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Knowledge and Attitudes of Mothers Towards Paediatric Medication Use in Saudi Arabia: A Cross-Sectional Study

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Abstract **Background**: Understanding mothers' attitudes and knowledge regarding the use of medications in children is crucial for ensuring safe and effective treatment. As primary caregivers, mothers' decisions on medication use and adherence to treatments significantly impact Paediatric healthcare. **Objectives:** This study aims to evaluate the knowledge and attitudes of mothers in Saudi Arabia towards the use of medications in their children. **Methodology:** A cross-sectional observational study was conducted across various regions of Saudi Arabia from July to November 2024. The study utilized a structured questionnaire consisting of 43 statements to assess participants' socio-demographic characteristics, knowledge, attitudes, and awareness. **Results**: In a cross-sectional study involving 752 mothers in Saudi Arabia, findings revealed significant gaps in knowledge and attitudes toward Paediatric medication use. While 89.2% acknowledged the existence of medication side effects, only 24.5% reported high perceived knowledge regarding proper medication use for children. Alarmingly, 68% admitted to self-medicating without prior consultation, and 52.7% sometimes underestimated their child's health issues. Furthermore, 39.4% demonstrated low awareness of Paediatric medication symptoms, raising concerns about safe dosing practices. Statistically significant relationships were identified between mothers' knowledge and factors such as monthly income, number of children, and prior medication consultation, highlighting areas for targeted educational interventions. **Conclusion**: The findings highlight statistically significant gaps in knowledge and concerning trends in self-medication practices, underscoring the urgent need for targeted educational initiatives to enhance parental understanding of safe medication practices.

Key Words Knowledge, Attitudes, Mothers, Medications, Children, Saudi Arabia

INTRODUCTION

Ensuring the secure and effective administration of treatments requires understanding mothers' attitudes and expertise regarding the use of pharmaceuticals in children. Since mothers are often the primary caregivers, they must carefully select medications and follow through with recommended treatments.[1]. Each year, vaccinations save millions of lives as they are among the most effective defences against preventable infectious diseases. Despite this, a significant percentage of children worldwide do not receive their childhood immunizations, with the situation worsening in developing nations despite the availability of free vaccines and medical services. [2]. Overuse and inappropriate use of medications is a significant issue impacting public health globally, including in Turkey. This problem necessitates increased awareness and education on the proper use of medications. [3] Several studies conducted in countries such as Italy, Ireland, Jordan, Nigeria, Canada, Morocco, and France have shown that fever phobia is the most common reason for hospital visits among parents. This highlights a widespread concern and a need for better education on fever management.[4]. A study by M. Abd Elsamad et al. (2023) investigated the knowledge and attitudes of mothers regarding self-prescribing medication for their children under five years old. Despite nearly half of the participants being housewives with insufficient income,

45% were highly educated. The most frequently used medications were antipyretics, followed by cold medications. The study revealed that overall knowledge was unsatisfactory, with minimal understanding of possible side effects or proper medication uses. More than half of the participants had a negative attitude towards using the medication without consulting a doctor, while one-third had a neutral attitude, and none had a positive attitude.[5]. In 2022, J. Paredes et al. studied the knowledge and attitudes of parents in Peru towards antibiotic use. The study showed a lack of knowledge, especially among parents younger than 20 years old, compared to those older than 40. It also found a rising trend of parents self-medicating their children (52%), indicating an inadequate attitude towards antibiotic use. [6] In 2021, a study conducted in Riyadh, Saudi Arabia, examined mothers' knowledge and attitudes towards using antibiotics for their children. The majority of participants demonstrated poor knowledge of antibiotic use in cases of upper respiratory tract infections and relied primarily on physicians for information. Few participants recognized that most URTIs are viral infections. Despite this, the majority showed a positive attitude towards antibiotic use; more than one-third strongly agreed that the misuse of antibiotics leads to drug resistance and reduces their efficacy. Additionally, 87.4% of them did not keep leftover antibiotics for future use when their children exhibited similar symptoms.[7]. The high frequency of self-medication and self-prescribing medications risks are addressed by research on mothers' knowledge of children's medicine usage. Research shows that moms frequently self-prescribe drugs, which can result in abuse and unfavorable outcomes. Understanding mothers' knowledge ensures that medications are given to children safely and effectively, reducing the risk of adverse effects or improper use. Knowledge influences adherence to prescribed medication regimens. Informed mothers often adhere to medication instructions better. It helps mothers make clear decisions in line with medical advice. These characteristics include socioeconomic position and level of education. In the end, increasing child health outcomes and safe medication practices, and understanding their knowledge helps identify gaps and inform educational solutions. A portion of the research on this subject is frequently limited to studying a single class of drugs; the majority of studies that raise awareness about the use of antibiotics in children have also improved the usage of antibiotics. Certain prescription drugs and chronic conditions have been the focus of some studies. Some of the research's knowledge gaps include the sample selected for the study's investigator being far from how our culture handles children's medicine or the study's generalization to all parents without clarifying the proportion of moms in the sample. This research is aimed at understanding and assessing mothers' knowledge and attitudes towards the use of medications in children across Saudi Arabia. The study seeks to identify common misconceptions, patterns of self-medication, and the general level of awareness regarding the safe and effective use of pharmaceuticals for children.

