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## Original Article

# The psychological morbidity in the long term after war related bilateral lower limb amputation

Batool Mousavi<sup>a,\*</sup>, Mehdi Masoumi<sup>b</sup>, Mohammadreza Soroush<sup>c</sup>,  
Shekoufe Shahriar<sup>b</sup>, Ali Firoozabadi<sup>d</sup>

<sup>a</sup>Head of Prevention Department, Janbazan Medical and Engineering Research Center (JMERC), Tehran, Iran

<sup>b</sup>Researcher, Janbazan Medical and Engineering Research Center (JMERC), Tehran, Iran

<sup>c</sup>Head, Janbazan Medical and Engineering Research Center (JMERC), Tehran, Iran

<sup>d</sup>Professor, Department of Psychiatry, Hafez Hospital, Shiraz University of Medical Sciences, Tehran, Iran

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## ABSTRACT

**Background:** To determine the psychological morbidity in the long term after war related bilateral lower limb amputation.

**Methods:** Mental health status was determined by the Symptom Checklist-90-R (SCL-90-R) and a structured psychiatrist interview using Structured Clinical Interview for DSM Disorders-IV (SCID-IV) in 327 male amputees. The survey was 22.3 (SD = 3.9) years after amputation. A one-sample t-test was conducted to compare our results with a survey carried out in a rural Iranian population.

**Results:** The mean age of the participants was 42 years (SD = 6.3). Only 22 persons had psychiatric diagnosis and were under treatment. The most common problems on SCL-90-R were somatization, obsessive-compulsive, interpersonal sensitivity, anxiety, and depression. Global severity index (GSI) of the bilateral lower limb amputees (BLLA) ( $0.88 \pm 0.63$ ) was significantly higher than Iranian population ( $0.35 \pm 0.28$ ) ( $p < 0.001$ ). BLLA had significantly higher scores in all subscales of Scl-90-R compared with general population ( $p < 0.001$ ). Of the total amputees about 39.1% (128 out 327) diagnosed with at least one psychiatric disorder in psychiatrist interview. About 83.9% ( $N = 115$ ) of the psychiatrist diagnosed disorders were new cases. Mood disorders 37.3% (depression 28.7%) and anxiety disorders 12.2% (obsessive compulsive disorder 9.8%) were the most common disorders in the study group. There was not any relationship between demographic variables and mental disorder ( $p > 0.05$ ).

**Conclusion:** The high prevalence and especially the large proportion of undiagnosed mental disorders high-light the need for targeted and appropriate psychological interventions in this vulnerable population.

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\* Corresponding author.

E-mail address: [mousavi.b@gmail.com](mailto:mousavi.b@gmail.com) (B. Mousavi).

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## Introduction

Individuals with limb amputation frequently experience various kinds of physical and psychosocial problems.<sup>1-9</sup> Serious challenges with physical role functioning, physical appearance, employment status, body image, pain and limitation of daily activity usually happen as a result of amputation.<sup>1,2</sup> An amputee may experience a grieving process similar to when a loved one dies.<sup>3</sup> Previous limited studies have reported a high rate of anxiety, depression, hostility, interpersonal sensitivity and paranoia following amputation.<sup>4,5</sup> Maladaptive responses with predominance of mood disorders due to severe somatic stress are reported in lower extremity amputees. These complications are more severe in multiple limb loss.<sup>6</sup> Combatants with injuries appear particularly vulnerable to mental disorders especially when accompanied by major disabilities such as spinal cord injury, blindness or amputation.<sup>7,8</sup> Moreover, quality of life in the amputees changes after major amputation.<sup>9</sup> A study in war related amputees revealed that mental health mean score was significantly lower than the normal general population.<sup>9</sup> The magnitude of the challenges will increase when the psychological morbidity impact the physical disability in amputees and eventually the impact will be greater in their spouses and family. In addition to research on medical aspects of bilateral limb amputation the mental health aspects have the potential to greatly impact outcomes. However this aspect appears less investigated at present.

