Health Promoting Behaviors in Veterans in Ilam Province

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Abstract
Aims: This study was an attempt to examine the health promoting behaviors in chemical veterans in Ilam province, Iran in 2012-13.

Methods: It was a cross-sectional study on the entire population of moderate and severe chemical veterans under the support of the Department of Veterans and Martyrs of Ilam province. Data collection was done using Health Promoting Lifestyle Profile II (HPLP II) with six subscales.

Results: The mean age of the sample was 51.17 ± 8.87. The mean score of HPLP II was 129.29 ± 29.94. The maximum score one could obtain was 208. The highest score was in the spiritual growth subscale and the lowest score was in the physical activity subscale. The type of injury was a good predictor of health promoting behaviors, as neurotic-chemical veterans had the least amount of these behaviors (R² = 2.9 %).

Conclusion: Considering the inappropriate state of health promoting behaviors especially physical activities in neurotic-chemical veterans, the implementation of interventional programs for increasing these behaviors is strongly recommended.

Keywords: Health Promotion, Health Behavior, Chemical Veteran.

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**Introduction**

Today, the use of chemical weapons has been one of the greatest concerns for the international community [1]. During Iran-Iraq war, Iraq, violating international rules, did use chemical weapons against Iran [2]. The epidemiological estimations indicate that about 110,000 were injured as a result of the use of chemical weapons during this war in Iran. Since the long-term effects of chemical gases are not known well, the given number is not fixed and could increase [3]. The use of chemical weapons by Iraq killed many and left a large number of injured people in Ilam province in Iran.

Being affected by chemical weapons is considered as one of the most intense traumatic events which can result in inability, anxiety, immune system disorders, and chronic physical disabilities [4]. Research shows that the Post Traumatic Stress Disorder (PTSD) in chemically injured individuals is comparable with those experiencing the most severe traumatic stress [5]. The probability of suffering from depression and anxiety in chemical war survivors is 7.2 and 14.6 times, respectively, more than survivors of other less severe wars [4]. In addition to the mental illnesses that chemical weapons can cause, the main chemical weapon used by Iraq in Iran-Iraq war was Mustard gas which can leave numerous side effects and symptoms in human organs such as eyes, skin, and respiratory system [5]. Such physical and mental problems are chronic and developing in such veterans and affect the quality of their life during time [6].

Life quality of minority groups such as veterans, in addition to other health markers, has attracted a lot of attention [7]. All studies examining war veterans’ life quality indicate that it is very low especially in chemical veterans. A study done on 256 amputee veterans showed that the majority of them do not enjoy an acceptable level of life quality [8]. The life quality in chemical veterans with respiratory system injuries was much lower in all domains in comparison with normal people [9].

Life quality, which evaluates the effect of being healthy on one’s life style, is the ideal goal for health care services. As such, a health care service is considered to be efficient only when it improves the quality as well as the quantity of life [10]. Based on latest theories, health promoting life styles can have a very positive effect on life quality. Those having a health promoting life style are more healthy and get sick less frequently [11,12]. Statistics indicate that 53 percent of deaths are related to life style and unhealthy behaviors [12]. WHO defines health promotion as a process of enabling people to have more behavioral control and better health condition [13]. *Pender et al.* [14] believe that health promotion is a dynamic and positive process which encompasses behaviors such as healthy life style including physical activity, dieting, spiritual growth, interpersonal relations, and stress management. They define health promoting behaviors as voluntary daily activities which are derived from environmental, demographical, and social variables and can affect one’s health conditions. In other words, health promoting life style is a multi-dimensional pattern of voluntary behaviors that are needed for promoting one’s health conditions, self-
growth, and perfection [14]. Therefore, it can be concluded that making health promoting behaviors can help improve life quality and prevent both mental and physical problems in individuals, more specifically war veterans.

Callagan [15], examining the relationship between self-efficiency and self-care health promoting behaviors in the elderly, showed that spiritual growth, as a subscale of health promoting behaviors, could increase self-care behaviors in them. Another study describing the life style and health condition in patients with heart transplant showed that the health promoting behaviors had been rare during their life, and physical activities received the lowest score regarding the level of health promoting behaviors in them [16]. In addition, the health conditions in veterans in US were found to be lower than non-veterans in all scales and subscales [17].

Considering the sharp decline in chemical veterans’ life quality, identification of health promoting behaviors affecting their life quality seems necessary. However, to the best knowledge of the researchers no study has been conducted in this regard in Iran. Therefore, the present study was carried with the aim of investigating health promoting behaviors in chemical veterans in Ilam. In case such behaviors are identified, suggestions and advice can be presented to veterans to improve the quality of their life and have a healthy life.

