Original Article

Patterns of Self-Medication Practices of Mothers Having Under-Five Children in El-Beheira Governorate

Asmaa Hosafy El-Said Kasem[1] Abeer Abdel Aziz Madian[2] Amel Attia Abd Elghaffar Moustafa[3]

1-Nursing Specialist, Ophthalmology Hospital, Damanhour.
2- Professor of Community Health Nursing, Faculty of Nursing, Damanhour University. Egypt
3- Assistant Professor of Community Health Nursing, Faculty of Nursing, Damanhour University. Egypt

*Corresponding author: Asmaa Hosafy El-Said Kasem, Nursing Specialist, Ophthalmology Hospital, Faculty of Nursing, Damanhour University. Egypt, asmaakasem405@gmail.com.

Abstract:

Background: Self-medication is tremendously insecure practice as it increases morbidity and mortality in many developing and underdeveloped countries. **Aim of study**: Assess patterns of self-medication practices of mothers having under-five children in El-Beheira governorate. **Research design:** A descriptive cross-sectional design. **Settings:** This study was conducted at eight governmental primary health care centers in El-Beheira governorate. **Tools:** Three tools were used to collect the necessary data. It was developed by the researcher. **Results:** Majority of mothers who obtained a poor level of knowledge had unsatisfactory practices. **Conclusion:** Most of the studied mothers in El-Beheira governorate had a poor level of knowledge, and more than half of them had unsatisfactory self-medication practices. Patterns of self-medication practices were inversely affected by their mothers' age, level of education, occupation, residence, number of children, monthly family income, and duration taken to reach the nearest health facility (minutes). **Recommendations:** The Ministry of Health and Population (MOHP) implements their regulations to enhance the sale of prescription-only medicine (POM) and prohibit selling medicine without a prescription. Enhance the accessibility of health with cost effectiveness, especially in rural areas.

Keywords: Pattern, Self-Medication, knowledge, Practices, Under Five Children.

Introduction:

Children are a momentous target group in need of proper management of childhood diseases. They are at an increased risk of health problems, such as fever, cough, diarrhea, vomiting, and other self-limiting illnesses because of their comparatively less developed immune systems. Besides, the risk of children dying before reaching the age of five is still high. [(1)] According to the World Health Organization (WHO) (2020), [(2)] five million children died before reaching their fifth years. Appropriate management of childhood diseases and promotion of suitable and safe medication administration for children are very significant to reduce infant and childhood mortality and morbidity. [(3,4)]

Self-medication is becoming a growing global trend, especially in many developing and underdeveloped countries. The World Health Organization (WHO) defines self-medication as the use of pharmaceutical or medicinal products by individuals to treat self-diagnosed conditions or symptoms. It also includes the repeated or ongoing use of medications previously prescribed by a doctor for chronic or recurring illnesses, as well as the use of medications recommended by non-medical sources or health workers without prescribing authority. [(5-7)]

According to numerous studies conducted in diverse countries prevalence of self-medication among pediatric populations worldwide varies, with rates of 25.2% in Germany, [(8)] 62% in China, [(9)] 69.2% in Italy, [(10)] and 96% in France.[(11)] Relating to the situation in Egypt, study conducted in Ismailia governorate (2020), [(12)] specified that the

PISSN: 2974-3281
EISSN: 2974-329x

prevalence of self-medication among children attending the family health center was 96%.In Alexandria, (2020) [13] 75% of mothers used self-medications concerning common health problems among under five children. Public health risks are aggravated by the expanding global practice of self-medication. Self-medication practices are prevalent in both developing and developed countries. [14-16] Mothers are habitually the primary caregivers for their children. Mothers often choose to treat their children with OTC medications for minor diseases without seeking professional advice, and as such, they are indulging in self-medication. [17-19]

Community health nurses have a crucial role in primary health care facilities in the broadcasting of health education to mothers about medication names, appropriate doses, routes of administration, frequency of administration, therapy durations, side effects and the risks of self-medication. Educational programs, workshops, videos, and booklets should be offered to nurses to enhance mothers' understanding of proper medication dosages based on their child's age and weight, with guidance from a doctor. Additionally, nurses should educate mothers about the indications, contraindications, interactions, warnings, and precautions associated with self-medication, highlighting the potential health risks and increased risk of child mortality. [12, 20]

Significance of the study:

Using self-medication for children is a frequently mistreated problem in developed and undeveloped countries, especially in Egypt. Children are more vulnerable to medication use, as the correct dosage depends on their age and weight. Despite the widespread practice of self-medication by mothers for their children and its potential risks, current epidemiological data on self-medication is limited globally.[21,22]

Aim of the study

Assess patterns of self-medication practices of mothers having under-five children in El-Beheira governorate.

Research questions

What are the patterns of self-medication practices of mothers having under-five children in El-Beheira governorate?

