

## Relationship of Health Literacy and Lifestyle in Veterans and Non-Veterans Families

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### ABSTRACT

**Aims** Health literacy is skills and abilities in the acquisition and access of medical and health information, understanding such information, processing and interpretation of the information, and decision-making and use of updated information. This study aimed to investigate the relationship between health literacy and lifestyle in the families of veterans and families of non-veterans and assess and compare their lifestyles.

**Instrument & Methods** 1770 members of the families of veterans and non-veterans from five provinces in Iran were selected through a systematic sampling method to participate in a descriptive cross-sectional study in 2019. Lifestyle Questionnaire and All Aspects of Health Literacy Scale were used to collect the necessary data. Pearson Correlation and t-test statistics were run using SPSS 24 for the analysis of the data.

**Findings** There was a positive and significant correlation between veterans' health literacy and the lifestyle of veterans and non-veterans families (veterans:  $r=0.330$ ,  $p<0.001$ ; non-veterans:  $r=0.321$ ,  $p<0.001$ ). There was no significant difference between the lifestyle mean scores for men and women in the two groups of veterans and non-veterans ( $p>0.05$ ).

**Conclusion** There is a correlation between health literacy and the lifestyle in veterans- and non-veterans families, while there is no difference between the lifestyles in the two groups.

**Keywords** LifeStyle; Veteran; Non-Veteran; Iran

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## Introduction

Iraq's eight-year-long war against Iran caused many damages to the country. Many deaths, injuries, and losses of the best people [1]. The war also had wide consequences, such as many physical and psychological problems and indirect effects on their families. Because the family members of a veteran, as the main agents in the care of the veteran, suffer from many psychological problems [2], it is necessary to be realistic about the problems of the veterans and their families.

One factor that can affect the resilience and health of the veterans and their families is their lifestyle. Lifestyle refers to health-related behavioral patterns that can prevent health-related problems and largely ensure one's health [3]. An important principle in health-related behaviors that make up an individual's lifestyle is their participation and admittance of responsibility to prevent infirmity and complication by performing proper health-related behaviors [4] and have a healthy lifestyle. Lifestyle is a multidimensional and complex construct determined by the individual's assessment of their situation in terms of certain conditions such as physical, mental, and social states [5]. Existing literature on the lifestyle of veterans indicates that several social factors can affect this multidimensional construct, one of which is health literacy.

Health literacy was introduced as a defining factor in reducing inequalities related to health in the United States in the mid-1970s [6, 7]. It was then considered an individual's capacity to obtain, process, and understand the basic health information and services needed to make appropriate health care decisions [8]. Health literacy is a set of skills and abilities in various ways: skills and abilities in the acquisition and access of medical and health information, skills and abilities in understanding such information, skills and abilities in processing and interpretation of the information, and skills and abilities in decision-making and use of updated information [9]. Therefore, it is necessary to measure health literacy, special design interventions to increase it, and avoid the possibility of risks due to limited literacy, especially among vulnerable groups such as veterans and their families.

Many studies show the effective role of health literacy in promoting lifestyle. Klinker *et al.* [10], Kudo *et al.* [11], Wang *et al.* [12], and Shieh & Halstead [13] indicated that health literacy plays an important role in promoting the health of individuals to lead a healthy lifestyle because the quality of life is affected by a good social, mental and healthy life. Providing proper information and improving health literacy in people can help improve their quality of Lifestyle [14]. Given that war has many different consequences for people, and these consequences have several effects depending on the duration of the war, its severity,

and extent, people who fought in the war for their borders and lands, have received physical and mental disabilities resulting in aftermath problems of quality of life and lifestyle for them and those around them [15]. It is thus important to pay attention to the lifestyle of the veterans and their families. This study aimed to investigate the correlation between health literacy and the lifestyle of veterans and non-veterans and their families to examine the difference between the lifestyle of these families.