**Methods**

The present study was a cross-sectional descriptive-analytical study done on the chemical veterans with moderate and severe injuries, under the support of the Department of Veterans’ Affairs (DVA) in Ilam. The veterans had to be residents of the city in order to be able to take part in the present study.

After obtaining the required permit, the list of all chemical veterans was obtained from DVA. 276 veterans met the inclusion criteria. The data collection was done by visiting the veterans at their living place. Before meeting them, they were called and briefed about the objectives of the study, and an appointment was set for filling the questionnaire. During all stages of research, the confidentiality of the collected data was ensured.

For the purpose of data collection, a two section questionnaire was used. The first section was on veterans’ demographical information including their age, injury intensity, type of injury, job, marital status, and the type of accommodation they had. The second part was the translated version of Health Promoting Lifestyle Profile II (HPLP II) with 52 four-point Likert scale items ranging from ‘never’ (1 point) to ‘always’ (4 points). The health promoting behaviors were examined in six dimensions: Health responsibility (9 items), Physical activity (8 items), Nutrition (9 items), Spiritual growth (9 items), Interpersonal relations (9 items), and Stress management (8 items). Walker et al. [18] had reported a Cronbach alpha of 0.94 for HPLP II. In the present study, it was found to be 0.92 with a range of 0.82 for Spiritual growth and 0.67 for Nutrition.

In order to check the content validity of the questionnaire, it was given to 6 experts in medical education. After implementing their comments, the revised version was given to 50 veterans to judge the fluency of the
items, and only then it was used for data collection. The collected data were analyzed using SPSS 20. In order to check the effect of demographical variables on health promoting behaviors, analysis of variance test was run. Pearson correlation coefficient was used to check the relationship between demographical variables and health promoting behaviors. Finally, the predictive ability of demographical variables was checked using regression analysis.

**Results**

From among the 276 veterans whose information was collected from DVA, 37 were excluded from the study for the following reasons: three were physically unable to respond to the questions, 6 had passed away, 2 did not fill the questionnaire completely, 13 had moved out of the region, and 13 were not willing to participate in the study. This left us with 239 participants. All the veterans were male with a mean age of 51.17 years (SD = 8.87). 105 (43.9%) were chemical veterans, 32 (13.4%) were chemical-physical veterans, 90 (37.7%) were neurochemical, 11 (4.6%) had all the three types of injuries, and 1 had not specified his type of injury. Regarding the intensity of injuries, 125 (52.3%) had less than 25% disability, 66 (27.6%) with 30% disability, 23 (9.6%) with 35% disability, and 22 (9.2%) had 40% disability or more (three participants did not indicate their injury intensity). At the time of injury, 106 (44.4%) were volunteers, 78 (32.6%) were soldiers, 44 (18.4%) were military personnel, and 7 (2.9%) had other conditions (4 did not indicate their fighting status).

Regarding their job, 84 were civil servants, 83 were receiving pension, 31 were self-employed, and 13 were farmers (28 did not indicate their job). The majority of the veterans (99.2%) were married. The majority of them (n = 223) lived with their wife and children, 4 lived with their wife, and 2 were alone. The descriptive statistics and the reliability indices for the health promoting behaviors and the subscales are given in Table 1.

<table>
<thead>
<tr>
<th>HPLP Dimensions</th>
<th>Total HPLH</th>
<th>Health responsibility</th>
<th>Physical activity</th>
<th>Nutrition</th>
<th>Stress management</th>
<th>Interpersonal relations</th>
<th>Spiritual growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.49</td>
<td>2.51</td>
<td>1.92</td>
<td>2.58</td>
<td>2.45</td>
<td>2.76</td>
<td>2.81</td>
</tr>
<tr>
<td>S.D</td>
<td>0.42</td>
<td>0.61</td>
<td>0.59</td>
<td>0.48</td>
<td>0.50</td>
<td>0.55</td>
<td>0.62</td>
</tr>
<tr>
<td>Range</td>
<td>1.42-3.50</td>
<td>1.22-4.00</td>
<td>1.00-3.62</td>
<td>1.33-3.67</td>
<td>1.00-3.88</td>
<td>1.33-4.00</td>
<td>1.33-4.00</td>
</tr>
<tr>
<td>Cronbach α</td>
<td>0.92</td>
<td>0.81</td>
<td>0.79</td>
<td>0.67</td>
<td>0.82</td>
<td>0.76</td>
<td>0.69</td>
</tr>
</tbody>
</table>