Objectives

This study to assess the level of knowledge and attitudes of mothers towards the use of medications in children.

METHODS

Study Design and Setting

This observational study was conducted across Saudi Arabia. From July to November 2024.The study includes mothers aged 18 to 50 years from various educational and employment backgrounds across urban and rural regions of Saudi Arabia. Participants have children with both chronic conditions and acute illnesses, as well as those without any chronic illnesses for comparison. The focus was on mothers with firsthand experience in administering medications, including both prescribed and over-the-counter options. This diverse participant pool aims to provide insights into mothers' knowledge and attitudes toward Paediatric medication use, informing future healthcare strategies.

Sample Size

Calculation of sample size was done to ensure the minimum number of respondents needed to be a representative sample of the whole population. The sample size was determined using Raosoft sample size calculator. Keeping an indicator percentage of 0.5, a margin of error of 5%, and a confidence interval (CI) of 95%, the calculated sample size was 384.

Inclusion and Exclusion Criteria

The inclusion criteria of the sample involved are: All mothers who have children under 12 years old and live in Saudi Arabia and have the ability to speak and understand Arabic. Mothers who refused to participate in the study or had no time to complete the questionnaire was excluded.

Method for Data Collection

Instrument and Score System: Structured questionnaire was used as a study tool. This tool was used from a relevant study; this questionnaire was previously used in a published study. [8]

The final version of the questionnaire consisted of 43 with 5 sections. Section 1 starts with a brief description of the study and the consent question. Section 2, includes demographic features such as age, gender, residential area, educational qualifications, and income. Section 3, Includes factors that lead mothers to use self-prescriptions for their children. Section 4, Includes the percentage distribution for mothers' general knowledge about self-prescriptions.

Section 5 contains the percentage distribution of mothers' attitudes towards the instructions and precautions necessary for using medicine for their children. Section 6, Includes a percentage distribution of the way mothers' utilization medications without consulting a doctor when their child gets sick6, includes percentage distribution of the way of mothers' utilization of medications without consulting a doctor when their child gets sick

Scoring System

In all, 43 statements served to assess the participants' attitudes and degree of knowledge. 9 statements for socio-

demographic characteristics, for factors, 8 for knowledge, and 19 for awareness. One point is given for correct answers, and zero points are given for incorrect answers. For scoring, the original Bloom's cutoff points, for;

- Part 1 and 2 was: 70.0%-100.0%, and 70.0%
- For part 3: 75.0%-100.0%, 60.0%-75.0%, and 59.0% or less
- For part 4: 80.0%-100.0%, 60.0-80.0%, and 59.0% or less

The participants were divided into four groups based on the scores.

Knowledge Score

It varied from 0 to 8 points and was classified into 2 levels as follows: those with a score of 5.6 or below were classified as having a low level of knowledge, and those with scores of 5.6 or above as a high level of knowledge.

Attitudes Score

For section 1 varied from 0 to 9 points and was classified into three levels as follows: those with 5.39 a score of or below were classified as having a low level of knowledge, those with scores between 4.39and 8.3 as having a moderate level of knowledge, and those with scores 8.3 or above as a high level of knowledge. Section 2 varied from 0 to 12 and was classified into three levels as follows: those with 7.1 a score of or below were classified as having a low level of knowledge, those with scores between 7.1 and 9 as having a moderate level of knowledge, and those with scores 9 or above as a high level of knowledge.

Awareness Score

It contains two sections; Section I contains 0 to 9 points items to assess mothers' practice of self-prescribing medication when common symptoms appear 3 levels as follows: those with a score of 5.39 or below were classified as having a low level of knowledge, those with scores between 5.39 and 7.2 as having a moderate level of knowledge, and those with scores 7.2 or above as a high level of knowledge. Section II contains 0–19-point items to assess the way mothers utilize medications without consulting a doctor when their child gets sick. This part of the questions contains 3 points of a score of 11.4 or below were classified as having a low level of knowledge, those with scores between 11.4 and 15.8 as having a moderate level of knowledge, and those with scores of 15.8 or above as a high level of knowledge.

Pilot Test

The questionnaire will be distributed to 20 individuals and they will be asked to fill it out. This will be done to test the simplicity of the questionnaire and the feasibility of the study. Data from the pilot study will be excluded from the final data of the study.

