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Parents' Knowledge, Perception, and Practices of Over-the-counter Medicines Used for Their Children

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ABSTRACT

The purpose of this study is to evaluate parents' knowledge, attitudes and common practices about using over-the-counter (OTC) medications for their children. This is a cross-sectional survey of parents attending outpatient pediatric clinic at King Abdullah University Hospital from March 2007 to June 2007. A total of 1490 questionnaires were filled, mostly by mothers (71.9%). More than half of parents indicated that they used at least one OTC medication for their child(ren) within the previous month. The main reasons for use were: convenience and time savings. More than 90% of parents believed OTC medications were effective and safe. Most parents reported asking their pharmacist for advice regarding the OTC. Many participants were unaware of information needed for safe medication use. Parents' knowledge regarding OTC medication use is inadequate. Specific guidelines for appropriate use should be provided to parents to the prescribing physician, and dispensing pharmacist.

Keywords: OTC; Parents; Children; Knowledge; Practices; Attitude.

INTRODUCTION

During the past few years, more and more medicines were deregulated from prescription only into over-the-counter (OTC) medication status. This shift has been motivated by the foreseen benefits of such action like: increased convenience to patients, greater opportunity for self-management of minor ailments, empowerment of pharmacists and shifting the cost from the government or insurance companies to patients [1]. Despite the acknowledged benefits of using an OTC medication, its use is still associated with potential risks like: patients being exposed to medication adverse effects, inappropriate prolonged use, use of excessive dosages, drug-drug interactions, misdiagnosis, and delayed treatment of serious illnesses [2].

Like adults, sick children are commonly treated with OTC medication. Parental decision on the use of OTC medication in managing their child's illness is due to convenience and accessibility [3]. When using OTC medication for their children, parents may not be fully aware of indications, doses, contraindications, and medication interactions [4]. Indeed, studies on parents' knowledge and management of their children OTC medications have generally shown this knowledge to be deficient [3-6].

In Jordan, medication classification and laws pertaining to medication dispensing are similar to those in the United States and Europe; it is even more rigid in terms of OTC medications, since they can be sold only in pharmacies and not other retail outlets. Jordanians do practice self medication, and potential for abuse or misuse does exist [7-10]. OTC medications are considered an important component of health care in Jordan. None of

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the studies in Jordan looked at the extent of OTC medication use in children or the awareness of parents about using OTC medication and the potential hazards in children. Collecting data on children's use of OTC medications from their parents has the advantage of a parent knowing exactly what is given to their children and how it is given. Inappropriate use of OTC medications for children can cause risk. In order to minimize risks associated with OTC medications use for young children, we must first determine current OTC medications practices of parents. The aim of this study was to assess parents' knowledge, attitudes and practices regarding the use of OTC medications for their children.

METHODS

Context: Jordanian Health Care:

Health insurance covers 60 to 70% of the Jordanian population. Moreover, all children who are younger than six years are also insured. The rest of the population can benefit from the Ministry of Health exemption by paying 15% of the total cost of medicines and medical care. OTC medications are usually not covered by insurance worldwide, but in Jordan they are covered by heath insurance [7]. However, as with most public health care services, access to medical care is time consuming. On the other side, medications are readily available for purchase by consumers, since OTC medications as well as most prescription drugs, can be purchased from community pharmacies without having to present a prescription [10].

Recruitment:

The purpose of this study was to evaluate parents' knowledge, attitudes and common practices about using OTC medications for their children. A cross-sectional prospective descriptive study of parents with at least one child aged birth to 18 years was undertaken. The data collection was performed during a 10-week period (March 2007 to June 2007). A structured questionnaire was used to investigate the knowledge, attitudes and practices of parents towards their children's OTC medications. Random 8-hour visits to the outpatient pediatric clinic at king Abdullah University Hospital was carried out by one of the authors of this study. All parents of children younger than 18 years of age were invited to participate in the study. After verbal consent from parents (mother or father) was obtained, the research assistant asked the parent to fill out the questionnaire, the research assistant explained each question to the parents.