The ANOVAs run showed no effect for demographical variables of job and injury intensity on the total or any component of health promoting behaviors. Fighting status could not affect total score in HPLP but could significantly affect the physical activity subscale. The post hoc analysis showed that volunteers were significantly different from other three groups. They had the lowest amount of physical activities. Type of family could not affect HPLP total score.
Type of injury could significantly affect HPLP total score. The post hoc analysis showed that chemical veterans’ mean score was significantly different from that of neurochemical and chemical-physical veterans. Chemical veterans had a significantly higher level of health promoting behaviors in comparison with other two groups. Regarding the HPLP subscales and type of injury, there was a significant difference in Stress management, Spiritual growth, and Interpersonal relations. In the case of stress management, chemical veterans had a significantly lower score than both neurochemical and chemical-physical veterans. Regarding interpersonal relations, chemical veterans had a significantly higher score than both neurochemical and chemical-physical veterans. In addition, in the case of spiritual growth subscale, chemical veterans had a significantly higher score than neurochemical veterans. Table 2 presents the descriptive statistics for the 6 HPLP subscales in relation with demographical variables.

### Table 2. Descriptive Statistics for the Six HPLP Subscales in Relation with Demographical Variables

<table>
<thead>
<tr>
<th>Demographical variables</th>
<th>Health promoting behaviors</th>
<th>Health responsibility</th>
<th>Physical activity</th>
<th>Nutrition</th>
<th>Stress management</th>
<th>Interpersonal relations</th>
<th>Spiritual growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury intensity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤ 25%</td>
<td>2.51(0.60)</td>
<td>1.91(0.62)</td>
<td>2.58(0.50)</td>
<td>2.46(0.48)</td>
<td>2.75(0.51)</td>
<td>2.80(0.64)</td>
<td></td>
</tr>
<tr>
<td>30%</td>
<td>2.53(0.66)</td>
<td>1.92(0.57)</td>
<td>2.59(0.47)</td>
<td>2.47(0.57)</td>
<td>2.82(0.59)</td>
<td>0.84(0.58)</td>
<td></td>
</tr>
<tr>
<td>≥ 40%</td>
<td>2.37(0.66)</td>
<td>1.73(0.58)</td>
<td>2.55(0.42)</td>
<td>2.31(0.48)</td>
<td>2.78(0.57)</td>
<td>2.83(0.70)</td>
<td></td>
</tr>
<tr>
<td>Type of injury</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical</td>
<td>2.54(0.60)</td>
<td>2.02(0.62)</td>
<td>2.64(0.47)</td>
<td>2.56(0.50)</td>
<td>2.88(0.57)</td>
<td>2.93(0.56)</td>
<td></td>
</tr>
<tr>
<td>Chemical-physical</td>
<td>2.25(0.54)</td>
<td>1.76(0.50)</td>
<td>2.59(0.50)</td>
<td>2.31(0.44)</td>
<td>2.60(0.52)</td>
<td>2.73(0.58)</td>
<td></td>
</tr>
<tr>
<td>Neurochemical</td>
<td>2.53(0.65)</td>
<td>1.84(0.58)</td>
<td>2.50(0.48)</td>
<td>2.36(0.52)</td>
<td>2.66(0.53)</td>
<td>2.65(0.65)</td>
<td></td>
</tr>
<tr>
<td>Neuro, chemical, &amp;</td>
<td>2.74(0.55)</td>
<td>1.99(0.62)</td>
<td>2.67(0.54)</td>
<td>2.58(0.49)</td>
<td>2.86(0.58)</td>
<td>3.11(0.76)</td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fighting status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volunteer</td>
<td>2.50(0.65)</td>
<td>1.76(0.59)</td>
<td>2.58(0.47)</td>
<td>2.42(0.53)</td>
<td>2.73(0.54)</td>
<td>2.81(0.61)</td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td>2.40(0.54)</td>
<td>2.11(0.50)</td>
<td>2.60(0.45)</td>
<td>2.39(0.41)</td>
<td>2.66(0.56)</td>
<td>2.81(0.61)</td>
<td></td>
</tr>
<tr>
<td>Soldiers</td>
<td>2.53(0.61)</td>
<td>1.97(0.59)</td>
<td>2.57(0.51)</td>
<td>2.50(0.52)</td>
<td>2.80(0.55)</td>
<td>2.81(0.67)</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2.80(0.49)</td>
<td>2.43(0.35)</td>
<td>2.61(0.55)</td>
<td>2.54(0.44)</td>
<td>3.13(0.55)</td>
<td>2.80(0.62)</td>
<td></td>
</tr>
<tr>
<td>Job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer</td>
<td>2.51(0.80)</td>
<td>1.86(0.73)</td>
<td>2.44(0.42)</td>
<td>2.42(0.52)</td>
<td>2.67(0.57)</td>
<td>29.79(0.57)</td>
<td></td>
</tr>
<tr>
<td>Civil servant</td>
<td>2.51(0.63)</td>
<td>1.97(0.58)</td>
<td>2.54(0.47)</td>
<td>2.44(0.49)</td>
<td>2.80(0.52)</td>
<td>2.88(0.60)</td>
<td></td>
</tr>
<tr>
<td>Self-employed pensioner</td>
<td>2.53(0.46)</td>
<td>1.88(0.65)</td>
<td>2.56(0.58)</td>
<td>2.45(0.57)</td>
<td>2.85(0.54)</td>
<td>2.76(0.65)</td>
<td></td>
</tr>
<tr>
<td>pensioner</td>
<td>29.57(0.62)</td>
<td>1.89(0.59)</td>
<td>2.64(0.46)</td>
<td>2.49(0.52)</td>
<td>2.74(0.56)</td>
<td>2.79(0.66)</td>
<td></td>
</tr>
</tbody>
</table>

