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Original Research Article.

Knowledge Regarding Risk Factors of Otitis Media Among Mothers of Under 5 Years of Age Children Attending in the Primary Health Care Centers in Abha: A Cross Sectional Study

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ABSTRACT

Background: Many of the risk factors for otitis media in children could be modified by adopting proper lifestyle changes which helps in control of otitis media and its associated sequel.

Objectives: To determine the knowledge of caregivers about risk factors (RFs) associated with OM for possible controlling of some of these factors and reducing the burden of the disease.

Subjects and Methods: This quantitative cross sectional study was carried out in Abha capital of Assir province in Saudi Arabia on mothers attending PHCCs throughout the study period (November. 2017), provided that they had children less than 5 years of age. Data were collected using a modified Ear Infection Survey questionnaire.

Results: The study included 384 mothers. Their age ranged between 17 and 56 years with a mean of 33.6 and standard deviation of 9.1 years. Most of the participants (70.6%) heard about otitis media. Only 39.1% of mothers knew the main symptoms of otitis media. Also only 18.5% of them could recognize that otitis media is a disease of low socio-economic status people. Regarding risk factors, the most frequent known one was absence of breast feeding (63.8%0 followed by recurrent attacks of OM in the past 12 months 52.9%) whereas the lowest frequent known risk factor was male gender (12%). Overall, poor knowledge regarding otitis media was reported by 70.6% of the participated mother. None of the studied factors were significantly associated with mothers` knowledge regarding childhood otitis media. Attitude and behavior of mothers towards protection against otitis media was good.

Conclusion: Knowledge of risk factors of OM that can be modified among mothers is poor. Therefore, healthcare educational programs should be implemented to increase their awareness. Fortunately, their behavior attitude towards protection against otitis media was very promising.

Keywords: Otitis Media, Risk Factors, Mothers, Knowledge.

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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.[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]

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]

Classical Risk factors (RFs) of OM include recurrent upper respiratory tract infections,[5,6] season,[7] household tobacco smoke,[8] short duration of breast feeding,[9] parents working status,[10] artificial bottle feeding,[11] day care attendance,[12] family history,[13] male gender and low socio-economic status (SES).[12,14] Many of these risk factors could be modified by adopting proper lifestyle changes which helps in control of OM and its associated sequel.[15]

This study aimed to determine the knowledge of caregivers about risk factors (RFs) associated with OM for possible controlling of some of these factors and reducing the burden of the disease.

SUBJECTS AND METHODS

This quantitative cross sectional study was carried out in Abha capital of Assir province in Saudi Arabia on mothers attending PHCCs throughout the study period (November. 2017), provided that they had children less than 5 years of age.

The sample size was calculated by using the single proportion equation in Raosoft software package. The required sample size

was 384 mothers at 95% confidence level (estimated frequency 50%, margin of error accepted was 5%). Systematic sampling technique was used for selecting the study sample. The sample size was distributed among involved clinics. Sampling proportion was determined according to the total number of mothers attended the selected clinics.

Data were collected using a modified Ear Infection Survey questionnaire,[16] which includes 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 researchers visited the involved PHCCs and interviewed the mothers with the questionnaire manually. Care was taken to not disturb the system.

Mothers who responded correctly to knowledge questions were given a score of "1" whereas those responded incorrectly were given "0" score. Total score was computed and those scored below 50% were considered as having "poor knowledge" and those got 50% or more were considered as having "good knowledge". Consent to participate in the study was obtained from each mother as well as approval from Ethics Committee, KKU, Abha was obtained.

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 for categorical data and arithmetic mean and standard deviation for continuous variables were computed and analytic statistics, using non parametic statistical tests were applied, since the total knowledge score was abnormally distributed as evidenced by significant Shapiro Wilk test. Mann-Whitney test was used for comparison of two groups whereas Kruskal-Wallis test was applied to compare more than two groups. P-values <0.05 was considered as statistically significant.