Analyses and Entry Method

Data entry was conducted using Microsoft Office Excel 2016 for Windows. After entering the data in Excel, it was transferred to the Statistical Package for the Social Sciences (SPSS) software, version 20 (IBM SPSS Statistics for Windows, Version 20.0, Armonk, NY: IBM Corp.), for statistical analysis. The collected data was first entered into Excel and then imported into SPSS to perform the required statistical analyses.

RESULTS

Table 1 displays various demographic parameters of the participants with a total number of (752). The participants' mean age is 38.9 years with age disparity as 5.3 years, which shows that most of the participants are in the 36-44 and 45 or older age group contributing 30.9% each. Another 2.3% are single parents, making it possible to conclude about the stability of family relationships among the targets of this population – 89.8% are married. Geographical distribution indicates that 93.9% reside in urban places, a factor that links urbanization to; healthcare access or views on it. Regarding education, the sample's literacy level is rather high – 57.4% of participants have a bachelor's degree, so they are more likely to be informed about the choices related to health. On the other hand, the self-medication without consulting a

Table 1: Sociodemographic characteristics of participants (n=752)

Parameter		No.	(%)
Age (Mean:38.9, SD:9.3)	30 or less	180	23.9
	31 to 35	108	14.4
	36 to 44	232	30.9
	45 or more	232	30.9
Marital status	Married	675	89.8
	Divorced	43	5.7
	Widowed	34	4.5
Region of residence	Village	46	6.1
	City	706	93.9
Educational level	Primary school	10	1.3
	Middle school	29	3.9
	High school	139	18.5
	Diploma	82	10.9
	Bachelor's degree	432	57.4
	Postgraduate degree	46	6.1
	Uneducated	14	1.9
Occupation	Student	32	4.3
	Employee	288	38.3
	Unemployed	327	43.5
	Freelancer	51	6.8
	Retired	54	7.2
Monthly income (SAR)	Less than 1000	169	22.5
	1000 to 3000	152	20.2
	3001 to 7000	142	18.9
	7001 to 10000	121	16.1
	More than 10000	168	22.3
Are you using medicines for your child without consulting a doctor?	No	241	32.0
	Yes	511	68.0
If yes, state the medicine * (n=556)	Antiemetics	63	11.3
	Cough suppressants	180	32.4
	Painkillers	251	45.1
	Cold medicine	158	28.4
	Antipyretic drugs	487	87.6
	Antidiarrheal drugs	71	12.8
	Antibiotics	32	5.8
	Others	53	9.5
Number of children	Child	140	18.6
	2 children	194	25.8
	3 children or more	418	55.6

