



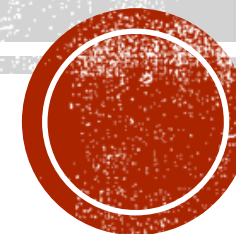
BURDEN OF CHEMICAL WEAPONS USED AGAINST IRANIANS WITHIN THREE POST- WAR DECADES

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Day1: 29 April. 2019

Time: 10:30-12:00





IRAN–IRAQ WAR (1980–1988)

180,000 people killed,

500,000 requiring **prolonged medical care &**

2,700,000 relatives

At least: Every Iranian killed in war has **lost 57.1 years** of his/her life due to war.

(International Journal of Injury Control and Safety Promotion. Volume 21, 2014 - Issue 4)



Iran- Iraq war: 1980-1988



- Despite signing the international treaties, Iraq frequently used **chemical weapons** both **Sulfur mustard**(1800 tons) and **Nerves agents** (Tabun(600tons) and Sarin(140tons))
- 1984-1988
- The heaviest attack: **City of Sardasht in (1987)**



- United Nations** Investigation and Inspection Commission (2003): Iraq (1984-1988) used
- 100,000 bombs, bullets & short-range missiles
 - Two third, during the last 18 Months of the war

(Medical experience o Iraq's CW; book 2003)

(<https://news.un.org/en/story/2006/06/181062-un-releases-report-iraqs-chemical-weapons-programme>)

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1,000,000 exposed

100,000 clinical and subclinical

4% killed

96% survived

long-lasting health effects in those who survive exposure

2% female



CHEMICAL WEAPONS VICTIMS(SM): ACUTE EXPOSURE 3.5% OF PAPERS

Dose, Density, compound, concentration, duration, route of exposure

- ❑ Respiratory
- ❑ Ocular injuries
- ❑ GI
- ❑ Skin lesions: 70%



Figure 1. Ocular injuries due to mustard gas exposure in acute phase. Reproduced from "Javadi MA, Feizi S. Mustard gas ocular injuries in chemical warfare victims. 1st ed. Tehran: FARHANG FARDA; 2014".

CHEMICAL WEAPONS VICTIMS (SM)



- 63,417 people exposed to Chemical Weapons (11.4 % of war injured)
 - 98% males
 - 2% female
- 151,770 chemical injuries registered VMAF
 - mild (97.3%),
 - moderate (2.2%) and
 - severe (0.5%)



Chemical Weapons Victims (SM): CHRONIC

The more severe the initial exposure and duration of the problems, the higher the likelihood of SM severe conditions

❑ **RESPIRATORY: MUSTARD LUNG**

❑ **OCULAR:** dry eye –progressive and permanent corneal meting - blindness

❑ **SKIN:** Xerosis(42%vs 5%), Eczema (25%vs6%),

Cherry angioma (33%vs7%)

Cancer: Acute exposure

➤ Lymphatic & hematological, GI

Prescriptions: Topical & Systematic

Bronchodilators, Eye drops, Emollients,

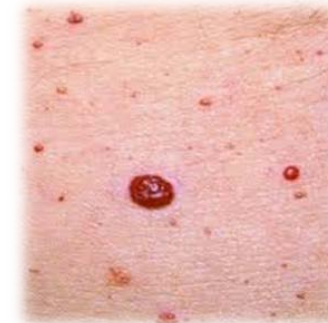
Corticosteroids, Antihistamines, surgery, stem cell graft



Figure 3. Severe ocular chemical injury.



Fig. 1. Hypo and hyperpigmentation, atrophy, hair loss and cherry angiomas on anterior thigh of a 37-year-old man exposed to mustard gas.





CHEMICAL WEAPONS VICTIMS (SM): HEALTH CARE UTILIZATION

❖ High rate of physician visits and medications/prescription: **1.8** times higher than other injured ones



❖ High rate of hospitalization **6** times higher than general population & **2.3** their than counterparts

❖ High rate of para-clinical: **2** times higher

(Mousavi et al study, J med CBR 2011.) (In press study; 2019)





CHEMICAL WEAPONS VICTIMS (SM): PSYCHOSOCIAL

- In screening: 90% survivors suffer from one kind of mental disorders
- 40-60% of Psychiatric disorders: Depression, Anxiety, PTSD
- 4 times higher than Iranian community
- 2 times higher than their counterparts

