

## The impact of factors related to preventive behaviors of Cutaneous Leishmaniasis among Families of Kherameh 2015

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### Abstract

#### Introduction:

After malaria, Cutaneous Leishmaniasis is the most important parasitic disease in tropical and semitropical areas of the world. One the most effective ways of controlling Cutaneous Leishmaniasis is practicing preventive behaviors by family persons. Since of the endemic disease in Kherameh, this research performed aimed the impact of factors related to preventive behaviors of Cutaneous Leishmaniasis among families Kherameh city in 1394.

#### Materials and Methods:

In this cross sectional descriptive-analytic study that statistical population is city Kherameh families. Using Cochran's formula 350 families were chosen as study sample. The instrument used in this research was questionnaire. The validity of the questionnaire was confirmed by experts and the reliability was 79%. The questionnaire was completed by mothers in participating families. IN order to analyze the data, using SPSS software version 16 and Spearman correlation coefficient and chi-square and ANOVA tests were used.

#### Results:

Mean and standard deviation age of participants was  $36/01 \pm 12/25$  years, Mean and standard deviation performance of City managers:  $13/75 \pm 10/59$ , Public media (TV and radio):  $7/77 \pm 8/57$ , Mean and standard deviation performance of health volunteers was  $4/77 \pm 10/29$ .

#### Conclusions:

The results showed that the performance of radio and television, health volunteers and city managers is low. Public media and health volunteers with continuous training and city managers with proper operation can be an effective step in promoting preventive behaviors of Cutaneous Leishmaniasis in the population.

**Keywords:** Cutaneous Leishmaniasis, Preventive, Behavior

### Introduction

Leishmaniasis is a zoonotic disease caused by a protozoa of the Leishmania genus (1, 2). Leishmaniasis is endemic in 88

countries from four continents, 22 countries in Europe and America and 66 countries in Asia and Africa (3,4). A

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population of about 350 million people is at risk of developing the disease (5,6). Clinically, leishmaniasis has three forms of cutaneous (CL), mucocutaneous and visceral. Annually, 1 to 1.5 million people worldwide acquire the cutaneous form, and 500,000 people acquire the visceral form, and 70,000 people die of leishmaniasis. About 90% of CL cases are diagnosed in Afghanistan, Pakistan, Syria, Saudi Arabia, Algeria, Iran, Brazil and Peru (7, 8). Approximately 30,000 CL cases are reported in Iran, while based on the literature, the actual number is 4 to 5 times (9-11).

In Iran, leishmaniasis is detected in two epidemiological forms, dry (urban CL) and wet (rural CL) (12-14). The disease is transmitted by the bite of a phlebotomine sandfly (15). The reservoir hosts of the disease are humans and dogs in the urban form and rats in the rural form (16). The rural type is a major health problem in the Eastern Mediterranean region, including Iran (17). Fars province is one of the most important centers for CL in Iran. Recently, the rural CL has been reported from new foci including Kharameh (18,19).

Although CL is not a fatal disease, it is hard to tolerate for three main reasons: first from the aesthetic point of view, second the long course of the disease, and third the scars (20, 21). It is difficult to control leishmaniasis due to ecological complexities and epidemiological differences and it is impractical to adopt and prescribe a single method (10,22,23). Preventive measures such as education, individual protection, and promotion of community preventive behaviors are the most important strategies to control CL (24, 25). Various studies have reported low community awareness about the disease (9). In a study in Afghanistan in 1999, Webster found that the use of mosquito nets increased with increasing the levels of education (17). Public voluntary participation in health-related activities is approved and studies showed that such measures usually lead to the

development and improvement of community health services (10). Waste management is an important factor in maintaining and improving health. Municipalities and city councils (monitoring municipal actions) have a key role in the urban waste management and their negligence can negatively affect citizens' behavior, leading to disease prevalence (26-30). In addition, the importance of media today has also increased to such an extent that addressing the health issues has become impossible without considering their role (31).

Despite the importance of the municipal managers' role in affecting preventive behaviors of CL, there were few studies in this regard. Since Kharameh is one of the main foci of CL in Fars province and the number of people who suffer from the disease increases every year, the present study was conducted to identify preventive behaviors of CL and evaluate the effect of related factors on preventive behaviors of CL among families in Kharameh. It is hoped that the accurate identification of the main increase causes can lead to taking fundamental steps towards resolve them.

