Original Article

Physical Injuries and Quality of Life in Blind War Survivors: A Cross-sectional Study

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Abstract

Background: Health-related quality of life measurements are necessary tools for current situation assessment of all populations. They are absolutely beneficial for evaluation of rehabilitation services which are known as major clinical sources for improving quality of life in physically impaired patients.

The design and implementation of this study involved determination of the relationship between war-related physical impairments and quality of life in blind war survivors.

Methods: This was a cross-sectional study of a representative population of war victims blind in both eyes who attended a day conference. SF 36 was used for quality of life assessment and demographic data was gathered by a validated questionnaire. An expert internist visited and evaluated subjects' physical health.

Results: Participants had a mean age of 43.20±8.34 years. There were 96.5% males and 3.5% females with a mean SF-36 score of 59.20±22.80. The most prevalent physical injury was shrapnel hit in the face (43.6%) and the mean time since onset of injury was 21.84±4.23 years. Quality of life had a significant relation to physical impairments (P=0.003, f=3.788).

Conclusion: Physical impairments related to war injuries significantly influenced quality of life in the study group. Participants with more impairments reported lower quality of life. Considering the physical problems that accumulate with increasing age, therefore the process of ageing would cause enhanced burden to the future of blind war survivors even though, according to the physical component scale, they have a better quality of life than lower limb amputee war survivors. Assistive devices with proper instruction on their use can help this population improve their abilities and improve their quality of life.

Keywords: blindness, quality of life (QOL), trauma disorders

Introduction

Armed conflicts have been known as one of the major causes of multiple mental, physical, and social problems in every country. Such conflicts may result in visual impairment and blindness of survivors.[1]

Health-related quality of life (QOL) is by far one of the most famous measurements which aggregate ranges of variables that demonstrate individual lifestyle related to abilities. Assessing the relation between QOL and these variables helps to establish and run more effective rehabilitation services.[2]

Blindness has a direct effect on QOL, even though coping with this situation is significantly less difficult when the blindness occurred before adulthood.[2,3] According to the age of blindness in survivors, 21.8±7.9 years,[1] knowing the impact of physical impairments on QOL can be extremely useful in determining the quality and efficiency of rehabilitation services as well as tracking changes over time as an outcome measurement.[4,5] Gender, as a variable, can also play a

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role in QOL as shown in female American veterans, whose scores were significantly lower than male veterans,[4,6] such that decision makers should take gender differences into account when they are formulating policies.

Age is another significant variable measurement of QOL. Though controversy surrounds the extent and means by which some of the mechanisms of the ageing process affect QOL, it is well-established that the general process does have a major negative influence on physical well-being. Many co-morbidities such as traumatic injuries and arthritis increase in prevalence with age, contributing to the overall deterioration of QOL.[7,8] No published material could be found about physical injuries and impairments in regards to QOL in blind people, particularly in blind Iranian war survivors.

In light of the deficiency of QOL data for blind war survivors in the Martyrs and Janbazan (veterans) Foundation of Iran and also considering the importance of these criteria; this study was conducted not only to describe this population in according to the physical impairments but also to establish the relation between physical impairments and QOL.

Materials and Methods

This cross-sectional study was of a convenience sample of 248 out of 250 completely blind Iranian survivors of the Iran-Iraq war who, out of an initial group of 500 invitees, agreed to attend an educational and recreational overnight event in Mashhad, Iran. There were no exclusion criteria and all but two event attendees consented to participate in the study. Ethical considerations were taken into account when designing and executing this study and the Ethics Board of the Janbazan (veterans) Medical and Engineering Research Center approved the project. The distribution of the participants was reflective of the general Iranian population of blind war survivors.[1] The questionnaire had previously been pilot tested for reliability and validity. The QOL questionnaire was the Iranian version of the SF-36 Health Survey translated and validated by Montazeri et al.[9] The psychological screening testing was administered by a clinical psychologist using SCL-90-R.[10] Two trained surveyors assessed the war victims. The mean survey completion time was 10±2.5 minutes. A qualified internist recorded various measurements of physical health, including a musculoskeletal exam, using a provided data sheet.

In the field, data cleaning was done before two trained operators entered data into an SPSS file. The data entry error was 0.5%, which was absolutely resolved by file and questionnaire review. *t*-test, ANOVA, Pearson, and regression were performed as analysis tests with a resulting significant measurement of 0.05.

