

THE IMPACT OF MOTHERS' HEALTH EDUCATION ON THE PREVALENCE OF ACUTE RESPIRATORY INFECTIONS IN CHILDREN*

Osman Günay MD**, Ahmet Öztürk MD***, Yusuf Öztürk MD****

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In this study, the effects of educating mothers on acute respiratory infections were investigated in Hacılar district of Kayseri, a province in Central Anatolia.

The intervention group included 69 children and the control group 57 children between the ages of 0 and 4 years. The children in both groups were checked for symptoms of acute respiratory infections (ARI) in January 1990 and 1991, before and after intervention. The intervention consisted of 30 minutes of face-to-face education of mothers regarding ARI prevention and treatment. In addition, the numbers of clinic visits by children for acute respiratory infections before and after intervention were compared.

The prevalence of acute respiratory infections decreased from 49.3% to 27.5% in the intervention group and from 43.9% to 38.6% in the control group. The decrease in the prevalence of acute respiratory infections in the intervention group differed significantly, from that of the control group. On the other hand, clinic visits by the intervention group for acute respiratory infections increased significantly. *Key words:* acute respiratory infections, mother's education.

Acute respiratory infections (ARI) are one of the most important causes of child mortality in developing countries. ARIs are responsible for the deaths of approximately four million children in the world every year. The great majority of these deaths are in developing countries and in children under five years of age¹⁻⁷.

Although the incidence of ARI in developing and developed countries is comparable, mortality of ARI in developing countries is 30-70 times higher than in developed countries. At least one-fourth of total child mortality in developing countries is due to ARI^{3,5,7}.

The causes and localizations of ARI vary widely^{3,6,7}; however, the predisposing factors are almost the same worldwide. For this reason, there are important similarities between various types of ARI in terms of preventive measures and

* From the Department of Public Health, Erciyes University Faculty of Medicine, Kayseri.

** Associate Professor of Public Health, Erciyes University Faculty of Medicine.

*** Research Assistant In Public Health, Erciyes University Faculty of Medicine.

**** Professor of Public Health, Erciyes University Faculty of Medicine.

basic principles of case management. The general incidence of ARI can be decreased through timely immunization of children against diphtheria, pertussis, measles and tuberculosis, prevention of low birth-weight, breast-feeding, adequate and balanced nutrition, and distancing children from cigarette smoke^{3,6,7}.

Better case management strategies are needed in developing countries in order to reduce the ARI mortality and case fatality rates. It is known that the treatment of ARI is generally quite inexpensive and easy. The continuing education of community health workers and parents, especially mothers, is very important in order to be successful in controlling ARI^{3,6,8}. Community health workers and mothers should know which cases should be seen by health personnel and which cases must be referred to the hospital. This study was performed in order to determine the effects of educating mothers on ARI in children.

Material and Methods

This investigation was done in Hacılar district of Kayseri, a province in Central Anatolia, between January 1990 and March 1991. Hacılar district is 10 km from the provincial center, and its population is approximately 11,000. In the center of Hacilar there is a local health center staffed by three practitioners and eight auxiliary health personnel.

At the time of the investigation, there were 710 children between the ages of 0 and 4 years in the area. One hundred and fifty of these children were randomly selected. All of the children who were selected were visited in their homes in January 1990 and were checked for symptoms of ARI. At the same time, a questionnaire was given to the mothers. The questionnaire contained 20 questions pertaining to certain characteristics of the children and their families.

The children were then divided randomly into two groups. One group was chosen to be the intervention group, and the other the control group. The mothers of the children in the intervention group were visited again in November 1990. They were educated about prevention and treatment of ARI in children and were each given a booklet about ARI. The mothers were educated face-to-face for approximately 30 minutes in their homes by the health center's doctor. The booklet given to the mothers described principles for prevention and treatment of ARI in children.

The children in both groups were visited for the final time in January 1991 and were again checked for symptoms of ARI. In addition, the records in the local health center were examined and the charts of children who suffered from ARI were evaluated. The practitioner who made the final visit and the person who examined the medical records were unaware of whether the children were in the intervention or the control group.