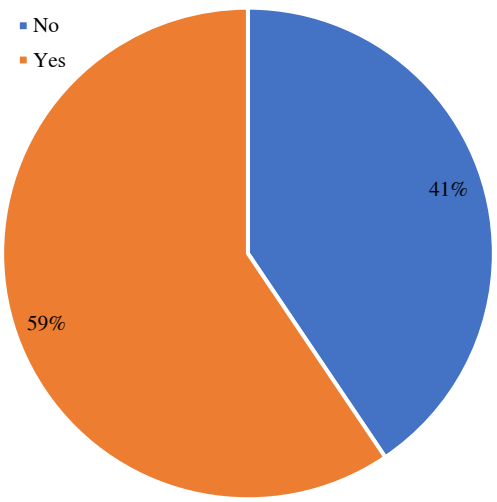

Figure 1: Knowledge of side effects of self-medications

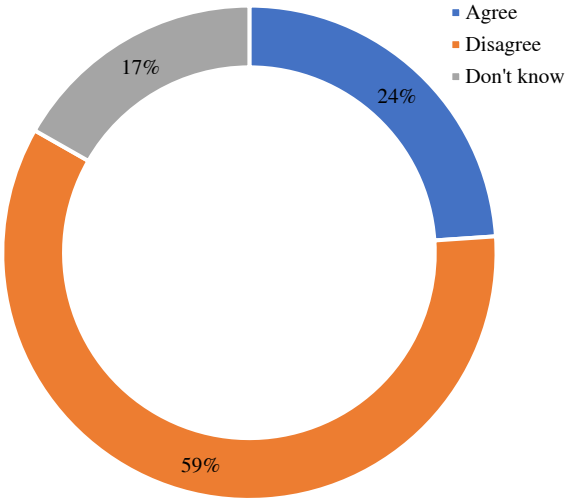

Figure 2: If mother can self-prescribe drugs for her children

Table 2: Knowledge of mothers towards Paediatric medication

Parameter		No.	(%)
Believing that the disease is simple and there is no need to exaggerate and go to doctors	Never	68	9.0
	Sometimes	396	52.7
	Always	72	9.6
	Mostly	216	28.7
Avoid crowding in public clinics and hospitals.	Never	100	13.3
	Sometimes	217	28.9
	Always	173	23.0
	Mostly	262	34.8
The high cost of medical services in private clinics and hospitals	Never	161	21.4
	Sometimes	156	20.7
	Always	244	32.4
	Mostly	191	25.4
Go to the pharmacist as an alternative to the doctor to save money and time	Never	144	19.1
	Sometimes	298	39.6
	Always	122	16.2
	Mostly	188	25.0
Because health service centres are far away and take a long time to reach them	Never	258	34.3
	Sometimes	269	35.8
	Always	70	9.3
	Mostly	155	20.6
Knowing the appropriate medication and how to give it to the child through previous experiences	Never	103	13.7
	Sometimes	194	25.8
	Always	204	27.1
	Mostly	251	33.4
Know the symptoms and signs of the disease for which the medicine should be given to the child using the previous prescription	Never	125	16.6
	Sometimes	233	31.0
	Always	160	21.3
	Mostly	234	31.1
Do you know the most popular and important types of medicines that mothers give to children without a prescription?	No	162	21.5
	Yes	590	78.5
Do you know the side effects of the medications you prescribed for him?	No	305	40.6
	Yes	447	59.4
Are you aware of the disadvantages of using antipyretics without consulting a doctor?	No	316	42.0
	Yes	436	58.0
Are you aware of the side effects of cough medicines?	No	345	45.9
	Yes	407	54.1
Do you know the side effects of diarrhoea medications?	No	414	55.1
	Yes	338	44.9
Do you know the risks of anti-vomiting medications?	No	440	58.5
	Yes	312	41.5
Have you ever heard of the dangers of using antibiotics without consulting a doctor?	No	159	21.1
	Yes	593	78.9

physician is of more concern based on the data collected; 68% have been found abusing medication. Regarding the categories of administered medications, self-reported data showed that the most frequently used medication, apart from antipyretics, points to a tendency of treating childhood health issues with ready-mixed medicines over the counter.

As shown in Figure 1, The questionnaire also gathered details about the respondents' own awareness of medication side effects in clinical practice and trends seen in such responses include. Out of 752 participants about 447 or (59.5%) affirmed they understood the side effects of the prescribed medications. On the other hand, 305 participants, approximately 40.5% stated that they had no information regarding these possible negative consequences.

Table 2 shows general information about 752 respondents' knowledge and attitude towards Paediatric medication. As a potential cautionary sign, more than half, 52.7%, of the mothers reported sometimes not perceiving a child's ailment sufficiently serious to seek medical care for. Also, while a significant proportion of the mothers (34.8%) reported that they rely only on Ministry of Health clinics and rarely gather in the public clinics, 21.4% of them stated that they never regard the high cost of the private hospitals as a hindrance to access health facilities for more care. The study also points out the fact that 39.6% of the mothers sometime use pharmacists instead of using doctors. Older mothers have moderate knowledge of risks; 78.5% of the surveyed mothers recognized basic OTC drugs; however, many the surveyed subjects failed to recall possible side effects of antipyretics and antibiotics.

As shown in Figure 2, such observations can be made from the data presented: the surveyed residents of two states have rather diverse perceptions of how authoritative a mother figure is in determining her child's dosages of medication without consulting a doctor first. From the total of 752 respondents, 180 people, that is roughly 24%, agreed with the statement that mothers should take this responsibility unto themselves. On the other hand, 446 participants, that is, nearly 59 percent of the participants,

Table 3: participants' attitude and awareness towards Paediatric medication (n=752).

