

Investigation of Parents' Knowledge and Perceptions Regarding the Administration of Non-Prescription Medication to School-Aged Children in the Community

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Abstract

Introduction: In recent decades, we have been confronted with the major public health issue: the dispensing of over-the-counter medicines by parents to school-age children. It is a common practice, fraught with risks to children such as incorrect dosages or interactions with other medications, which can lead to significant health problems for children. The present study explores parents' knowledge and perceptions of over-the-counter medication for school-age children in the community. **Aim** of this study is to explore the factors that influence parents' decisions to medicate their children without professional advice and to assess the role of education and digital health information in these practices. **Materials and Methods:** A total of 124 respondents participated in this study, primarily women aged 40 to 50 years with higher education and full-time employment. Data were collected through a structured questionnaire that assessed participants' knowledge, perceptions, and practices regarding the administration of non-prescription medications to their children. **Results:** The findings revealed that a significant number of parents sometimes medicate their children without professional advice, especially for minor health problems and when access to medical services is limited. There is a positive correlation between higher educational levels and the likelihood of administering medication based on previous prescriptions from doctors as well as with the administration of medication in general. Additionally, it was found that parents frequently search for health information online, which significantly influences their self-medication practices. **Conclusions:** Despite recognizing the risks associated with, such as misdiagnosis and inappropriate use of medication, parents continue this practice out of convenience and necessity. The study

highlights the need for targeted educational programs, reliable digital health resources, and improved access to healthcare to mitigate the risks of self-medication.

Keywords

Self-Medication, Non-Prescription Drugs, School Children

1. Introduction

The administration of medications without a medical prescription to school-aged children is a widespread practice in many countries, raising significant concerns in the fields of medicine and public health. This practice, often referred to as “self-medication”, primarily involves the administration of drugs by parents to their children without being accompanied by a prescription (OTC). In the present study, the term “self-medication” refers specifically to the administration of medications by parents to their children without a medical prescription, and it is not related to the broader concept of an individual’s ability to care for oneself. Exploring parents’ knowledge and perceptions regarding this practice is of vital importance for several reasons, including child safety and health, the responsible use of medicines, and the updating of strategies in the field of public health.

Children’s self-medication, as previously mentioned, can be attributed to various factors, such as parents’ easy access to OTC drugs, perceived cost savings, and the convenience of immediate relief for non-threatening health conditions (Benadi, 2013). However, this practice carries significant risks, including incorrect dosage, potential drug interactions, and worsening of children’s underlying health conditions (Al Kaddour et al., 2022; Al-Shawi et al., 2018; Andritsou et al., 2017). According to Hughes, McElnay and Fleming (2001), self-medication in children may result in adverse reactions and hospital admission, highlighting the critical need for parental education and awareness.

The World Health Organization (WHO, 2006) has emphasized that the inappropriate administration of drugs can pose substantial health risks, particularly to vulnerable populations such as children. WHO guidelines stress that self-medication should be approached with caution and support public health interventions that educate parents about the safe administration of medicines (Blackmer et al., 2021; Clay et al., 2008). This education is especially important given the global increase in the availability and commercialization of OTC drugs (WHO, 2006).

Research has shown that parents’ knowledge and attitudes regarding self-medication are influenced by factors such as socioeconomic status, educational level, and cultural beliefs (Paudel & Aryal, 2020; Bogen, 2019; Bozoni et al., 2005). For example, parents with higher educational attainment are generally more cautious and informed about the risks of self-medication, whereas parents with lower educational levels may rely more on generational advice and personal experience (Aqeel et al., 2014).

Beyond individual behaviors, issues such as accessibility to healthcare services also play a critical role. In many low- and middle-income countries, barriers to healthcare access often drive parents to administer drugs themselves (Sontakke et al., 2011). This practice is further aggravated by the lack of regulatory control over drug sales, leading to widespread availability of potentially harmful non-prescription medicines (Shankar, Partha, & Shenoy, 2003).

In addition, the American Academy of Pediatrics (AAP) has expressed concerns over the increasing trend of parents administering non-prescription drugs to their children (McClafferty et al., 2017). The organization has pointed out that many parents may not fully understand the potential risks associated with giving medicines to children without professional medical guidance. This lack of understanding can lead to misuse, including incorrect dosage, inappropriate drug choices, and interactions with other medications the child may be taking (CDC, 2024).

2. Aim

The present study investigates parents' attitudes and behaviors regarding the administration of medicines without medical guidance. In addition, it examines the relationship between parents' educational level and their decision-making when their child becomes ill. Furthermore, it explores whether the frequency with which parents seek health information online influences how they obtain medicines and when they decide to self-administer these to their children.

3. Materials and Methods

3.1. Sample

The study sample consisted of 124 parents from the Municipality of Sykeon in Thessaloniki, specifically from the 10th Primary School of Sykeon. Inclusion criteria: Adult parents of children attending the 10th Primary School of Sykeon. Most participants were women aged 40 - 50 years, married, university graduates, and employed full-time. Most reported having two children, with at least one child aged 6 - 12 years attending the school.

