

Parents' Attitude and Practices Regarding the Use of Over-the-Counter Medicines to Their Children in Riyadh, Kingdom of Saudi Arabia

Kamel Alenazi¹, Aghadir Al-ahmari², Khulud Alhumaidi², Shaya Alotaibi², Sultana Almutairi², Mohammed Alsuhaibani³, Jamal Omer⁴ and Hassan Al-shehri^{1*}

¹Department of Pediatrics, College of Medicine, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia;

²Department of Pediatrics, College of Medicine, Imam Mohammad Ibn Saud Islamic University (IMSIU), Riyadh, Saudi Arabia;

³Department of Pediatrics, College of Medicine, Qassim University, Qassim, Saudi Arabia; ⁴Department of Pediatrics, King Fahad Medical city, Riyadh, Saudi Arabia

Corresponding author:

Al-shehri H,
Department of Pediatrics, College
of Medicine, Imam Mohammad Ibn
Saud Islamic University (IMSIU),
Riyadh, Saudi Arabia,
Tel: +96611203 7100,
Email: haalshehri@imamu.edu.sa

Abstract

Objectives: This study aimed to evaluate the attitudes and practices of Saudi parents towards self-medication of over-the-counter medicines to treat their children.

Methods: A cross-sectional descriptive observational research study was conducted in Riyadh, Saudi Arabia between August and September 2020. We developed a paperless questionnaire which consisted of three parts, comprising a total of 20 close-ended questions together. The first category asked about sociodemographic information, the second part consisted of 7 questions related to practice and the final section assessed the attitude towards parents' self-medication to their children. **Results:** Majority of the participants were female (77.9%). Most of the parents were >30 years of age (80.2%) and had ≥ 5 children (34.7%). The mostly used over-the-counter medicine was paracetamol (54.1%). Parents' primary source of information regarding the over-the-counter medicines was physicians (87.4%). Most parents opted for modern healthcare treatment (87.9%). Hospital was the main source of over-the-counter medicines for parents (46.8%). The mild symptoms prompted 87.0% parents to self-medicate their children. Most frequent medical complaints that led parents to use over-the-counter medicines were fever (62.3%). The overall mean attitude scores of parents out of twenty-four were 17.1 ± 3.56 and therefore demonstrated positive attitude. Parents using traditional medicines and with children of allergic history showed more positive attitude towards over-the-counter self-medication in comparison with modern healthcare medicine usage and children with no allergic history (18.7 ± 3.01 versus 16.9 ± 3.58 , p value < 0.001) and (18.6 ± 2.74 versus 16.9 ± 3.60 , p value < 0.001), respectively. **Conclusion:** Over-the-counter use of medicines among parents for their children is exponentially high. Education of healthcare personnel dispensing over-the-counter medicines and stern implementation of regulations are need of an hour.

Keywords: Attitude; Practice; Over-the-Counter; Medicines; Parents; Children; Saudi Arabia

Introduction

In the past few decades, we have witnessed a major shift in status of prescription medicines into over-the-counter medicines. This move has primarily been enthused by the foreknown advantages, for instance, ease of accessibility for patients, impendence to self-manage minor illnesses, ever-increasing empowerment to dispensing chemists and reduced burden of healthcare cost for government and insurance corporations. ^[1] Regardless of the alleged conveniences of self-medicating over-the-counter medicines, it comes with a price of dire penalties such as unnecessary exposure to adverse effects, redundant extended use, inaccurate dosages, drug-drug interactions and delayed diagnosis and treatment of grave ailments. ^[2]

Similar to adult population, children are also exposed to common over-the-counter medications. As their biological and legal custodian, judgment to utilize over-the-counter medicines to self-manage minor ailments comes natural to parents,

primary reasons of which are handiness, ease of availability and affordability. Nevertheless, while the intention must be to restore their child's health, parents might not be abundantly mindful of indications, mechanism of actions, dosages, contraindications, adverse effects and drug-drug interactions of those over-the-counter medicines. ^[3]

Earlier research studies have demonstrated deprived knowledge and poor management of parents regarding use of over-the-counter medications for their children. ^[3,4] Lokker et al. found that cold symptoms were the most frequent reason of using over-the-counter medicine in 13-months old child with labels

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

How to Cite this Article: Ganie FA, et al. Bilateral Pulmonary Hydatid Clinical Profile. Ann Med Health Sci Res. 2021;11:S2-35-41.