Parameter		No.	Percent (%)
The mother can prescribe the medicine to her children herself without consulting a doctor when symptoms appear.	Agree	180	23.9
	Disagree	446	59.3
	Don't know	126	16.8
Medicines have side-effects you should know about.	Agree	671	89.2
	Disagree	28	3.7
	Don't know	53	7.0
You should read the directions and instructions for the medicine before giving it.	Agree	689	91.6
	Disagree	29	3.9
	Don't know	34	4.5
The course of treatment must be completed to give the best result.	Agree	677	90.0
	Disagree	27	3.6
	Don't know	48	6.4
There is only one type of medication that gives the best result.	Agree	172	22.9
	Disagree	339	45.1
	Don't know	241	32.0
The medicine can interact with another medicine and give an undesirable result.	Agree	586	77.9
	Disagree	21	2.8
	Don't know	145	19.3
There are some medicines that are used at a certain age for children.	Agree	658	87.5
	Disagree	20	2.7
	Don't know	74	9.8
Long-term use of medications may cause side effects that harm the child's health.	Agree	686	91.2
	Disagree	12	1.6
	Don't know	54	7.2
Some medications should not be stopped without consulting a doctor.	Agree	563	74.9
	Disagree	90	12.0
	Don't know	99	13.2
When I give medication at home, I carefully monitor for side effects.	Agree	652	86.7
	Disagree	27	3.6
	Don't know	73	9.7
When I treat a child at home, I make sure the medicine is safe.	Agree	654	87.0
	Disagree	51	6.8
	Don't know	47	6.3
If you agree with the above statement, how do you ensure the safety of the medicine? * (n=705)	previous prescription	237	33.6
	Previous experience	264	37.4
	Keeping medicines in the refrigerator	350	49.6
	Follow the pharmacist's instructions.	390	55.3
	New medicine	279	39.6
	Follow medication instructions.	459	65.1
When my child is sick, I give him medicine at home based on past experience.	Never	87	11.6
	Sometimes	383	50.9
	Always	131	17.4
	Rarely	151	20.1
When my child gets sick with similar symptoms, I use the same prescription that my previous doctor prescribed.	Never	173	23.0
	Sometimes	322	42.8
	Always	94	12.5
	Rarely	163	21.7
When my child is sick, I consult a family member, friend or neighbour who has a child the same age.	Never	264	35.1
	Sometimes	208	27.7
	Always	75	10.0
	Rarely	205	27.3
When my child is sick, I go to buy medicine from the pharmacist based on his advice.	Never	125	16.6
	Sometimes	349	46.4
	Always	97	12.9
	Rarely	181	24.1
When my child is sick, I search the internet by writing down the symptoms and signs and finding out the recommendations.	Never	244	32.4
	Sometimes	235	31.3
	Always	110	14.6
	Rarely	163	21.7
When my child is sick late at night I give him medicine at home without delay.	Never	84	11.2
	Sometimes	344	45.7
	Always	196	26.1
	Rarely	128	17.0
To calculate the dose in terms of quantity and frequency*	Follow the pharmacist's instructions.	439	58.4
	Ask experienced relatives and friends.	78	10.4
	Read and follow the instructions in the medicine leaflet.	465	61.8

Table 3: participants' attitude and awareness towards Paediatric medication (n=752).

Parameter		No.	Percent (%)
	It is calculated based on the previous dose of the doctor's prescription.	260	34.6
For the duration of treatment	Stop using it as soon as the child's condition improves.	135	18.0
	Follow the pharmacist's instructions.	275	36.6
	Ask an experienced relative or friend.	12	1.6
	Read and follow the instructions mentioned in the medicine leaflet.	184	24.5
	Continue for two days, if symptoms do not disappear, consult a specialist.	146	19.4
What to do when a child does not get better with the medicine prescribed by the doctor?	I stop using the medicine and use another medicine.	13	1.7
	I stop using the medicine and consult my relatives or friends.	52	6.9
	I stop using the medicine and consult a pharmacist.	81	10.8
	I stop using the medicine and consult a Paediatrician.	606	80.6

Table 4: Knowledge of mothers towards Paediatric medication use score results

Level	Frequency	Percent
High knowledge Level	184	24.5
Low knowledge level	568	75.5
Total	752	100.0

Table 5: Attitude of mothers towards Paediatric medication use score results

Level	Frequency	Percent
High attitude level	300	39.9
Moderate attitude level	298	39.6
Low attitude level	154	20.5
Total	752	100.0

Table 6: Awareness of mothers towards Paediatric medication use score results

Level	Frequency	Percent
High awareness level	106	14.1
Moderate awareness	350	46.5
Low awareness level	296	39.4
Total	752	100.0

selected a strongly dissented option, meaning they do endorse the need for medical action prior the use of medicine. In addition, 126 respondents or close to 17% 'did not know' meaning there is a significant level of indecisiveness concerning the issue.

Table 3 shows some findings from the survey in relation to participant's attitude and awareness to Paediatric medication with a total response rate of 752. The knowledge of side effects of medication also seems to be quite high among respondents; 89.2% said they know that there are side effects of most medicines though they may not name them. Additionally, as many as 91.6% of the interviewed persons also stress that they always read medication instructions before use, which can be considered as a responsible attitude to the children's health. Nonetheless, the scores show the worrying sign concerning self-prescribing practice: the 23.9% agreed on the statement that mothers can prescribe medication without consulting a physician the implication of which is lack of insight of the need for professional advice on children's health issues. Most importantly, the respondents' awareness of adherence principles appears rather high; 90.0% of them understand the need to finish prescribed treatment courses. They further highlight prescription previously given and instructions from a pharmacist in terms of dosage; 58.4% and 61.8% of the respondents said it was their preferred way to calculate dosage.

The scores based on the presented data in Table 4 show a decrease in maternal knowledge about the use of Paediatric medication, which remains unsuitable for a child's health. Overall, high perceived knowledge was found in 24.5% of the mothers, however the largest proportion 75.5% had low perceived knowledge. Such a dramatic disparity points to the lack in educational and awareness in the correct use in taking medicines for children and may therefore influence health.

