Mothers' Measures Regarding Prevention of Upper Respiratory Tract Infection and its Occurrence for their Children: An Assessment Study

[(1)]Rasha Hamdy Abdelatty, [(2)] Randa Mohamed Adly, [(3)] Eman Abd EL Fatah Ali
[1] Clinical Instructor at Al fayom Nursing School
[2] Professor of pediatric Nursing- Faculty of nursing, Ain shams University
[3] Assistant Professor of pediatric Nursing- Faculty of nursing, Ain shams University

ABSTRACT

Background: Upper Respiratory Tract Infections, (URTIs) are the most common causes of both illness and mortality in children under five years**.** Effective measures for the prevention and control of upper respiratory tract infection should be integrated into health systems of all countries. Mothers are considered a connection between health care to educate children about the importance of minimizing respiratory tract infection. **The aim of the study:** The study aimed to assess measures of mothers regarding prevention of upper respiratory tract infection and its occurrence for their children. **Research design:** Descriptive design utilized in carrying out of this study. **Subject**: A purposive sample including 409 mothers and their children aged less than five years and suffering from upper respiratory tract infection regardless their gender. Children suffering from chronic illness were excluded from the study subjects. **Setting**: Pediatric outpatient clinic affiliated to Fayom General Hospital. **Tools (I):** A structured interviewing questionnaire sheet to assess characteristics of the children and their mothers to assess knowledge of mothers regarding measures for prevention of upper respiratory tract infection and its occurrence **Tools (II):** Mothers reported practices assessment sheet to assess mothers' reported practices' measures for prevention of upper respiratory tract infection and its occurrence for their children. **Results:** Based on the study finding it was found that, there was a weak statistically significant correlation between mothers' total knowledge scores and their total reported practices. **Conclusion:** The majority of mothers had unsatisfactory total knowledge regarding measures for prevention of upper respiratory tract infection and its occurrence for their children and less than three fifths of studied mothers had satisfactory total reported practice regarding measures for prevention of upper respiratory tract infection and its occurrence for their children. **Recommendation:** Implementation of mother classes program about upper respiratory tract infection and its prevention for their children in out- patient pediatric clinics.

Key words: Upper Respiratory Tract Infections, Prevention measures, Mothers, Children, Nursing, Pediatric.

Introduction

Upper Respiratory Tract Infections, (URTIs) are the most common causes of both illness and mortality in children under five years, where average three to six episodes of URTIs occur annually regardless of where children live. However, the proportion of mild to severe disease varies between high- and low income countries and because of differences in specific etiologies and risk factors **(Thomas &Bomar, 2021)**.

Upper respiratory tract infection is an infectious process of any of the components of the upper airway; it includes the common cold, the mild flu, tonsillitis, laryngitis and sinus infection; cough is most common symptom of the upper respiratory tract infection. Lung infections can also lead to a stuffy or runny nose, sore throat, sneezing, achy muscles and headache (**Crawford, 2021).**

Risk factors of upper respiratory tract infection in children mainly focus on nutritional or environmental variables such as home overcrowding, indoor air pollution, malnutrition, incomplete immunization and socio-economic status. However, the majority of these risk factors are not present in European urban developed regions, but the incidence and

prevalence of Acute Respiratory Infection (ARI) in these areas are growing **(Nargozian, 2018)**.

Urban developed societies promote behaviors associated with different risk factors related to early attendance of nurseries or day care centers. The high density of children at the daycare, along with anatomical and social behavior characteristics, promotes dissemination of upper respiratory infection and increases the number of associated episodes of acute otitis media **(Esposito et al., 2020)**.

Primary prevention of URTIs requires mothers to maintain their children away from direct and indirect exposure to smokes. This is of primary importance not only for healthier lungs but also for other shared risk factors that should be addressed including low birth weight, poor nutrition, acute respiratory infections of early childhood and indoor and outdoor air pollutants **(Klein, 2016)**.

The strategies for prevention of respiratory tract infections in children are, parent education (normal prevalence, familial predisposition, risk factor modification, natural course without and with antibiotics), specific immunization, chemoprophylaxis, oligosaccharides and specific and nonspecific immune-stimulant. While vaccines ultimately represent the best opportunity to reduce the morbidity and mortality associated with pediatric RTIs **(Green, 2016).**

Effective measures for the prevention and control of URTIs should be integrated into health systems of all countries. Mothers are considered a connection between health care providers to educate children about the importance of hygienic care, nutrition, vaccination and healthy housing condition. In addition, the mothers are considered the ones mostly troubled when the children are sick. Therefore, the decision for taking care of the children is generally made by the mothers **(Rakhmani and Arisanti, 2020).**

Nurses have an important role in managing children with URTIs, both in the community and in the hospital environment. However, this role changes depending on the health infrastructure in different countries. In primary care, practice nurses, community nurses, health visitors, school nurses, and pediatric nurse practitioners can often decide on further management and referral **(Pappas, et al., 2018)**.