## Instrument and Methods

A descriptive cross-sectional survey was conducted on veteran and non-veteran populations across Iran in 2019. The Deputy of Management and Human Resources Development of the Ministry of Interior of Iran has divided the provinces of Iran into five large regions based on characteristics such as proximity, geographical location, and commonalities. They are Region 1: Provinces of Tehran, Qazvin, Mazandaran, Semnan, Golestan, Alborz, and Qom; Region 2: Isfahan, Fars, Bushehr, Chaharmahal Bakhtiari, Hormozgan, Kohkiluyeh, and Boyer-Ahmad provinces; 3: Provinces of East Azerbaijan, West Azerbaijan, Ardabil, Zanjan, Gilan and Kurdistan; Region 4: Provinces of Kermanshah, Ilam, Lorestan, Hamedan, Markazi and Khuzestan, and Region 5: Provinces of Khorasan Razavi, South Khorasan, North Khorasan, Kerman, Yazd and Sistan and Baluchestan [16]. Because it was not possible to conduct the study in all the provinces (financial requirements, facilities, etc.), it was decided to select one province from each region: From Region 1: Tehran Province, Region 2: Isfahan Province, Region 3: Gilan Province, Region 4: Ilam Province, and Region 5: Khorasan Razavi Province. Due to the large size of the statistical population in each province, each province's center was considered the largest and most important city in the province for the study.

SPSS Sample Power software was used to estimate the sample size. The sample size for the veteran group was 600 and for the non-veteran group was 1200 with a total of 1800 people to meet the purpose of the research and the assumptions related to testing the hypothesis (Error Type I maximum 0.05, error Type II maximum 0.20, and the volume of the effect showing the minimum difference of 0.5 in the range of 1 to 5 between the two groups). In total, 120 veterans and 240 non-veterans were selected in each province. Therefore, in the five studied provinces, 600 veterans and 1,200 non-veterans were selected. After removing the carelessly completed responses, 1770 questionnaires were analyzed. The sampling method was such that to select the samples; first, the list of veterans and the exact address of the residence was obtained from Martyr Foundation and Veterans Affairs. Then, 120

addresses were randomly selected as veteran samples, and the researcher went to their home and completed the questionnaire. If he were not at home at the moment, he would be referred two more times, and if, after three visits, he failed to be interviewed or, for some reason, refused to be interviewed, another address would be replaced from the list of veterans. After the completion of the questionnaire by the veteran, two neighboring homes to the veteran's home were selected as non-veteran samples (The reason for choosing adjacent homes was to eliminate the effect of variables such as residence and social class that can affect lifestyle). If the non-veteran were not present or refused to be interviewed, the adjacent home would be replaced by another home. Inclusion criteria were being Iranian, over 15, having no severe mental disorders such as acute psychosis, severe mental problems such as dementia and delirium, or problems such as deafness (based on self-reported responses or surveyor's observations).

The research instruments included the following standard questionnaires:

- Lifestyle Questionnaire (LSQ) [17]: This questionnaire, designed in 2012, includes 70 items and ten components. Each item has four options: "Always" with a score of 3, "Usually" with a score of 2, "Sometimes" with a score of 1, and "Never" with a score of 0. Higher scores indicate a healthy lifestyle. A total score of 210 indicates a healthy lifestyle, and a total score of 0 indicates an unhealthy lifestyle. The questionnaire had been validated by Lali *et al.* through content validity calculation, factor analysis, and convergent validity computation methods [17]. Cronbach's alpha and test-retest with a 6-week interval were used on a group of 60 people to obtain the instrument's reliability [17]. This instrument has been used in several other studies [18, 19].

- All Aspects of Health Literacy Scale (AAHLS) [20]: This questionnaire was designed by Chinn and McCarthy in 2013. It consists of 13 items and three subscales, including functional health literacy, critical health literacy, and communicative health literacy. The questions of each scale are listed in the sequence in that questions 1 to 3 are related to the functional health literacy subscale, questions 4 to 9 are related to the critical health literacy subscale, and questions 10 to 13 are related to the communicative health literacy subscale. The reliability of this scale was reported by Chinn and McCarthy to be 0.74 [20].

