

## A REVIEW OF SCORPION STINGS IN IRAN

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**ABSTRACT:** Scorpion sting is a primary public healthcare problem in developing countries. It is in fact the most important form of stings made by arachnids. The highest rate of mortality induced by poisonous creatures in the world belongs to scorpions. Its victims are 10 times as many as snake bites. Iran is among countries which are faced with different types of malignant scorpions. Mortality cases caused by scorpion sting are observed all throughout the country. A search was conducted in available scientific databases in Iran such as SID, IranMedex and Google Scholar. The following keywords were used in the searching process: Scorpion, Scorpion sting, Iran, healthcare, mortality, epidemiology, Clinical Markers, Children and Hemiscorpius Lepturus. Scorpion stings occur in all parts of the country and can even lead to death. Therefore, in order to reduce the frequency of scorpion sting and its consequences, both people's and the healthcare service providers' awareness of this problem should be raised. Anti-scorpion serum should be constantly available for healthcare centers that are faced with high rates of scorpion stings due to their geographic location. This can help them cut down on mortality and other consequences of scorpion stings.

**Keywords:** Scorpion sting, Iran, healthcare, mortality

## INTRODUCTION

Scorpion sting is a primary public health problem in many developing countries. It mostly occurs in hot or warm areas located in the geographic width between 50°N and 50°S, especially in America, Asia and Africa ([de Roodt, García et al. 2003](#), [Elston 2005](#), [Ozkan, Adiguzel et al. 2006](#), [Jahan, Mohammed Al Saigul et al. 2007](#), [Bouaziz, Bahloul et al. 2008](#), [Chippaux and Goyffon 2008](#), [Shahbazzadeh, Amirkhani et al. 2009](#)). Although scorpions are not disease carriers, since they have a poisonous sting they are of a great significance medically speaking ([Farzanpay 1987](#)). Scorpion sting is in fact the most important type of arachnid stings. It has caused many mortalities among children in many parts of the east Mediterranean area, central and southern America, Asia and South Africa ([Groshong 1993](#)). The rate of scorpion sting varies across countries due to their different life style, socio-economic status, accommodation type, healthcare services and geographical region ([Keegan 1980](#)). Due to its special climate, Iran is fraught with arthropods particularly scorpions ([Dehghani 2003](#)). Iran has been reported among countries which have different types of scorpions including the most dangerous ones ([Sharafkandi 1992](#)). 44 scorpion species of 23 genera have been so far identified in Iran. They have all belonged to the two families of Buthidea and Scorpionidea. 7 species among them have a dangerous poison for human beings. The most dangerous of them in Iran is Hemiscorpius lepturus and has had the highest number of mortalities of this type in Iran ([KOVARIK 1997](#), [Radmanesh 1998](#), [Pipelzadeh, Jalali et al. 2007](#)). In this country, more than 100,000 people a year over 75% of who are children get stung by scorpions. About 36,000 cases are reported along with at least 7 to 60 cases of mortality ([Chaichi 2007](#)). In 200<sup>o</sup> the scorpion stinging the year 200<sup>o</sup>, 42,850 cases with 14 deaths and 45,950 cases with 18 deaths have been reported.

More common in children, probably due to lack of awareness scorpion stinging, inexperienced and lack of accurate self-care and Children than in adults younger than their shoes and appropriate clothing. On the other hand, children in the early evening when the scorpion activity to sleep, Thus the above mentioned factors are the most important factors in the prevalence of scorpion stings in children ([Talebian A 2005](#)).

Most bite of the night, between 6 pm and 6 am, happened. Scorpions are usually safe days in places such as wall cracks, under rocks and wood chips, the leaves, holes in the trunks of palm trees, the construction waste and even the shoes and boots, stay safe location at night to get out of their prey ([Hosseininasab, Alidoosti et al. 2009](#)).

The most frequent case reported is made by *Androctonus crassicauda*. Its occurrence is 140 cases per a hundred thousand cases. However, the most frequent cause of mortality among all species has been reported to be *Hemiscorpius lepturus* ([Chippaux and Goyffon 2008](#), [Dehghani, Dinparast Jadid et al. 2008](#), [Azizi, Soltani et al. 2010](#), [Fekri, Badzohre et al. 2012](#)).