In most cases, children with URTIs can be managed in the community with reassurance, advice on fluids and antipyretics and occasional prescription of antibiotics depending on clinical need. While if a serious pathology is suspected, a child should be urgently referred to hospital for taking a special treatment **(Falsey et al., 2017)**.

Significance of the Study

The international incidence of upper respiratory tract infections for children in 2015, 17.2 billion cases are estimated to be occurred. In 2014, they caused about 3,000 deaths, down from 4,000 in 1990, so prevention of upper respiratory tract infections can have a significant impact on children morbidity and mortality. In Egypt, the ratio of children with acute respiratory tract infections extends to less than 60 % in rural Upper Egypt to more than 80 % in urban Lower Egypt **(Naghavi et al., 2018 & Theo et al., 2016 & Lozano et al., 2016).**

Early childhood periods are more susceptible to upper respiratory tract infection because they have not sufficient resistance immunity system to protect them from outdoor infection and this is the most category that exposed to infection. According to a report derived from Fayom General Hospital (**Infection Control Office**) number of cases, coming to follow up outpatient pediatric clinics was (9730) children under 5 years old who suffered from upper respiratory tract infections since January2018 to December 2018.

Aim of the study

This study aimed to assess measures of mothers regarding prevention of upper respiratory tract infection and its occurrence for their children.

Research Questions:

- What are the mothers' knowledge regarding measures for prevention of upper respiratory tract infection and its occurrence for their children?
- What are the mothers' reported practices regarding measures for prevention of upper respiratory tract infection and its occurrence

for their children?

Research Design

A descriptive research design was used to conduct this study.

Study Settings

The study was conducted at the pediatric out-patient clinic affiliated to Fayom General Hospital. It included two pediatric out-patient clinics. One of them is general and other clinic its specialty in Ear, Nose and Throat, the studied children were selected from this clinic.. This study setting have high rate of follow up for children less than five years old and suffering from upper respiratory tract infection.

Subjects

A purposive sample of children suffering from upper respiratory tract infection and their accompanying mothers who were attended to the previously mentioned setting.

The study subjects was selected based on the estimated sample size is at least 409 children, at confidence level 95% (1.96) and precision rate at 0.05 by using Steven equation, 2012.

Inclusion criteria for children of the studied mothers:

Children under five years and suffering from upper respiratory tract infection regardless their gender.

Exclusion criteria for children of the studied mothers:

Children suffering from any type of chronic illness were excluded from the study subjects.

Tools of data collection:

It was developed by the researcher and reviewed by supervisors, based on reviewing related literature, it was written in Arabic language to suit all mothers' level of understanding. The data were collected using the following tools:

First tool: A Structured Interviewing Questionnaire Sheet: which included the following parts

Part (1):

A. Characteristics of the children included child's age, gender, rank order, diagnosis, season of delivery, child status at delivery, disease worsening season and recurrence of upper respiratory infection In addition to previous hospitalization due to upper respiratory infection, duration of hospitalization, type of feeding and the attainment of vaccination (DPT).

B. Characteristics of the mothers included age, level of education, occupation, residence, number of family members, type of family, income per month, characteristics of home, source of information (social media, experience of mothers', friends, relatives and health provider**s)**

Part (2):

This part was developed by the researcher based on **Wilson & Rodgers, (2016); Fuhrman & Zimmerman, (2016); Duderstadt, (2017) and Hockenberry & Wilson, (2018)**. It concerned with mothers' knowledge regarding prevention of upper respiratory tract infection and its occurrence for their children. It included multiple-choice questions (15 questions) regarding definition of upper respiratory tract infection different diagnosis, signs and symptoms, causes, predisposing factors for occurrence, predisposing factors for recurrence mood of transimition and complication. Also, regarding meaning of preventive measures and its importance, indications to seek medical help, role of mothers, preventive measures according to nutrition, environment, vaccination and the health education given for their children.

❖ **Scoring system:**

The total scores of mothers' answers for questions were 30 grades and scored (2) for the complete correct answer, (1) for incomplete correct answer and (zero) for incorrect answer. The total scores of questionnaire were calculated and then converted into percentage score. The mothers' knowledge was considered satisfactory if percentage score was 60% (18 grades) or more and unsatisfactory if less than 60% (12 grades).