'infant', pictures such as teddy bears and dosage direction being the main influencers. [3] Lagerlöv et al. reported that parents used over-the-counter medication to relax the child to facilitate sleep and consequently rest for the entire household. In fact, Paracetamol administration brought the sense of proficiency to parents. [4]

Unfortunately, high usage of over-the-counter medicines prevails in Saudi Arabia and the mechanisms of how it is operating and which age group is susceptible and affected by such practices are vastly unknown. [5] According to the World Population Prospects 2017 report by Department of Economic and Social Affairs, a massive 26% of the Saudi population encompasses children ≤ 14 years of age [6], and therefore they are reliant on their parents/guardians for caregiving during sickness. Moreover, parents form an essential part of community. In view of that, this study aimed to evaluate the attitudes and practices of Saudi parents towards self-medication of over-the-counter medicines to treat their children. The conclusions of this research study would assist policy makers to plan measures to mitigate the ill practice of over-the-counter medicines and its potential adverse consequences in Saudi Arabia.

The main intentions of the study were to 1) Assess the understanding of parents regarding over-the-counter medicines to their children aged ≤ 14 years; 2) Identify most frequently used over-the-counter medicines; 3) Recognize the source of information regarding over-the-counter medicines; 4) Examine the attitudes of parents towards self-medication with over-the-counter medicines to their children; and 5) Determine the relationship between sociodemographic factors and parents' attitude towards self-medication with over-the-counter medicines to their children.

Materials and Methods

A cross-sectional descriptive observational research study was conducted in Riyadh, Saudi Arabia. Before commencing the study, ethical approval was obtained from the institutional review board of Imam Muhammad Ibn Saud Islamic University, Riyadh, Saudi Arabia.

Data collection was performed between August and September 2020. The study sample comprised of Saudi parents. The authors had access to databank of Saudi parents with children aged ≤ 14 years. These parents were telephoned using random sampling technique and invited to participate in the study. The questionnaire was adapted from a previous study conducted in Al-Qassim Region, Saudi Arabia. [7] The questionnaire was hosted on Google Forms. The short link of Google Form was sent *via* Whatsapp to agreeing parents. Moreover, they were also requested and encouraged to disseminate to their acquaintances that had ≤ 14 year's children. The purpose of using Google Form *via* what Sapp was to gather a large number of responses from diverse geographic and demographic context and keeping in mind the feasibility of potential participants. An informed consent statement was displayed on the first page of the Google Form to brief the aims of the study and assure participants that the study data will be kept highly confidential. Return of questionnaire was regarded as willingness to participate.

The questionnaire consisted of three parts, comprising a total

of 20 close-ended questions together. The first category asks about sociodemographic information (age, gender, residence, education and number children aged ≤ 14 years). The second part consists of 7 questions related to practice; type of treatment, source of medicine, frequency of self-medication by parents to their children in last 1 year, history of allergy in children, action of parents if child not improved with self-medication, extent of symptoms that led to self-medication practice and most common complaints for which self-medication was practiced. The final section that assessed the attitude towards parents' self-medication to their children comprised of 8 questions of 3-point Likert scale responses ("Disagree" coded as 1, "Neutral" coded as 2 and "Agree" coded as 3). The total attitude score was calculated by summing up all questions. A total attitude score has a range from 8 to 24 points, indicating that the higher the score, the higher the attitude towards self-medication practice to their children. By using 50% of the total score, level of attitude was classified into negative attitude with a score of 12 or less, and positive attitude with a score of more than 12 points.

All research data were entered, verified and analyzed using Statistical Packages for Social Sciences (SPSS) software version 21. Data from participants with no children in age limit cutoff were omitted from the final analysis. Both descriptive and analytic inferential statistics were conducted. Normality of data was conducted using Shapiro-Wilk test. The P value of <0.05 was accepted as significant for all statistically tests. All categorical variables had been presented as frequencies and percentages, while continuous variables had been presented as mean and standard deviation. The association between sociodemographic characteristics and mean attitude scores were evaluated using Mann-Whitney U or Kruskal-Wallis test, whenever appropriate.