II. Materials and Methods

Research Design:

A descriptive cross- sectional research design was exploited to demeanor this study.

Setting:

The study was carried out at eight governmental primary health care centers (PHC) in El-Beheira governorate. Four health directorates out of 16 directorates representing 25% of the total number namely: Damanhour, El Mahmodia, Itay Al-Baroud, El Rahmania selected randomly.

Subjects:

Mothers having children under 5 years who visited primary health care centers in the previously mentioned settings. Eight primary health care facilities were chosen by using equal allocation method, one rural health unit and one urban MCH care from each health directorate were randomly selected to be included in the study. Using the equal allocation method, 100 mothers were selected from each directorate. Convenient sample of 50 mothers were chosen from each MCH center and family health unite. So, the total sample size was 400 mothers.

Sample size:

The sample size was calculated by using EPI info7software based on the total attendance of 122168 mothers at primary health care centers in El-Beheira governorate during 2021. With an expected frequency of 50%, a

PISSN: 2974-3281
EISSN: 2974-329x

margin of error of 5%, and a confidence interval of 95%, the minimum required sample size was calculated to be 383 mothers. To ensure adequate representation, the final sample size was rounded up to 400 mothers.

Study Tools:

Three tools were used to carry out this study:

A structured interview questionnaire was used to collect necessary data on self-medication, reported by mothers. It was developed by the researcher after reviewing recent literature. [12-18] it includes the following parts:

Part (I): Mothers' and under five children personal data: It was included: age, residence, occupation, and education level of mothers in addition to reasons for clinical visit and duration taken to reach the nearest health facility (minutes).

Part (II): Mothers, knowledge regarding self-medications: It was consisted of 18 questions include the following: most common medication used to treat illness (antipyretics, cough and cold medications, vitamins supplement and oral rehydration solutions (ORS), reasons for self-medications use, indication, side effect, medications resistance, food-drug interactions, dose exceeding, drug storage, drug disposal, expiry date checking and source of information regarding self- medications.

Scoring system: Each statement of knowledge was scored as follows; 2=Correct & Complete answer, 1= Correct incomplete, 0= incorrect or incomplete or do not know. The total knowledge score was calculated and ranged from (0-36) which further categorized into three levels as follows:

Interpretation	Score
Poor knowledge	≤50 % (≤18 points)
Fair knowledge	50 %>75% (18<27 points)
Good knowledge	≥75% (≥27 points)

Part (III): Mothers reported practices regarding self-medications: which were divided into three parts as the following:

A. **Practices of the mothers regarding common health problems:** cough, diarrhea, vomiting and fever, and abdominal pain.

B. **Self-medication practices of the mothers regarding wrong use in case of physician's prescription:** it includes data about : physician giving mothers enough information about medications before use it, accuracy of drug time, dose, skipping dose of prescribed medications, commitment to complete the dose of medication even if condition improved, methods done to give more than one medication at the same time, methods adopted in case of medications' side effect happen, and practice in case of the child not improved.

C. **Self-medication practices of the mothers regarding wrong use of non-prescribed medication:** it includes data about: dose calculation (amount and frequency) and times to stop giving the medications, frequency of practicing self-medications.

Scoring system: The mother's practices regarding self-medication practices among children under 5 years were calculated from each item: it consisted of 45 items. A score of (2) was given to the good practice, while score of (1) was given to the poor practice. The total practices score was calculated and ranged from (45-90) which further categorized into two levels as follows:

PISSN: 2974-3281
EISSN: 2974-329x

Interpretation	Score
Satisfactory self-medication practices	≥ 60% (≥54points)
Un Satisfactory self-medication practices	<60% (<54points)

Validity & Reliability:

- Validity was tested by a Jury composed of three experts academic staff members in the field of community health nursing from Ain Shams and Damanhour University who reviewed the contents of the tools for comprehensiveness, accuracy, clarity, and relevance, and their recommended modifications were taken into consideration and done accordingly. Some questions were omitted; paraphrased and other questions were transferred from above to below and vice versa.
- Tool was tested from reliability using by using Cronbach's alpha coefficient test. The tool' reliability was (r= 0.727).

Fieldwork:

The data collection was conducted in the waiting area of the PHC. The data were collected individually through interviews with each mother.. Establish the trust relationship with mothers was the first step done before collect data. The researcher conducted daily interviews with approximately 10 mothers. Each primary health care center was visited twice a week, on the scheduled day of vaccination and during the children's follow-up appointments. Each interview lasted about 20 to 30 minutes per mother, and data was gathered over a five-month period from (December 2021 till May 2022).

Pilot study

A pilot study was conducted with 40 mothers, representing 10% of the total sample, to assess the clarity and feasibility of the tool. These mothers were excluded from the main study. The data from the pilot study were analyzed, and based on the results; some questions were clarified, while a few additional ones were included.