The results shown in Table 5 indicate the overall perception of mothers to the use of Paediatric medications which is generally positive. Of interest, 39.9% of the sample had high attitude towards the infants/diagnostics and being willing to learn about as well as giving out medications to their children. However, 39.6% respondents showed moderate attitude regarding Paediatric pharmaceuticals which also expresses a very encouraging response, though there is scope of improvement in the knowledge or assertiveness level of the respondents. On the other hand, the same percentage of participants reported a low attitude level thus a noticeable portion of the population experiences considerable concern or doubt.

In Table 6, the cross-sectional descriptive analysis is presented to show the level of awareness of mothers on Paediatric medication usage and the given picture is rather alarming in this important area of children's health. More than half of the respondents, 46.5% had a moderate level of awareness of the symptoms; only 14.1% had high awareness. Still more troubling, 39.4% of the Survey's respondents showed low awareness – which may have implications for the safe dosing of medications for children.

Table 7 shows that knowledge of mothers towards paediatric medication has statistically significant relation to monthly income (P value=0.0001), using medications before consultation (P value=0.0001), and number of children (P value=0.042). It also shows statistically insignificant relation to marital status, age, residential region, educational level, and occupation.

Table 8 shows attitude of mothers towards paediatric medication has statistically significant relation to marital status (P value=0.008), educational level (P value=0.007), monthly income (P value=0.0001), using medications before consultation (P value=0.027), and number of children (P value=0.040). It also shows statistically insignificant relation to age, residential region, and occupation.

Table 7: Relation between knowledge of mothers towards Paediatric medication and sociodemographic characteristics

Parameters		Knowledge level		Total (n=752)	P- value*
		High	Low		
Marital status	Married	167	508	675	0.846
		90.8%	89.4%	89.8%	
	Divorced	9	34	43	
		4.9%	6.0%	5.7%	
	Widowed	8	26	34	
		4.3%	4.6%	4.5%	
Age	30 or less	52	128	180	0.197
		28.3%	22.5%	23.9%	
	31 to 35	19	89	108	
		10.3%	15.7%	14.4%	
	36 to 44	57	175	232	
		31.0%	30.8%	30.9%	
	45 or more	56	176	232	
		30.4%	31.0%	30.9%	
Residential region	Village	7	39	46	0.132
		3.8%	6.9%	6.1%	
	City	177	529	706	
		96.2%	93.1%	93.9%	
Educational level	Primary school	2	8	10	0.988
		1.1%	1.4%	1.3%	
	Middle school	8	21	29	
		4.3%	3.7%	3.9%	
	High school	34	105	139	
		18.5%	18.5%	18.5%	
	Diploma	19	63	82	
		10.3%	11.1%	10.9%	
	Bachelor's degree	106	326	432	
		57.6%	57.4%	57.4%	
	Postgraduate degree	11	35	46	
		6.0%	6.2%	6.1%	
	Uneducated	4	10	14	
		2.2%	1.8%	1.9%	
Occupation	Student	8	24	32	0.248
		4.3%	4.2%	4.3%	
	Employee	69	219	288	
		37.5%	38.6%	38.3%	
	Unemployed	86	241	327	
		46.7%	42.4%	43.5%	
	Freelancer	6	45	51	
		3.3%	7.9%	6.8%	
	Retired	15	39	54	
		8.2%	6.9%	7.2%	
Monthly income	Less than 1000 SAR	63	106	169	0.0001
		34.2%	18.7%	22.5%	
	1000 to 3000	25	127	152	
		13.6%	22.4%	20.2%	
	3001 to 7000	29	113	142	
		15.8%	19.9%	18.9%	
	7001 to 10000	24	97	121	
		13.0%	17.1%	16.1%	
	More than 10000 SAR	43	125	168	
		23.4%	22.0%	22.3%	
Are you using medicines for your child without consulting a doctor?	No	82	159	241	0.0001
		44.6%	28.0%	32.0%	
	Yes	102	409	511	
		55.4%	72.0%	68.0%	
Number of children	1 Child	34	106	140	0.042
		18.5%	18.7%	18.6%	
	2 children	60	134	194	
		32.6%	23.6%	25.8%	
	3 children or more	90	328	418	
		48.9%	57.7%	55.6%	

Table 8: Attitude of mothers towards Paediatric medication in association with sociodemographic characteristics