Results

A total of 571 participants returned the completely filled questionnaires. Majority of them were female participants (77.9%). Most of the parents were >30 years of age (80.2%) and had ≥ 5 children (34.7%). A well-over two-third (86.9%) of the parents resided in Central Riyadh. About 63.7% of the parents had bachelor's degree. Table 1 displays the socioeconomic characteristics of the study parents.

Table 1: Parental sociodemographic characteristics (n=571).

| Study variables | N (%) |
|------------------|-------------|
| Age group | |
| 21–25 years | 56 (9.8%) |
| 26–30 years | 57 (10.0%) |
| 31–35 years | 77 (13.5%) |
| 36–40 years | 65 (11.4%) |
| 41–45 years | 123 (21.5%) |
| 46–50 years | 116 (20.3%) |
| 51–60 years | 77 (13.5%) |
| Gender | |
| Male | 126 (22.1%) |
| Female | 445 (77.9%) |
| Residence | |
| Riyadh central | 496 (86.9%) |
| Ad Dawadmi | 25 (4.4%) |
| Al Kharj | 11 (1.9%) |

| | |
|---------------------------|-------------|
| Sajir | 19 (3.3%) |
| Shaqra | 15 (2.6%) |
| Others | 05 (0.90%) |
| Educational level | |
| Elementary | 03 (0.50%) |
| Intermediate | 09 (1.6%) |
| High school | 136 (23.8%) |
| Diploma | 16 (2.8%) |
| Bachelor | 364 (63.7%) |
| Postgraduate | 43 (7.5%) |
| Number of children | |
| One | 87 (15.2%) |
| Two | 108 (18.9%) |
| Three | 68 (11.9%) |
| Four | 110 (19.3%) |
| Five or more | 198 (34.7%) |

The study data suggested that parents mostly used paracetamol (54.1%) as over-the-counter medicine for their children followed by cough syrup (43.8%), antihistamine (30.5%) and flu syrup (20.1%). Figure 1 demonstrates the most frequently used medicines for the purpose to treat their children. We also studied antibiotic as part of over-the-counter medicine, given its availability without prescription in certain regions and earlier studies reporting parental use of antibiotics for their children without prescription.^[8]

Parents' primary source of information regarding the over-the-counter medicines was physicians (87.4%) followed by pharmacists (25.7%) and internet (22.2%). Figure 2 shows the sources of information regarding the over-the-counter medicines.