The research was approved by the University/Regional Research Ethics Committee

Veterans and martyr's affair foundation (VMFA). Informed consent was obtained from all participants. All methods were performed in accordance with the relevant guidelines and regulations of Declaration of Helsinki. Questionnaires were completed between 9 am to 6 pm at the respondent's place of residence. The trust of the respondents was gained by presenting an ID card and a letter of introduction as well as sufficient explanations.

Independent t-test was used to compare the lifestyles of veteran and non-veteran men and women in the provinces. Also, Pearson correlation test was used to examine the relationship between the life style and health literacy. All analyses were conducted using SPSS 24.

## Findings

Out of 1770 participants, the majority of them were women (58.6%), and the rest were men (41.4%). People had an age range of 15-89 years, and the mean±SD age in each province was as follows: (Gilan=51.09±18.85; Ilam=35.66±13.31; Khorasan Razavi=39.39±16.09; Tehran=44.14±15.39; Isfahan=45.17±19.04). In terms of education, most of these people had diploma degrees (32.1%).

There was no significant difference between the mean scores of the lifestyle in the two groups of veterans and non-veterans in all five provinces studied ( $p < 0.05$ ). Overall, the mean±SD scores of the lifestyle in the male veteran group were higher than the non-veteran group ( $p < 0.05$ ), although the difference between the means was small and was only significant for the large sample size (Table 1).

Also, there was no significant difference between the mean lifestyle scores in the two groups of female veterans and non-veterans in all five provinces studied except Tehran and Ilam ( $p < 0.05$ ). However, the difference between the means was small, and the significance was only due to the large sample size. In general, there was no significant difference between the mean scores of the lifestyle in the two groups of female veterans and female non-veterans ( $p < 0.05$ ) (Table 2).

There was a direct and significant relationship between health literacy of veterans and non-veterans and their lifestyle ( $p < 0.001$ ). The output of this test was significant in Tehran, Khorasan Razavi, and Gilan provinces (Table 3). Also, the results of the relationship between participants' health literacy and their lifestyle in Ilam province indicate that this relationship was significant only in the non-veteran group ( $p < 0.05$ ).

**Table 1)** Comparison results of the lifestyle and health literacy scores in the two groups of veterans and non-veterans in terms of the province (N=1770)

Province	Lifestyle				Health Literacy			
	Male		Female		Male		Female	
	Mean±SD	p.	Mean±SD	p.	Mean±SD	p.	Mean±SD	p.
<b>Isfahan</b>								
Veteran	2.24±0.313	0.779	2.31±0.314	0.197	2.23±0.251	0.274	2.21±0.253	0.073
Non-veteran	2.22±0.392		2.24±0.301		2.17±0.262		2.14±0.235	
<b>Tehran</b>								
Veteran	2.12±0.303	0.448	2.25±0.247	0.001	2.28±0.287	0.729	2.38±0.249	0.062
Non-veteran	2.05±0.419		2.06±0.266		2.26±0.322		2.31±0.276	
<b>Khorasan Razavi</b>								
Veteran	2.09±0.377	0.982	2.03±0.438	0.933	2.25±0.238	0.895	2.34±0.294	0.075
Non-veteran	2.09±0.406		2.03±0.328		2.26±0.262		2.26±0.282	
<b>Ilam</b>								
Veteran	2.20±0.332	0.111	2.16±0.374	0.041	2.20±0.276	0.073	2.28±0.255	0.900
Non-veteran	2.08±0.450		2.28±0.304		2.29±0.274		2.28±0.281	
<b>Gilan</b>								
Veteran	2.09±0.421	0.087	2.10±0.334	0.520	2.23±0.363	0.291	2.26±0.294	0.386
Non-veteran	1.95±0.411		2.14±0.401		2.17±0.352		2.21±0.309	
<b>Total</b>								
Veteran	2.15±0.357	0.019	2.17±0.361	0.693	2.24±0.286	0.706	2.29±0.275	0.004
Non-veteran	2.07±0.422		2.16±0.336		2.23±0.299		2.24±0.281	