The second tool (Appendix III): Mothers' Reported Practices Assessment Sheet: It was developed by the researcher based

on **James, et al., (2014); Wilmott et al., (2018)** and it was revised by supervisors this tool was concerned with mothers' reported practices' measures for prevention of upper respiratory tract infection and its occurrence for their children, each mother was reported her practices regarding the following**:** cleaning the child's nose(7steps),using bulb syringe (6steps) ears (6steps), counting the respiratory rate (5steps). hygienic measures (6steps), promoting healthy housing condition (11steps), precaution of infection prevention (6steps), mothers' role to deal with the manifestation of upper respiratory tract infection (18steps)

❖ **Scoring system of mothers reported practices:**

A scoring system was followed to assess the mothers' reported practices; each step was assigned a score according to sub-items. The total score of reported practice were 65 grades, each item was evaluated if "done" or "not done" which scored one and zero respectively. The total score of mothers' reported practice were converted into a percentage score. It was classified into two categories:

- Satisfactory level of reported practices if score ≥ 60%in grades (39-60).
- Unsatisfactory level of reported practices if score < 60%in grades (0-38).

II. Operation Design:

The operational design of the study entails three main phases:

A. Preparatory phase:

A review of literature was done regarding current and past available literature, covering the various aspects of the problem, using textbooks, articles, magazines and internet search. This was necessary for the researcher to be oriented about aspects of the research problems, as well as to assist in development of data collection tools

B. Validity and Reliability:

Validity:

Content validity was ascertained by a group of experts in pediatric nursing field (3 professors) from Faculty of Nursing Ain shams University to test its content validity. Their opinions elicited regarding the format, layout, consistency, accuracy and relevancy of the tool. Modifications and changes were introduced as required.

Reliability:

Reliability of the study tools was applied by measuring of internal consistency of the tool through Cronbach's alpha coefficient test.

C. Pilot study:

A Pilot study was carried out from the beginning of December (2019) to the beginning of January (2020). It was conducted to test the clarity and applicability of the study tools, and to estimate the time needed to fill in the tools. The pilot study was conducted on 10% of mothers (41). Based on the findings of the pilot study; no modifications were done to the questionnaire. Therefore, the sample of the pilot study was included in the total study sample.

D. Field work:

An approval letter was assumed from director of Fayom General Hospital in order to obtain his permission and cooperation. Data were collected in six months, from the beginning of January 2020 to the end of February 2020 and from the beginning of the July 2020 to the end of October 2020, Interview with the studied mothers was not fulfilled in the period from mid-March to June, due to the Corona pandemic (Covid 19). Researcher was available in the study setting 3 days/ week (Sunday, Monday and Wednesday). The average numbers of interviewed mothers were 5-6 mothers per day. At the beginning of interview, the researcher introduce herself for mothers at the waiting areas before the doctors examinations, then explain the purpose of the study for mothers to obtain their approval and verbal consent. At morning shift for 2 hours from 10am to 12pm for collecting data, the researcher choose this time because this is the time of crowding in this clinics .

Each mother was individually interviewed using Arabic structured interviewing questionnaire and mothers reported practices sheets .The researcher herself fulfilled the interviewing questionnaire for the illiterate mothers. The time needed for filling the knowledge questionnaire sheets ranged from 20-30 minutes, while the mothers filled the assessment of reported practice sheet in a time ranged 30--45 minutes.

III. Administrative Design:

Formal letter was obtained from the Dean of the Faculty of Nursing, Ain Shams University to the Director of Fayom General Hospital administrator to conduct this study.

Ethical Consideration:

All the relevant principles of ethics in research were followed. Before starting, the practical work approved from the research ethical consideration to conduct the study. In addition, an official letter clarifying the purpose of the study was obtained from the dean of faculty of nursing to the hospital director to conduct the study and collect data. The researcher was clarified the objectives and aim of the study to the studied mothers before starting, oral approval was obtained from the mothers before inclusion in the study. A clear and simple explanation was given according to their level of understanding. They secured that all the gathered data was confidential and used for research purpose only.

The researcher was assuring maintaining anonymity and confidentiality of subjects' data included in the study, the mothers were informed that they are allowed to choose to participate or not in the study and they have the right to withdrawal from the study at any time without giving any reasons.