When questioned about the practices of parents towards the use

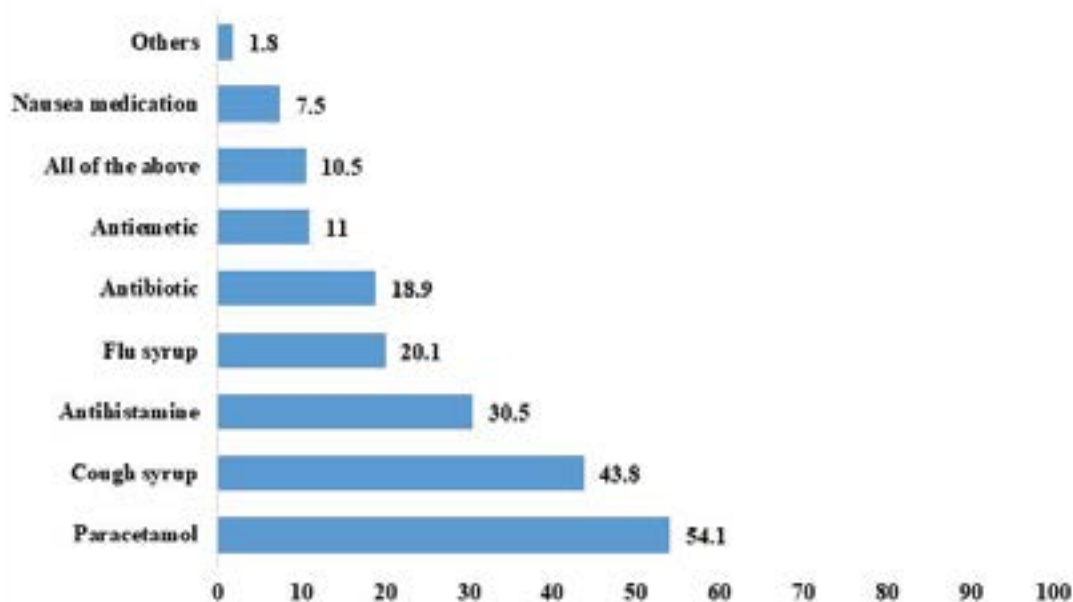


Figure 1: Most frequently used medicines as over-the-counter (in percentages).

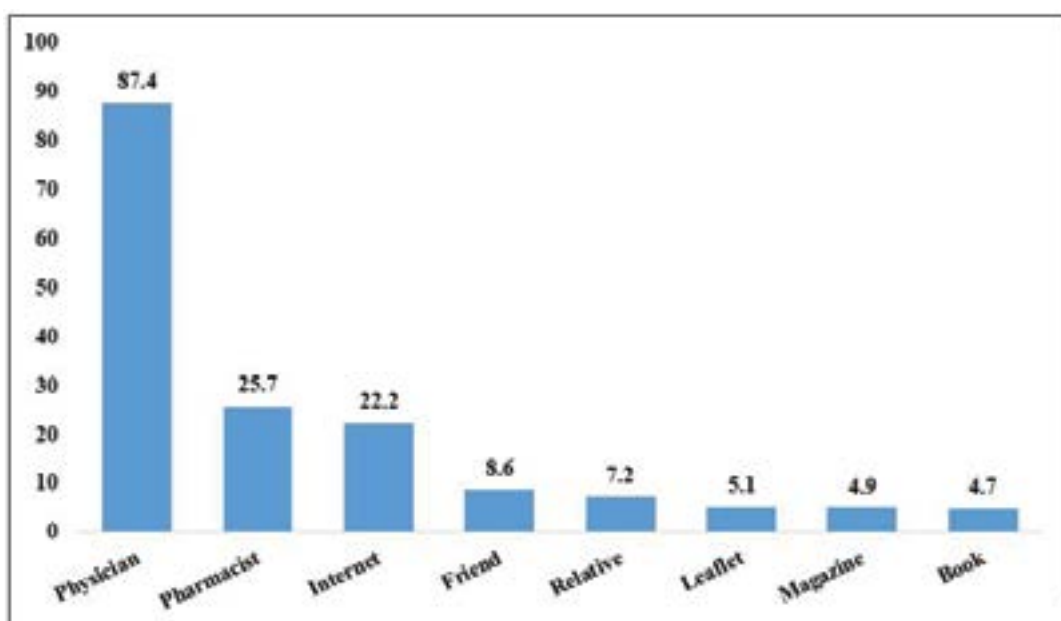


Figure 2: Parents source of information regarding over-the-counter medicines (in percentages).

Table 2: Practices of parents toward over-the-counter medicine (n=571).