RESULTS

The study included 384 mothers. Their age ranged between 17 and 56 years with a mean of 33.6 and standard deviation of 9.1 years. About two-thirds of them (63.5%) had 3 children or less. Most of them (81.8) live in urban places. About two-thirds of them (62.8%) had Bachelor degree or above and working as house wives (66.4%). More than half of their husbands (56.5%) had bachelor degree or above and majority of them (88.8%) had jobs. The average income per month exceeded 10000 Saudi Riyals in 42.7% of the respondents. (Table 1)

Most of the participants (70.6%) heard about otitis media as illustrated in figure 1. Less than one third of the mothers (29.2%) reported history of having a child with otitis media. (Figure 2)

Table 1: Demographic characteristics of the participants

		Frequency	Percentage
Maternal age (years)	**≤25**	75	19.5
	26-35	161	42.0
	>35	148	38.5
Number of children	**≤3**	244	63.5
	4-6	110	28.7
	>6	30	7.8
Place of living	**Urban**	314	81.8
	Rural	70	18.2
Educational level	**Illiterate**	13	3.4
	Primary school	22	5.7
	Intermediate school	20	5.2
	Secondary school	88	22.9
	Bachelor/+	241	62.8
Maternal job	**House wife**	255	66.4
	Working	129	33.6
Husband education	**Illiterate**	9	2.3
	Primary school	16	4.2
	Intermediate school	27	7.0
	Secondary school	115	29.9
	Bachelor/+	217	56.5
Husband`s job	**Jobless**	43	11.2
	Working	341	88.8
Income (SR/month)	**≤5000**	76	19.8
	5000-10000	144	37.5
	>10000	164	42.7

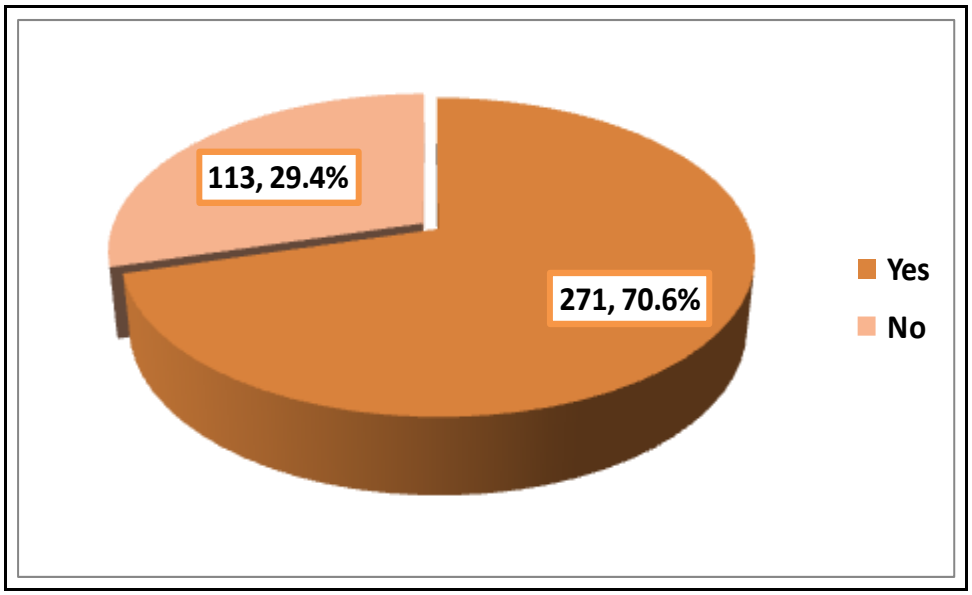

Figure 1: Hearing of the participants about otitis media.

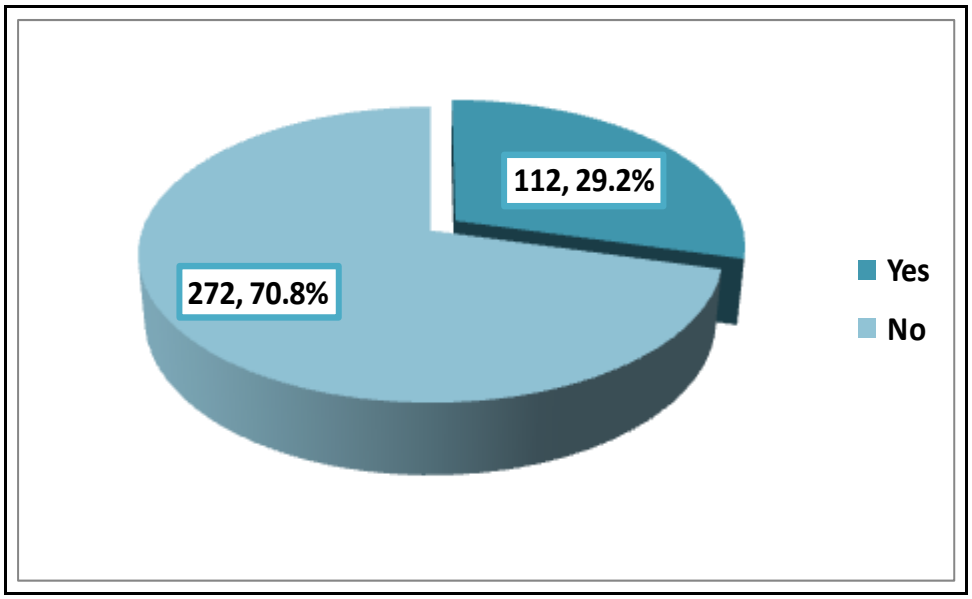

Figure 2: History of having a child with Otitis media among the participants

Table 2: Responses of the participated mothers to otitis media knowledge questions

