Health literacy and health-promoting behaviors status among employees in Hamadan

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Abstract

Introduction: Health literacy is considered one of the main determinants of health-promoting behaviors. The aim of this study was to determine the health literacy of employees of Hamadan University of Medical Sciences and its relation with health promotion behaviors.

Methods: This cross-sectional study was conducted in 2016. By stratified sampling, the study recruited 188 employees of Hamadan University of Medical Sciences from seven colleges. Two self-administered questionnaires, namely, the Health Literacy for Iranian Adults (HELIA) and the Health Promoting Lifestyle Profile II (HPLP II) were used for data gathering. The data were analyzed through descriptive statistics for describing data and to assess the relationship between variables multivariate linear regressions was used. In all the tests, P-value < 0.05 was considered significant.

Results: The employees had a mean age of 36.84 years (SD = 6.32). The majority of the participants were female (71%), and most acquire information related to health via the Internet (74.5%). Moreover, results showed a significant relationship between health literacy and health-promoting behaviors (F=7.22, P<0.001). Health literacy also exerted a significant effect on interpersonal communication (P<0.1), nutrition (P<0.05), and responsibility toward health (P<0.001).

Conclusion: Based on results, health literacy and health-promoting behaviors among the employees were undesirable and inadequate levels. Also, health literacy had the positive relationship on nutritional behavior, interpersonal communication, and responsibility toward health. It seems that it is necessary to pay special attention to these issues in the training programs for health promotion of employees in order to increase the efficiency in their performance.

Key words: Health Literacy, Health Promotion, Health Behaviors, Employees

Introduction: The World Health Organization (WHO) regards health literacy as a cognitive and social skill that determines the motivation and ability of individuals to achieve, understand, and apply information that leads to health promotion.

The results of a national study on the evaluation of health literacy in five provinces of Iran showed that only 28.1% of the participants exhibited sufficient health literacy (2). Research in the Iranian context has generally shown that the level of health literacy in the country is low (2-5). The
association between health literacy and health appears to be supported by the fact that people with insufficient health education suffer from poor health conditions (6) are susceptible to chronic non-communicable diseases (7), and implement preventive care to a minimal extent (8) consequently, these individuals incur considerable medical costs (9). People with high health literacy more frequently engage or are empowered to involve themselves in health-promoting behaviors (10, 11).

Health-promoting behaviors are an important criterion for the determination of health status and the prevention of many diseases; in other words, health promotion and disease prevention are directly associated (12). Increasing health literacy and health-promoting behaviors among various social groups appears to drive improvements in health and economic development (13) especially in the employees. One of the groups that exert the most influence on the development of a country is employees. This group of population often ignores their health status because of busy work. Given that the adoption of healthy behaviors and the reduction of risky conduct are important among employees because in addition to accomplishing job-related responsibilities, they can promote healthy behaviors in society through communication with different people. The workplace is an essential health-promoting setting in every country (14).

Several studies has been conducted regarding investigation of relationship between health literacy and health-promoting behaviors at vary Setting in Iran (15, 16) and other countries (11, 17, 18).

In Iran, the health literacy and health-promoting behaviors status vary in different groups and insufficient information is available on the health literacy and health-promoting behaviors in some groups.

This problem is prevalent especially with respect to employees. Also, previous studies have shown that health literacy and health-promoting behaviors exert varying effects across different populations (4, 5).

Given that importance of employee health and lack of enough information in this field, the aim of this study was to determine the health literacy of employees of Hamadan University of Medical Sciences and its relation with health promotion behaviors.

Methods:

This study was cross-sectional design that was carried out in 2016 at Hamadan University of Medical Sciences in Iran. The target population was the employees of Pardis branch of Hamadan University of Medical Sciences. This university has seven colleges with 331 employees colleges.

At first, to determine the appropriate sample size, a pilot study was performed involving 30 employees of the university. In accordance with the research purposes, the sample size calculated was 198 individuals, and the response rate was 94%. This employees recruited by stratified sampling, conducted in categorized form in seven colleges (medical=52, dental=60, pharmacy=13, hygiene=25, nursing & midwifery=24, paramedical=13, and rehabilitation=11). From the initial sample (198 sample), six percent, n = 10, were excluded for failure to complete the questionnaire or for denial of consent to participate in this work. The final sample was 188 employees. In accordance with ethical regulations, informed consent was obtained from the participants. The study was approved by the ethics committee of the Hamadan University of Medical Sciences (No.IR.UMSHA.REC.1395.328).