Twenty-four children were excluded from the study: nine of them left the research area in 1990, and 15 children could not be found at home in January 1991 in three attempted visits. For these reasons, 69 children in the intervention group and 57 in the control group were evaluated. Chi square test and student's t test were used to compare the groups.

In January 1991, the prevalence of acute lower respiratory infections was found to be 2.9% in the intervention group and 3.5% in the control group. Acute upper respiratory infections formed nearly 90% of total ARI cases in the both groups.

Discussion

As shown in Table I, there was no significant difference between the study groups in terms of characteristics which may affect ARI. The ages shown in the table were the children's ages in January 1990. It was found that in both groups, families were generally large and annual family incomes rather low.

In Table II, ARI prevalences in January 1990 and January 1991 and decreases in ARI prevalences in the study groups are shown. In both groups, ARI prevalence in January 1991 is lower than in January 1990. The decrease in the control group may be a result of the children's growth in one year. ARI is known to be more prevalent in children under two years of age⁴. The prevalence of ARI in the intervention group decreased by 21.8%, whereas the decrease in the control group was only 5.3%, yielding a statistically significant difference between groups ($p < 0.05$).

Table I: Selected Characteristics of The Study Groups

Characteristics	Intervention Group (n = 69)	Control Group (n = 57)	P
Age (Months) (Mean $\pm$ SEM)	22.3 $\pm$ 1.8	25.7 $\pm$ 1.9	> 0.05
Sex of Children			
Male (%)	44.4	43.9	> 0.05
Female (%)	55.6	56.1	> 0.05
Mothers' Age (Mean $\pm$ SEM)	27.7 $\pm$ 0.6	28.2 $\pm$ 0.6	> 0.05
Fathers' Age (Mean $\pm$ SEM)	30.7 $\pm$ 0.7	30.6 $\pm$ 0.7	> 0.05
Mothers' Literacy (%)	76.8	73.7	> 0.05
Fathers' Literacy (%)	100.0	100.0	> 0.05
Smokers at Home (%)	75.4	70.2	> 0.05
Family Size (Mean $\pm$ SEM)	5.50 $\pm$ 0.15	5.47 $\pm$ 0.17	> 0.05
Annual Family Income (\$ US) (Mean $\pm$ SEM)	2484 $\pm$ 180	2352 $\pm$ 168	> 0.05

Table II: ARI Prevalence in Study Groups Before and After Intervention

Study Groups	n	ARI Prevalence (%)		Decrease in Prevalence (%)
		Before Intervention (January 1990)	After Intervention (January 1991)	
Intervention	69	49.3	27.5	21.8
Control	57	43.9	38.6	5.3
Total	126	46.8	32.5	14.3

t = 2.63
p < 0.05

In Table III, the number of clinic visits by the children because of ARI and increases in clinic visits in both groups are shown. In both groups the number of clinic visits in 1991 was higher than in 1990. The effects of mass media and educational activities of health personnel may have caused some increases in clinic visits. It is meaningful that while clinic visits increased, ARI prevalence decreased. Clinic visits increased 23.2% in the intervention group and only 7.1% in the control group. The difference between the two groups was statistically significant ($p < 0.05$).

The results of this study indicate that mothers should be educated in order to decrease the prevalence of ARI in children between the ages of 0 and 4 years. In addition, ARI cases may be treated more effectively and ARI mortality may be reduced. Better case management strategies have been given priority in the control of ARI because it is more difficult to prevent ARI cases. However ARI incidence can be also reduced through adequate education of families.

Table III: Applications to The Health Center Because of ARI in the Study Groups Before and After Intervention

		Application to The Health Center				
		Before Intervention (January-February 1990)		After Intervention (January-February 1991)		Increase in Application
Study Groups	n	No	%	No	%	%
Intervention	69	24	34.8	40	58.0	23.2
Control	57	19	33.3	23	40.4	7.1
Total	126	43	34.1	63	50.0	15.9

t = 2.46
p < 0.05

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