

## Original Article

**Knowledge of Scorpion Sting Patients who Admitted to Ahvaz Razi Hospital, Iran, about Pre-hospital Care**Darush Rokhafroz<sup>1</sup> \*Neda Sayadi<sup>2</sup> Hasan Rahmani<sup>3</sup>

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**Abstract**

**Background and purpose:** Scorpion sting is one of the major health problems of undeveloped countries, which causes severe complications and sometimes death. This study aimed to assessment Knowledge of scorpion sting patients who admitted to Ahvaz Razi Hospital, Iran, about pre-hospital care.

**Materials and Methods:** This is a descriptive study, which its participants were sampled by a pilot method, and the sample size was estimated equal to 100 based on the formula. For this study, the tools for collecting the data were a questionnaire of demographic data, including nine questions and a researcher-made questionnaire related to the knowledge level of the patients about pre-hospital cares consisting of 12 questions. After collecting, the data were entered them into SPSS software. Then, the data were analyzed using the descriptive statistics including frequency and analytic statistic chi-square.

**Results:** The data of the present study showed that the highest rate of scorpion-sting had been in women. In addition, most stings occurred inside the home and in the city. The most cases (80%) did not have knowledge about first aids to the injured person also about the use of tourniquet most cases (70%) have low knowledge.

**Conclusion:** Considering the low knowledge of the injured people about the pre-hospital actions, it seems necessary for the society to be educated adequately about this issue to prevent the adverse outcomes such as amputation of an organ because the incorrect use of tourniquet, death of the injured person due to lack of knowledge about first aids.

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**Key words:** Patient, Scorpion-sting, Pre-hospital Actions

## 1. Introduction

The scorpion sting is one of the major health problems in tropical and semi-tropical undeveloped countries, which results in severe complications and sometimes death (1). Among 1500 species of scorpions which have been described around the world, venoms of 50 sorts are hazardous for a human (2). According to the type of climate and weather, Iran is very rich in terms of arthropods, especially scorpions (3). Derived from the reports of the national strategy against scorpionism, nearly about 50,000 stung cases are reported yearly, in Iran that put Iran in the second grade after Mexico (4). The Iranian scorpion fauna consists of over 44 named species from 23 genera in two families, Buthidae, and Scorpionidae. However, *Hemiscorpius lepturus*, that belongs to the Hemiscorpiidae family is the most medically important scorpion in Iran (5,6). In the southern half of Iran (Khuzistan, Sistan-Baluchistan, Hormozgan, and Kerman Provinces), about 75% annual mortalities of scorpion stings has been reported. However, most of the deaths and cases of scorpion stings have occurred in Khuzistan Province (7).

Scorpion sting envenomation is an acute life-threatening time-limited medical emergency if left untreated (8). Most stings occur in rural areas, distant from health services, where no effective antivenin may be available (9). Poorly learned population often applied improper first aids measures and critical time lost before a victim transported to a treatment center, where cost of treatment can constitute an additional problem (10).

In Iran, major study about scorpion sting including epidemiologic research such as: prevalence and demographic factors and limited study exit about scorpion sting cares and maybe said: no research found about pre-hospital care and scorpion sting so because Ahvaz area is one of the most important foci of scorpion sting problem in the Khuzestan from point of medical, epidemiology and

geographic local and high prevalence of complication of scorpion sting in patient had leads to the long-term stay at hospital and increase complication in patients; therefore, it seems necessary to evaluate the knowledge level of the patients about pre-hospital cares and the accurate way of actions, to give correct training according to the achieved data for right actions if affliction reoccurs

## 2. Materials and Methods

This is a descriptive – cross-sectional study. After obtaining the permission of the formal attendants, the researchers referred to the internal ward of Razi hospital and after one's introduction to the patient and explanation about the objective of the study, and taking the consent about tendency to participate in the study, and after signing An informed consent form the questionnaire was filled by interviewing method if the patient had the inclusion criteria Including: (1) being adult (15 years of age having up) and (2) to be able to talk to the Persian language.

In this study, the tools for collecting the data were a questionnaire of demographic data, including nine questions and a researcher-made questionnaire related to the knowledge level of the patients about the pre-hospital cares consisting of 12 questions. The ranking method for the questions of the questionnaire was based on a 5-point Likert Scale. Very much, much, moderate, low, very low levels of knowledge and I do not know had the grades five, four, three, two, one and zero, respectively. The maximum grade for this questionnaire was 60. Grades 0-20, 21-40, 41-60, respectively, show weak, moderate, and good knowledge. Content validity was used to determine the validity of the researcher-made questionnaire. As the mentioned questionnaire was given to 10 faculty members of the School of Nursing and Midwifery, and it was used after implanting the corrective opinions. To determine the

reliability, internal consistency method was used, which was measured 0.7 with Cronbach's alpha. The sample size was calculated using the pilot sampling method, and sample size was estimated equal to 100 in accordance with the formula. Eventually, the collected data were statistically analyzed through utilizing the SPSS software (version 18, SPSS Inc., Chicago, IL, USA). The types of statistical measures utilized in the study were including descriptive statistic (frequency) and analytic statistic (chi-square).