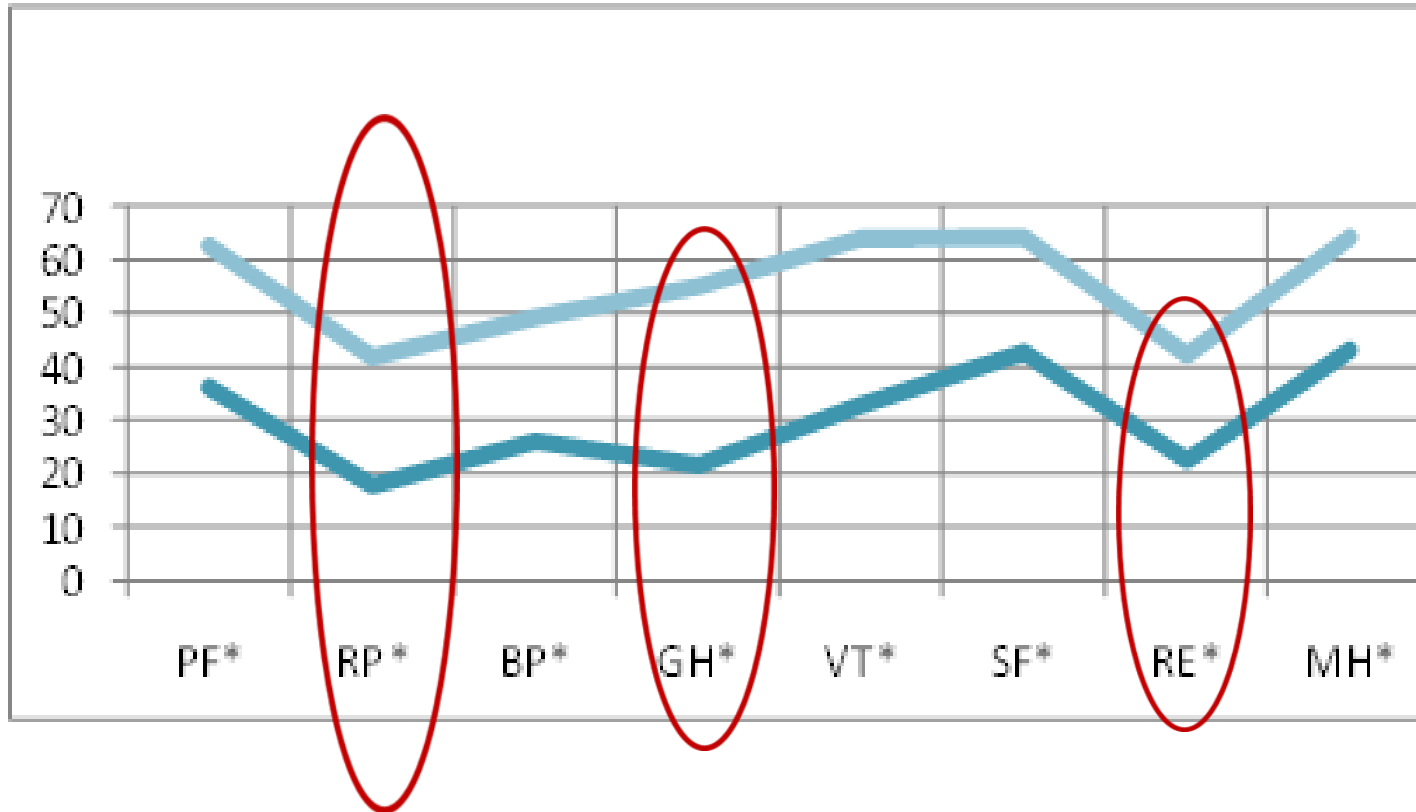
(Toxin Rev, 2017; 36(4): 265–269) (JAMA. 2006;296(5):560-566. doi:10.1001/jama.296.5.560)





CHEMICAL WEAPONS VICTIMS (SM): QUALITY OF LIFE

- Chemical warfare survivors
- Non-chemical warfare survivors



- **Pattern** of scoring among exposed and unexposed
- In some domains: **two or three times** lower than their counterparts
- **Very poor conditions ~ 20** :
role physical, role emotional, general health, bodily pain and vitality

(Health and Quality of Life Outcomes. 2009)
(Mousavi et al study, J med CBR 2011.)