No correlation was found between age and total HPLP. Only physical activity subscale showed a significant but very small negative correlation with age ($r = -0.2$). Moreover, based on the results of the linear regression done between HPLP as dependent variable and five demographical variables (age, injury intensity, type of injury, fighting status, and job), only type of injury could significantly explain the variance in the dependent variable by 2.9%.

### Discussion

Based on the findings of the present study, the health promoting behaviors in chemical veterans are lower than average. Physical activity as a subscale in such behaviors is in the worst condition while spiritual growth as another dimension has the highest position. These behaviors were affected by the type of injury. Chemical-physical and neurochemical veterans showed a lower
level of health promoting behaviors than the other groups of veterans. Some of the subscales were found to be related to some demographical variables. Physical activity was found to be related with age and fighting status. Volunteers had the lowest level of physical activities, which can be due to type of injury and their age. The spiritual growth, interpersonal relations, and stress management subscales were related to the type of injury. Neurochemical veterans had the least acceptable level in all these three subscales. The mean total score in HPLP was 129.29 in the present study which was lower than that reported in [15] in the elderly (HPLP = 139.33). However, the reported scores in [19] and [20] were low as in the present study. The participants’ mean age was 51.17 ± 8.87 and could not affect health promoting behaviors. This was in line with [21] on the effect of demographical variables, diseases, and social support on veterans’ life quality. In that study, only the type of accommodation was found to be related to life quality. As such, it can be concluded that lower levels of health promoting behaviors in veterans are due to the symptoms of their disability rather than age. The physical activity subscale gained the lowest score. This was in line with previous studies [15,16,19-21] and demonstrates the commonality of inactiveness in the society especially in those with chronic problems and disabilities. Therefore, in order to improve veterans’ life quality, paying attention to and planning for this type of behavior is very important.

Spiritual growth received the highest score among the other subscales, which corresponds with the results in other studies [15,16,23]. This could be due to the fact that individuals with chronic diseases including veterans and the elderly tend to rely on spiritual methods in order to alleviate the pain they experience. As such, paying enough attention to this dimension as part of health promoting behaviors especially in neurochemical veterans seems necessary.

In addition, the interpersonal relations were observed to be very low in veterans due to their mental and physical problems, which was in line with results in [25]. Low interpersonal relations can result in more mental pressures and have negative consequences in veterans’ other aspects of life.

The most important predictor of health promoting behaviors in this study was the type of injury, with neurochemical veterans showing the least amount of health promoting behaviors. This finding is in line with [26]. It can be concluded that neurological and to some extent physical problems in veterans can be the cause of showing low levels of health promoting behaviors and low life quality as a result.

One of the main limitations of this study was that data collection was done using a self-report procedure which has its own weaknesses. Also, the number of studies done on the six dimensions of health promoting behaviors is very low, which makes it difficult to compare their results and the findings of the present study.

**Conclusion**

The health promoting behaviors in chemical veterans was observed to be very low specially the physical activities. However,
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spiritual growth was in an acceptable level. It is possible to identify factors affecting spiritual growth in veterans and use them in educational programs for improving other behaviors. In addition, considering the low levels of physical activity and stress management in veterans, it is suggested that the Department of Veterans’ Affairs improve its family and individual consultation and educational programs on these types of behaviors. It is also suggested that more research be carried out on health promoting behaviors in veterans in other regions of the country so that the obtained models and theories of behavioral patterns can be used in order to plan more efficient interventions for improving life quality in them.

References