### 3. Results

The results of the present study showed that 96.7% of the bites have been happened in autumn, and most patients referred to hospital 15 minutes after sting, and most of the patients' stay duration in the hospital was 3 days. In addition, burning was the main complication of most patients. Other demographic data are shown in table 1.

Moreover, the knowledge level of the patients about pre-hospital actions is mentioned in table 2. The results of table 2 show that the in

the most cases patients were agreement with pre-hospital care but because of a lack of knowledge not to be able to do the right actions.

**Table 1.** Demographic data of the scorpion-stung patients

Demographic indicators	Frequency
Sex	
Female	80
Male	20
Living place	
City	60
Village	40
Accident site	
Home	70
Out of home	30
Accident time	
Morning	20
Evening	20
Night	60
Type of sting	
Gadym scorpion	74
Non-Gadym scorpion	26
History of bite	
Has	35
Doesn't have	65
Literacy level	
Illiterate	10
Elementary	60
Secondary	10
Diploma	5
Diploma above	15

**Table 2.** The knowledge level of the pre-hospital cares among the patients with scorpion sting

The evaluated index	I completely agree (%)	I agree (%)	I relatively agree (%)	I disagree (%)	I completely disagree (%)	I do not know (%)
Primary - aid should be done for injured person	20	60	10	0	0	5
Should be as relaxed as possible whit a injured person	5	0	15	10	50	50
The best action is to keep the injured organ still for injured person	12	48	5	15	10	10
The injured organ should be kept below the heart level.	10	70	0	15	0	5
One's jewelry should be removed for injured person	6	54	0	20	0	20
Should be transported to hospital, immediately injured person	70	30	0	0	0	0
Ice should not be used on the sting site for a long time for injured person	0	20	6	14	0	30
Razor blade should not be used at the sting site	6	54	10	20	5	5
The bite site should not be sucked	12	68	5	10	5	0
Tourniquet should not be used except at special circumstances for injured person	30	50	0	20	0	0

#### 4. Discussion

Scorpion sting is one of the injuries of which people are very afraid. On the other hand, Khuzestan Province has a high rate of scorpion sting in the country (11,12).

The results of the present study showed that the maximum rate of scorpion-sting occur in women (80%). study of Abdollahi et al. showed that the women-to-men ratio of scorpion-sting is more, which is consistent with the results of the present study (13). Nevertheless, study of Osnaya-Romero et al. conducted on 163 cases of scorpion-sting in Mexico showed that 63% of the cases have been happened in males (14), which is not consistent with the results of the present study. This difference may be due to the variety in the areas of the studies. In order words, the present study was done in Iran, but the study of Osnaya-Romero et al. was performed in Mexico. In addition, the sting-ratio outside the home (30%) to inside the home (70%) is about one-third. The findings of In other study Talebian and Doroudgar stated that most surveyed cases (62.1%) had been stung inside the home (15) that is consistent with the results of the present study. However, the results of study of Hoseininasab et al. declared that the cases of scorpion-sting outside the home were more than those cases inside the home (63% vs. 37%) (16), which is not consistent with the results of the present study. This difference may be due to the reason that in the present study most cases of stings were related to the men.

Besides, the results of the present study showed that the scorpion-stung cases in cities are more than in villages. study of Nejati et al. reported that in many countries scorpion-sting occurs especially in rural areas that are not consistent with the results of the present study (17). This difference may be due to the reasons that scorpions are more at home and citizens stay more inside the home. Moreover, the accident time was more reported at night (60%) in this study. study of Talebian and Doroodgar stated that the most frequency of

scorpion-sting had occurred at night (two times more than days) (15), which are consistent with the results of the present study, because the activity of most scorpions is at the beginning of night. Moreover, most stings (74%) were by *Gadym* (A yellow and small scorpion that belong to *H. lepturus*) scorpion.

The standard pre-hospital cares for a person experiencing scorpion-sting include the following issues: (1) Relaxing the injured patient. (2) Moving the person away from the accident site, (3) Doing first aids correctly, (4) Immobilizing the injured organ, (5) Keeping the injured organ below the heart level, (6) Removing the jewelries, (7) Immediate transport of the injured person to hospital, (8) Avoiding razor of the sting site, (9) Not using ice on the injured site, (10) Using tourniquet at special circumstances (15).