The mortality rate induced by scorpion stings occurs all over the country. However, 75% of them occurs in Khuzestan, Sistan-o-Baluchestan, Kerman and Hormozgan ([2007](#)).

The severity of the consequences of scorpion stings is higher in regions which are more prone to the growth of arthropods. In these regions healthcare centers have more difficulty providing timely services ([Chippaux and Goyffon 2008](#)). The highest rate of human mortality in the world caused by poisonous creatures is induced by scorpions. The mortality caused by them is 10 times as big as snake bites ([de Roodt, García et al. 2003](#), [Ozkan, Adiguzel et al. 2006](#), [Chippaux and Goyffon 2008](#), [Vatani and Khoobdel 2009](#)).

Scorpion poison is a heterogeneous compound which is water soluble and has an antigenic trait. This heterogeneity induces different reactions among the victims ([Dehghani R 2005](#), [Emam, Malihi et al. 2011](#)).

As previously mentioned, it is still considered as a severe healthcare problem throughout the world. Scorpion poison is made up of neurotoxic pitheads of low molecular weight and paralyzing or deadly effects ([Mahadevan 2000](#), [H 2003](#), [Isazadehfar, Eslami et al. 2013](#)).

Appearance of symptoms and the severity of the clinical effects of scorpion stings depend on the scorpion genus and species, sting season, the creature's physiological conditions, frequency of stings and the amount of poison injected as well as the individual's age, sex, health state and sensitivity level ([H Qadr 2006](#)). In reading Mr. Kamali clinical symptoms in 36.7% of patients aged between 0 to 9 years of age was higher than other age groups. Factors such as age and weight of the patient, the scorpion, the sting of the scorpion and the severity of the poisoning. Poisoning is more dangerous in the elderly and children. The weight is less affected by the toxin would be more than kg body weight results in is more risk of toxicity ([Kamali 1984](#)).

In more than 70% of stings, the clinical symptoms appear in the form of pain as in bee stings though of a higher intensity. Topical symptoms are usually limited and sometimes unobservable ([Brunicardi C 2005](#)). Sometimes it is accompanied by pricking, itching, over-sensitivity, rash and topical inflammation. Pain and pricking starts immediately after the sting and can persist for a couple of days. Usually tingling can be the last symptom which is removed ([Harrison, Braunwald et al. 2005](#)).

Anti-scorpion poison therapy is in fact the accepted approach in treating scorpion stings ([Karnad 1998](#), [Theakston, Warrell et al. 2003](#), [Isazadehfar, Eslami et al. 2013](#)). The overall therapeutic strategy followed in different regions of Iran is using an anti-venom specific to every scorpion genus ([Farzanpay 1990](#), [Ghaderi, Shariati et al. 2006](#), [Dehghani 2008](#), [Gheshlaghi, Yaraghi et al. 2011](#), [Kassiri, Teimouri et al. 2012](#), [Kassiri, Shemshad et al. 2013](#)). However, its injection is questionable due to the anaphylactic shock it produces, and the usefulness of the anti-scorpion serum has not yet been proved in controlled experiments ([Forrester and Stanley 2004](#), [Foëx and Wallis 2005](#), [Harrison, Braunwald et al. 2005](#), [Padilla, Govezensky et al. 2005](#), [H Qadr 2006](#)).

## Methodology

A search was conducted in available scientific databases in Iran such as SID, IranMedex and Google Scholar. The following keywords were used in the searching process: Scorpion, Scorpion sting, Iran, healthcare, mortality, epidemiology, Clinical Markers, Children and *Hemiscorpius lepturus*.

## Conclusion

Scorpion stings do occur in all parts of Iran and is regarded as a serious healthcare problem in particular parts of the country. In this country, more than 100,000 people a year over 75% of who are children get stung by scorpions. About 36,000 cases are reported along with at least 7 to 60 cases of mortality. They can also

cause death among people. Therefore, in order to reduce the number of scorpion stings and its consequences, people's awareness of the issue should be raised. An anti-scorpion serum should be constantly available for healthcare centers in regions highly prone to scorpion stings. Healthcare providers should promote their understanding and information of various species of scorpion and treatment of their stings. That can be an effort to reduce the mortality rate and negative consequences of scorpion stings.

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