### **Materials and Methods**

This cross-sectional study was conducted in 2015. The study population was families living in Kharameh, Iran (4025 families) except those unwilling to participate in the study. The sample size was determined as 350 families using Cochran formula, Cochran's alpha coefficient of 0.05 and confidence interval of 95%. The study used cluster sampling, i.e. the families living in Kharameh were divided into five clusters and then samples were randomly selected from the clusters. Data was collected using a researchers' questionnaire answered with a five-point Likert scale (never, rarely, sometimes, often, or always). Questionnaires were completed by mothers due to their especial role in preventive behaviors of CL in the families. Validity was evaluated by sending the questionnaire to five health

education experts and epidemiologists, which eventually was revised and approved by the experts. A 45-member sample was selected in order to assess the reliability of the questionnaire. After the completion of the questionnaire, reliability was confirmed using Cronbach's alpha coefficient of 0.79. The questionnaire consisted of demographic information (9 items), families' behavior (13), the performance of municipality and city council (9 items), the performance of radio and television (9 items), and the performance of health volunteers (11 items). The statistical relationships were investigated by Spearman correlation coefficient, Chi-square test, and ANOVA. SPSS software version 16 was used for data analysis.

### Results

A total number of 350 women participated in this study. The mean age of participants was 36.01 with a standard deviation of 12.25. The oldest participant was 74 and the youngest one was 15. The 26-35 age group had the highest frequency and the 66-75 age group had the lowest. Regarding frequency distribution of family size, the highest number was that of 3 to 4-member families with a frequency of 61%. Considering the educational level of the participants, 104 people had diploma (29.7%), 68 people had an advanced diploma or higher education (19.42%), 67 people were illiterate (19.1%), 58 people had primary school education (16.57%) and 53 people had secondary school education (15.3%). Most of the participating families (140 families or 40%) had an income of less than 5 million Rials per month (Table 1).

The findings show that in the field of preventive behaviors of CL among families in Kharameh, the lowest level was

related to the use of insect repellent ointment and the highest level was related to visiting a physician. Absolute and relative frequency distributions of preventive behaviors of CL among families in Kharameh are presented in Table 2. Only three of the preventive behaviors had a level above 50%.

Table 3 shows the relationship between the performances of radio and television, municipal managers and health volunteers and preventive behaviors of CL in families of Kharameh. The Chi-square test showed a significant relationship between radio and television education and waste management ( $p=0.016$ ), and using insect repellent sticks ( $p=0.031$ ), while there was no significant relationship between radio and television ad proper wastewater disposal ( $p=0.143$ ) and using mosquito nets ( $p=0.153$ ). The Spearman test showed no significant relationship between educations provided by health volunteers and preventive behaviors of CL including the use of mosquito nets ( $p=0.120$ ), waste management ( $p=0.130$ ), proper wastewater disposal ( $p=0.560$ ), using insect repellent sticks ( $p=0.072$ ), and using insecticides ( $p=0.355$ ). The Spearman test showed a significant relationship between municipal actions and family behaviors in waste treatment ( $p=0.000$ ) and taking out the garbage on time ( $p=0.000$ ), while it showed no significant relationship between the city council actions and family behaviors in proper wastewater disposal ( $p=0.150$ ) and taking out the garbage on time ( $p=0.103$ ).

Table 1: Demographic information of Kharameh families based on the variables examined in the sample

Variable	Subgroup	Number (percentage)
Age	15-25	73 (20.85)
	26-35	157 (44.85)
	36-45	56 (16)
	46-55	39 (11.14)
	56-65	18 (5.14)
	66-75	7 (2)
Education	illiterate	67 (19.1)
	Primary school	58 (16.57)
	Cycle	53 (15.3)
	Finished High school	104 (29.7)
	Advanced diploma and higher	68 (19.42)
Number of family members	1-2	24 (6.85)
	3-4	213 (60.85)
	4-6	73 (20.85)
	7-8	19 (5.42)
	9-10	14 (4)
	Above 10	7 (2)
Income	Less than 5 million Rials	140(40)
	5-7.5 million Rials	79 (22.57)
	7.5-10 million Rials	70 (20)
	10 million Rials and above	61 (17.42)

Table2: Absolute and relative frequency of preventive behaviors of CL among families participating in the study

Family behavior	Never	Always
	Number (percentage)	Number (percentage)
Using mosquito nets	143 (41)	128 (36.57)
Using nets	122 (35)	137 (39.1)
Using repellent sticks	273 (78)	21 (6)
Using insecticides	111 (31.7)	67 (19)
Preventing children from playing	55 (15.7)	160 (45.7)
Visiting a physician	37 (10.57)	221 (63.14)
Waste management	14 (4)	218 (62.28)
Proper wastewater disposal	61 (17.42)	139 (39.7)
Visiting local therapist	214 (61.1)	33 (9.4)
Wearing body covering clothes at night	137 (39.1)	62 (17.7)

Table 3: The relationship between the performances of radio and television, municipal managers and health volunteers and preventive behaviors of CL in families participating in the study