Tools:

The questionnaire was developed by the authors. It was tested for face and content validity by the three authors. Prior to administration of the questionnaire in the actual study, it was piloted on 5% of the target sample on a conveniently selected sample of parents. Necessary modifications to the questionnaire were made to improve the clarity and layout. To improve consistency and reliability of data collected the same investigator collected data from parents. The data obtained during the pilot was not included in the final analysis.

The questionnaire was anonymous and consisted of a total of 36 questions. Parents were asked questions regarding the frequency of OTC medications use in their children, reasons for OTC medications use, and sources of information regarding OTC medications. Parents' attitudes regarding OTC medications safety, and efficacy were also assessed. Parents' knowledge regarding presence of OTC medications with different compositions, drug dosages, sugar content, or drug-drug interactions was also examined. In regard to parents' practice of OTC medications administration, dose measurement, dose exceeding (giving higher than the recommended dose), drug storage, drug disposal, and expiry date checking were all assessed. Antipyretic drugs were used as a model for OTC medications. Parents were asked whether their judgment of high fever was based on actual temperature measurement, antipyretic use, and what level of temperature increase will cause them to use antipyretics. Parents were asked if they attempted to perform cold compressors before using an antipyretic. Parents who were members of health care profession (like a doctor, pharmacist, and/or nurse) were excluded from participating in the study.

Analysis:

Data were coded and entered into SPSS for Windows

statistical software, Release 16.0 (SPSS Inc., Chicago, IL, USA). Each factor was treated by simple frequency tables. Missing data were excluded from analysis.

RESULTS

Respondents:

A total of 1490 questionnaires were filled out mostly by mothers (71.9%). Most parents were older than thirty years of age (69.3%) and had two or more children (63.0%). About 38.8% of parents indicated they did not have health insurance for their child. Table 1 summarizes the demographics of parents answering the questionnaire.

Table-1 Demographic information of parents and their child(ren) in the 1490 interviewed parents.

Variable	Percentage (%)	Number*
Age of parents		
20 – 30 years	27.4	409
31 – 40 years	39.6	590
> 40 years	29.7	443
Number of children (<18 years)		
1	23.8	355
2 – 3	44.6	665
≥ 4	28.4	423
Education		
Less than high school High school	15.2	226
High school	34.4	513
College or higher	48.6	724
Employment		
Employed	51.1	761
Housewife	45.4	676
Income [a]		
Very low	29.9	445
Low	34.8	519
Intermediate to high	31.2	465
Gender of child(ren)		
Male	39.3	586
Female	31.2	465
Both genders	26	387
Insurance status of the child(ren)		
Yes	57.9	863
No	38.8	578
Child has a chronic medical problem		
Yes	13	193
No	84.6	1261
Child is on prescription medication(s)		
Yes	35.6	531

Variable	Percentage (%)	Number*
No	60.2	897
[a] As perceived by parent himself.		
* Percentages do not add up to 100% since missing data was not included in analysis).		

Frequency and Reasons of OTC Medications Use:

All parents in this study indicated that they have used at least one OTC medications in the past six months for their children. Moreover, more than half of the parents (56.1%) indicated that they have used an OTC medications for their child at least once a month. About 60.7% of parents usually use more than one OTC medications to manage their children's conditions, see table 2.

Table 2: Frequency of OTC medication use by parents for their children.

		Frequency	Percent*
Number of OTC medications used at a time	One drug	581	39.0
	Two drugs	311	20.9
	Three drugs	284	19.1
	Four drugs	308	20.7
Frequency of OTC medication use	At least once a week	244	16.4
	At least once a month	592	39.7
	Less than once a month	648	43.5
*: Missing data was not included in analysis			

Cost of medical care (22.3%) and lack of time (30.0%) were reported by parents as the most important reasons for the use of OTC medications to manage their children's aliments. The cost of the OTC medications itself also had a major influence on parent's decisions since 54.3% of parents indicated that the cost of OTC medications affect their decision to buy it. In about 51% of the parents the first time they used an OTC medications for their child, it was based upon a health care provider's advice.