	Right answers	
	Frequency	**Percentage**
Knowledge of symptoms	150	39.1
Pulling of ears, ear pain, felling of fullness in the ear		
OM is common in low socioeconomic status	71	18.5
Risk factors		
Male gender	46	12.0
Siblings with otitis media	122	31.8
Parents with history of OM	115	29.9
Household smokers	134	34.9
Daycare attendance	121	31.5
Recurrent attacks of OM in the past 12 months	203	52.9
None breast feeding	245	63.8
None existence of vaccine	95	24.7

As illustrated in table 2, only 39.1% of mothers knew the main symptoms of otitis media. Also only 18.5% of them could recognize that otitis media is a disease of low socio-economic status people.

Regarding risk factors, the most frequent known one was absence of breast feeding (63.8%0 followed by recurrent attacks of OM in the past 12 months 52.9%) whereas the lowest frequent known risk factor was male gender (12%). Overall, poor knowledge regarding otitis media was reported by 70.6% of the participated mothers as shown in figure 3. None of the studied factors were significantly associated with mothers` knowledge regarding childhood otitis media. (Table 3)

Attitude and behavior of mothers towards protection against otitis media was good as most of them were willing to change smoking habit to reduce otitis media risk in children (76.8%), willing to change smoking habit to reduce risk of surgery for ear tubes (77.1%) and willing to change child day care arrangement to reduce risk of otitis media (68.5%). (Table 4)

Table 3: Factors associated with knowledge of mothers regarding otitis media

	Knowledge score (0-10)			p-value
	Median	IQR	Mean rank	
Maternal age (years)				
≤25 (n=75)	3	2-5	190.0	
26-35 (n=161)	4	2-5	205.8	
>35 (n=148)	3	1.25-4	179.3	0.104**
Number of children				
≤3 (n=244)	3	2-5	191.9	
4-6 (n=110)	4	2-5	195.9	
>6 (n=30)	3	2-5	185.0	0.882**
Place of living				
Urban (n=314)	3	2-5	192.3	
Rural (n=70)	3	2-5	193.5	0.936*
Educational level				
Illiterate (n=13)	3	1-4	165.3	
Primary school (n=22)	3	1-5	183.8	
Intermediate school (n=20)	3	2-5	200.7	
Secondary school (n=88)	3.5	2-5	196.7	
Bachelor/+ (n=241)	3	2-5	192.6	0.883**
Maternal job				
House wife (n=255)	3	2-5	189.9	
Working (n=129)	3	2-5	197.6	0.519*
Husband education				
Illiterate (n=9)	3	1-4.5	163.4	
Primary school (n=16)	4	1.25-6.5	210.0	
Intermediate school (n=27)	2	1-5	165.1	
Secondary school (n=115)	3	2-5	196.1	
Bachelor/+ (n=217)	3	2-5	193.9	0.579**
Husband`s job				
Jobless (n=43)	3	2-4	191.2	
Working (n=341)	3	2-5	192.7	0.933*
Income (SR/month)				
≤5000 (n=76)	3	1-4	178.5	
5000-10000 (n=144)	3	2-5	199.7	
>10000 (n=164)	3	2-5	192.6	0.397**
Hearing about otitis media				
No (n=113)	3	1-5	184.4	
Yes (n=271)	3	2-5	195.9	0.354*
Having a child with otitis media				
No (n=272)	3	2-5	188.0	
Yes (n=112)	4	2-5	203.5	0.207*