More than 13,000 civilians and combatants lived with amputation due to Iran-Iraq war. Of these, about 576 have bilateral lower limb amputation. The aim of this study was to determine the mental health outcomes and needs in the long-term war related bilateral lower limb amputees.

## Materials and methods

This study was performed more than 20 years after amputation. List of all bilateral lower limb amputees was prepared using the database of Veterans and Martyr Affairs Foundation (VMAF). In a period of two weeks, from all of 576 Iran-Iraq war related bilateral lower limb amputees (BLLAs) in 32 provinces of Iran, 327 males participated in the mental health monitoring program (Response Rate 56.7%). The participants were invited from all provinces and gathering all of them at the same time in one city was difficult for some of amputees. Written informed consent was obtained from all subjects before participating in the study.

Demographic data included age, education, employment, type and duration of amputation, history of outpatient psychiatrist consultation or hospitalization due to psychological morbidity.

The Symptom Checklist-90-R (SCL-90-R) questionnaire was used to determine the amputees' mental health. The forms were filled by two psychologists. Then, only those above the cut off of the Global severity index (GSI) (GSI equal or higher than 0.4) indicating caseness were evaluated by a Psychiatrist ( $N = 206$ ). The GSI cut-off for this purpose was taken based on epidemiological study of psychological disorders on a rural area.<sup>10</sup>

The SCL-90-R is a multidimensional self-report symptom inventory designed to measure levels of symptomatic psychological distress. It has high validity and reliability and has been extensively used in studies of various mental disorders, in medical and psychiatric inpatients or outpatients, in clinical drug trials, and in community surveys.<sup>11</sup>

The SCL-90-R was assessed on Iranian population in 1980. Results indicated acceptable reliability and validity levels as well as adequate sensitivity and specificity.<sup>10</sup> This instrument indicates psychopathology by nine primary dimensions and three global indices of distress. The nine primary symptom constructs are somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, and psychoticism. Positive symptom totals (PST), global severity index (GSI) and positive symptom distress index (PSDI) are summary measures of the questionnaire. PST is a simple count of the number of symptoms reported as positive. GSI provides information concerning the combined numbers of symptoms as well as the intensity of distress, and a pure intensity measure is found in the PSDI. A discrete 5-point scale ranging from "not-at-all" (0) to "extremely" (4) represents distress for each item on the SCL-90-R, only 83 of the 90 items comprise the nine symptom dimensions. Seven additional items were introduced because they contributed significant discriminatory power in clinical situations. The published norms for the SCL-90-R are for psychiatric outpatients, psychiatric inpatients, adult non-patients, adolescent non-patient normal. Separate norms are available for men and women, they represent the raw score distributions of the nine symptom dimensions and three global indices in terms of area T-score.<sup>11</sup>

A psychiatrist assessed their mental health status in an interview. Psychiatric disorders were assessed based on the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV).<sup>12</sup> SCID-IV is a diagnostic exam used to provide a comprehensive diagnosis that includes a complete picture of not only acute symptoms but also the entire scope of factors that comprise mental health.

Statistical processing of the data was performed by descriptive one sample t-test. Significance was considered at  $\alpha < 0.05$ .

## Results

The mean age of the participants was 42 years ( $SD = 6.3$  years). The mean time between injury and survey was 22.3 years ( $SD = 3.9$ ). Of the participants 22 (6.7%) were civilians and 305 (93.3%) soldiers.

The most common level of the amputation was bilateral below knee 38.5% ( $N = 126$ ), which was followed by both above knee 22.9% ( $N = 75$ ) and one side below and the other side above knee 25.3% ( $N = 83$ ). Other types of amputation were observed in 13.1% ( $N = 43$ ). Two hundred twenty-four amputees 68.5% had additional war related injuries. Nearly two thirds 68.5% ( $N = 223$ ) of survivors were unemployed and about one fourth 26.6% ( $N = 87$ ) had higher education ( $>12$  years). Demographic data are shown in [Table 1](#).

History of previous psychological problems was observed in 6.7% ( $N = 22$ ). Mean and standard deviation of subscales of

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