Performance	Preventive behavior of families	Mean	Standard deviation	P-VALUE*
Health volunteers performance	Using mosquito nets	0.5333	1.11341	0.120
	Waste management	0.4800	1.04558	0.130
	Proper wastewater disposal	0.4933	1.06162	0.560
	Using repellent sticks	0.4900	1.05210	0.072
	Using insecticides	0.5000	1.06793	0.355
Radio and television performance	Using mosquito nets	0.7933	0.99696	0.153
	Waste management	0.8500	1.06361	0.016
	Proper wastewater disposal	0.8267	1.04895	0.143
	Using repellent sticks	0.7300	0.96273	0.031
Municipal performance	Waste management	3.5933	0.82273	0.000
	Taking out the garbage on time	3.5033	0.91622	0.000
City Council Performance	Taking out the garbage on time	0.4733	0.97936	0.103
	Proper wastewater disposal	0.4333	1.08450	0.150

\* Significant at 0.05

## Dissection

The present study was conducted to investigate the effect of factors related to the practice of preventive behaviors of CL among families in Kherameh in 2015. The most important findings of the survey showed that most important preventive behaviors of CL are only practiced in less than 50% of the families. The behavior levels of families in Yazd were low and less than 50% in a study of on the relationship between health volunteers' education behavior and preventive behavior of CL in families of Yazd, Iran (10). In the present study, the behavior of using insect repellent ointment had the lowest level. In a study by Heshmati et al. most people did not have enough budget for buying preventive equipment (11). Most participants in this study also reported low income levels, which can be effective in the low level of using insect repellent ointment behavior. The highest level among preventive behaviors of CL in families of Kharameh was that of visiting a physician which was consistent with Rahaei et al. results (10). That was undoubtedly due to the small size of the city and the easy access to the physicians. This study showed that the use of personal protective equipment among families of Kharameh was low. In studies conducted by Heshmati et al. in Yazd and Vahabi et al. in Dehloran, the level of families' behavior in using personal protective equipment was low (11,14). In a study by Abazid et al. in Aleppo, Syria, although most people believed in using mosquito nets as the most preventing method, the behavior of families in the use of personal protective equipment such as mosquito nets, insecticides and nets were poor (33). Davis et al. showed that the use of insecticides in houses in Kabul and Peru reduced leishmaniasis by 60% and 54%, respectively. Studies have also shown that the use of mosquito nets treated with insect repellent pesticides protects against CL infection or disease by 50-65% (34,35); thus it is suggested that families be

encouraged to use personal protective equipment by providing regular education sessions through health volunteers and radio and television.

According to the results, the level of education provided by health volunteers to families about preventive behaviors of CL was low. This study was consistent with a study by Hagh Panah et al. in Isfahan which concluded that health volunteers have had little effect on increasing awareness of the population they covered (24). In a study by Taqdisi et al. in Tehran, it was concluded that the volunteers had a poor performance (36). The poor performance of health volunteers can be due to lack of attention from Health Centers. Given the importance of the role of health volunteers, it is proposed that basic measures be taken to empower and support them.

Results showed that municipalities had a reasonably well performance in waste management, but they had a poor performance in the cleaning urban waterways. A study by Nasiri and Mahdirgi in Gorgan showed that the municipality had a poor performance in meeting the basic needs of citizens, which had a negative impact on citizens' behavior (26). The City Council of Kharameh had a very poor performance in its inherent tasks in monitoring municipal waste management and urban waterways cleaning. Municipal managers adversely affect preventive behaviors of CL in families and increase the number of CL cases in society with their poor performance.

The mass media have various functions in the society and can develop the community by teaching the audience (37). In this study, the effect of radio and television's performance on preventive behaviors of CL among families in Kharameh was poor. In a study by Khaniki and Raei Tehrani examining the views of the audiences about the effect of the television health messages in Tehran, the

hypothesis of health messages inadequacy was confirmed (31). A study by Aghajani and Naderinejad on the role of mass media in spreading the culture of sport showed the positive and high effect of the mass media, especially television (38). These positive effects are actually indicative of widespread and powerful media views on the effects of exercise on health and spreading sports culture. It is proposed that the radio and television continuously broadcast health messages and educational programs related to CL. Local media, especially in endemic areas, will have a great impact on preventive behaviors of CL.

### Conclusion

The present study found that the level of preventive behaviors of CL in families of Kharameh was low. Health volunteers were not as active as expected. Radio and television did not have adequate

educational programs. Municipal managers, who could play an important role in the control of leishmaniasis, had a poor performance. It is suggested to discuss the results of this research in the provincial and city health council meetings in order to persuade municipal managers to develop the will and strategic thinking and collaborate with health centers to create special practical programs and take an effective step to control the CL in their community.

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### Conflict of interests

The Authors declare that there is no conflict of interest in this paper.

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