

Original Article

A survey on effect of health education on health volunteer performance and knowledge in prevention of cutaneous leishmaniasis in Yazd

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Abstract

Background Cutaneous leishmaniasis (CL), is one of the health priorities in many of the tropical areas of the world, and is also very common in Iran, especially in urban areas of the country. The best way of prevention of the disease is to increase knowledge in terms of prevention and early referral of suspected cases to physician, as well as suitable treatment for patients.

Objective To define the influence of education on health volunteer performance and knowledge about CL in Yazd.

Patients and methods In this semi-empirical survey, knowledge and performance of 74 randomly selected health volunteers in Yazd were assessed via questionnaire before and after the education. The resulting data were processed and analyzed by SPSS software and with ANOVA and paired t-test exams.

Results This survey showed that knowledge and performance of health volunteers after the training course increased by 44% and 56%, with mean of 7.53 before education to 10.84 after the course, and from 1.12 to 1.75 respectively. The effect of the training course in terms of level of literacy and age group were assessed resulted in meaningful differences, as well.

Conclusion It seems that the education has a significant influence on increase of knowledge and performance of health volunteer, and as these personnel have essential role in people's knowledge and health situation in community, so continuous use of these educational courses may result in a decline in prevalence of the disease.

Key words

Cutaneous leishmaniasis, health education, health volunteer, Yazd, parasitic disease.

Introduction

Cutaneous leishmaniasis (CL) is endemic to many parts of the world and is transmitted mostly by sandfly (*Phlebotomus* species) bites.^{1,2} The vector of the disease *P. sergenti*

commonly lives in mountainsides and old areas of cities. The contributing factors that suits sandfly are warm and humid environments usually found in demolished places, chicken's nests, uncollected waste left, and rodent's nests.^{3,4}

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Although, CL has been reported from more than 88 countries in the world, 90% of the cases are in 6 main countries including Afghanistan, Brazil, Iran, Peru, Syria and

Saudi Arabia. Approximately 350 million people in the world are living in high risk areas for infection, and as many as 12 millions of people are infected worldwide, with 1-1.5 million of new cases each year, from which 500,000 instances have visceral leishmaniasis.⁶

In Iran about 20,000 new cases of CL are reported from different parts of the country each year² and it is estimated that the real number is 4-5 folds more than this.^{5,6}

The disease may be prevented and controlled by following means: 1. fighting with the vectors, 2. eliminating the reservoirs of the disease, 3. immunization for high risk people, and 4. health education in order to enhance population awareness.

One of the most effective method for prevention of CL is to increase people's knowledge about the disease and the main goal of such education is to persuade and encourage them to change their life style and behavior, reasonable use of accessible health services, making proper decisions to improve level of health.^{5,8} Unsuccessful efforts in order to produce effective vaccines and treatment, regardless of expending lots of money and time for the disease and, high prevalence of such disease testify the important role of health education in CL.⁹

This survey was planned to evaluate the efficacy of education in enhancement of knowledge and performance of health volunteer in Yazd in prevention of CL.

Patients and methods

This survey was a semi-empirical study. In this survey randomly 74 health-related personnel in Yazd were selected. The sample size was based on $N = Z\alpha^2 \times P(1-P)/d^2$, in which: $\alpha=5\%$, $P=0.62$, $d=0.11$. Health volunteers, interested in health-related activities, were selected if

Table 1 Percentage of health-related personnel based on age groups (n=74).

Age group (years)	N (%)
≤ 25	14 (18.9)
26-35	31 (41.9)
36-45	22 (29.7)
≥ 45	7 (9.5)

they had basic abilities. They participated in training courses in health centers on weekly basis, afterwards they were ready to transfer proper information to target groups of people.

Data were collected by a questionnaire with 25 questions regarding demographic, knowledge and performance of personnel. Then the necessary materials in forms of speech rehearsal, pamphlet and face to face education were prepared and used for the education. After 2 months of the education course, the same questionnaire was used again to assess the results.

The data were analyzed by SPSS software and with ANOVA and paired-t test exams.

Results

Most of the health volunteers (41.9%) were in group of 26-35 years of old (**Table 1**). Knowledge and performance of this group after the education increased significantly ($p=0.0001$); the mean of knowledge of the group has risen from 7.53 ± 5.11 (before education) to 10.84 ± 2.08 (after education), and the mean of the performance has increased from 1.12 ± 0.52 (before education) to 1.75 ± 0.51 (after education).

The knowledge and performance of the group according to the literacy level is shown in **Table 2**. Nearly in all levels of literacy the rate of knowledge and performance had raised significantly ($p=0.0001$). In the group with primary school level of literacy only knowledge has increased (before and after course 8.71 and 10.14, respectively).

Table 2 Comparison of knowledge and performance before and after the education.

Level of literacy	Results	N	Mean	SD	P value
Primary school	Pre-course	21	8.71	±8.99	0.46
	Post-course				
	Pre-course	21	0.95	±0.38	0.000
	Post-course				
Intermediate school	Pre-course	20	8.05	±2.43	0.000
	Post-course				
	Pre-course	20	1.05	±0.51	0.001
	Post-course				
High school	Pre-course	28	6.67	±1.72	0.000
	Post-course				
	Pre-course	28	10.60	±1.87	0.000
	Post-course				
College	Pre-course	5	5.20	±1.78	0.006
	Post-course				
	Pre-course	5	0.8	±0.83	0.033
	Post-course				

Table 3 Comparison of mean score of knowledge and performance before and after the education for health-related personnel, based on their spouse's level of literacy.