Parameters		Attitude level		Total (N=752)	P value*
		High attitude level	Moderate or low level		
Marital status	Married	281	394	675	0.008
		93.7%	87.2%	89.8%	
	Divorced	8	35	43	
		2.7%	7.7%	5.7%	
	Widowed	11	23	34	
		3.7%	5.1%	4.5%	
Age	30 or less	77	103	180	0.130
		25.7%	22.8%	23.9%	
	31 to 35	37	71	108	
		12.3%	15.7%	14.4%	
	36 to 44	103	129	232	
		34.3%	28.5%	30.9%	
	45 or more	83	149	232	
		27.7%	33.0%	30.9%	
Residential region	Village	13	33	46	0.096
		4.3%	7.3%	6.1%	
	City	287	419	706	
		95.7%	92.7%	93.9%	
Educational level	Primary school	2	8	10	0.007
		0.7%	1.8%	1.3%	
	Middle school	8	21	29	
		2.7%	4.6%	3.9%	
	High school	45	94	139	
		15.0%	20.8%	18.5%	
	Diploma	28	54	82	
		9.3%	11.9%	10.9%	
	Bachelor's degree	197	235	432	
		65.7%	52.0%	57.4%	
	Postgraduate degree	18	28	46	
		6.0%	6.2%	6.1%	
	Uneducated	2	12	14	
		0.7%	2.7%	1.9%	
Occupation	Student	14	18	32	0.293
		4.7%	4.0%	4.3%	
	Employee	123	165	288	
		41.0%	36.5%	38.3%	
	Unemployed	130	197	327	
		43.3%	43.6%	43.5%	
	Freelancer	14	37	51	
		4.7%	8.2%	6.8%	
	Retired	19	35	54	
		6.3%	7.7%	7.2%	
Monthly income	Less than 1000 SAR	54	115	169	0.0001
		18.0%	25.4%	22.5%	
	1000 to 3000	66	86	152	
		22.0%	19.0%	20.2%	
	3001 to 7000	42	100	142	
		14.0%	22.1%	18.9%	
	7001 to 10000	52	69	121	
		17.3%	15.3%	16.1%	
	More than 10000 SAR	86	82	168	
		28.7%	18.1%	22.3%	
Are you using medicines for your child without consulting a doctor?	No	110	131	241	0.027
		36.7%	29.0%	32.0%	
	Yes	190	321	511	
		63.3%	71.0%	68.0%	
Number of children	Child	43	97	140	0.040
		14.3%	21.5%	18.6%	
	2 children	85	109	194	
		28.3%	24.1%	25.8%	
	3 children or more	172	246	418	
		57.3%	54.4%	55.6%	

Table 9: Awareness of mothers towards Paediatric medication in association with sociodemographic characteristics

Parameters		Awareness level		Total (N=752)	P-value*
		High or moderate	Low		
Marital status	Married	411	264	675	0.843
		90.1%	89.2%	89.8%	
	Divorced	26	17	43	
		5.7%	5.7%	5.7%	
	Widowed	19	15	34	
		4.2%	5.1%	4.5%	
Age	30 or less	109	71	180	0.508
		23.9%	24.0%	23.9%	
	31 to 35	65	43	108	
		14.3%	14.5%	14.4%	
	36 to 44	149	83	232	
		32.7%	28.0%	30.9%	
	45 or more	133	99	232	
		29.2%	33.4%	30.9%	
Residential region	Village	21	25	46	0.032
		4.6%	8.4%	6.1%	
	City	435	271	706	
		95.4%	91.6%	93.9%	
Educational level	Primary school	6	4	10	0.008
		1.3%	1.4%	1.3%	
	Middle school	14	15	29	
		3.1%	5.1%	3.9%	
	High school	68	71	139	
		14.9%	24.0%	18.5%	
	Diploma	44	38	82	
		9.6%	12.8%	10.9%	
	Bachelor's degree	286	146	432	
		62.7%	49.3%	57.4%	
	Postgraduate degree	29	17	46	
		6.4%	5.7%	6.1%	
	Uneducated	9	5	14	
		2.0%	1.7%	1.9%	
Occupation	Student	14	18	32	0.002
		3.1%	6.1%	4.3%	
	Employee	183	105	288	
		40.1%	35.5%	38.3%	
	Unemployed	210	117	327	
		46.1%	39.5%	43.5%	
	Freelancer	20	31	51	
		4.4%	10.5%	6.8%	
	Retired	29	25	54	
		6.4%	8.4%	7.2%	
Monthly income	Less than 1000 SAR	102	67	169	0.0001
		22.4%	22.6%	22.5%	
	1000 to 3000	68	84	152	
		14.9%	28.4%	20.2%	
	3001 to 7000	97	45	142	
		21.3%	15.2%	18.9%	
	7001 to 10000	86	35	121	
		18.9%	11.8%	16.1%	
	More than 10000 SAR	103	65	168	
		22.6%	22.0%	22.3%	
Are you using medicines for your child without consulting a doctor?	No	112	129	241	0.0001
		24.6%	43.6%	32.0%	
	Yes	344	167	511	
		75.4%	56.4%	68.0%	
Number of children	Child	76	64	140	0.003
		16.7%	21.6%	18.6%	
	2 children	104	90	194	
		22.8%	30.4%	25.8%	
	3 children or more	276	142	418	
		60.5%	48.0%	55.6%	

Table 9 shows awareness of mothers towards paediatric medication has statistically significant relation to residential region (P value=0.032), educational level (P value=0.008), occupation (P value=0.002), monthly income (P value=0.0001), using medications before consultation (P value=0.0001), and number of children (P value=0.003). It also shows statistically insignificant relation to age and marital status.

