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RESEARCH ARTICLE

Mothers knowledge about the otitis media risk factors among children: Multi-centric Saudi study.

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Abstract

Background: Identifying common risk factors of otitis media (OM) among children by caregivers, particularly mothers will help in controlling the disease and reducing its adverse outcome.
Objectives: To determine the knowledge of mothers on the risk factors associated with OM and its determinants.
Subjects and methods: A quantitative cross sectional study was carried out at King Fahd Medical city, Riyadh, Saudi Arabia among a representative sample of mothers attending Otolaryngology, pediatric and well-baby clinics at PSMC throughout the study period (December, 2016), irrespective of the child`s complaint provided that they had a child aged below 6 years. Data were collected using a modified Ear Infection Survey questionnaire, which included questions regarding the possible risk factors for otitis media.
Results: The study included 218 mothers. Their age ranged between 17 and 55 (33.8±7.8) years. More than one third of them (39.4%) had more than three children. The most frequently known otitis media risk factors were male gender (94.5%), recurrent chronic rhinitis (84.4%), and absence of breast feeding (80.7%) whereas the lowest known risk factors were no existence of a vaccine (6.4%), Low socio-economic status (12.4%), day care attendance (16.1%) and malnutrition (19.7%). Overall, inadequate knowledge was reported among 71.6% of them. None of the studied risk factors was significantly associated with mothers` knowledge regarding otitis media risk factors.
Conclusion: Mothers 'knowledge of otitis media risk factors among their children is suboptimal. Therefore, a public health education campaign targeted mothers of young children is necessary.

Introduction:-

In both developed and developing counties, otitis media (OM) is a very common health problem and considered the main preventable reason (90%) for hearing loss among children.[1]
The prevalence of chronic OM differs in varies countries, but the highest prevalence rates were reported in South East Asia, Africa and Western Pacific regions.[1]

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Epidemiological studies for middle ear inflammatory conditions in the Kingdom of Saudi Arabia are scarce as only few regional studies were conducted through local universities to investigate prevalence of Otitis media in different provinces of KSA. In Riyadh prevalence of OM was 13.8 % [2] and in Abha it was 2.3%. [3] In Qassim region, it was 7.5%. [4]

Risk factors (RFs) of OM include recurrent upper respiratory tract infections,[5, 6] household tobacco smoke,[7] short duration of breast feeding,[5] artificial bootle feeding,[8] day care attendance,[6] family history,[9] male gender and low socioeconomic status (SES).[10-13] Many of these risk factors could be modified by adopting proper lifestyle changes which helps in control of OM and its associated sequel [13]

Identifying common risk factors by caregivers, particularly mothers will help in controlling the disease and reducing its adverse outcome, therefore this study was conducted to determine the knowledge of mothers on the risk factors (RFs) associated with OM for possible controlling of some of these factors and reducing the burden of the disease.

Subjects and Methods:-

A quantitative cross sectional study was carried out at King Fahd Medical city, Riyadh, Saudi Arabia. Riyadh is the capital of Saudi Arabia with an approximate population of 6.5 millions. Mothers attending Otolaryngology, pediatric and well-baby clinics at PSMC throughout the study period (December, 2016), irrespective of the child`s complaint were eligible for study inclusion provided that they had a child aged below 6 years.

The sample size was calculated by using the single proportion equation in Raosoft software package. The required sample size is 219 mothers at 95% confidence level (estimated frequency 50%, margin of error accepted was 5%). Systematic random sampling technique was implemented to select the study sample. Data were collected using a modified Ear Infection Survey questionnaire,[13] which included questions regarding the possible risk factors for otitis media (low socio-economic status, recurrent of chronic rhinitis, Exposure to household smokers, past history of otitis media in the last 12 months, otitis media of siblings, malnutrition, male gender, parents with history of otitis media, day care attendance, bottle feeding, and non-existence of vaccines. The questionnaire also included demographic characteristics of mothers (age, educational level, current marital status, number of children, job, husband`s age, job, education, and family income). For illiterate mothers, Arabic-speaking nurses will help in data collection.

Knowledge score was computed in the way that mothers who answered correctly to each risk factor were assigned a score of "1" whereas those answered wrongly or didn`t know were assigned a score of "0". Total knowledge score and its percentage were computed. Mothers who got 50% or more of total knowledge score were considered as having "adequate knowledge" whereas those who got lss than 50% were considered as having "inadequate knowledge".

The data were coded before computerized data entry. The statistical Package for Social Sciences (SPSS) software version 22.0 was used for data entry and analysis. Descriptive statistics in the form of frequency and percentage were computed and analytic statistics, using chi-square test were applied. P-values <0.05 was considered as statistically significant.