*Mann-Whitney test **Kruskal-Wallis test

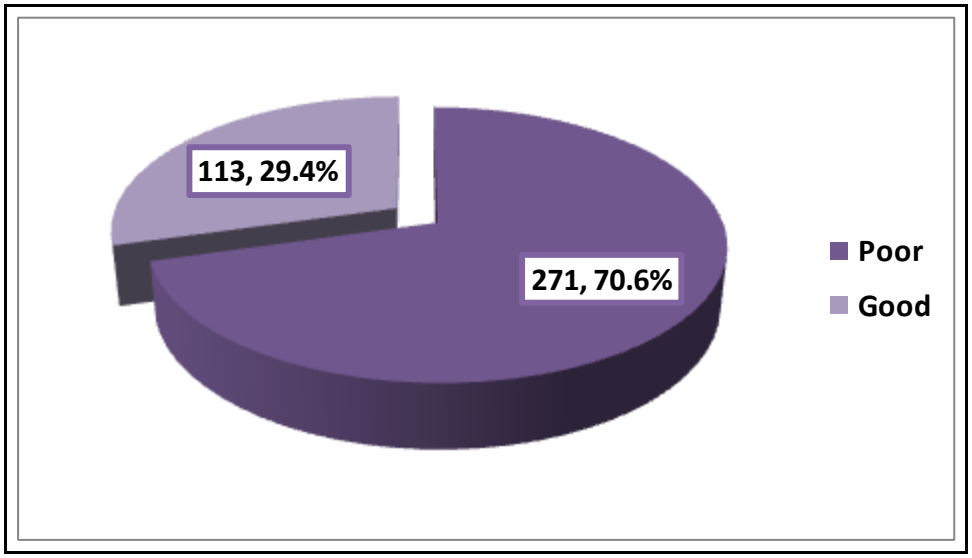

Figure 3: Overall knowledge level of mothers regarding otitis media

Table 4: Attitudeof the mothers towards prevention of otitis media among their children

Behavior modification	Yes N (%)	No N (%)	I don't know N (%)
Willing to change smoking habit to reduce OM risk in children	295 (76.8)	18 (4.7)	71 (18.5)
Willing to change smoking habit to reduce risk of surgery for ear tubes	296 (77.1)	21 (5.5)	67 (17.4)
Willing to change child day care arrangement to reduce risk of OM	263 (68.5)	40 (10.4)	81 (21.1)

DISCUSSION

Awareness of caregivers, especially mothers with the common risk factors associated with otitis media will help in controlling the disease and reducing its bad prognosis. Therefore this study was conducted to evaluate the awareness of mothers of children less than 5 years regarding the common risk factors of OM among their children.

Several studies identified risk factors for otitis media among children which include recurrent upper respiratory tract infections, exposure to household passive smoking, bottle feeding, immune-suppression, malnutrition, infection, low socioeconomic status with overcrowding in homes, schools and day care centers.[17]

Several studies reported male predominance of the disease.[9,18,19] On the other hand, some studies did not observe a gender difference regarding prevalence of OM among children.[20-22] In the present study, only 12% of mothers could recognize the male predominance of the disease.

Some authors reported that the low socio-economic status (SES) was a single largest risk factor of OM.[14,23,24] In Nigeria, Lasisi et al., (2007) also 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 related to others risk factors such as malnutrition and overcrowding. Also, low socioeconomic status may explain the recurrence of otitis media seen among parents and siblings of cases. Other risk factors may be responsible for greater incidence of OM in the low socio-ecomonic status including lack of access to proper healthcare and medication and exposure to household passive smokers.[25,26] Unfortunately, in the current study, low SES itself was recognized by only 18.5% of mothers as a risk factor for OM. However, other related risk factors were recognized by higher percentages such as OM in parents (29.9%), siblings (31.8%), recurrent OM in the past 12 months (52.9%) and exposure to household smoking (34.9%).

Overcrowding in poor ventilated day care centres is another important risk factor for Otitis media among children due to predisposition to upper respiratory tract viral infection which can lead to congestion of the Nasopharynx, Eustachian tube dysfunction and subsequent otitis media.[19] In the current survey, 31.5% of mothers could recognize that daycare center is a risk factor for children otitis media.

Breast feeding has been shown to protect against otitis media by enforcing the children immunity, but this protection decreases as they grow; hence susceptibility to infection increases from the age of one year because breast milk could no longer meet their nutritional need.[18] In the current study, fortunately absence of breast feeding as a risk factor for children OM was recognized by 63.8% of mothers.

Overall in the present study, poor knowledge of risk factors of OM observed among 70.6% of mothers who scored below 50% which suggests that a public health education campaign directed to mothers of young children is of great importance in our community. This study has some important limitations that should be mentioned. First of all, we included mothers from one institution which could affect the generalizability of results. However, mothers from all socio-economic statuses attending this health institution. Second, the cross-sectional design of the study which permits only association and not causality between dependent and independent variables.

Conclusively, Knowledge of risk factors of OM that can be modified among mothers is poor. Therefore, healthcare educational programs should be implemented to increase their awareness. Fortunately, their behavior attitude towards protection against otitis media was very promising.

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