Sources of parents' knowledge regarding OTC medications:

When buying an OTC medications from pharmacies, most parents (80.3%) reported asking the pharmacist for advice. In addition to the pharmacist, the main source for parents' knowledge about OTC medications was: drug label or leaflet (41.5%). Other sources of OTC medications knowledge are detailed in table 3. Medication label or leaflet can be an important source of information when using an OTC medication. More than one third of parents (35.5%) stated they usually do not read the drug label or leaflet. Reasons for not reading were taking the medication before (22.5%), difficult to understand (5.6%), the drug label or leaflet is in English which he/she cannot read (5%), very small font to read (2.8%), and reading is time consuming (3.3%). For parents who read the drug label or leaflet, 65.2% indicated they read it all, while the rest read only part of it; of these parents 13.2% read the indications, 7.2% read the adverse events, 7.1% read the dosage, and 4.2% read the cautions section.

Table 3: Sources of parents' knowledge regarding OTC medications they use for their children.

Sources of OTC medication knowledge	Frequency (%)
Pharmacist	1196 (80.3)
Drug label or leaflet	618 (41.5)
Other* health care professionals	363 (24.4)
Non-health care providers	86 (5.8)
Previous knowledge of an OTC medication use	211 (14.2)
more than one source	186 (12.5)
* Other than the pharmacist	

Parents attitudes and Beliefs Regarding OTC medications efficacy and safety:

Efficacy of OTC medications was not questioned by most parents since 96% of them indicated they thought OTC medications were effective. Most parents (91.0%) also stated that their children showed improvement after they took an OTC medication. About half of these parents thought that the more expensive OTCs are more effective. About 31.5% of parents thought that OTC medications are safe regardless of how frequently they are used, 39.2% were not aware that OTC medications can possibly cause serious interactions when taken with other medications. When parents were asked about their beliefs regarding "the side effects reported on the drug label or leaflet and how often they occurred", 44.9% of parents thought they happen only in some people, and 22.7% thought they are rare to occur; details are shown in table 4. Most parents (85.2%) denied their child ever experiencing any side effect after taking an OTC medication.

Parents knowledge and practices regarding OTC medications administration:

More than sixty percent of parents knew that OTC medications composition can vary as and that using more than one OTC medication at a time can result in an over dose.

Although more than two thirds of parents generally showed good practice, some reported giving their child a larger dose if their child is more sick than usual, or give an OTC medication if the child has no symptoms e.g. for a sibling who is not sick. Details are shown in table 4. Parents preferred dosage form of an OTC medication was suppositories (57.4%), followed by syrups (18.8%).

Table 4: Parents beliefs, practices, and knowledge of OTC medications they use for their children.

Parents' beliefs regarding frequency of OTC medication side effect occurrence.		Percentage*
	Happen in every person	7.8%
	Happen only in some people	44.9%
	Occur only if you take a large dose	11%
	Happen in persons with chronic disease only	6.3%
Parents knowledge of OTC medications		
	Parents knew that OTC medications come in different concentrations.	74.2%
	Parents knew that OTC medications can contain more than one active ingredient.	63%
	Parents knew that using more than one OTC medication at a time can result in an over dose.	61.4%
Parents general practices regarding OTC medications administration		
	Parents usually check whether the medication contains sugar additives or not before using it.	78%
	Parents indicated they used the spoon available in the packet to measure the dose.	84.1%