Results:-

The study included 218 mothers. Their age ranged between 17 and 55 (33.8±7.8) years. More than one third of them (39.4%) had more than three children. Most of them (73.9%) were university graduated or above. Slightly less than half of the respondents (48.6%) were working. Their husband`s age ranged between 23 and 84 (39.5±9.3) years. Most of their husbands (70.6%) were at least university graduated. Almost two-thirds (61%) of their husbands were professionals whereas 17% were militaries. The family income of almost half of them (50.9%) exceeded 10000 SR/month.

Regarding mothers` knowledge of otitis media risk factors, the most frequently known were male gender (94.5%), recurrent chronic rhinitis (84.4%), and absence of breast feeding (80.7%) whereas the lowest known risk factors were no existence of a vaccine (6.4%), Low socio-economic status (12.4%), day care attendance (16.1%) and malnutrition (19.7%). Overall, inadequate knowledge was reported among 71.6% of them as illustrated in figure 1.

None of the studied risk factors (age, number of children, educational level, job, husband`s age, education, job and family income) was significantly associated with mothers` knowledge regarding otitis media risk factors.

Discussion:-

The identified risk factors for OM among children in many studies were acute suppurative otitis media, recurrent upper respiratory tract infections, exposure to passive smoking, bottle feeding, malnutrition, immuno suppression, infection, low socioeconomic status, overcrowding in homes, schools and day care centers.[14]
Identifying common risk factors by caregivers, particularly mothers will help in controlling the disease and reducing its adverse outcome. Therefore this study was carried out to assess their awareness of the common risk factors of OM among their children. We recruited mothers since in our culture, they are more likely to present with sick children to the hospital.

Male predominance of the disease was reported in many studies.[9, 15-17] However, some other studies did not observe a gender difference regarding prevalence of OM among children. [18-20] In the current study, majority of mothers recognized male gender of children as a risk factor for OM.

Low socio-economic status (SES) was proven to be the single largest risk factor of OM. [21-23] Also, in South-western (Nigeria), Lasisi et al., (2007) reported a strong association between low socioeconomic status and OM.[12] Low SES itself is a risk factor, and at the same time it is closely associated with others risk factors such as overcrowding. In addition, low socioeconomic status may explain the recurrence of otitis media seen in parents and siblings. Other risk factors may be responsible for greater incidence of OM in the low socio-ecomonic status including exposure to household passive smokers, lack of access to proper healthcare and medication as well as malnutrition, which is common in the low SES as a result of impaired immunity.[24-25] In the present study, low socio-economic status itself was recognized by only 12.4% of mothers as a risk factor for OM. However, other related risk factors were recognized by higher percentages such as OM in siblings (26.1%), parents (40.4%), recurrent OM (56.9%) and malnutrition (19.7%).

Overcrowding in poor ventilated day care centres predisposes children to viral infection of the upper respiratory tract which can lead to congestion of the Nasopharynx, Eustachian tube dysfunction and subsequent otitis media.[16] In the current survey, only 16.1% of mothers could recognize that daycare center is a risk factor for OM among children.

Breast feeding has been proven to enforce children immunity, but this protection decreases as they grow; hence vulnerability to infection increases from the age of one year because breast milk could no longer meet their nutritional need.[15] In the current study, absence of breast feeding as a risk factor for children OM was recognized by 80.7% of mothers.

The poor knowledge of most risk factors of OM demonstrated in this study suggests that a public health education campaign targeted mothers of young children is necessary.

Among limitations of the study is the inclusion of mothers from one institution which could affect the generalizability of results. However, mothers from all socio-economic statuses attending this hospital.

In conclusion, Knowledge of modifiable risk factors of OM among mothers is generally inadequate. Therefore, healthcare educational programs should be directed to them. Additionally, training and encouragement of health care professionals is needed to disseminate information to mothers and other caregivers on risk factors of OM.