IV. Statistical Analysis

The data obtained were synthesized, analyzed, and presented in the form of tables and figures using the Statistical Package for Social Sciences version 25 (SPSS). Qualitative variables were presented in the form of frequencies and percentages; quantitative variables were presented in the form mean and SD. Test of significance was used to find out associations between study variables. Chi-square (x^2) test of significance was used in order to compare proportions between two qualitative parameters. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant as the following:

- P value <0.05 was considered significant.
- P value <0.001 was considered as highly significant.
- P value >0.05 was considered insignificant.

Results:

Table (1): Regarding the studied childrens' characteristics, the present table reveals that, nearly less than half (47.7%) of studied children their ages ranged from 3< 5year with mean± SD (3.24 ± 1.53). As regards to their gender, more than half (54%) of them were males. Also, it was found that almost half (50.4%) of them were ranked as third child in their families.

Table (2): Regarding the personal characteristics of the studied mothers, the present table shows that more than half (58.6%) of studied mothers at the age group from 20 to 30 years with mean± SD (27.43±2.66) and 49.6% of them had intermediate level of education, while 86.3% were not working. Also, nearly half (48.4%) of studied mothers had more than five members in their families and more than three quarters (79%) of them were lived in rural area and almost two-thirds (66.3%) of them were lived in extended families.

Figure (1): Shows that, the majority of studied mothers (89.7%) had unsatisfactory level of knowledge, while, only 10.3% had satisfactory knowledge regarding upper respiratory tract infection and the prevention for its occurrence for their children.

Figure (2): Regarding the studied mothers' total level of reported practices the present figure shows that, less than three fifths (62.6%) of studied mothers had satisfactory level of reported practice regarding measures for prevention of upper respiratory tract infection for their children**.**

Table (3): As obvious in the present table there is a highly statistically significant relation between mothers' total knowledge with their ages, residence and level of education ($\mathbf{X^2}$= 12.990, 16.707 and 11.076 respectively) p value<0.01**.While there was a significant as regards their source of information (X^2= 5.632), p value <0.05*.

Table (4): The present table clarified that, there is a highly statistically significant relation between mothers' total reported practice with their ages, residence and sources of information (X^2=16.27,65.1 and 81.4 respectively) p value <0.01**. While, there was no relation with type of family, occupation and level of education at p value >0.05.

Table (5) the present table illustrates that there was a positive weak correlation (r = 0.328).

Table (1): Distribution of the studied children according to their characteristics (n=409).

Characteristics	No.	%
Age(year)		
< 1year	52	12.7
1:<3year	162	39.6
3:≤ 5year	195	**47.7**
Mean ± SD	3.24 ± 1.53	
Gender		
Male	221	**54**
Female	188	46
Child's ranking		
1 st.	98	24
2nd.	93	22.7
3rd.	205	**50.4**
4th and more	12	2.9
Type of feeding		
Breast feeding	162	39.6
Bottle feeding	36	8.8
Family food	211	51.6
Vaccination with DPT		
Non vaccinated	52	12.7
Vaccinated	357	87.3

Table (2): Distribution of the studied mothers according to their characteristics (n=409).

Characteristics	No.	%
Age (years)		
<20	24	5.9
20: <30	240	**58.6**
30: <40	145	35.5
Mean ± SD	27.43±2.66	
Level of education		
Illiterate	76	18.6
Read and write	61	14.9
Intermediate level of education	203	**49.6**
High education	69	16.9
Occupation		
Not working	353	**86.3**
Working	56	13.7
Residence		
Urban	86	21
Rural	323	**79**
Number of family members		
< 3	16	3.9
3:≤5	195	47.7
5<	198	**48.4**
Type of family		
Extended	271	**66.3**
Nuclear	138	33.7

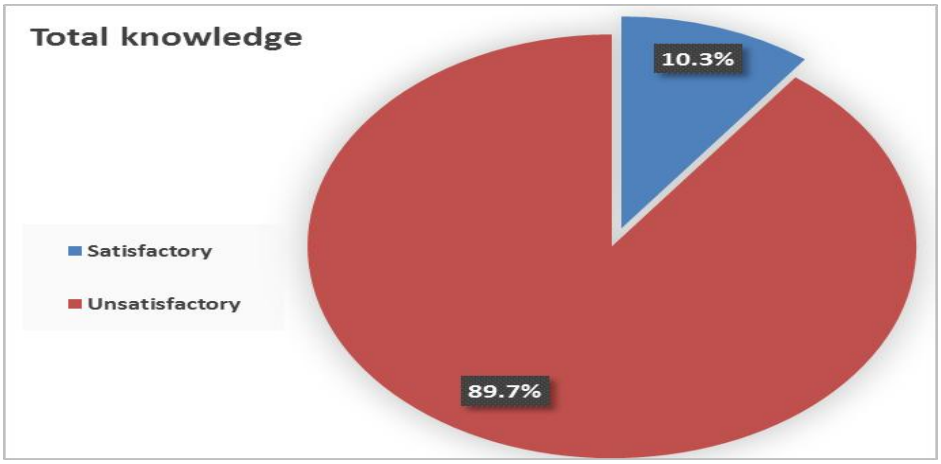

Figure (1): Percentage distribution of studied mothers according their total level of knowledge regarding upper respiratory tract infection and the prevention for its occurrence for their children (n=409).