| Study variables | N (%) |
|--|-------------|
| Type of treatment | |
| Medicine | 502 (87.9%) |
| Traditional treatment | 69 (12.1%) |
| Source of medicine | |
| Pharmacy | 106 (18.6%) |
| Hospital | 267 (46.8%) |
| Private clinic | 177 (31.0%) |
| Friends and relatives | 14 (2.5%) |
| Traditional medicine | 07 (1.2%) |
| Frequency of self-medication used by parents for their children for last 1 year | |
| Never | 154 (27.0%) |
| Once | 71 (12.4%) |
| Twice | 114 (20.0%) |
| Thrice | 87 (15.2%) |
| Four times | 28 (4.9%) |
| More than four times | 117 (20.5%) |
| Any children with allergy? | |
| Yes | 58 (10.2%) |
| No | 399 (69.9%) |
| I don't know | 114 (20.0%) |
| Parent action if the child not improved in self-medication | |
| Go to hospital | 246 (43.1%) |
| Go to private clinic | 211 (37.0%) |
| Consult community pharmacist | 25 (4.4%) |
| Search internet | 11 (1.9%) |
| Seek advice from friends and/or relatives | 09 (1.6%) |
| Continue self-medication | 08 (1.4%) |
| Parents usually used medication in the following cases | |
| Mild symptoms | 437 (87.0%) |
| Mild to moderate symptoms | 38 (6.7%) |
| Moderate symptoms | 14 (2.5%) |
| Severe symptoms | 02 (0.40%) |
| I don't self-medicate my children | 20 (3.5%) |
| The most common diseases | |
| Cough | 302 (52.9%) |
| Fever | 356 (62.3%) |
| Flu | 291 (51.0%) |
| Vomiting | 127 (22.2%) |
| Diarrhea | 163 (28.5%) |
| Skin rash | 61 (10.7%) |
| Others | 10 (1.8%) |

of over-the-counter medicines [Table 2], most parents opted for modern healthcare treatment (87.9%) than traditional treatment (12.1%). Interestingly, hospital was the main source of over-the-counter medicines for parents (46.8%). About 12.4% of the parents self-medicated their children with over-the-counter medicines at least once in past 1 year. The history of allergy was positive for 10.2% of the children according to parents; however, 20% of the parents reported not knowing of the allergic history. A larger number of parents sought expert advice from hospital (43.1%) or private clinic (37.0%) in case of no improvement in symptoms of their children upon self-treatment with over-the-counter medicines. The mild symptoms prompted 87.0% parents to self-medicate their children. Most frequent medical complaints that led parents to use over-the-counter medicines were fever (62.3%), cough (52.9%) and flu (51.0%).

In response to attitude questions towards over-the-counter self-medication for their children, 59.5% agreed to long waiting time in clinic. They also stated that consultation fees are too high (58.8%). About 69.2% and 64.1% of the parents thought that they know about the side effect profile of the over-the-counter medicines and awareness about the disease of their children from the symptoms, respectively. On the other hand, most of the parents' attitude towards over-the-counter self-medication was not affected by clinic being far away (47.5%), bad attitude of healthcare workers (49.0%), lack of sufficient health information (44.5%) and considering themselves expert enough to self-medicate their children (42.4%). Table 3 depicts the attitude of parents toward self-medication to their children.

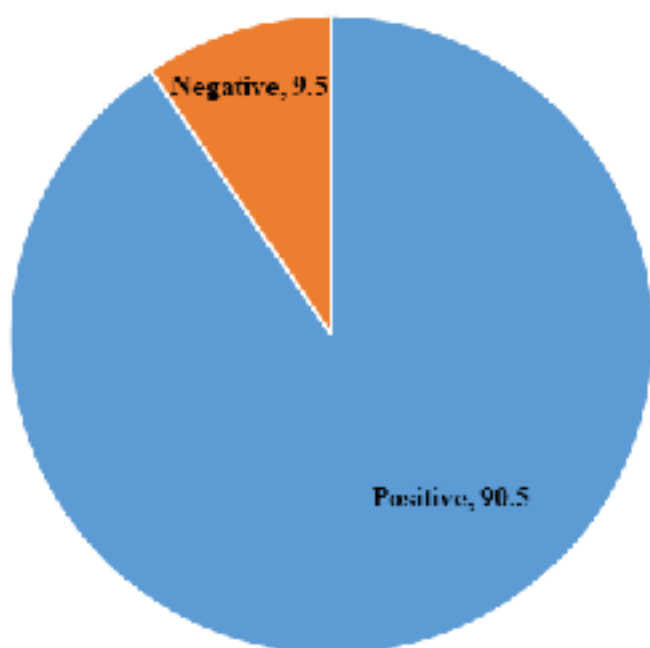
The overall mean attitude scores of parents out of twenty-four were 17.1 ± 3.56 and therefore demonstrated positive attitude [Table 3]. We also compared mean attitude scores with sociodemographic characteristics of parents, type of treatment being used and allergic status of children [Table 4]. We witnessed statistically significant difference between type of treatment being used, allergic status of children and mean attitude scores. Parents using traditional medicines and with children of allergic history showed more positive attitude towards over-the-counter self-medication in comparison with modern healthcare medicine usage and children with no allergic history (18.7 ± 3.01 versus 16.9 ± 3.58 , p value <0.001) and (18.6 ± 2.74 versus 16.9 ± 3.60 , p value <0.001), respectively. Overall, 90.5% of the parents showed positive attitude towards over-the-counter self-medication for their children [Figure 3].