Ethical considerations:

- A formal letter from the Dean of the Faculty of Nursing, The University of Damanhour sent a letter to the representative of the Ministry of Health and Population (MOHP) in El-Beheira Governorate, informing them of the study's objectives and seeking permission to carry out the research in the chosen settings.
- Research Approval: Official letters from the Ministry of Health and Population representative were sent to the directors of the selected settings to assist in facilitating the study's implementation.
- Informed Consent: Written consent was obtained from the mothers to gain their approval to participate in the research.
- The confidentiality and privacy of each individual's response were safeguarded. Anonymity was ensured during data collection by using code numbers instead of personal names.

Statistical Analysis:

After data collection, the gathered data was coded and transferred into a specially designed format for computer processing. The data was then entered into and analyzed using the Statistical Package for the Social Sciences (SPSS) software. Following data entry, the dataset was reviewed and checked for errors through frequency analysis, cross-tabulation, and manual verification. Descriptive statistics were

PISSN: 2974-3281
EISSN: 2974-329x

used to analyze the variables, which included percentages, frequencies, range (minimum and maximum), arithmetic mean, and standard deviation (SD). A significance level of $p \leq 0.05$ was set for the study. The Chi-square test (X^2) was applied to assess the significance of the results, and the Monte Carlo P-value (MCP) was used for significance testing when more than 20% of cells had expected counts of less than five, making the Chi-square test invalid.

Results:

Table (1): illustrates the distribution of the studied mothers according to their characteristics. Regarding mothers' age, around half (58.5%) of the studied mothers were 20-30 years old, with the mean age was 24.43 ± 4.034. Regarding the mothers' education, less than one third (31.2%) of the mothers had university education, followed by 28.5% of them had secondary education. The table also shows that, more than half (54.3%) of the studied mothers were housewife. Concerning mothers' residence, half (50.0%) of the studied mothers were urban residence.

Table (1): Distribution of the studied mothers according to their personal characteristics.

Mothers characteristics	Total	(N=400)
Age (years)	**No**	**%**
▪ 20-30	234	58.5
▪ 30-40	166	41.5
Min -Max 19.0 - 46.0 Mean ± SD 24.43 ± 4.034		
Level of education		
▪ Illiterate- Read/write	70	17.5
▪ Basic education	91	22.8
▪ Secondary education	114	28.5
▪ University education	125	31.2
Occupation		
▪ Housewife	217	54.3
▪ Working	183	45.7
Residence		
- Rural	200	50
- Urban	200	50

Table (2): reveals the distribution of the studied mothers according to their knowledge about self-medication. The table indicates that, the highest percent of mothers answer incorrect or didn't know regarding, common side effects of any medications, suitable age to start self-medication, types of infections treated by antibiotics, how the food interacts or interferes with medications, and practices that lead to medication overdose (97.7%, 93.5%, 77.7%, 77.3%, and 76.7% respectively). While the highest present of mother's answer correct and complete regarding the importance of reading medication expiration dates, importance of reading side effects of medications before use to avoid the possible negative effects, effect of overuse of medications on a child's immunity, the fact that injectable medications were better than oral medications, and knowledge about medications that treat more than one symptom (81.3%, 72.3%, 62.0%, 58.5% and 56.7% respectively).

PISSN: 2974-3281
EISSN: 2974-329x

Table (2): Distribution of studied mothers according to their knowledge about self-medication.

Mothers' knowledge about self-medication			Total (N= 400)			
The mothers know that	Correct & Complete		Correct incomplete		Incorrect Or didn't know	
	No.	%	No	%	No.	%
3 years was the suitable age to start self-medications	5	1.2	21	5.3	374	93.5
Accepted number of medications used in self-medications	173	43.3	182	45.5	45	11.2
Time for seeking medical help	125	31.3	0	0.0	275	68.7
Medications that treat more than one symptom	173	56.7	0	0.0	227	43.3
Prescribed medications were better than non-prescribed	187	46.7	0	0.0	213	53.3
Harmfulness of self-medications	172	43.0	0	0.0	228	57.0
Effect of overuse of medications on child's immunity	248	62.0	0	0.0	152	38.0
Types of infections treated by antibiotics	89	22.3	0	0.0	311	77.7
Importance of reading side effects of medications	289	72.3	0	0.0	111	27.7
Common side effects of medications	2	0.5	7	1.8	391	97.7
"Drug resistance" meaning	103	25.7	0	0.0	297	74.3
Overuse of the same medication loss its potency/effectiveness	176	44.0	0	0.0	224	56.0
Food - drug interaction	91	22.7	0	0.0	309	77.3
Knowledge about practices lead to medications' overdose	7	1.8	86	21.5	307	76.7
Knowledge about practices to be done in case of medications overdose	162	40.5	0	0.0	238	59.5
Importance of reading medications expiry date	325	81.3	0	0.0	75	18.7
Injectable medications were better than oral medications	234	58.5	0	0.0	166	41.5

Table (3): presents the distribution of the studied mothers according to their total reported practices scores regarding self-medication. The majority (90.0%) of the studied mothers obtained an unsatisfactory level of practices regarding ORS use. In terms of diarrhea, slightly less than half (46.0%) of the studied mothers achieved a satisfactory level of practices, with a first rank mean percent score of 61.75%, while the lowest mean percent score was 29.50% for ORS usage. The table shows that, more than half (58.0%) of the studied mothers obtained an unsatisfactory self-medication practice with mean percent score of 52.57%.