	Parents reported that they do check expiry date on OTC medications before using it.	88.4%
	Parents keep OTC medications in an apparently safe place (medicine box, cupboard, or high shelf).	68.6%
	Parents reported giving their child a larger dose if their child is more sick than usual.	34.4%
	Parents reported giving their child more than the recommended dose if the medication taste good and their child asked for it.	13.5%
	Parents reported giving an OTC medication if the child has no symptoms e.g. for a child who is not sick.	15.7%
Parents practices regarding proper use of antipyretics		
	Parents do measure the temperature of their child before using antipyretic medications.	55%
	Parents indicated they give an antipyretic when the child's temperature is more than 38°C.	62%
	Parents indicated they give an antipyretic when the child's temperature is more than 39°C.	35.4%
	Parents indicated they do try using cold compressors before using an antipyretic.	42%
Parents practices regarding leftover OTC medication "when finished using them for their child".		
	Kept for the next time at home.	47.2%
	Discarded of in the dust bin.	35.4%
	Given to someone else.	8.8%
* Percentage is out of total number of parents (1490)		

DISCUSSION

Parents of children with acute minor conditions like fever and upper respiratory tract infections are likely to use an OTC medication for their child's management. This is especially true if the child was not insured [10]. In our study, more than one third of parents indicated that their children were not insured, and more than half of them reported using an OTC medication for their children at least once in the last month. Reasons for use of OTC medications in children are cost of medical care and lack of time by the parent. These barriers to seek medical care were reported previously. "Obtaining OTC medications is much cheaper and easier than seeing doctor" as most parents said [11].

When buying OTC medications from pharmacies, most parents reported asking the pharmacist for advice. Pharmacists usually give verbal advice and information about OTC medications, but patients' recall of this advice can be low. It is better if written information is also given to parents to reinforce verbal advice. In addition to the pharmacist, the drug label or leaflet was considered the major source of medication information, however, only half of the parents reported reading it. Parents mostly read the drug label or leaflet to learn about indications and adverse effects. Even when reading the whole drug label or leaflet, there is no assurance that the parent will use the drug properly. The poor numeracy skill in some parents has been reported to increase the misinterpretation of OTC medications [4]. Label language can also be difficult for some parents to understand or interpret. Even when reading it, parents are usually at risk of making mistakes when doing dosage calculations, understanding indications of drug use, or evaluating the seriousness or drug label or leaflet reported adverse effects on their particular child's condition [3, 4, 12]. Innovative approaches are needed to make drug labels or leaflets or OTC medications labels more understandable by the general population. Label or leaflet language needs to be tailored to that of the target group expected to be using it.

As shown in this study and previous studies, efficacy of OTC medication is not questioned by most parents, and fears of safety are limited [2]. Parents' use of OTC medications is not without risk. Children are a particularly challenging group of patients when trying to ensure the safe use of medicines. Most of the available OTC medications are intended for management of cough and cold symptoms. Unlike what is believed by parents, these medications have questionable efficacy, and a high possibility of causing

adverse effects specially if used in children with other co-morbidities.

The potential side effects and toxicities of OTC medications vary with their composition. Many products contain multiple substances including an antipyretic/analgesic, a decongestant, cough suppressant, and an antihistamine. In this study few parents reported giving a larger dose when they felt that their children were more sick than usual, these parents' should be made aware of this dangerous practice. And it is especially dangerous when some of these parents are using more than one OTC medication at the same time. Also, parents in this study practiced misuse when giving OTC medications for the child with no symptoms of illness e.g. for a sibling who was not sick. Serious complications after OTC medications misuse has been reported previously [13-16]. Ingestion and over dosage of OTC medications containing a decongestant, for example, can lead to hypertension, tachycardia, bradycardia, seizures, stroke, and cerebral hemorrhage. Small children may be at increased risk for hypertensive episodes with unintentional ingestions because of the relatively significant mg/Kg dose ingested [16]. Moreover, the Food and Drug Administration (FDA) strongly recommends that over-the-counter (OTC) cough and cold products should not be used for infants and children under 2 years of age because serious and potentially life-threatening side effects could occur [17].

