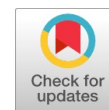


Assessment of Knowledge and Practices Regarding Pediatric Paracetamol and Ibuprofen Use Among Syrian Parents: A Cross-Sectional Survey

Ali Fadel, Abeer Zrika, Maya Hmede, Ayat Abboud



Abstract: Paracetamol (acetaminophen) and ibuprofen are widely used for pediatric fever and pain management in Syria, but improper dosing and limited safety awareness pose significant risks. This study assessed Syrian parents' knowledge, attitudes, and practices regarding these medications. An online survey was distributed via social media (March–July 2025), targeting Syrian parents. Data from 112 respondents were analyzed, focusing on demographics, medication usage patterns, dosing knowledge, awareness of side effects/contraindications, and information sources. %85 used paracetamol for fever; 71% used ibuprofen for pain/inflammation. Critical knowledge gaps existed: 67% lacked awareness of correct paracetamol dosing, and 87% were uninformed about ibuprofen's side effects. Only 13% knew ibuprofen's minimum age restrictions, and 48% were unaware of its contraindication in asthma. Non-professional sources (internet: 16%; family/friends: 14%) contributed to the dissemination of misinformation, although pharmacists were highly trusted (82%). %79 expressed interest in educational interventions. Syrian parents rely heavily on paracetamol/ibuprofen but lack essential safety knowledge, particularly for ibuprofen. Urgent, culturally tailored educational initiatives that leverage trusted pharmacists and digital tools are needed to mitigate the risks of medication errors in children.

Keywords: Paracetamol, Ibuprofen, Survey, Awareness, Syrians.

Abbreviations:

COX: Cyclooxygenase

OTC: Over-The-Counter

NSAIDs: Non-Steroidal Anti-Inflammatory Drugs

I. INTRODUCTION

Fever and pain are among the most common symptoms experienced by children [1], leading parents to frequently rely on over-the-counter (OTC) medications such as ibuprofen (a nonsteroidal anti-inflammatory drug, NSAID) [2] and acetaminophen (paracetamol) [3]. These medications are widely used for their antipyretic (fever-reducing) [4] and analgesic (pain-relieving) properties [5]. However, despite their accessibility [6] and general safety [7] when used correctly [8], improper dosing [9], incorrect indications [10], and lack of awareness of potential side effects can pose significant health risks to children [11]. In Syria, where the healthcare system has been severely impacted by years of conflict [12], economic instability [13], and limited access to medical professionals [14], parents often self-medicate their children based on personal experience [15], advice from relatives [16], or incomplete information [17]. Studies from other low-resource settings suggest that misconceptions about fever management [18], such as the belief that all fevers must be aggressively treated or that alternating ibuprofen and acetaminophen is always safe [19], are common [20]. Additionally, dosing errors [21], whether due to confusion between infant and adult formulations or inaccurate measuring devices [22], can lead to acetaminophen-induced hepatotoxicity [23] or ibuprofen-related gastrointestinal or renal complications [24]. Understanding Syrian parents' knowledge [25], attitudes [26], and practices regarding these medications are crucial for several reasons [27]: 1. Preventing medication errors [28]: Overdosing [29], underdosing [30], or inappropriate use can result in avoidable adverse effects [31]. 2. Addressing misconceptions [32]: Some parents may not recognize when a fever requires medical attention versus when symptomatic treatment is sufficient [33]. Improving health literacy [34]: In crisis-affected settings [35], targeted educational interventions can empower caregivers to make safer and more informed decisions [36]. This article examines how Syrian parents perceive and use ibuprofen and acetaminophen in children, assessing their awareness of correct dosages, potential side effects, and when to seek medical help. By identifying knowledge gaps and common misconceptions, this study aims to inform public health strategies that promote safer pediatric medication practices in Syria and similar contexts.

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Assessment of Knowledge and Practices Regarding Pediatric Paracetamol and Ibuprofen Use Among Syrian Parents: A Cross-Sectional Survey

II. METHODS

The study was conducted from March 2025 to July 2025 through an online survey on PollMil Forms. Its purpose was to assess the knowledge and practices of parents in Syria regarding the administration of paracetamol and ibuprofen to their children. This questionnaire was part of our efforts to raise health awareness and fill knowledge gaps in this area. The survey was distributed via social networks (Facebook and WhatsApp). The questions included participants' demographic information, employment status, previous experiences with paracetamol and ibuprofen, and their scientific understanding and awareness of using these medications, as well as their benefits for children.

III. RESULTS

A. Demographic Data of Participants

112 responses were collected in this research. Table 1 shows the demographic characteristics of the participants.

Table I: Demographic Characteristics of Participants

Demographic Data	
Characteristics	Percentages %
Gender	
Female	60%
Male	36%
Children	
Yes	77%
No	18%
Age (Years)	
20-30	26%
30-40	18%
40-50	31%
Average Age of Children	
1 month – 1 year	34%
1-5 years	12%
5-10 years	27%
10 - 15 years	11.6%
15 – 18 years	16%
Study	
High school	15%
College graduated	56%
Post graduated	14%
Works in Healthcare Categories	
Yes	6%
No	94%

60% of the participants were female, while 36% were male. The 40–50 age group represented the highest portion (31%), followed by the 30–40 age group (18%). Regarding education level, about half (56%) held university degrees. 34% of participants have children between one month and one year old, followed by parents having children of five to 10 years old (27%). Only 6% worked in healthcare, indicating most respondents lacked professional medical information.