3.2. Research Tool

To investigate parental attitudes and behaviors regarding the administration of medicines without medical advice, the questionnaire Medicima-56-00312-s001 was used. This questionnaire has been applied in similar international studies. For its translation, the forward-backward translation method was employed (Galani, 2019). Two independent translators translated it from English to Greek, producing the initial Greek version. Subsequently, two other translators translated this version back into English. The two English versions (original and backtranslated) were compared, leading to the finalized Greek version. The questionnaire was then tested on seven parents, none of whom reported difficulties or the need for adjustments.

The instrument consists of 25 questions, 21 of which are closed-ended. The first nine examine socio-demographic characteristics (age, gender, educational level, occupation, marital status, number of children), while the next twelve focus on the frequency of non-prescription drug administration, the child's illness history in the last six months, the type of medicines selected, and the decision-making process in health issues. Further, they investigate the age at which parents began independently managing their children's illnesses, their sources of drug information, and the frequency of online health searches. Four Likert-scale questions (with 10, 4, 4, and 5 sub-items, respectively) assess parental reactions when their children become ill, the timing of self-treatment decisions, their views on self-medication, and the potential risks involved.

4. Statistical Analysis

Data were coded in Microsoft Excel and analyzed with SPSS v.25. For closed-ended questions, frequencies and percentages were calculated, while for Likert-type questions means and standard deviations were used. To answer the first research question, Pearson's correlation coefficient was applied, and for the second, Chi-Square and Crosstabulation analysis were conducted.

5. Results

Pearson's correlation analysis revealed two statistically significant associations (**Table 1**). Specifically, the higher the educational level of respondents, the more likely they were to agree that they would administer medicine to their child if ill, and the more likely they were to follow a previous doctor's prescription. These associations had values of 0.251 and 0.328, respectively, indicating a weak correlation.

Table 1. Pearson correlations with highest education level.

Variable	Pearson Correlation	Sig. (2-tailed)	N
Going to the hospital	0.045	0.620	124
Calling known pediatric hotlines	-0.027	0.765	124
Contacting a trusted acquaintance	-0.015	0.870	124
Giving medicine to your child	0.251**	0.005	124
Giving herbal remedies	0.026	0.774	124
Giving homeopathic treatments	-0.047	0.606	124
Searching on Google	-0.052	0.565	124
Searching only reliable medical online sources	0.066	0.464	124
Following treatment from a previous prescription/system/doctor's instructions	0.328**	0.000	124
Asking for treatment in online parent groups	-0.004	0.967	124

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed).

In order to investigate the frequency with which parents search for health-related topics on the internet, a Crosstabulation analysis was initially employed, the results of which are presented in **Table 2**. Those who search for information related to health issues on the internet are mainly positioned between “when the first symptoms appear” and “when the child’s condition worsens”. This difference, according to the results in **Table 3**, appears to be statistically significant. Meanwhile, **Table 4** presents the frequency with which participants administer treatment to their children without medical advice. Specifically, 65.3% reported that they sometimes administer treatment, 25% never do, and 9.7% often do so.

Table 2. How often have you searched for health-related information on the Internet * When do you decide to self-administer medication to your child.

How often searched online	When first symptoms appear	When recognizing symptoms from previous illness	When child’s condition worsens	Doctors	Total
Never	Count: 4 %: 44.4%	Count: 5 %: 55.6%	Count: 0 %: 0.0%	Count: 0 %: 0.0%	9 (100.0%)
Rarely	Count: 19 %: 29.7%	Count: 31 %: 48.4%	Count: 11 %: 17.2%	Count: 3 %: 4.7%	64 (100.0%)
Often	Count: 5 %: 11.1%	Count: 22 %: 48.9%	Count: 17 %: 37.8%	Count: 1 %: 2.2%	45 (100.0%)
Always	Count: 2 %: 33.3%	Count: 1 %: 16.7%	Count: 2 %: 33.3%	Count: 1 %: 16.7%	6 (100.0%)
Total	Count: 30 %: 24.2%	Count: 59 %: 47.6%	Count: 30 %: 24.2%	Count: 5 %: 4.0%	124 (100.0%)

Table 3. How often have you searched for health-related information on the Internet * When do you decide to self-administer medication to your child.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.353a	9	0.043
Likelihood Ratio	19.355	9	0.022
Linear-by-Linear Association	8.591	1	0.003
N of Valid Cases	124		

Table 4. How often do you administer treatment to your children without a doctor’s advice?

	Frequency	Percent	Valid Percent	Cumulative Percent
Never	31	25.0	25.0	25.0
Sometimes	81	65.3	65.3	90.3
Often	12	9.7	9.7	100.0
Total	124	100.0	100.0	

6. Discussion

The investigation of parents' knowledge and perceptions regarding the administration of non-prescription medications to school-aged children has revealed several significant findings.

Analysis of the results of the present study demonstrates that a higher educational level is significantly associated with the likelihood that parents will administer medication to their children based on previous doctors' prescriptions (Pearson Correlation 0.328). This finding is consistent with the studies of [Paudel and Aryal \(2020\)](#), [Dawood et al. \(2015\)](#) and [Aqeel et al. \(2014\)](#), who observed that a higher educational level is linked with more frequent adoption of self-medication practices. Parents with a higher educational background tend to be better informed about medical instructions and are more likely to follow safe practices for their children.