Results

The great majority of participants were male (96.5%) with a mean age of 43.20±8.34 (Table 1). The employment to unemployment ratio was one to four (19.10, 80.90%). Most were married (94.4%) and no devorce were reported. Educational levels were reported as: less than high school diploma (31.1%), high school diploma (28.3%), Associate's Degree (3.6%), Bachelor's Degree (20.7%), Master's Degree (13.5%), and PhD (2.8%). The length of blindness varied according to the time of injury and ranged between 1 and 29 years. However, 79.2% of the participants were

Table 1. Age levels and QOL in blind survivors

Age Level	N	PCS†	MCS‡
≤29	16	68.75±20.57	62.13±22.03
30 – 39	51	61.04±24.34	58.18±25.55
40 – 49	146	61.43±22.99	59.89±22.82
≥50	35	46.94±21.26	50.29±19.83
Total	248	59.78±23.43	58.34±23.08

†The differences of scores between groups was significant (F=4.79, *P*=0.003); ‡The differences of scores between groups was not significant (F=1.75, *P*=0.157); PCS=physical component scale, MCS=mental component scale

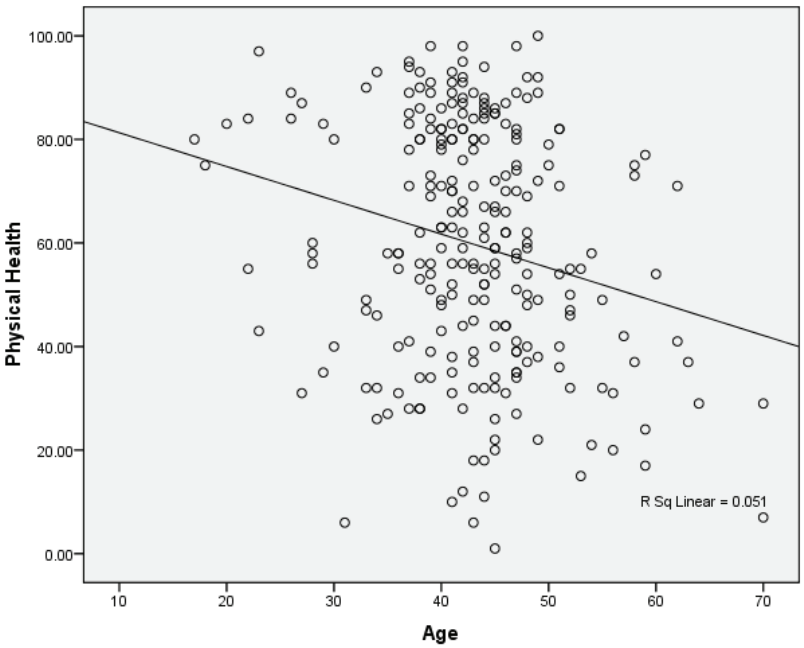

Figure 1. Age and PCS regression model in blind survivors

Table 2. Physical injuries in blind survivors

Co-morbid injuries	Injured *n*	QOL total			MCS			PCS		
		Mean score		*P* value	Mean score		*P* value	Mean score		*P* value
		Injured	Not inj.		Injured	Not inj.		Injured	Not inj.	
Shrapnel hit in the face	112	58.77	59.39	0.83	65.01	67.09	0.38	60.34	59.84	0.87
Shrapnel hit in the head	66	57.84	59.55	0.61	65.05	66.90	0.55	58.21	60.69	0.47
Shrapnel hit in the extremities	60	54.46	60.53	0.08	65.03	66.83	0.57	55.78	61.41	0.11
Self-reported hearing loss	54	51.07	61.39	0.003†	60.74	67.98	0.02†	50.81	62.61	0.001†
Teeth	40	52.49	60.29	0.05	61.41	67.23	0.11	54.61	61.04	0.12
Bilateral wrist disarticulation	15	51.00	59.61	0.17	58.40	66.92	0.13	56.40	60.30	0.53
Unilateral wrist disarticulation	12	55.36	59.30	0.58	59.27	66.74	0.36	60.64	60.04	0.93
Unilateral lower limb amputation	8	62.50	59.00	0.67	76.00	66.01	0.19	60.13	60.06	0.99
Bilateral lower limb amputation	2	30.50	59.34	0.37	58.00	66.48	0.72	31.00	60.29	0.08

†The differences of scores between groups was significant ($P<0.05$); inj.=injured; PCS=Physical component scale, MCS=mental component scale; QOL=quality of life

blind for a period of 20 years at the time of the study. The main cause of blindness was landmine explosion (89.2%).

QOL in this group had an overall mean score of 59.2±22.8, a mean physical component scale (PCS) of 59.7±23.4 and mental component scale (MCS) of 58.1±23.1. The overall score and PCS were significantly related to ageing (*P*=0.009, 0.003, respectively; Figure 1), whereas the MCS was not significant (*P*=0.157). There was significant correlation between the level of education and overall QOL score, particularly at the high school diploma and graduate levels (*P*=0.006).