Figure (2): Percentage distribution of studied mothers' total level of reported practices (n= 409).

Table (3): The relation between the studied mothers' characteristics and their total level of knowledge regarding prevention of upper respiratory tract infection and its occurrence for their children (n=409).

Mothers characteristics	Satisfactory level (n=42)		Unsatisfactory level (n=367)		X^2	P-Value
	NO.	%	NO.	%		
Age (years)						
<20	0	0	24	6.5	**12.990**	.000**
20: <30	4	9.5	236	64.3		
30: <40	38	90.5	107	29.2		
Level of education						
Illiterate	0	0	76	20.7		
Read and write	0	0	61	16.6	**11.076**	.000**
Intermediate education	5	11.9	198	54		
High education	37	88.1	32	8.7		
Occupation						
Not working	30	71.4	323	88	1.86	.146
Working	12	28.6	44	12		
Residence						
Urban	35	83.3	51	13.9	**16.707**	.000**
Rural	7	16.7	316	86.1		
Type of family						
Extended	28	66.7	243	66.2	1.780	.135
Nuclear	14	33.3	124	33.8		
Sources of information						
Mass media	1	2.4	31	8.4		
Experience of mothers	5	11.9	7	1.9	**5.632**	.024*
Friends and relatives	1	2.4	138	37.6		
Health care providers	35	83.3	191	52.		

Table (4): The relation between the studied mothers' characteristics and their total level of reported practices regarding prevention of upper respiratory tract infection (n=409).

Mothers characteristics	Satisfactory level (n=256)		Unsatisfactory level (n=153)		X^2	P-Value
	NO.	%	NO.	%		
Age (years)						
<20	16	6.2	8	5.3	**16.27**	.000**
20: <30	168	65.6	72	47		
30: <40	72	28.1	73	47.7		
Level of education						
Illiterate	44	17.1	32	21		
Read and write	41	16	20	13	1.49	.682
Intermediate education	126	49.2	77	50.3		
High education	45	17.5	24	15.7		
Occupation						
Not working	224	87.5	129	84.3	0.823	.223
Working	32	12.5	24	15.7		
Residence						
Urban	86	33.6	0	0	**65.1**	.000**
Rural	170	66.4	153	100		
Type of family						
Extended	171	66.8	100	65.4	0.189	.424
Nuclear	85	33.2	53	34.6		
Sources of information						
Mass media	18	7	24	15.7		
Experience of mothers	15	5.8	10	6.5	**81.4**	.000**
Friends and relatives	29	11.4	28	18.3		
Health care providers	194	75.8	91	59.5		

Table (5): Correlation between the studied mothers' total level of knowledge and reported practices regarding prevention of upper respiratory tract infection (n=409).

		Total knowledge
Total practice	r	0.328

Positive weak correlation at P-value <0.01

Discussion

Respiratory Infections remains a paramount cause of morbidness and fatality pandemically, mostly influencing children less than 5 years of age. On annual basis, approximately 4 million children die due to ARI related diseases. It is the prime purpose for utilize health care assistance for the children to control signs and symptoms and prevent complications **(Enggar and Pont, 2018).** Mothers are the caregivers of children and they are responsible for maintaining good health for children than fathers **(Alluqmani et al., 2017).**

The present study results showed that nearly less than half of studied children their ages ranged from 3 to 5 year **(Table 1).** This finding disagreement with study that conducted in Kenya by **Keter (2015)** entitled "Knowledge, Attitudes and Practices of Mothers in relation to Childhood Pneumonia and factors associated with Pneumonia and Seeking Health Care" and reported that the majority of study sample was less than 3 years. As well as, The current findings studied are not in agreement with **Abdul-Kareem et al. (2021),** who studied mothers' practice of knowledge concerning their children under five years with Upper Respiratory Tract Infections and found that, the higher percentage of child age were among age groups under 1 year. In this context, the researcher could of view, this results may be because children under five years are more susceptible to upper respiratory infections.