CHEMICAL WEAPONS VICTIMS (SM): MARITAL STABILITY

- Marital Stability & compatibility

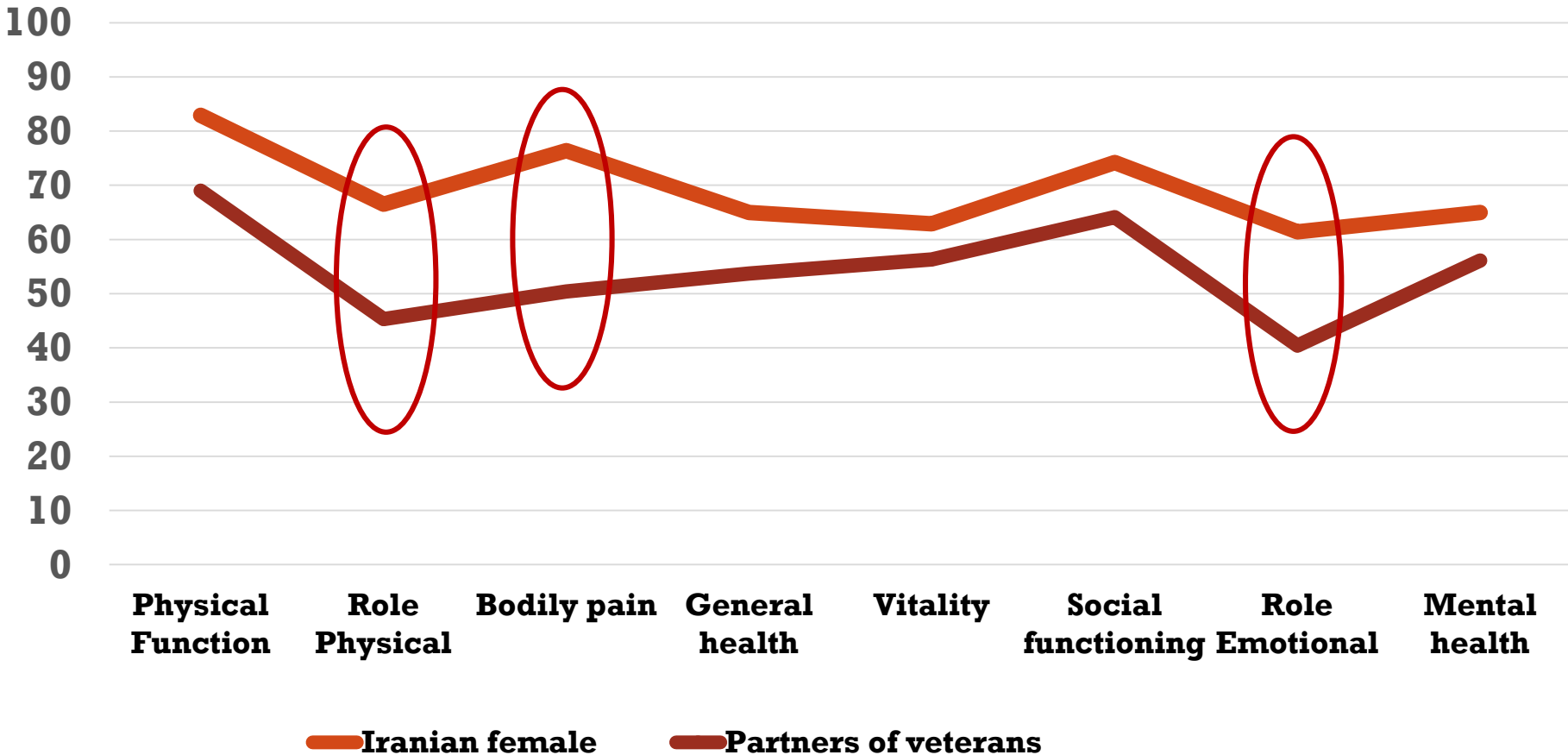
Rate of divorce : 1.5% versus 14%



- Majority of spouses believe that veterans have sacrificed their life to defend against the invasion and thus now they should care such heroes



CHEMICAL WEAPONS VICTIMS (SM): "HIDDEN VICTIMS"



- **Pattern** of scoring among spouses & NL female
- In some domains: **two times** lower than their NL Population
- **Very poor conditions ~ 40**

Role physical, role emotional, general health, bodily pain, General health and vitality



CONCLUSION: CHEMICAL INJURIES(SM)



The effects present a significant costly challenge to health care professionals

Future challenges:

- Need to find improved ways of managing victims of the chronic complications as well as their families
- Elderly
- Nerve Agent including (Tabun(600tons) and Sarin(140tons))





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