Table 3: Assessment of attitude of parents toward self-medication to their children (n=571).

| Statement | Disagree N (%) | Neutral N (%) | Agree N (%) |
|---|-------------------|-----------------------------------|----------------|
| Waiting time on clinic is too long | 121 (21.2%) | 110 (19.3%) | 340 (59.5%) |
| Consultation fees are too expensive | 112 (19.6%) | 123 (21.5%) | 336 (58.8%) |
| Nearest clinic is too far away | 271 (47.5%) | 124 (21.7%) | 176 (30.8%) |
| Bad attitude of healthcare workers | 280 (49.0%) | 164 (28.7%) | 127 (22.2%) |
| Lack of sufficient health information | 254 (44.5%) | 147 (25.7%) | 170 (29.8%) |
| I am expert enough | 242 (42.4%) | 164 (28.7%) | 165 (28.9%) |
| Awareness of side effect medication | 74 (13.0%) | 102 (17.9%) | 395 (69.2%) |
| Awareness about my children disease from the symptoms | 85 (14.9%) | 120 (21.0%) | 366 (64.1%) |
| Total score (mean \pm SD) | | 17.1 \pm 3.56 | |

Table 4: Statistical mean differences of attitude score based on socio demographic characteristics of parents, type of treatment being used and allergic status of children (n=571).

| Factor | Mean \pm SD | T-test | p-value |
|---|-----------------|--------|---------|
| Age group | | | |
| 21–40 years | 16.9 \pm 3.57 | | |
| >40 years | 17.2 \pm 3.55 | -0.876 | 0.325 |
| Gender | | | |
| Male | 17.5 \pm 4.14 | | |
| Female | 17.0 \pm 3.38 | 1.324 | 0.127 |
| Residence | | | |
| Riyadh provinces | 17.3 \pm 3.50 | | |
| Riyadh central | 17.1 \pm 3.57 | 0.434 | 0.754 |
| Educational level | | | |
| Diploma or below | 17.3 \pm 3.29 | | |
| Bachelor or higher | 17.0 \pm 3.66 | 0.788 | 0.66 |
| Number of children | | | |
| □□ | 17.1 \pm 3.64 | | |
| >3 | 17.1 \pm 3.49 | -0.164 | 0.85 |
| Type of treatment | | | |
| Medicine | 16.9 \pm 3.58 | | |
| Traditional | 18.7 \pm 3.01 | -3.877 | <0.001* |
| Having children with allergy to medication | | | |
| Yes | 18.6 \pm 2.74 | | |
| No/I don't know | 16.9 \pm 3.60 | 3.354 | <0.001* |

**Figure 3:** Attitude toward self-medication for their children (in percentages).

Discussion

Over-the-counter medicines are described as drugs that are harmless and effective for general public's use with no requirement of doctor's prescription. [9] On the other hand, traditional or complementary alternative medicine is an umbrella term and comes under which all other drugs that

are not part of conventional healthcare medicine. [10] Later are regarded as safer in contrast to traditional medicines. [11] Over-the-counter medicines are every so often used by parents for their children in order to treat minor illnesses like fever, cough, and upper respiratory infections with or without success. [12] The main motivator behind this practice could be the opportunity to enhance the possibility that specific treatment might be beneficial for their child. [13]

In the present study, we investigated the attitudes and practices of Saudi parents towards their child for over-the-counter self-medication. We found that most of our study subjects were females. In agreement to our study, a study from Italy by Pileggi et al. also observed high numbers of mother responding to study in comparison with fathers [14], highlighting mothers as the prime source of knowledge for family and one who takes care of household's health. [15] It is communicated in literature that women are far more vulnerable to self-medicate or self-treat and in fact expose their children as well. [11]

We also evidenced that most of the parents who participated and responded had age cohort of >30 years and had >5 children in our study. This indicates that experience with age and parenthood might have a role to play including education level as 63.7% of the parents were graduates in current study. Therefore, women should be targeted for awareness programs and informed self-medication practices for their children to avoid any untoward health event.