Table (3): Distribution of the studied mothers according to their total reported practices scores regarding self-medication.

PISSN: 2974-3281
EISSN: 2974-329x

Items	Unsatisfactory self-medication practices (<60%)		Satisfactory self-medication practices (≥ 60%)		Min– Max	Mean ± SD	Mean Percent Score
Total practices scores	No.	%	No.	%			
▪ Common health problems • Cough	290	72.5	110	27.5	0.0-8.0	3.78±2.335	47.25
• Diarrhea	216	54.0	184	46.0	0.0-4.0	2.47±1.594	61.75
• ORS	360	90.0	40	10.0	0.0-8.0	2.36±1.941	29.50
• Vomiting	290	72.5	110	27.5	0.0-4.0	1.86±1.573	46.50
• Fever	262	65.5	138	34.5	0.0-12.0	5.93±2.332	49.42
• Abdominal pain	249	62.3	151	37.7	0.0-6.0	2.37±1.909	39.50
▪ Wrong use of prescribed medication	143	35.7	257	64.3	0.0-20.0	12.32±4.398	61.60
▪ Wrong use of non-prescribed medication	324	81.0	76	19.0	0.0-4.0	2.05±1.225	34.17
▪ Total mothers' practices (0-90)	232	58.0	168	42.0	0.6-76.0	46.26±15.30	52.57

Figure (1) portrays the distribution of the studied mothers according to their opinions about self-medication. More than two thirds (67.5%) of the studied mothers' reported that it was a good practice but it should be under medical supervision, while nearly equal percentages (16.5%,16.0%) of them stated that it was either bad practices but should be avoided or very good practices, respectively.

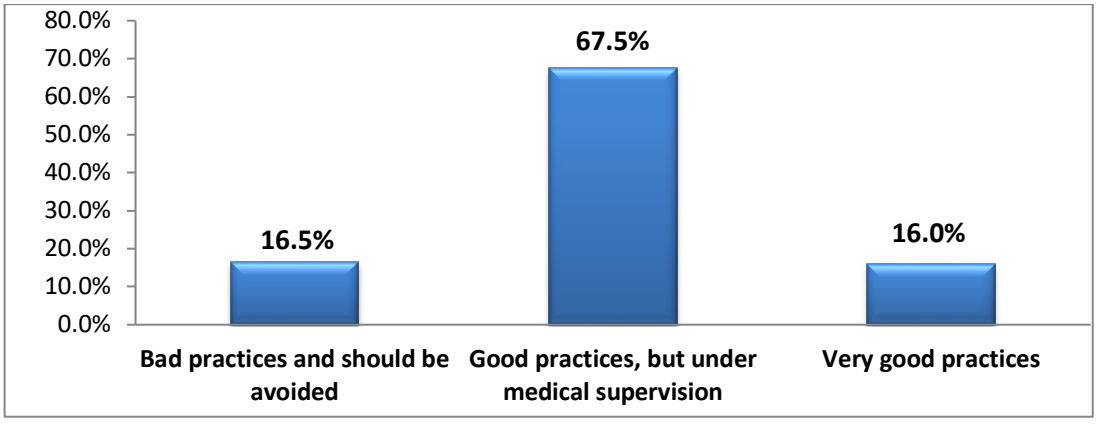

Figure (1): Distribution of the studied mothers according to their opinion about self-medication.

Table (4): presents the relation between the level of self-medication knowledge of the studied mothers and their socio-demographic characteristics. It was found that slightly less than half (49.3%) of the studied mothers who had poor levels of knowledge was 20years <30 years, and the majority (84.2%) of them was married. However, no statistically significant relation was observed between the studied mothers' level of knowledge and mothers' age (x2=10.442, p=0.108), and marital status (x2=2.953, p=0.566).

PISSN: 2974-3281
EISSN: 2974-329x

Additionally, less than two thirds (62.3%) of mothers who had fair levels of knowledge had university education, compared to 22.9% and 28.1% of them who had poor levels of knowledge were illiterate (read/write) and basic education, respectively. A statistically significant relation was observed between the studied mothers' level of knowledge and level of education(x2=82.063, p=0.000*).

Table (4): Relation between level of self-medication knowledge of the studied mothers and their socio-demographic characteristics.