**Table 3)** Results of Pearson correlation coefficient for the relationship between health literacy and lifestyle of veteran and non-veteran groups

Province	r	p-value
<b>Isfahan</b>		
Veteran	0.169	0.137
Non-veteran	0.127	0.143
<b>Tehran</b>		
Veteran	0.435	0.001
Non-veteran	0.573	0.001
<b>Khorasan Razavi</b>		
Veteran	0.607	0.001
Non-veteran	0.321	0.001
<b>Ilam</b>		
Veteran	0.060	0.619
Non-veteran	0.161	0.028
<b>Gilan</b>		
Veteran	0.316	0.007
Non-veteran	0.457	0.001
<b>Total</b>		
Veteran	0.330	0.001
Non-veteran	0.321	0.001

## Discussion

The present study was conducted to investigate the correlation between lifestyle and health literacy among veterans and non-veterans and their families and to examine the differences in the lifestyle of their families in 2018.

The findings show that there is a significant correlation between lifestyle and health literacy of veterans and non-veterans. In explaining this finding, it could be stated that behaviors such as avoiding drinking alcohol and smoking, doing a proper diet, and many other positive activities outside the health care system result in a healthy lifestyle [21]. However, these measures are not just a personal choice but are influenced by many structural factors, such as the extent to which people have good health literacy, which leads people to adopt a healthy lifestyle. Because people with good health literacy will have better management of their diet and better nutritional performance. Also, due to

their awareness and knowledge, such people automatically observe personal health tips and regularly visit physicians and psychiatrists, helping them have a higher quality of lifestyle both physically and mentally. Good health literacy allows them to spend more time on exercise and physical activity [22], manage the psychological pressures caused by the difficult physical conditions and the many ups and downs around themselves and their families, and have more power to reduce stress and develop psychological adjustment. Our findings are also in line with the results of a study by Von Wagner *et al.* [23] in the United Kingdom, who believed that there is a relationship between fruit and vegetable consumption and health literacy. Gibers *et al.* [24] also showed that having health literacy is an influential factor and is coordinated with physical activities. Our findings also confirm Suka *et al.* [25] in Japan, who found that people with higher health literacy were more physically active.

In addition, our findings indicate that there was no significant difference between the mean scores of lifestyle in the two groups of female veterans and female non-veterans ( $p < 0.05$ ), while the mean scores of lifestyle in the group of male veterans were higher than the group of male non-veterans ( $p < 0.05$ ). However, this difference between the means was small and was significant only due to the large sample size. Nevertheless, due to the sensitivity of the conditions and situation of the veterans, it was expected that the average scores of the lifestyle of the two groups of veterans and non-veterans would be different. It was also expected that the average scores of the veterans' lifestyle were higher than non-veterans for the due attention given to such people during hard and painful enduring years by the state authorities; however, the results were not as expected. Since health behaviors, as a part of the general system of human behaviors and interactions, are influenced by the

culture of the society, it seems that the dominant culture of the society regarding healthy behaviors and lifestyles has also influenced the possible differences between the two groups of veterans and non-veterans, eliminating any significant difference. In this regard, Weber believes that lifestyle is a kind of behavior, and life opportunities provide the basis for a healthy behavioral style. These life opportunities include physical conditions, social conditions, and age<sup>[26]</sup>.

According to the existing evidence, it seems that not enough attention has been paid to the life opportunities of the veterans. It is then necessary to give more attention to the lifestyle of the veterans by taking care of the conditions to increase opportunities related to a healthy lifestyle for the veterans.

## Conclusion

There is a correlation between health literacy and the lifestyle in veterans' families and non-veterans families, while there is no difference between the lifestyles in the two groups.

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