Concerning gender of the studied child, it was noticed that the highest percentage of them were males. this is consistent with result of **Bhalla et al. (2019)** who conducted study about parental knowledge and common practices regarding acute respiratory infections in children admitted in a hospital in rural setting and revealed that the highest percentage of them were males.

In relation to the studied childrens' ranking, it was found that highest percentage of studied children were ranked as third child in the family, this finding disagrees with **Gamtessa& Seid (2021)** who conducted study about the knowledge and practice of mothers caring for their children with acute respiratory infection among those attending the under-five unit at bedele hospital, southwest ethiopia and revealed highest percentage of the studied child rank as first the birth order.

From the researcher point of view, this result may due to the studied mothers' experiences in the way of dealing with their children during respiratory tract infection episodes that occurred for the first and second child. Therefore, they responded with the researcher during the interview, but they do not have enough information about the disease.

Concerning mothers' age **(Table 2)** the present study revealed that more than half of the studied mothers at the age group from 20 to 30 years. The current results are supported by **Abdul-Kareem et al. (2021)**, who studied mother's practice of knowledge concerning their children less than five years with upper respiratory tract infections and found that, the highest percentage of age was among mothers at age group 18-30 years.

Concerning on level of education and occupation, the present study illustrated that about half of studied mothers had intermediate level of education and majority of them were not working. This result in congruent with **Amuka et al. (2020)** who conducted study entitled "Knowledge, Perceptions and Practices of Caregivers on Pneumonia among Children aged below 5 Years in Migori County Referral Hospital, Kenya" and showed that about half of studied mother had intermediate level of education. Also supported by **Bham et al. (2016),** found that the majority of the study participants were housewife.

Concerning residence, this result showed that more than three quarters of them were lived in rural area, the result in congruent with study in Saudi Arabia by **Al Shuhayb et al. (2018)**, who investigated the parents' management of acute upper respiratory tract infections in

children and found that, the majority of them from urban area.

Concerning the studied mothers' total knowledge regarding to measures for prevention of upper respiratory tract infection and its occurrence for their children **(Figure 1)**, the findings of the current study clarified that, the majority of the studied mothers had unsatisfactory knowledge. From the researcher' point of view, this result might due to characteristics of mothers as most of them from rural areas, with intermediate education and home wife. Besides, the focuses of the health care team on the disease management aspects and missing their roles as health educator's knowledge part about it.

The present result parallel to **Abozed et al. (2020)** under title "Effectiveness of Learning Package Application on the Use of Antibiotics for Mothers of Children with Upper Respiratory Tract Infection" and stated that, majority of the studied mothers had poor knowledge (85.5%). On other hand, this result not supported with the study that carried out by **Mutalik& Raje (2017),** who assess the knowledge, attitude and practice about Acute Respiratory Infections among school going children and their parents and reported that, two thirds of mothers had poor knowledge about acute respiratory infection.

Concerning the reported practices of the studied mothers' regarding the total level of reported practice**(Figure 2)**, the finding of the current study reported that, more than three fifths of studied mothers have satisfactory reported practice regarding measures for prevention of upper respiratory tract infection. The present study were inconsistent with **Al-Ali et al., (2019)** who reported that less than two thirds of the studied women had good level of total practice.

Concerning the relations between the studied mothers' characteristics and their total level of knowledge regarding prevention of upper respiratory tract infection and its occurrence for their children **(Table 3)**, the findings of the current study clarified that, there were a highly statistically significant relation between mothers' total knowledge with their ages, residence and level of education. These findings matched with **Ahmed et al. (2019)** who conducted a study under title "Knowledge, attitude and practice of mother having child less than 5 years of old regarding acute respiratory tract infection" and reported that significant relation between total level of knowledge and their residence. This result might be due to overall higher literacy rates in rural area. So, the studied mothers had sufficient experience and practices during dealing with their children in the period of infection occurred but without basic knowledge regarding upper respiratory tract infection.

Concerning the relations between the studied mothers' characteristics and their total level of reported practices regarding prevention of upper respiratory tract infection **(Table 4),** the findings of the current study clarified that, there were a highly statistically significant relation between mothers' total reported practice with their ages, residence and sources of information. These results were disagreed with the study achieved by **Silvia et al. (2018)** about Wheezing Disorders in Childhood and stated that there were no statistically significant relation between total practice of the studied mothers and their age, residence and source of information.

The present study displayed that, there is a week positive correlation between mothers' total knowledge scores and their total reported practice regarding prevention of upper respiratory tract infection **(Table 5)** This result were supported with the study performed by **Joshy et al. (2018)** who conducted study about "Effectiveness of Information Booklet on Knowledge of Mothers Regarding Home Management of Respiratory Tract Infection among Under Five Children" and stated that total knowledge of the studied mothers had a significant effect on their total practice. In addition, this result in congruent with **Abdul-Kareem et al. (2021)**, who found that, statistically significant positive correlation between mothers' total knowledge scores and their total reported practice.