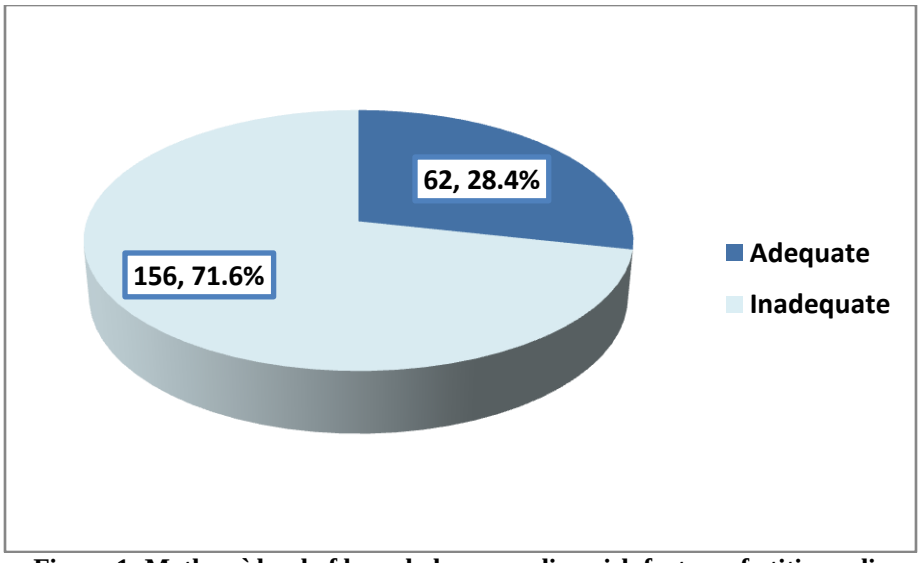

Figure 1: Mothers` level of knowledge regarding risk factors of otitis media

Table 1: Demographic characteristics of the participants (n=218)

	Number	Percentage
Age (years)		
≤25	37	17.0
26-35	101	46.3
36-45	64	29.4
>45	16	7.3
Number of children		
≤3	132	60.6
>3	86	39.4
Educational level		
Below secondary school	16	7.3
Secondary school	41	18.8
University/above	161	73.9
Job		
Working	106	48.6
House wife	112	51.4
Husband`s age		
≤35	80	36.6
36-45	81	37.2
46-55	47	21.6
>55	10	4.6
Husband`s education:		
Below secondary school	18	8.3
Secondary school	46	21.1
University/above	154	70.6
Husband`s job		
Professional	133	61.0
Military	37	17.0
Business/trading	20	9.2
Retired	14	6.4
Others	14	6.4
Household income (SR/month)		
<5000	17	7.8
5000-10000	90	41.3
>10000	11	50.9

Table 2: Mothers` knowledge of otitis media risk factors.

Risk factors	Correct answer	
	No.	%
Low socio-economic status	27	12.4
Exposure to household smokers	56	25.7
Recurrent chronic rhinitis	184	84.4
Past history of Otitis media in the last 12 months	124	56.9
Otitis media of siblings	57	26.1
Malnutrition	43	19.7
Male gender	206	94.5
Parents with history of otitis media	88	40.4
Day care attendance	35	16.1
No breast feeding	176	80.7
No existence of a vaccine	14	6.4

Table 3: Association between demographic characteristics of mothers and their knowledge of otitis media risk factors

	Knowledge of OM risk factors		Chi-square
	Inadequate N=156 N (%)	Adequate N=62 N (%)	
Age (years)			
≤25 (n=37)	24 (64.9)	13 (35.1)	
26-35 (n=101)	70 (69.3)	31 (30.7)	
36-45 (n=64)	48 (75.0)	16 (25.0)	
>45 (n=16)	14 (87.5)	2 (12.5)	**0.329**
Number of children			
≤3 (n=132)	92 (69.7)	40 (30.3)	
>3 (n=86)	64 (74.4)	22 (25.6)	**0.450**
Educational level			
Below secondary school (n=16)	10 (62.5)	6 (37.5)	
Secondary school (n=41)	32 (78.0)	9 (22.0)	
University/above (n=161)	114 (70.8)	47 (29.2)	**0.463**
Job			
Working (n=106)	78 (73.6)	28 (26.4)	
House wife (n=112)	78 (69.6)	34 (30.4)	**0.519**
Husband`s age			
≤35 (n=80)	53 (66.3)	27 (33.8)	
36-45 (n=81)	62 (76.5)	19 (23.5)	
46-55 (n=47)	34 (72.3)	13 (27.7)	
>55 (n=10)	7 (70.0)	3 (30.0)	**0.547**
Husband`s education:			
Below secondary school (n=18)	12 (66.7)	6 (33.3)	
Secondary school (n=48)	39 (84.8)	7 (15.2)	
University/above (n=154)	105 (68.2)	49 (31.8)	**0.081**
Husband`s job			
Professional (n=133)	91 (68.4)	42 (31.6)	
Military (n=37)	29 (78.4)	8 (21.6)	
Business/trading (n=20)	13 (65.0)	7 (35.0)	
Retired (n=14)	12 (85.7)	2 (14.3)	
Others (n=14)	11 (78.6)	3 (21.4)	**0.459**
Household income (SR/month)			
<5000 (n=17)	11 (64.7)	6 (35.3)	
5000-10000 (n=90)	68 (75.6)	22 (24.4)	
>10000 (n=111)	77 (69.4)	34 (30.6)	**0.507**

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