Spouse's level of literacy	Results	N	Mean	SD	P value
Illiterate	Pre-course	14	7.07	±2.43	0.001
	Post-course				
	Pre-course	14	0.85	±0.53	0.022
	Post-course				
Primary school	Pre-course	14	9.64	±10.93	0.844
	Post-course				
	Pre-course	14	1.00	±0.39	0.003
	Post-course				
Intermediate school	Pre-course	19	7.57	±2.11	0.0001
	Post-course				
	Pre-course	19	1.26	±0.56	0.0001
	Post-course				
High school	Pre-course	16	6.68	±1.92	0.0001
	Post-course				
	Pre-course	16	1.31	±0.47	0.002
	Post-course				
College	Pre-course	11	6.54	±2.25	0.0001
	Post-course				
	Pre-course	11	10.45	±1.57	0.004
	Post-course				

Table 3 shows an increase in knowledge and performance after education according to the spouse's level of literacy. The knowledge of the individual whose spouses had primary school level of literacy statistically did not show any meaningful difference ($p=0.844$, before education 9.64 and after that 10.21). Knowledge and performance according to the age is shown in **Table 4**. Those who were under 36 years of old statistically had a meaningful difference before and after the

education. ($p=0.005$ and $p=0.006$, respectively), and those who were 36-45 years of old only had meaningful difference in performance before and after the education ($p=0.0001$), but their knowledge didn't have meaningful difference ($p=0.524$). Those who were in the >46 years group only had meaningful difference in knowledge score ($p=0.005$) before and after the education, but their performance increased with mean score from 1 to 1.66, but had no meaningful

Table 4 Comparison for mean score of knowledge and performance before and after the education based on age groups.

Age group	Results		N	Mean	SD	P value
≤ 25 years	Pre-course	Knowledge	14	6.53	±2.726	0.005
	Post-course		14	10.69	±3.61	
	Pre-course	Performance	14	0.92	±0.49	0.006
	Post-course		14	1.69	±0.63	
26-35 years	Pre-course	Knowledge	31	6.82	±2.10	0.0001
	Post-course		31	10.89	±1.74	
	Pre-course	Performance	31	1.25	±0.51	0.0001
	Post-course		31	1.71	±0.59	
36-45 years	Pre-course	Knowledge	22	9.55	±9.01	0.524
	Post-course		22	10.85	±1.69	
	Pre-course	Performance	22	1.25	±0.44	0.0001
	Post-course		22	1.95	±0.22	
≥ 46 years	Pre-course	Knowledge	7	7.66	±2.16	0.005
	Post-course		7	10.83	±1.16	
	Pre-course	Performance	7	1.0	±0.63	0.102
	Post-course		7	1.66	±0.51	

Table 5 Frequency distribution of correct performance of health-related personnel regarding proper use of fine nets in prevention of cutaneous leishmaniasis.

Proper performance of health-related personnel	Before the education	After the education
	N (%)	N (%)
Proper use of fine nets for windows	52 (70.3)	69 (93.2)
Proper use of fine nets + pesticide + repellents	22 (29.7)	61 (82.4)

difference statistically ($p=0.102$).

Frequency distribution of the individual's correct answer to question regarding main route of infection for (CL) before and after the education was 89.2 % and 98.7%, respectively.

Table 5 shows the frequency distribution in proper use (performance) of mechanical ways of prevention. Statistical analysis showed meaningful difference before and after the education ($p<0.05$).

Special knowledge regarding role of uncollected left over in spread of the disease before and after the education were 70.3% and 83.8%, respectively. The rate of individual's knowledge regarding effect of collecting tramped dogs in prevention of spread of the disease before and after the education were 51.4% and 73%, respectively, and for the role

of eliminating the rodents in prevention of the disease before and after the education were 51.4% and 81.6%, respectively.

Discussion

It seems that the best way in prevention and reducing the related problems of the cutaneous leishmaniasis, considering high prices for treatments and scarcity of medicaments with acceptable safety and efficacy, is to implement a suitable health education course that leads to enhanced people's knowledge resulting in early diagnosis, effective treatment and acceptable follow up. The results of this survey showed that face to face education, pamphlets, catalogues and brochures are effective ways for such an education.

The mean scores of subjects before and after the education were 7.53 and 10.84, respectively. These data not only proved that individual's knowledge about the main routes of prevention of the disease was too low, but also showed the necessity for such education. On the other hand, although the post-education score showed enhancement, but in order to get better results it is mandatory to follow a well-aimed education.

Behzad Haghpanah *et al.*⁹ showed that education increases health volunteers' knowledge, but has not been statistically meaningful.

The increase in knowledge of health volunteers in this survey is in accordance with the result of similar surveys by Amirian and Safavi² and Weigel *et al.*¹⁰ Similar surveys in other fields also showed the efficiency of education in knowledge enhancement.^{11,19} Based on our survey there was a meaningful relation between literacy level and knowledge of health volunteers, and these results were not in accordance with data obtained in study by Mazlumi and Servat in Bafrouieh-Meybod.⁵

The performance of health volunteers showed that 70.3% of them used fine-nets for windows and doors and this rate figure increased to 93.2% after the education. This rate is comparable to a similar survey carried out in Yazd which showed that better use of these preventive instruments by health volunteers as compared to the ordinary people in the same community.⁸

Also the survey showed that the education has a significant influence on improving the performance of health volunteer, and this is similar to results achieved in the study by Amirian and Safavi.²

Based on the results of this study it is recommended to prepare and organize a suitable health educational course to be used not only for health volunteers, but also for ordinary people as well, to get better understanding of the cause, main routes of spread and prevention of the disease, that in turn leads to a considerable decline in prevalence of the CL.

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