The results of the current study may be due to, the mothers participating in this study do not have sufficient knowledge about ways to prevent upper respiratory infection, but they have a satisfactory level of practice for some of reasons, gaining experience from their dealings with the first and second child, their culture and

the previous experiences of the grandparents, the researcher noticed during the interview the interesting of the mothers and need for these information and the practices of ways to prevent upper respiratory infection in their children, especially at this time due to the spread of Corona virus and the fear of any infection that occurs to their children.

Conclusion:

The current study concluded that, the majority of studied mothers had unsatisfactory knowledge regarding measures for prevention of upper respiratory tract infection and its occurrence for their children. In addition, less than three fifths of them had satisfactory level of reported practice regarding measures for prevention of upper respiratory tract infection and its occurrence for their children. Finally, there was a positive weak correlation between mothers total knowledge and their total reported practices regarding measures for prevention of upper respiratory tract infection and its occurrence for their children.

Recommendations:

Based upon the results of the current study the following:

- Implementation of mother classes program about upper respiratory tract infection and its prevention for their children in out-patient pediatric clinic.
- Develop guidelines booklets or posters for mothers about upper respiratory tract infection should be disseminated to children and its presentation in pediatric care settings.
- Replication of this study on a larger probability sample from the different geographical locations at the Arab Republic of Egypt and further research.

References:

Abdul-Kareem, M., Mohammed, Talib, A & Hayder, M, (2021): Mother's Practice of Knowledge Concerning their Children under Five Years with Upper Respiratory Tract Infections, Annals of R.S.C.B., ISSN: 1583-6258, 25 (3), 7295 – 7304.

Ahmed, N., Khan, K., Khan, A., Abdullah, H. & Shahid, M. (2019): Knowledge, attitude and practice of mother having child less than 5 years of old regarding acute respiratory tract infection. Iinternational Journal of Current Medical and Pharmaceutical Research 5 (06), 4250-4255.

Al Shuhayb, Z., Al Haddad, S., Al Yahya, K. & Khawaja, R. (2018): Parents' management of acute upper respiratory tract infections in children,AL Ahsa,and Saudi Arabia.International Journal of Scientific Study, 6 (5).

Al-Ali, L., Al Jasmi, S., Al Yammahi, L., Syeed, A., & Darwish, E. (2019): Parental knowledge, attitudes, and practices regarding the use of prescribed inhalers in asthmatic children attending Ambulatory Healthcare Services Clinics. Ibnosina Journal of Medicine and Biomedical Sciences, 11(2), 68.

Akteruzzaman,M., Habib,R., Praveen,SH., Ahmed,SH., Khalil,I., Khan,K., & Sharifa,T.(2021): Knowledge, Attitude and Practice of Mothers about Acute Respiratory Tract Infections in Under Five Children.Available at http://www 352180142_ search date 27/12/2021

Alluqmani, M., Aloufi, A., Abdulwahab, A., Alsharif, K., AlShathri, A., Al Shehri. & Alshammari, B. (2017): Knowledge, attitude and practice of mothers on acute respiratory infection in children under five years in Saudi Arabia. The Egyptian Journal of Hospital Medicine, 69(2), 1959-1963.

Amuka, D., Onguru, D. & Ayodo, G. (2020): Knowledge, Perceptions and Practices of Caregivers on Pneumonia among Children aged below 5 Years in Migori County Referral Hospital, Kenya. International Journal of Health Sciences and Research 10 (11), 15-23.

Bhalla, K., Gupta, A., Nanda, S., Mehra, S. & Verma, S. (2019): Parental knowledge and common practices regarding acute respiratory infections in children admitted in a hospital in rural setting. Journal of Family Medicine and Primary Care, 8(9), 2908

Bham, S., Saeed, F. & Shah, M. (2016): Knowledge, attitude and practice of mothers on acute respiratory infection in children under five years.Pakistan Journal of Medical Sciences, 32(6), 1557.

Crawford, J. (2021): What are the signs of an upper respiratory infection. Medical News Today: 1-15.

Denno, D., Bentsi-Enchill, A., Mock, C. & Adelson, W. (2015): Maternal knowledge, attitude and practices regarding childhood acute respiratory infections in Kumasi, Ghana. Ann Trop Paediatr; 14(4), 293-301.

