

## Effect of mass media educational intervention during the 2005 cholera epidemic in Iran

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### ABSTRACT

**Background:** Cholera is a bacterial infection that causes both local outbreaks and worldwide pandemics. There was a cholera epidemic in Iran in summer 2005, during which 1118 individuals were infected and 11 died. The present study was conducted to determine the impact of educational activities of Iranian Ministry of Health on the people's knowledge and attitude towards the disease.

**Patients and methods:** This cross sectional study was carried out on 240 subjects. Samples were selected by cluster sampling in Yazd, Iran. Data were collected by a prepared questionnaire and analyzed by student t- test and chi square, when appropriate.

**Results:** Mean scores of subject's awareness before and after outbreak were 4.5 and 10.5, respectively ( $p < 0.05$ ). Only 33% of subjects knew cholera as a transmittable disease, however, following the intervention, the respected percentage reached up to 99.5%.

**Conclusion:** Our study showed that few people were aware of cholera, however, their awareness improved significantly following the education. Therefore, effective continuous educations should be attempted, especially through mass media, in order to reduce the health and economic impacts of endemic diseases.

**Keywords:** Education, Mass media, Cholera.

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### INTRODUCTION

Cholera is a bacterial infection that causes both local outbreaks and worldwide pandemics, of which the longest-running began in 1961 (1). Regional epidemics occur seasonally and are associated with periods of excessive rain fall, warm temperatures and increases in plankton populations (1-3). Cholera was the first disease for which surveillance and reporting was initiated on a large

scale. It is one of three diseases currently reportable under the international health system.

Studies have shown correlations between climatic and other environmental conditions and the presence of V.cholera in north American waters (4), hence, it has been suggested that epidemics of cholera might be predicted by monitoring of forecasting the seasonal abundance of zooplankton in aqua tie environments using remotely sensed vegetation image (5,6). In Iran, cholera incidence is associated with drinking water and vegetables that are watered with surplus waters. The number of deaths by cholera is high. Indeed, If cholera cases

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remain untreated (i.e., with oral dehydration solution), the mortality rate will approximate 30-40% (7).

Health education is an effective way to eliminate cholera-associated impacts. Description of cholera, emphasis on the need to treat diarrhea regardless of its perceived cause, promotion of improved sanitation and hygiene, and ensure availability of ORS could reduce morbidities and mortality (8).

In Iran, there was a cholera epidemic in 2005 with a total of 1118 cases and 11 deaths. The outbreak occurred in some provinces, but not Yazd province. Iranian Ministry of Health arranged health educational programs, mainly through mass media. The present study was conducted to determine the efficacy of such educational programs on the people's knowledge and attitude towards the disease.

## PATIENTS and METHODS

For this cross sectional study, 240 subjects were selected by cluster random sampling.

A pre-tested pre-coded questionnaire was used to compare the awareness level of subjects before and after the educational programs achieved by the Iranian Ministry of Health during the outbreak in 2005. The questionnaire was piloted on 15 individuals, during which coherency and consistency of questions as well content validity of the questionnaire were confirmed by five expert academic members working in the field of health education. Internal reliability was also assessed by cron Bach's alpha scale ( $\alpha=0.05$ ). Total score of knowledge was 16.

Data were analyzed using SPSS software (version 11.5, SPSS Inc., USA) and chi square and t-test were used, when appropriate. A confidence level of 95% was considered for the interpretation of results. All subjects were requested to complete an informed consent.

## RESULTS

We interviewed 240 subjects most of whom (68.5%) aged 20-39 years and had high school or university diploma (65%).

Mean score of subjects' awareness before and after outbreak were 4.5 and 10.5, respectively. The difference was statistically significant ( $p<0.05$ ). Table 1 summarizes the efficacy of educational programs according to the gender, occupation and level of education. Although mean score of knowledge in females was higher than males, the difference did not reach a statistically significant level (NS). Furthermore, comparison of knowledge levels between health care personals and individual working in nutrition or food industries showed that mean level of awareness among nutrition workers was significantly higher ( $p<0.0001$ ).

Subjects' awareness towards vegetables and fruits washing as a main preventive modality was significantly improved following the intervention (35% versus 69%).

**Table 1.** Mean of knowledge before and after the educational programs according to the gender, level of education and occupation

	Number	Mean of knowledge		P value
		before	after	
<b>Gender</b>				
Male	141	4.3	10.3	0.8
Female	98	3.6	10.8	
<b>Level of education</b>				
Primary and middle school	82	2.3	8.9	<0.001
High school	78	3.6	11.4	
Under-graduate	30	6.4	11.2	
Post-graduated	48	7	11.5	
<b>Occupation</b>				
House wife	65	2.7	9.8	0.001
Food-related staff	19	2	11.8	
Health care workers	16	10.6	13.6	
Others	139	4.4	10.4	

The educational programs significantly improved the knowledge of subjects towards the preventable state of the disease where the respected proportions of responses before and after intervention were 51.5% and 99.5%, respectively. Moreover, only 33% of subjects knew that cholera can be transmitted, however, following the intervention, the respected percentage reached up to 99.5%.

Most of the respondents (67%) ascertained that radio and TV had promoted their awareness.

## DISCUSSION

Our study showed that intervention was effective on knowledge level of the subjects. Similar significant effects were reported in Hetta study (9), where promoting use of oral dehydration therapy (ORT) in diarrhea disease showed that the training and supervision was so effective. In Quick study, 93% of rural and 67% of urban respondents knew that cholera is a preventable disease (10). This finding is in agreement with ours (10). Additionally, Cruz study revealed that following the educational programs the subjects' knowledge towards the transmittable state of cholera was improved (11). Conversely, Einarsdottir et al confessed that following the intervention none of the respondents could explain how the disease is transmitted to human (12).

Similarly to Murthy findings, our female subjects had higher levels of awareness (13), however, his observations in respect to education levels of the participants was not in accordance with ours.

Prior investigators have emphasized on washing vegetables and fruits as one of the most effective ways to control and prevent cholera (14,15). Our subjects' awareness towards vegetables and fruits washing was also significantly improved following the intervention (35% versus 69%).

Finally, our results revealed that most of the subjects received associated messages from radio

and television. This is especially true for housewives, partly because they spend most of their time at home. Similar findings were reported by Einarsdottir (12).

In conclusion, educational health programs could inevitably improve population knowledge and attitude towards the endemic diseases, hence, effective continuous education should be organized by authorities, especially through mass media.

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