More than half of parents used an OTC medication for the first time upon physician recommendation. It should be emphasized that physicians receive little or no formal training about OTC medications at undergraduate or postgraduate level. Awareness and medical education campaigns should be carried out for physicians and pharmacists regarding OTC medications.

Antipyretics have always been sighted as the number one used OTC medication, and childhood fever is the chief complaint for as many as one third of all pediatric consultations in general practice [6, 18, 21, 22]. The antipyretic medicine paracetamol (acetaminophen) is used frequently in many countries, and the use seems to be growing [18-21]. Parents in this study used an antipyretic when they felt their child is feverish or hot, and not necessary upon temperature measurement. Studies have revealed that parents' knowledge about fever may be incorrect, and that their worries about fever may be historically deep-seated across generations. When managing parents' conceptions of childhood illnesses it is recommended that health care providers listen more to the concerns and beliefs of parents about their children's illnesses, tailor information, and education to parents' particular needs [21,22].

CONCLUSIONS:

OTC medications are considered an important component of health care. Many factors can play a role in decision making process in using OTC medications. The trend towards increased self care and self medication with ever more powerful medications seems unstoppable. Specific guidelines for OTC medications appropriate use should be provided to prescribing physicians, dispensing pharmacists, and the children care giver (the parents) about proper OTC medications use. Pharmacists dispensing these medications should practice their best professional judgment in order to minimize risks and ensure safe use of these medications. Greater collaboration between physicians and pharmacists is critical. Joint training on OTC medications would be helpful.

Opportunities exist for health care authorities as well as manufacturers to revise existing labels and leaflets to improve parental comprehension and enhance child safety.

Limitations:

The majority of the parents in this study were mothers. Achievement of a 50:50 gender distribution of parents was not possible as most children are taken care of by their mothers. Filling of the questionnaire was carried out in the presence of a research assistant, so some answers might have been influenced by her presence. This method of data collection was used because the usual method of mailing a questionnaire and responding back in Jordan is still not possible due to lack of a proper mailing system.

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معرفة الآباء والأمهات وتصرفهم واعتقاداتهم بخصوص استخدام الأدوية التي تصرف بغير وصفة طبية لأولادهم

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ملخـ ص

هدف هذه الدراسة تقييم معرفة الآباء والأمهات وتصرفهم واعتقاداتهم بخصوص استخدام الأدوية التي تصرف بغير وصفة طبية لأولادهم ، وقد أجريت دراسة مسحية لآباء وأمهات من المراجعين لعيادات الأطفال الخارجية في مستشفى الملك المؤسس الجامعي من آذار 2007 إلى حزيران 2007.
تم تعبئة الاستبانة من قبل 1490 شخصا معظمهم من الأمهات..(71.9%). وكان أكثر من نصف المشاركين قد استخدموا دواء من الأدوية التي تصرف بغير وصفة طبية لأبنائهم خلال الشهر السابق للدراسة. كانت الأسباب الرئيسية للاستخدام سهولة الحصول على هذه الأدوية وتوفير الوقت والجهد. أكثر من 90% من الآباء والأمهات يعتقدون بفاعلية وأمان استخدام هذه الأدوية. معظم الآباء والأمهات يستشيرون الصيدلاني عند شرائهم لهذه الأدوية. وكان العديد من المشاركين في هذه الدراسة كانوا على غير دراية بمعلومات مهمة للاستخدام الآمن للادواء.
وتبين ان معرفة الآباء والأمهات بالأدوية التي تصرف بغير وصفة طبية غير كافية، وغير آمنة وينبغي أن تتم صياغة أسس للاستخدام الآمن لهذه الأدوية للآباء والأمهات والأطباء الذين يصفون هذه الأدوية والصيادلة الذين يصرفونها.

الكلمات الدالة: ادوية بدون وصفة طبية، اطفال، معرفة، ممارسة ، اتجاهات.

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