Socio-demographic characteristics	Level of mothers' knowledge						Total (N =400)		Test of Significance
	Poor (N= 292)		Fair (N= 106)		Good (N= 2)				
	No.	%	No.	%	No.	%	No.	%	
Mothers' age (years)									
▪ <20	28	9.6	5	4.7	0	0.0	33	8.3	
▪ 20-	144	**49.3**	56	52.8	1	50.0	201	50.2	X^2= 10.442
▪ 30-	93	31.9	43	40.6	1	50.0	137	34.2	P= 0.108
▪ ≥40	27	9.2	2	1.9	0	0.0	29	7.3	
Marital status									
▪ Married	246	**84.2**	89	83.9	2	100.0	337	84.2	X^2= 2.953
▪ Divorced	21	7.2	4	3.8	0	0.0	25	6.3	P=0.566
▪ Widowed	25	8.6	13	12.3	0	0.0	38	9.5	
Level of education									
▪ Illiterate -Read/write	67	**22.9**	3	2.8	0	0.0	70	17.5	
▪ Basic education	82	**28.1**	9	8.5	0	0.0	91	22.8	X^2= 82.063
▪ Secondary education	86	29.5	28	26.4	0	0.0	114	28.5	P=0.000*
▪ University education	57	19.5	66	**62.3**	2	100.0	125	31.2	
Occupation									
▪ Working	112	38.4	69	**65.1**	2	100.0	183	45.7	X^2= 56.623
▪ Housewife	180	**61.6**	37	34.9	0	0.0	217	54.3	P=0.000*
Place of residence									
▪ Urban	126	43.2	72	**67.9**	2	100.0	200	50	X^2= 22.002
▪ Rural	166	**56.8**	34	32.1	0	0.0	200	50	P=0.000*
Type of family									
▪ Nuclear	172	58.9	64	60.4	1	50.0	237	59.2	X^2= 1.205
▪ Extended	36	12.3	10	9.4	0	0.0	117	29.3	P=0.877
▪ One parent	84	28.8	32	30.2	1	50.0	46	11.5	
Socioeconomic level									
▪ Low socio economic level (≤50%)	111	**38.0**	10	9.4	0	0.0	121	30.3	
▪ Medium socio economic level (50%-75%)	130	44.5	60	**56.6**	0	0.0	190	47.4	X2= 39.925 P=0.000*
▪ High socio economic level (≥75%)	51	17.5	36	34.0	2	100.0	89	22.3	
Duration taken to reach the nearest health facility (minutes)									
▪ <30	144	49.3	70	66.0	1	50.0	215	53.7	X2=15.612
▪ 30-	78	**26.7**	28	26.4	1	50.0	107	26.8	P=0.004*
▪ ≥60	70	**24.0**	8	7.6	0	0.0	78	19.5	

PISSN: 2974-3281
EISSN: 2974-329x

Table (5): presents the correlation between knowledge and reported practices of the studied mothers about self-medication. It was found that, the majority (84.1%) of the studied mothers who obtained a poor level of knowledge had unsatisfactory practices, compared to 41.1% of them who obtained a fair level of knowledge had a satisfactory practice. Although more than half (57.7%) of the studied mothers who had a poor level of knowledge had a satisfactory practice. A statistically significant relation was observed between level of knowledge and reported practices of the studied mothers (x2=35.212, p=0.000*).

Table (5): Correlation between knowledge and reported practices of the studied mothers about self-medication.

Items	Levels of Mothers' Practices				Test of Significance
	Unsatisfactory (<60%) (N= 232)		Satisfactory (≥ 60%) (N= 168)		
	No.	%	No.	%	
Levels of knowledge					
▪ Poor (≤ 50 %)	195	84.1	97	57.7	X^2= 35.212 P= 0.000*
▪ Fair (50 %-75%)	37	15.9	69	41.1	
▪ Good (≥75%)	0	0.0	2	1.2	

Discussion:

Self-medication is a widespread practice globally, and it has increasingly become a major concern for public health. The growing trends of improper use of self-medication have been attributed to the widespread availability of impulse of self-care, lack of functional and unreachable health care services that are understrength, poverty, ignorance, high fees at health facilities, extensive advertisement of drugs, availability of drugs in places other than drug shops and insufficient family support. [23-25]

Children under the age of five are critical group that requires proper treatment, making it particularly important to understand how mothers administer medications to their children. [24] The aim of the current study was to assess the patterns of self-medication practices of mothers having under-five children in El-Beheira governorate. The current study presents the distribution of mothers based on their demographic data and found that around half of the participants were 20-<30 years old, and more than half of them were housewives.

The findings of the present study indicated a significant correlation mothers' knowledge of self-medication and their personal characteristics. More than three fifths of mothers who obtained a fair level of knowledge had university education. It was observed that the self-medication knowledge of educated mothers increased compared to less educated and illiterate mothers. It could be attributed to self-medication knowledge of mothers increased with increasing levels of education. The findings of current study were in line with Karuniawati et al., in Indonesia (2021) [26], Yuan et al., China (2021) [27], and Gohar et al., in Australia (2017) [28] who reported that mothers with higher university or post-graduate education had good self-medication knowledge.