The results of the present study showed that in most cases patients were agreement with pre-hospital care, But because of a lack of knowledge not to be able to do the right actions. In other word most cases (80%) did not have knowledge about first aids to the injured person. In addition, in most cases (70%) they had very low knowledge about the way of applying tourniquet, which this issue increases the possibility of causing damage to the injured organ, may be a cause of this problem deficiency of training about pre-hospital care in the public health center. In addition, no significant relation was found between the level of the patients' literacy and having the history of the sting with the level of their knowledge about pre-hospital cares. Hence, based on the findings of this study can be educated the necessary information in the field of pre-hospital care to low literacy or even literacy people using simple terminology.

Limitations of this study can be used the low number of patients. So researcher propose implement this study whit higher case of patients and another side of country.

Therefore, considering the importance of the pre-hospital cares for the scorpion sting

patients, it seems necessary for the society to be educated adequately about this issue to prevent the adverse outcomes (like amputation of an organ because the incorrect use of a tourniquet, death of the injured person due to lack of knowledge about first aids).

### Conflict of Interests

The Authors have no conflict of interest.

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### References

1. Preventing scorpion sting and snakebite in Iran. Tehran, Iran: Ministry of Health and Medical Education; 2005.
2. Vazirianzadeh B, Hossienzadeh M, Moravvej SA, Vazirianzadeh M, Mosavi SA. An epidemiological study on scorpion stings in Lordegan County, south-west of Iran. *Razi J Med Sci* 2013; 68(1): 71-6. [In Persian]
3. Dehghani R. Heat therapy in *Hemiscorpius lepturus* [PhD Thesis]. Tehran, Iran: Tehran University of Medical Sciences; 2003. p. 180. [In Persian]
4. Kassiri H, Mohammadzadeh Mahijan N, Hasanvand Z, Shemshad M, Shemshad K. Epidemiological survey on scorpion sting envenomation in south-west, Iran. *Zahedan J Res Med Sci* 2012; 14(8): 80-3. [In Persian]
5. Lowe G. Two new *Hemiscorpius* Peters, 1861 (*Scorpiones: Hemiscorpiidae*) from northern Oman. *Euscorpius* 2010; 91: 1-24.
6. Taj Sh, Vazirian M, Vazirianzadeh B, Bigdeli Sh, Salehzadeh Z. Effects of climatological variable on scorpion sting incidence Ramshir Area south west of Iran. *Exp Zool India* 2012; 15(2): 575-7.
7. Kassiri H, Kassiri A, Sharififard M, Shojae S, Lotfi M, Kasiri E. Scorpion envenomation study in Behbahan County, southwest Iran. *Journal of Coastal Life Medicine* 2014; 2(5): 416-20.
8. Pol R, Vanaki R, Pol M. The clinical profile and the efficacy of prazosin in scorpion sting envenomation in children in north Karnataka (India). *J Clin Diagn Res* 2011; 5(3): 456-8.
9. Ahmed HO, Ranj AH. Clinical-demographic aspects of scorpion sting in al Sulaimaneyah Province: How frequent is hypocalcaemia in the victims? *European Scientific Journal* 2013; 9(9): 276-88.
10. Alirol E, Sharma SK, Bawaskar HS, Kuch U, Chappuis F. Snake bite in South Asia: a review. *PLoS Negl Trop Dis* 2010; 4(1): e603.
11. Chaychi M. Iran having the record of scorpion-sting in the world. *Health Magazine* 2006. p. 6, 39.
12. Bigdeli Sh, NikkhuyA, Borhani M. Epidemiologic survey of scorpion-stung patients of Khuzestan Province during the years 1998-2000. *Proceedings of the 2<sup>nd</sup> National Congress of Public Health and Preventive Medicine*; 2001 Nov 6-9; Kermanshah, Iran. p. 198. [In Persian]
13. Abdollahi M, Emam Ghorashi F, Mossalanejad I. The assessing scorpion stings between 2001-2003 in Jahrom. *J Jahrom Univ Med Sci* 2007; 4(4): 35-40. [In Persian]
14. Osnaya-Romero N, de Jesus MH, Flores-Hernandez SS, Leon-Rojas G. Clinical symptoms observed in children envenomated by scorpion stings, at the children's hospital from the State of Morelos, Mexico. *Toxicon* 2001; 39(6): 781-5.
15. Talebian A, Doroodgar A. Epidemiologic study of scorpion sting in patients referring to Kashan medical centers during 1991-2002. *Iran J Clin Infect Dis* 2006; 1(4): 191-4.
16. Hoseininasab A, Alidustishahraki K, Torabinejad M. Epidemiologic survey of predisposing factors of scorpion-sting in the south of Kerman Province. *J Med Counc I.R.* Iran 2009; 27(3): 295-301. [In Persian]
17. Nejati J, Mozafari E, Saghafipour A, Kiyani M. Scorpion fauna and epidemiological aspects of scorpionism in southeastern Iran. *Asian Pac J Trop Biomed* 2014; 4(Suppl 1): S217-S221.