Duderstadt, K. (2017): Pediatric physical examination-e-book: an illustrated handbook. Elsevier Health Sciences, 14(3), 293-320.

Enggar, E., & Pont, A. (2018): The Relationship of Knowledge and Attitudes of the Mother Have A Children of Incidence Acute Respiratory Infection (ARI) In Tinggede Health Center Care. In PROSIDING Seminar Nasional Tahun, ISBN: 2549-0931, 1 (3), 550-558).

Esposito, S., Jones, M., Feleszko, W., Martell, J., Falup-Pecurariu, O., Geppe, N. & Principi, N. (2020): Prevention of new respiratory episodes in children with recurrent respiratory infections: An expert Consensus Statement from the World Association of Infectious Diseases and Immunological Disorders (WAidid). Microorganisms, 8 (11), 1810.

Falsey, R., Murata, Y. & Walsh, E. (2017): Impact of rapid diagnosis on management of adults hospitalized with influenza. Arch Intern Med, 167(4), 354–60.

Fuhrman, B. & Zimmerman, J. (2016): Pediatric Critical Care E-Book. Elsevier Health Sciences, 86 (10), e598-e665.

Gamtessa, L. & Seid, S. (2021): The Knowledge and Practice of mothers caring for their children with acute respiratory infection among those attending the under-five unit at bedele hospital, Southwest Ethiopia.Clinics Mother Child Health, (18), 390.

Green, J. (2016): Symptomatic treatment of upper respiratory tract infections in children. SA FAM Pract, 48(4), 38–42.

Hockenberry, M. & Wilson, D. (2018): Wong's nursing care of infants and children-E-book. Elsevier Health Sciences, 344 (8919), 362– 66.

James, S., Nelson, K. & Ashwill, J. (2014): Nursing care of children-E-bo: principles and practice. Elsevier Health Sciences, 7 (4), 913–791.

Joshy, A., Baisel, A., Francis, A., Baiju, B., Oustrin, L & Jayims, B. (2018): Effectiveness of Information Booklet on Knowledge of Mothers Regarding Home Management of Respiratory Tract Infection among under Five Children in Pallithottam at Kollam. Asian Journal of Nursing Education and Research, 8(1), 167-172.

Keter, P. (2015): Knowledge, Attitudes and Practices of Mothers in relation to Childhood Pneumonia and factors associated with Pneumonia and Seeking Health Care in Kapsabet District Hospital in Nandi County, Kenya. Available at http://hdl.handle.net/ 123456789/ 1741 Search date4/4/2020

Klein, O. (2016): Nonimmune strategies for prevention of otitismedia. Pediatr Infect Dis J 19: S89–S92.

Lozano, R., Naghavi, M., Foreman, K., Lim, S., Shibuya, K. & Aboyans, V. (2012): "Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010". Lancet, 380(9859), 2095–128.

Mutalik, A. & Raje, V. (2017): Study to assess the knowledge, attitude andpractice about acute respiratory infections among school going children and their parents in rural Maharashtra. International Journal of Medical Science and Public Health, 6(11), 1584-1587.

Nargozian, C. (2018): The airway in children with craniofacial abnormalities. Pediatric Anesthesia, 4:53-59

Nargozian, C. (2018): The airway in children with craniofacial abnormalities. Pediatric Anesthesia, (4), 53-59.

Pappas, E., Hendley, J., Hayden, F. & Winther, B. (2018): diagnosis profile of common colds in school-aged children. Pediatr Infect Dis J, 27, 8–11.

Silva, J., Reyna, J., Wakida, G., Limón, A. & Campos, F. (2018): Wheezing Disorders in Childhood. Clinical Case Reports International-Respiratory Medicine, 2(2).

Theo, V., Christine, A., Megha, A. & Ryan, M, B. (2016): Global regional and national incidence, prevalence, a systematic analysis for the Global Burden of Disease Study Available at: https://www.thelancet.com/ journals/lancet/article/PIIS0140-6736(16)31678-6/ fulltext search date:10/1/2020

Thomas, M. & Bomar, P. (2021): Upper Respiratory Tract Infection Available at: https://www.ncbi.nlm. nih.gov/books/NBK532961/ Date of search 3-5/2021

Wilmott, R., Bush, A., Deterding, R., Ratjen, F., Sly, P., Zar, H. & Li, A. (2018): Kendig's disorders of the respiratory tract in children e-book. Elsevier Health Sciences, 485 (67), 385- 399.

Wilson, D. & Rfodgers, C. (2016): Wong's essentials of pediatric nursing-e-book. Elsevier Health Sciences. 388(202), 502-644.