Antipyretics (anti-fever) medications are considered one of the most widely used over-the-counter medicines, and fever among children is the frequent complaint for nearly one-third of the

pediatric consultations in healthcare practice. The paracetamol (acetaminophen) is an antipyretic medicine and is abundantly used globally, and unfortunately its consumption is mounting.^[16] In this study, parents frequently used paracetamol, cough syrup, and antihistamine for their children. Research studies have shown that drug of choice by parents in case of fever or pain was paracetamol.^[14,17] Parents' knowledge regarding fever might be faulty, and their concerns about fever may be traditionally deep-rooted since ages and generations.^[17] We also found use of antibiotic among children. Likewise, a study from Ethiopia also found considerably high use of over-the-counter antibiotics for pediatric population.^[18] Similar findings were also presented in China and raises concern for antibiotic resistance.^[19] It is highly recommended that when counseling parents, healthcare providers should be more receptive to parents' concerns and belief systems towards their child's health to tailor education accordingly.

The primary source of over-the-counter drug information was physicians followed by pharmacists and internet. Interestingly, previous prescriptions could be the reason of information about which medicines to use for self-treatment of their children. Pharmacists often provide verbal guidance given their knowledge and experience and parents might not exactly recall.^[17] In addition, internet is not the reliable and unfiltered resource given the bunch of information is available there and dilemma of which to select and which to reject. Few of the parents also reported drug label or leaflet as a source of information. Sadly, there is no guarantee of using the over-the-counter medicines properly even if parents guide themselves through entire drug label or leaflet. Drug leaflets can be misinterpreted owing to poor numeracy skills of some parents. Language barrier, dosage calculations and medical jargons are also among other myriad of issues.^[17]

Surprisingly, most parents reported hospital as the hub of providing over-the-counter medicines, suggesting lack of regulation and emphasizing urgent measures. Approximately 20% percent of the parents did not know the history of allergy. The adverse effects over-the-counter medicines might vary depending on drug formulation and body composition of child. Numerous medicines have combination of antipyretic, analgesic, antitussive and antihistamine.^[20] Grave clinical complications have been reported earlier with use of over-the-counter medicines. Tachycardia, bradycardia, hypertension, stroke and cerebrovascular hemorrhage has been noted as critical complications upon long-term ingestion of some of the over-the-counter medicines such as a decongestant. The Food and Drug Administration (FDA) strictly prohibits the use of over-the-counter cough and cold preparations for use in infants and children <2 years of age due to life-threatening complications.^[21]

Only in circumstances when no improvement in condition of their child was observed, parents consulted hospital or private clinic. We also found that only mild symptoms prompted parents to self-medicate their children with over-the-counter symptoms for quick recovery. Previous studies have also reported similar findings.^[14,22]

The scores showed positive attitude towards over-the-counter self-medication in the present study. This finding was also

witnessed and reported in other studies.^[11,15] Some of the key factors that motivated parents to self-medicate for their children were long waiting time in clinic and high consultation fee. Parents using traditional medicines and with children of allergic history showed more positive attitude towards over-the-counter self-medication in comparison with modern healthcare medicine usage and children with no allergic history. This in part could be due to better outcomes with traditional treatment and with almost no side effects.^[11]

Our study possessed few limitations. Firstly, our study was a cross-sectional observation research and therefore no causal relationship can be determined. Secondly, subjective information due to self-reporting and recall might be erroneous and should be interpreted cautiously. Finally, limited sample size can affect the generalizability of the study findings and therefore further research with high sample size is emphasized.

Conclusion

Over-the-counter use of medicines among parents for their children is exponentially high. Being educated and having medical knowledge are two different things and this need to be strongly emphasized. Education of healthcare personnel dispensing over-the-counter medicines and stern implementation of regulations are need of an hour.