DISCUSSION

One aim of this study was to investigate the mothers' knowledge and attitudes towards the usage of medications in their children in relation to safe and effective Paediatric health care. Self-medication among mothers makes the results worrisome with gaps in knowledge regarding medication use and side effects.

This study confirms previous research that self-medication among parents happens to be very common. For example, a recent study in Jordan found that many parents are engaging in self-treatment for their children, in large part because they are unaware of the risks of such behaviour [9]. Research in Turkey showed that medications were overused and used inappropriately, a major public medicine health concern globally, and that increased awareness and education on appropriate medication use was necessary [10]. The finding of this study that 68% of mothers self-medicated without prior consultation with a physician confirms a critical flaw in safe medication practices which echoes those of other studies on parental attitudes towards self-medication [11].

Also, the current study revealed that a large proportion of mothers (23.9%) believed that it was permissible to prescribe medications without seeing a doctor. The implication of this finding is particularly alarming given the fact that it implies a lack of knowledge over the essence of having a professional medical advice while taking care of a wee one. Like previous studies [12,13], many parents lacked sufficient knowledge of the possible adverse side effects of these medications, resulting in potential for their children's health outcomes to be adverse. This paradox is remarkable in that parents in this sample were attentive to the side effects of medication (89.2%) and yet were believed to be self-prescribing this if it were necessary.

The study showed high perceived knowledge about Paediatric medication in only 24.5 per cent of mothers and low in 75.5 per cent. Such disparity is consistent with other studies that have demonstrated that educational level and socioeconomic status play an important role in parental knowledge and attitudes relating to medication use [14,15]. For example, in Finland, we found that parental education is strongly related to their attitude toward the use of medication for children, which suggests that targeted educational campaigns might improve knowledge and increase the use of medication [12]. The current study's demographics show that 57.4% of mothers had a bachelor's degree, which in turn suggests that educational programs could be improved by educational programs that would address particular gaps uncovered by the current study.

In addition, the study also found that mothers' attitudes towards Paediatric medication were overwhelmingly positive (those who had a very high attitude to learning about and administering medication to their children equating to 39.9% of the whole). Significantly, however, the same percentage of respondents also had a low attitude level, suggesting there is a large cohort of the population that has reservations or is mistrustful of Paediatric pharmaceuticals. The finding corresponds to prior research that has documented parental ambivalence regarding utilization of medication, specifically around concerns regarding side effects and long-term impact on child development [16,17]. That leads to the realization that there is a need for comprehensive educational strategies that could encompass these concerns to make parents more aware of the process of medication administration.

To analyse factors that affect mothers' knowledge and attitudes and their awareness there were found significant correlations with monthly income, educational level and a past medication use. This is consistent with results from previous studies from a variety of settings that have consistently shown that better knowledge and attitudes about Paediatric medication are associated with higher educational attainment and income [18,15]. Results of the current study underscore the need to take socioeconomic factors into account when designing educational interventions to increase parental knowledge and practices regarding Paediatric medication use. Despite the amount of information gained from doing this experiment, there are limitations to the findings. Thus, first, the cross-sectional nature of the study does not allow inferences to be drawn in terms of causality between the identified factors and mothers knowledge and attitudes. Elucidation of the dynamics of parental attitudes over time and their effect on Paediatric medication practices would be advanced by longitudinal studies. The second is that using self-reported data is prone to bias, since there's always the problem for example of participants overestimating their knowledge, or how they actually follow safe medication practice. Future research could specifically include objective measures of knowledge and of medication practice to get at a more comprehensive view of the problem. In addition, the study's sample was almost exclusively urban, preventing the generalizability of the findings to rural populations with more limited access to healthcare resources and educational opportunities. A more diverse sample that includes individuals from a differing range of geographic and socioeconomic backgrounds, should be included in future research to gain a better understanding of different contexts of parental attitudes towards Paediatric medication.

CONCLUSIONS

The knowledge and attitudes of mothers on Paediatric medication use in Saudi Arabia are explored in this study. It finds that important knowledge gaps exist and troubling

trends regarding self-medication practices, indicating a pressing need to make these knowledge gaps and trends known in an effort to increase parents' understanding of safe medication practices. By addressing these gaps, healthcare providers can play a pivotal role in improving Paediatric health outcomes and ensuring that children receive appropriate and effective treatment.

Ethical Statement

After fully explaining the study and emphasizing that participation is optional, each participant gave their informed consent. The information gathered was safely stored and utilized exclusively for study.

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