The study also found that respondents were more likely to administer non-prescription drugs to their children in cases where access to healthcare services was limited, particularly during nighttime or when away from home (mean 2.40 and 2.31, respectively). This result appears consistent with the findings of [Sontakke et al. \(2011\)](#), which highlight that barrier to accessing healthcare often leads to self-medication practices. This suggests that logistical challenges and immediate needs push parents to resort to self-medication as a practical solution ([Tayama et al., 2009](#); [Yu et al., 2014](#)).

In addition, a substantial proportion of parents (61.3%) recognized the risks of self-medication, such as misdiagnosis and inappropriate drug use. This observation is consistent with studies by [Hughes et al. \(2016\)](#), as well as [the CDC report \(2024\)](#), both of which emphasize the potential dangers of self-medication, including adverse drug reactions and the importance of proper guidance. This indicates a general recognition among parents of the inherent risks, even if they still administer non-prescription medications under certain conditions.

Another important finding of the study concerns the role of digital health information in shaping self-medication practices. The study revealed that individuals who more frequently searched for health-related information online were more likely to administer non-prescription drugs to their children when observing symptoms already familiar from previous illnesses. This finding supports the research of [Holappa et al. \(2012\)](#) and [Abraham et al. \(2017\)](#), who concluded that parents increasingly rely on digital sources for health information. The easy access to online health information may provide parents with a false sense of confidence in managing their children's health, leading to more frequent administration of non-prescription drugs.

Although several similarities with existing literature were identified, certain discrepancies also emerged. While the literature, including [WHO Reports \(2006\)](#), emphasizes the need for educational interventions, the present study found that only 57.3% of respondents considered online health information to be somewhat

useful, while 32.3% were uncertain. This suggests a gap between the availability of information and its practical utility in empowering parents to make safer health-related decisions. This inconsistency may stem from the quality of information accessed or parents' ability to discern reliable online health resources. Relying on non-certified websites for medical information may expose parents to misleading or inaccurate guidance, leading to inappropriate self-medication practices in children, such as incorrect dosing, use of unsuitable drugs, or misuse of antibiotics. These behaviors are associated with increased risk of adverse health outcomes and may contribute to antimicrobial resistance (World Health Organization, 2006). Furthermore, dependence on unreliable sources undermines parental trust in healthcare professionals and official health systems, underscoring the urgent need for certified, evidence-based, and accessible online resources curated by pediatric health organizations (Brown et al., 2019; Reutzel et al., 2009).

Contrary to some international studies reporting high frequencies of self-medication (e.g., Pereira et al., 2007), in this study, 65.3% of parents reported practicing self-medication for their children only occasionally, and 25% reported never doing so. The lower frequency may be attributed to regional differences in healthcare access, cultural attitudes toward self-medication, or the effectiveness of local health policies and educational programs.

The lower perceived usefulness of online health information may also arise from the varying quality of digital content. Many parents may encounter conflicting advice or lack the skills to evaluate the reliability of online sources, leading them to hesitate in relying on such information for medical decision-making. Additionally, as observed, cultural norms and regional healthcare systems significantly influence self-medication practices. Discrepancies in the frequency of self-medication practices may reflect differences in healthcare infrastructure, cultural attitudes toward medicine, and the effectiveness of local health education initiatives.

7. Study Limitations

The study faced limitations, including possible reporting bias, geographical restriction to one area, and reliance on online survey data, which may have excluded parents with limited internet access. Future research should broaden geographical scope and consider mixed data collection methods. In addition, the sample was highly homogeneous (mainly educated, employed women aged 40 - 50 years), which limits the generalizability of the findings. Therefore, further research is recommended in more heterogeneous parent populations

8. Conclusions

In conclusion, parental self-medication for school-aged children is a widespread practice shaped by factors such as educational background and access to health information. The development of reliable, user-friendly, and evidence-based online health portals could help address the existing information gap. At the same time,

mobile applications providing real-time support and direct access to healthcare professionals may enable parents to make safer and more scientifically informed decisions. Expanding the availability of after-hours healthcare services, together with the provision of remote services such as telemedicine, could reduce the reliance on self-medication as a necessity. Stricter regulations on the sale of non-prescription medications, along with policies requiring pharmacists to provide advice on their safe use, may enhance parents' understanding of the importance of following medical guidance. In parallel, public health campaigns should raise awareness of the risks of self-medication and promote safer practices.

The study also highlighted the critical need for the design and implementation of targeted educational programs, improved digital health literacy, enhanced access to healthcare, and the adoption of legislative reforms in the health sector. National health authorities and public health organizations could play a key role in designing and funding educational initiatives, while pediatric associations and professional healthcare bodies may contribute by providing evidence-based content and training. In addition, schools and community organizations can support parental engagement and ensure that resources are accessible to more diverse populations.

The implementation of these interventions at the level of public health could lead to improved outcomes regarding the administration of non-prescription medications to school-aged children, thereby safeguarding the health and well-being of both children and their parents.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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