A mother's occupation is a factor that influences a child's well-being. Working mothers often possess a good understanding of how to maintain their children's health, as they typically gather information from various sources, including their colleagues.[29] In support of this, the current study found a significant relationship between mothers' level of knowledge and their occupation. More than three-fifths of the mothers with low knowledge levels were housewives. This could be attributed to the fact that housewives tend to prioritize household tasks and caregiving, which may reduce their access to information regarding medication use and safety. Additionally, they may rely on their spouses or other family members to make healthcare decisions for themselves and their children. This finding matched with study done in Saudi Arabia (2023) [30] who reported the same result.

PISSN: 2974-3281
EISSN: 2974-329x

Similarly, the study found that mothers who lived in rural areas had poor levels of knowledge compared to those who lived in urban areas. This could be explained by limited access to healthcare facilities, fewer healthcare providers, and lower levels of health literacy overall.[27] This result was consistent with a study conducted by Atmadani et al., in Indonesia (2020) [31] who reported that rural populations have lower levels of health literacy compared to urban populations.

Concerning the level of knowledge among mothers, this study revealed that, less than three-quarters had poor knowledge regarding self-medication. It could be justified by mothers applying instructions from pharmacists and using previous consultations without understanding the side effects or uses of medication. These results were disharmony with the study done by Abd Elsamad et al., (2023) [32] who reported that the majority of mothers had moderate knowledge, and the study by Kassie et al., in Ethiopia (2018) [33] who reported that two-thirds of mothers had good knowledge about using medication for home-based management of common illnesses. The discrepancy of results may be attributed to mothers frequently seek advice from pediatricians about appropriate medications, dosages, and administration methods.

Along with, the current study findings indicated a significant relation between the knowledge and reported practices of the studied mothers about self-medication. Most mothers who obtained poor knowledge had poor level of practices. This suggested that improving knowledge can lead to better practices, which was consistent with Mohammed et al., in Egypt (2022) [34] and Atmadani et al., in Indonesia (2020) [31] and who have shown that inadequate knowledge about self-medication can lead to inappropriate self-medication practices. In contrast, Sambakunsi N et al., In Lilongwe (2019) [35] showed in their study that there was no significant relation between the self-medication knowledge, attitude, and practices of mothers.

Finally, the study found a significant level of self-medication among mothers for their children, a practice that has been increasing daily. Using medications without a doctor's prescription can result in improper use and serious side effects, which may have harmful health consequences for children. This issue should alert policymakers to the growing concern. The results of this study highlight the need for further investigation into the impact of self-medication in healthcare. Health policies should aim to ensure better access to healthcare services and provide the public with education on the risks associated with self-medication. [36]

Conclusions and Recommendations:

Conclusions:

Based on the findings of the current study, it could be concluded that the prevalence of self-medication practices among mothers having under-five children in El-Beheira governorate were inversely affected by their mothers' age, level of education, occupation, residence, and duration taken to reach the nearest health facility. As a result, treating minor illnesses at home in children is a common practice in Egypt. However, this approach poses risks for children under five.

Recommendations:

Based on the current study findings the following recommendations were proposed:

1. The Ministry of Health and Population (MOHP) implements their regulations to enhance the sale of prescription-only medicine (POM) and prohibit selling medicine without a prescription.

2. Offer educational programs, workshops, and informational videos or booklets to enhance mothers' understanding of administering the correct medication with guidance from a doctor.

Further future research:

1. Investigate the patterns and prevalence of self-medication that mothers administer to children without professional guidance.
2. Assess the knowledge and attitudes of mothers regarding appropriate medication dosages, indications, and potential side effects.

PISSN: 2974-3281
EISSN: 2974-329x

Limitations of the study

- Obtaining the permission from Ministry of Health &populations in El-Beheira governorate to conduct the study was time consuming since it was taken about 4months.
- The noise and frequent interruptions occurred in the setting during the interview due to crowding and the presence of other mothers and young children, who made the interview take longer time.

Acknowledgements

The authors would like to offer their sincere thanks to all mothers who participated in this study.