Explosive trauma was reported as the main cause of injury (98.2%). The main physical injuries accompanied by blindness were also reported as shown in Table 2. Psychological problems following physical injuries were significantly related to QOL (*P*<0.0001). Self-reported hearing loss had a significant relation to QOL total score, MCS, and PCS (*P*=0.003, 0.025 and 0.001, respectively; Table 2). Participants with physical injuries scored lower as a group particularly with regard to PCS and MCS, which were significantly lower than the score of survivors without physical injuries (*P*=0.011, 0.012). The extent of physical injury and lessened overall QOL score in the PCS and MCS scales were significantly correlated (*P*=0.003, 0.006 and 0.012; Table 3).

Discussion

Health-related QOL is one of the most important criteria for rehabilitation intervention and services evaluation. Accordingly, the main aim of rehabilitation is increasing QOL. Having assessed QOL, decision makers can adjust their policies and rehabilitation plans, considering the variables that affect QOL most.

Blindness, itself, can decrease the level of QOL. In this study, the age of attendants revealed that over the next few years they will suffer the consequences of ageing and will develop special needs because of their physical conditions, markedly decreasing their QOL.[9,11,12]

One of the most important properties of this study was assessment of both QOL and the injuries other than blindness in war injured blind people. The results of this study affirmed the findings of a previous study in 2003.[3] However, some impairments such as unilateral and bilateral lower limb amputation showed no significant relationship, which might be due to the small numbers of participants in these categories (Table 2). Blind survivors and bilateral lower limb amputee (BLLA) survivors scored similarly in QOL measurements except for the physical components, which was higher in blind survivors than BLLA.[13]

Since most of the attendants were blinded by explosive trauma, this population also suffered from other physical disabilities.[1] Multiple injuries and trauma had a significant effect on QOL, with the number of injuries negatively correlated to total QOL and PCS scores. Hearing is by far the most important sensation in blind people that assists with communication. Total scores of QOL, MCS, and PCS were related to self-

Table 3. Number of injuries and QOL scores in blind survivors

Number of injuries	QOL total score†			PCS‡			MCS#		
	Mean	CI 95%		Mean	CI 95%		Mean	CI 95%	
		Lower	Upper		Lower	Upper		Lower	Upper
0	67.32±2.22	60.80	73.84	67.91±2.28	61.22	74.61	73.36±1.78	68.15	78.58
1	64.26±2.00	59.56	68.97	65.14±2.16	60.29	69.99	68.61±1.81	64.35	72.87
2	53.12±2.33	46.50	59.74	54.62±2.48	47.58	61.66	64.88±2.35	58.21	71.55
3	54.10±2.51	44.54	63.67	56.14±2.51	46.59	65.68	60.00±2.45	50.67	69.33
4	54.07±2.41	44.91	63.23	54.10±2.37	45.10	63.10	62.89±2.10	55.02	70.77
≤ 5	47.00±2.19	33.66	60.34	50.58±2.22	36.49	64.67	54.00±2.78	36.34	71.66

†The differences of scores between groups was significant (*P*=0.002); ‡ The differences of scores between groups was significant (*P*=0.004); #The differences of scores between groups was tended to be significant (*P*=0.050)

reported hearing loss, such that hearing problems in those who suffer from blindness or visual impairment should be considered at the time of evaluation. Comprehensive assessment of blindness due to traumatic injuries from war and other disasters in conjunction with assessment of accompanying physical injuries are important for rehabilitation services intervention with the intent to improve QOL, particularly hearing loss.

Taking into consideration the physical problems that accumulate in old age, thus the process of ageing would present with a great set of burdens in the future of blind war survivors' QOL, although they have better physical QOL than BLLA. Most studies make a change from pessimistic to optimistic thinking about ageing. This attitude asserts that old age is another stage of life with new experiences and demands. Rehabilitation can be absolutely helpful in assisting with the new demands and needs with the purpose of increasing independence. Increasing physical activities, and decreasing physical limitations and dependencies will improve QOL. The use of rehabilitation programs, assistive devices and instructional use of assistive devices use can help to improve blind survivors' QOL.

Psychological problems, by far, were one of the most important components that affected QOL. Further studies should be undertaken to study this component more thoroughly and precisely, although there was a significant relation between QOL and psychological problems based on SCL-90-R.

Inadequate numbers of some injuries, such as BLLA in the sample group limited this study to a discussion about their relation to QOL and its subscales.

Limitations

The reliability of inter-raters had not been checked due to insufficient time and the risk of missed attendance.

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