B. General Knowledge about Paracetamol and Ibuprofen

71% of parents are familiar with acetaminophen, while 8% have no prior knowledge (Table 2). Only 33% know the

correct pediatric dosages, indicating a possible knowledge gap about paracetamol. 85% report using acetaminophen for fever in children. 71% use ibuprofen for pain/inflammation in their children, but most parents (87%) were unaware of its side effects. These results show high usage of both medications among parents [37], highlighting the need to improve parental awareness of proper dosing [38], especially for acetaminophen [39].

Table II: Data of General Concepts of Participants About Paracetamol and Ibuprofen

	Options	Percentages %
Have you ever heard of paracetamol?	Yes	91%
	No	8%
	N/A	1%
How well do you know the correct dosage for paracetamol for children?	I know	33%
	I do not know	67%
When your child has a fever, do you use paracetamol?	Yes	85%
	No	13%
	N/A	2%
Do you use ibuprofen to relieve pain or inflammation in children?	Yes	71%
	No	27%
	N/A	2%
How well do you know the side effects of ibuprofen?	I know	13%
	I do not know	87%
How often do you prescribe paracetamol to your children during the year?	10–20 times during one year	Most of the answers
How often do you prescribe ibuprofen to your children during the year?	10 times during one year	Most of the answers
Where do you get your information about medications?	Doctors	30%
	Pharmacist	30%
	Internet	16%
	Family	7%
	Friends	7%
	Personal experiments	11%

Most participants often (31%) or always (53%) adhere to the dosages prescribed by physicians when using paracetamol and ibuprofen, while 13% deviate from instructions (Table 3). 38% of respondents reported encountering errors or drug interactions related to these medications, whereas 58% did not. 49% of participants demand more education on the proper use of these medications [40]. The participants showed high confidence [41]. Most surveyed parents followed the pharmacist's advice about these medications [42]. The most preferred pharmaceutical dosage form of ibuprofen was Syrup (44%), followed by tablets (34%) (Table 4). For paracetamol, the most preferred pharmaceutical dosage form was tablets (44%), followed by syrup (29%) and suppositories (27%). The survey results demonstrated variability in parents' knowledge regarding the appropriate dosages of paracetamol and ibuprofen for their children's ages [43]. Specifically, 65% of respondents rated their knowledge as good to excellent. Additionally, 43% reported not knowing the appropriate age to initiate ibuprofen use [44].



Table III: Data of Concepts of Participants about Trust and Safety in Use of Paracetamol and Ibuprofen

Options	Percentages %
Do you follow the dosages prescribed by your doctor when using paracetamol and ibuprofen?	
Always	53%
often	31%
rarely	10%
never	3%
Have you noticed any errors or drug interactions with these medications?	
Yes	38%
No	58%
N/A	4%
Do you think there is a need for additional awareness about the proper use of these medications?	
Yes	49%
No	31%
Maybe	16%
How much do you trust the information provided by pharmacists about these medications?	
Average	82.10%

Table IV: Survey Data on Participants' Information About Dosage and Intake Methods

Options	Percentage %
If you give ibuprofen to one of your children, what is the most common way to give it to you?	
Syrup	44%
Compressed tablets	34%
Suppositories	14%
Others	5%
If you give paracetamol to one of your children, what is the most common way to give it to you?	
Syrup	27%
Compressed tablets	40%
Suppositories	29%
Others	3%
How much do you know about the dosages of paracetamol and ibuprofen when giving them to your children according to their ages?	
Excellent	19%
Good	46%
intermediate	23%
none	10%
What is the average age to give ibuprofen?	
1 year	21%
3 years	34%
No information	43%
What do you know about the contraindications for using ibuprofen in patients with asthma?	
I have knowledge	49%
I do not have any knowledge	48%
Yes	79%
No	19%

IV. DISCUSSION

The present study offers valuable insights into Syrian parental knowledge and practices regarding the use of paracetamol and ibuprofen [45]. High usage rates (paracetamol: 85%; ibuprofen: 71%) suggest trust in these medications for managing common pediatric symptoms such as fever and pain [46]. Lack of knowledge about side effects (87% for ibuprofen) indicates potential risks from uninformed use. Reliance on doctors/pharmacists is positive [47], but the 16% who use the internet highlights a need for

verified educational resources [48]. Additionally, 43% of respondents were unaware of the minimum age at which ibuprofen can be given [49], and 48% lacked knowledge about its contraindications in asthma [50], a well-known risk factor for NSAID-induced bronchospasm [50]. These findings align with previous studies that highlight parental misconceptions about pediatric drug safety [51], emphasising the need to incorporate medication literacy into primary healthcare education [52]. The strong interest (79%) among participants to learn more about the proper use of these medications presents a key opportunity [53]. Health authorities [54], community pharmacies [55], and primary care providers should collaborate to develop culturally relevant educational materials [56] and campaigns that address these knowledge gaps [57]. Interventions could include digital content [58], simplified dosing charts [59], awareness sessions, and pharmacist-led counselling programs [60].

V. CONCLUSION

The findings highlight a high prevalence of use of paracetamol and ibuprofen among Syrian parents, but also reveal significant gaps in knowledge related to dosing, safety, and contraindications. These results underscore the need for targeted health education initiatives to promote safer use of these medications in pediatric care.

DECLARATION STATEMENT

After aggregating input from all authors, I must verify the accuracy of the following information as the article's author.

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- **Data Access Statement and Material Availability:** The adequate resources of this article are publicly accessible.
- **Author's Contributions:** The authorship of this article is contributed equally to all participating individuals.

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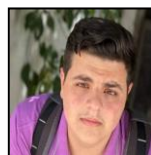
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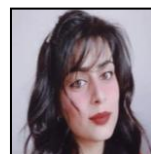


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Assessment of Knowledge and Practices Regarding Pediatric Paracetamol and Ibuprofen Use Among Syrian Parents: A Cross-Sectional Survey



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