References:

1. Maphalle L, Michniak-Kohn B, Ogunrombi M, and Adeleke O. Pediatric Tuberculosis Management: A Global Challenge or Breakthrough? Children (Basel). 2022 Aug; 9(8): 1120. DOI: 10.3390/children9081120.
2. WHO. Child mortality (under 5 years) [Updated 2021 Dec; Cited 2022 Jan 28]. Available from: https://www.who.int/news-room/fact-sheets/detail/levels-and-trends-in-child-under-5-mortality-in-2020.
3. Mohammed N, Elkaluby E, Mohamed A. Determinants of Antibiotics Misuse by the mothers in Children Under Five Years at Alexandria Governorate. Egypt. JNHS Dec 2019; 8(6):31-44. DOI: 10.9790/1959-0806073144.
4. UNICEF. Progress on Children's Well-Being: Centering child rights in the 2030 Agenda [Updated 2023 Sep 18; Cited 2023 Des 13]. Available from: https://reliefweb.int/report/world/progress-childrens-well-being-centring-child-rights-2030-agenda.
5. Ahmed N, Ijaz S, Manzoor S, Sajjad S. Prevalence of self-medication in children under-five years by their mothers in Yogyakarta city Indonesia. J Family Med Prim Care. 2021 Aug; 10(8): 2798–03. DOI: 10.4103/jfmpc.jfmpc_2457_20.
6. Kartini L. The Differences in Self-Medication Factors for Toddler Mothers Between Rural and Urban. INJEC 2019; 3(2):131-7.
7. Central Administration of Pharmaceutical Care, General Administration of Drug Utilization and Pharmacy Practice. Guidelines for classification as nonprescription medicinal products (OTC), Code: EDREX: GL.CAP.Care.006. Version No: 1. Egypt: Egyptian Drug Authority; 2021.
8. Herzig M, Bertsche A, Kiess W, Bertsche T ,and Neininge M. Medicine and supplement use in infants, children, and adolescents depends on sex, age, and socioeconomic status: results of a German longitudinal population-based cohort study (LIFE Child). German. European Jou of Pediatrics 2022 May 26; Vol 181: 2991–03. https://link.springer.com/article/10.1007/s00431-022-04504-w .
9. Qu W, Wang X, Liu Y, Mao J, Liu M, Zhong Y, and et al . Self-Medication with Antibiotics Among Children in China: A Cross-Sectional Study of Parents' Knowledge, Attitudes, and Practices. China. Infect Drug Resist. 2023 Dec 18; 16: 7683–7694. Published online 2023. DOI: 10.2147/IDR.S431034.
10. Garofalo L, Giuseppe G, and Angelillo I. Self-medication practices among parents in Italy. Biomed Res Int. 2015 Jan 20:2015:580650. DOI: 10.1155/2015/580650.
11. Gras M, Champel V, Masmoudi K, and liabeuf S. Self-medication practices and their characteristics among French university students. FRENCE. Therapie. 2020 Sep-Oct; 75(5):419-428. DOI: 10.1016/j.therap.2020.02.019. Epub 2020 Feb 25.
12. Zeid W, Hamed M, Mansour N, Diab R. Prevalence and associated risk factors of self-medication among patients attending El-Mahsama family practice center, Ismailia, Egypt. Bull Natl Res Cent 2020; 44:92.
13. Arafa NM, Deyab BA, El Sheshtawy OR. Self-Medication practices among mothers having children under five-years. Egypt J Health Care 2019; 10(2):430-40.
14. Kartini L. The Differences in Self-Medication Factors for Toddler Mothers Between Rural and Urban. INJEC 2019; 3(2):131-7.

