healing illnesses, their unnatural characteristic and other aspects related to medicines.

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### 1. Introduction

The child population represents a special group, whose distinctive growth and development patterns contribute largely to different safety and efficacy profiles of medicines as opposed to adults (Olsson et al., 2011). This makes the practice of using medications in pediatrics outside the specifications described in the product license, in terms of age of the child, dose or route of administration,

which is referred to as "off-label use" (Mukattash et al., 2008), a major problem in pediatrics. Off-label drug use in pediatric population may reach up to 90% in neonates (Choonara and Conroy, 2002; Choonara et al., 2003) and could lead to life-threatening adverse reactions (Horen et al., 2002; Turner et al., 1999).

Being a vulnerable group, pediatrics are highly prone to various diseases, thus receiving different medications and being exposed to their potential harms. These medications include: as anti-infective drugs, respiratory drugs, over the counter medications, complementary and alternative medicines and dermatological formulations (Rimsza and Newberry, 2008; Simpson and Roman, 2001; Sturkenboom et al., 2008).

Several global regulatory agencies are taking the responsibility to promote safe and effective use of medicines in pediatric patients. The Pediatric Pharmacology Advisory Committee, and the Office of Pediatric Therapeutics and the 'Medicines for Children' formulary are examples (Holdsworth, 2003; Sutcliffe,

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1999). Despite the aforementioned endeavors, the contribution of research into the examination of parental attitudes toward medicine use in pediatrics is not maximized. The beliefs and attitudes people have toward medicines are known to influence medicine use and adherence (Horne and Weinman, 1999). Parents are responsible for making decisions concerning the health of their children (Conn et al., 2007). Therefore, parental attitudes toward children's use of medicine directly impact their children's actual medicine use (Hämeen-Anttila et al., 2011), as well as the way children perceive the issues related to the use of their medicines as they grow up (Hämeen-Anttila et al., 2011).

According to studies, favorable attitudes of parents were linked to better adherence (Conn et al., 2007), and fears and worries about medications have been associated with poor adherence (Chan and DeBruyne, 2000; Conn et al., 2005). The parents' information about their child medication largely affects their attitude. For example, knowledge of the off-label nature of prescribed drugs and the possible adverse events is reflected positively on parents' willingness to volunteer their children for participation in clinical trials, ultimately reducing the incidence of off-label medicines' prescription and use in pediatrics (Lenk et al., 2009). Limited studies highlighted parental attitudes regarding the use of medicines in children. In fact, such studies are completely lacking in Jordan, although children between 0 and 14 years old constitute 34.7% of the Jordanian population (CIA, 2017). Therefore, carrying out this project would be a priority in Jordan. The objective of this article is to explore parental attitudes towards use of medicines in children.

## 2. Methods

### 2.1. Study design, setting and subjects

A cross-sectional population survey was conducted in Jordan in the summer of 2013, in order to investigate the views and attitudes and of Jordanian parents toward medicine use in children. The study took place in public and private pediatric outpatient clinics in various areas in Jordan. The target sample was parents of children attending pediatric outpatient clinics. The research aimed to achieve a sample size of 1000 respondents. This sample size has shown to yield statistically significant results in previous studies conducted in Jordan (Mukattash et al., 2012). During the study period, 1026 parents were approached while they were waiting their appointments in the clinic, and they were informed about the nature of the study. Once they agreed to participate in the study, signed consent forms were obtained from all respondents.

### 2.2. Questionnaire

The questionnaire used in this study was adapted from a tool developed by Hämeen-Anttila et al. (2011). The questionnaire was examined for face and content validity, and adjusted to meet the cultural aspects of the Jordanian population. Moreover, the questionnaire was examined for fitness of purpose in a focus group composed of six parents. The questions in the original questionnaire were translated from English to Arabic, and back-translated from Arabic to English, yielding two identical English versions. The Arabic version of the questionnaire was used to gather the data from parents as Arabic is the official language in Jordan.

The questionnaire comprises two sections; the first section explored parents' attitudes when caring for their children's health. It includes 21 items, among them 6 items cover positive attitudes of parents and 15 items cover negative attitudes of parents. The participants were asked to rate their opinion regarding the statements on a five-point Likert scale (I agree completely, I agree, I don't agree or disagree, I disagree, I disagree completely, no opin-

ion). The second section collected parents' and children's demographic information.

### 2.3. Data collection

Throughout the research, questionnaires were administered to parents accompanying their children to pediatric outpatient clinics using a structured interview technique (face to face) by one trained interviewer. Parents were approached by the interviewer and invited to participate in the study. Each interview required approximately 10 min to complete.

### 2.4. Ethical consideration

The study received ethical approval from the Institutional Review Board at King Abdulla University Hospital, Jordan University of Science and Technology (REF: 20130109). The study was conducted following the ethical standards outlined in the World Medical Association Declaration of Helsinki guideline (World Medical, 2013). Participants' confidentiality was preserved by using anonymous questionnaires.

### 2.5. Statistical analysis

Responses were coded and entered into a customized database in Statistical Package for Social Science (SPSS) version 21 (SPSS Inc., Chicago, IL, USA). The descriptive analysis was done using mean and SD for continuous variables and percentage for qualitative variables.

## 3. Results

### 3.1. Demographics

Of all respondents approached only 26 refused to take part in the study (response rate 98.4%). Of the 1000 questionnaires completed, 832 (83.2%) were answered by mothers, 152 (15.2%) by fathers, and only 16 (1.6%) by other caregivers. The majority of respondents were 30–39 years old and had either a college or a university degree. Almost half the respondents (46.8%) reported that they stay at home with children, and a similar proportion of parents were working (46.4%). The majority of respondents (77.2%) had health insurance. Complete demographic characteristics of respondents are presented in Table 1.

### 3.2. Parental attitudes

Parental responses to the positive statements within the questionnaire are present in Table 2. The majority of respondents (84.4%) agreed that medicines are necessary in treating illnesses. In this study, parents varied considerably in their views toward prescription and OTC medicines. While the majority of parents considered prescription medicines safe (74.8%) and effective (78%), only 28.4% of them considered OTC medicines to be safe and 35.6% considered OTC medicines to be effective.

The majority of respondents had negative attitudes, where 80% of parents had worries about the adverse events and interactions of medicines, 40.4% indicated that medicines can disturb the body's own capability of healing illnesses, and 66% deemed medicines unnatural. Around 73% believed that the more they needed to use analgesics the less effective they would be for pain, and 64.8% thought that the long-term use of analgesics reduces the child's pain threshold. More than half of the participants (55.2%) declared that doctors in Jordan prescribe antibiotics to children

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