References

- Bond C, Hannaford P. Issues related to monitoring the safety of Over-The-Counter (OTC) medicines. *Drug saf* 2003;26: 1065-74.
- Hughes L, Whittlesea C, Luscombe DJJocp. Patients' knowledge and perceptions of the side-effects of OTC medication. *Pharmacol Ther* 2002;27: 243-8.
- Lokker N, Sanders L, Perrin EM, Kumar D, Finkle J, Franco V, et al. Parental misinterpretations of over-the-counter pediatric cough and cold medication labels. *Pediatrics* 2009;123: 1464-71.
- Lagerløv P, Helseth S, Holager TJFP. Childhood illnesses and the use of paracetamol (acetaminophen): A qualitative study of parents' management of common childhood illnesses. *2003;20: 717-23.*
- Al-Rukban MO, Khalil MA. Adherence to OTC directory--the perception of community pharmacists in Saudi Arabia. *J Ayub Med Coll Abbottabad: 2012;24: 43-6.*
- Nations U. World population prospects: the 2017 revision: key findings and advance tables. UN DESA 2017.
- Alsuhailani R, Alsuhailani MJMJoHS. Self-medication among saudi children by parents in al-qassim region, Saudi Arabia. 2020;8: 53-64.
- Saleh Faidah H, Haseeb A, Yousuf Lamfon M, Mohammad Almatrafi M, Abdullah Almasoudi I, Cheema E, et al. Parents' self-directed practices towards the use of antibiotics for upper respiratory tract infections in Makkah, Saudi Arabia. *BMC Pediatrics*. 2019;19: 46.
- Food U, Administration D. What are Over-The-Counter (OTC) drugs and how are they approved. 2020.
- Health I. Complementary, alternative, or integrative health: what's in a name? 2015.

11. Siponen S, Ahonen R, Kiviniemi V, Hämeen-Anttila KJJocp. Association between parental attitudes and self-medication of their children. 2013;35: 113-20.
12. Wood D, Finlay FJNC, People Y. Complementary and alternative medicine use in children with life-limiting conditions: Dora Wood and Fiona Finlay find that parents are more likely to seek complementary medicine as the severity of their child's illness increases. 2011;23: 31-5.
13. O'Keefe M, Coat SJJop. Increasing health-care options: The perspectives of parents who use complementary and alternative medicines. 2010;46: 296-300.
14. Pileggi C, Mascaro V, Bianco A, Pavia M. Over-the-Counter Drugs and Complementary Medications Use among Children in Southern Italy. BioMed Research International. 2015;2015: 413912.
15. Hämeen-Anttila K, Halonen P, Siponen S, Holappa M, Ahonen RJIJoCP. Parental attitudes toward medicine use in children in Finland. 2011;33: 849.
16. Trajanovska M, Manias E, Cranswick N, Johnston LJJop. Use of over-the-counter medicines for young children in Australia. 2010;46: 5-9.
17. Moumani B, Tahaine L, Albsoul-Younes AJJJoPS. Parents' Knowledge, Perception and Practices of Over the Counter Medicines Used for Their Children. 2011;108: 1-18.
18. Koji EM, Gebretekle GB, Tekle TA. Practice of over-the-counter dispensary of antibiotics for childhood illnesses in Addis Ababa, Ethiopia:A simulated patient encounter study. Antimicrob Resist Infect Control 2019;8: 119.
19. Xu J, Wang X, Sun KS, Lin L, Zhou X. Parental self-medication with antibiotics for children promotes antibiotic over-prescribing in clinical settings in China. Antimicrob Resist Infect Control 2020;9: 150.
20. Gunn VL, Taha SH, Liebelt EL, Serwint JRJP. Toxicity of over-the-counter cough and cold medications. 2001;108: e52-e.
21. FDA. OTC Cough and Cold Products: Not For Infants and Children Under 2 Years of Age 2008.
22. Birdee GS, Phillips RS, Davis RB, Gardiner PJP. Factors associated with pediatric use of complementary and alternative medicine. 2010;125: 249-56.