PISSN: 2974-3281
EISSN: 2974-329x

15. Ahmed HA, Hossein YE, Ibrahim EM. Factors affecting medication administration for the children among care givers in rural ares at Bani-suef. Minia Sci Nurs J 2021; 9(1):9-16.
16. Osman A, Gondwe K, Hassan R. Antibiotic Misuse in Outpatient Care Among Egyptian Children. 2023. Available from: https://doi.org/10.2139/ssrn.4326316. [Accessed in: May, 2024].
17. Elsamad M, Mohamed A, Saleh A. Knowledge, Attitude, and Practices of Mothers of Children Under Five Years regarding Self-Prescribing Medication. EJHC 2023 Sep; 14(3): 326-41. DOI: 10.21608/EJHC.2023.316264.
18. Ahmed N, Ijaz S, Manzoor S, Sajjad S. Prevalence of self-medication in children under-five years by their mothers in Yogyakarta city Indonesia. J Family Med Prim Care. 2021 Aug; 10(8): 2798–03. DOI: 10.4103/jfmpc.jfmpc_2457_20.
19. Janatolmakan M, Abdi A, Andayeshgar B, Soroush A, Khatony A. The Reasons for Self-Medication from the Perspective of Iranian Nursing Students: A Qualitative Study. Nmedicursing Research and Practice. 2022 Apr 6:2022:2960768.Vol 2022, Article ID 2960768, 7 pages. https:// DOI: 10.1155/2022/2960768.
20. Dawood B, Elhalafawy S, Youins A. Effect of An Educational Intervention on Knowledge, Practices and Attitudes of Mothers with Breast Feeding Infants Regarding Antibiotic Use and Resistance. Egypt. EJHC, 2021; 12 (3) https://ejhc.journals.ekb.eg/article_271427_95ac6920e130fac8dc48600fd126f9dc.pdf.
21. Zagil G, Fidan C, Oksuz E, and Kut A. Self-medication patterns among Turkish university students. Turkish. Konuralp Med J. 2021 May; 13(2): 257-64. DOI:10.18521/ktd.773128.
22. Alenazi K, Al-ahmari A, Alhumaidi K, Alotaibi S, Almutairi S, Alsuhaibani M , and et al. Parents' Attitude and practices regarding the use of over-the- counter medicines to their children in Riyadh, Kingdom of Saudi Arabia. Annals of Med H Sci Res J. 2021 Mar; 11(52). P 35-41.
23. Fahmy S, Laila M, Nofal M, Shehata S, Shehata D, Heba M and et al. Updating indicators for scaling the socioeconomic level of families for health research . Journal of Families for Health Research Association.2015 Feb; (90): 1–7. DOI: 10.1097/01.EPX.0000461924.05829.93.
24. Rahman A and Hossain M. Prevalence and determinants of fever, ARI and diarrhea among children aged 6–59 months in Bangladesh. BMC Pediatr. 2022 Mar 5; 22: 117. PMCID: PMC8897933. PMID: 35248016. DOI: 10.1186/s12887-022-03166-9.
25. Rathod P, Sharma S, Ughade S, Narlawar, and Sonpimpale B. Prevalence, Pattern, and Reasons for Self-Medication: A Community-Based Cross-Sectional Study From Centra India. Cureus J. 2023 Jan 18; 15(1): e33917. PMID: 36819304. DOI: 10.7759/cureus.33917.
26. Karuniawati H, Hassali MAA, Suryawati S, Ismail WI, Taufik T, Hossain MS. Assessment of Knowledge, Attitude, and Practice of Antibiotic Use among the Population of Boyolali, Indonesia: A Cross-Sectional Study. Int J Environ Res Public Health 2021; 18(16):8258. DOI: 10.3390/ijerph18168258.
27. Yuan J, Du W, Li Z, Deng Q, Ma G. Prevalence and Risk Factors of Self-Medication Among the Pediatric Population in China: A National Survey. Front Public Health 2021; 9:770709. DOI: 10.3389/fpubh.
28. Gohar UF, Khubaib S, Mehmood A. Self-medication trends in children by their parents. J Develop Drugs 2017; 6(2):1000173. DOI:10.4172/2329-6631.1000173.
29. Yuniarti S. Relation between Knowledge and Mother's Occupation with Growth and Development of Children between Ages 5-6 in Tk At-Taqwa Cimahi. KnE Life Sci 2021; 6(1):1029-45. DOI:10.18502/kls.v6i1.8779.
30. Malli IA, Hubayni RA, Marie AM, Alzahrani DY, Khshwry EI, Aldahhas RA, et al. The prevalence of self-medication and its associated factors among college students: Cross-sectional study from Saudi Arabia. Prev Med Rep 2023; 36:102457. DOI: org/10.1016/j.pmedr.2023.102457.
31. Atmadani RN, Nkoka O, Yunita SL, Chen YH. Self-medication and knowledge among pregnant women attending primary healthcare services in Malang, Indonesia: a cross-sectional study. BMC Pregnancy Childbirth 2020; 20(1):42. DOI: 10.1186/s12884-020-2736-2.
32. Abd Elsamad MM, Mohamed AE, Saleh A. Knowledge, Attitude, and Practices of Mothers of Children Under Five Years regarding Self-Prescribing Medication. Egypt J Health Care 2023; 14(3):326-41. DOI: 10.21608/EJHC.2023.316264.

PISSN: 2974-3281
EISSN: 2974-329x

33. Kassie AD, Bifftu BB, Mekonnen HS. Self-medication practice and associated factors among adult household members in Meket district, Northeast Ethiopia, 2017. BMC Pharmacol Toxicol 2018; 19(1):15. DOI: 10.1186/s40360-018-0205-6.
34. Mohammed N, Hamed A, and Abo Kresha S. Self-Medication and Associated Factors in Sohag Governorate, Egypt. JHIPH. 2022 Apr; 52(1):1-7. DOI: 10.21608/JHIPH.2022.213662
35. Sambakunsi M, Småbrekke L, Varga C, Solomon V, and John S. Knowledge, attitudes and practices related to self-medication with antimicrobials in Lilongwe, Malawi. Malawi Med J. 2019 Dec; 31(4): 225–32. DOI: 10.4314/mmj.v31i4.2.S.
36. Giannakou K, Kyprianidou M, Hadjikou A, Fakonti G, Photiou G, Tzira E, et al. Knowledge of mothers regarding children's vaccinations in Greece: an online cross-sectional study. BMC Public Health 2021; 21(1):2119. DOI: 10.1186/s12889-021-12179-5.

PISSN: 2974-3281
EISSN: 2974-329x