After the determination of target population, for data collection, in addition to a questionnaire on the participants’ demographic characteristics, two other instruments were administered: the Health Literacy for Iranian Adults (HELIA) and the Health Promoting Lifestyle Profile II (HPLP II). To measure health literacy, this study used the localized HELIA questionnaire (19), which consists of 33 items (five-point Likert scale) that measure health literacy in 5 dimensions. These dimensions are reading (4 items), access (6 items), comprehension (7 items), assessment (4 items), and decision making (12 items). The raw score (ranging from 0 to 100) of each individual for each dimension was obtained from the sum of points. Finally, the total scores were determined by calculating the points obtained in all the dimensions and dividing them by the number of dimensions. The ranking scores are as follows: a score of 0 to 50 reflects inadequate literacy, a score of 50.1 to 66 indicates borderline literacy, a
score of 66.1 to 84 denotes adequate literacy, and a score of 84.1 to 100 reflects excellent literacy. The benefits of this localized questionnaire are its shortness, ease of implementation, and coverage of all aspects of health; it is also general in nature so that it does not discriminate in terms of social stratum, job, education, and age and can therefore be used for different demographic groups (19). To assess the participants’ health-promoting behaviors, the research used Walker’s HPLP II (20), whose reliability and validity in the Iranian context was evaluated by Zeidi et al. (21).

This questionnaire was developed on the basis of Pender’s HPM (14), which determine the extent to which people engage in health-promoting behaviors. It enables a multidimensional assessment of health-promoting behaviors. Specifically, it considers the frequency of such behaviors in six dimensions: interpersonal communication (e.g., “I solve my problems through conversation and agreement”), self-actualization and spiritual growth (e.g., “I believe my life is targeted”), health responsibility (e.g., “I participate in training programs in the field of personal health”), nutritional behavior (e.g., “I eat breakfast”), physical activity (e.g., “I do stretching exercises at least three times a week”), and stress management (e.g., “I use specific methods to control my stress”). The 49 items that constitute the questionnaire are divided thus: self-actualization = 10 items, responsibility = 12 items, interpersonal communication = 8 items, stress management = 5 items, sport and physical activity = 7 items, nutrition = 7 items). Responses are rated on a four-point Likert scale (1 = never, 2 = sometimes, 3 = often, 4 = always). To calculate the points for each dimension, the total points for all the questions are summed. To derive the total points for the questionnaire, the total points earned for all the questions are summed. Scores range from 49 to 196. A score of 191 to 196 indicates that health-promoting behaviors are at a good level, a score of 147 to 190 reflects an acceptable level, and a score lower than 147 denotes a weak level.

In this study, the Cronbach’s alpha coefficient of the questionnaire was 0.93. The coefficients of self-actualization, health responsibility, interpersonal communication, stress management, physical activity, and nutrition were 0.90, 0.79, 0.78, 0.78, 0.90, and 0.89, respectively. After data collection, data analysis was performed using SPSS version 22.

Descriptive statistics (charts, tables, numerical indicators) were used to describe the data and ascertain the relationship among the variables used in the descriptive statistics. To assess the relationship between health literacy and health-promoting behaviors multivariate linear regressions to determine whether health literacy is significantly related to health literacy components. In all the tests, a value less than 0.05 were considered to indicate significance.

Results:

The mean age of the employees was 36.8 years (SD = 6.3). The majority of the participants were women (71%) who had bachelor’s degrees (74%). According to the participants, their economic statuses were of good (49.5%) and moderate (42.6%) conditions. The demographic characteristics of the participants are presented in Table 1. To determine the participants’ behaviors regarding health-related information, each behavior was evaluated separately. Most of the participants (74.5%) acquire such information via the Internet. The other information sources reported by the employees were social networks (52.1%), magazines (36.7%), health providers (22.9%), friends (12.2%), booklets/brochures (6.4%), and telephone conversations (5.9%). Only one of the participants did not know how to obtain information related to health.

The mean and standard deviation of health literacy and health-promoting behaviors among the employees were 114.4±24.0 and 64.3±12.0, respectively. The findings on health literacy and health-promoting behaviors are provided in Table 2. Based on this Table, only 48% of the participants had excellent levels of health literacy. In fact, most of the employees were at borderline levels. Moreover, most of the employees had low levels of health-promoting behaviors (89.4%). None of the employees didn’t have excellent levels of health-promoting behaviors. The results of the multivariate regression showed a significant relationship between health literacy and health-promoting behaviors (F=7.22, P<0.001). The results of the Multivariate Linear Regressions indicated that health literacy exerted
a significant effect on health-promoting behaviors, such as nutrition (P<0.05), interpersonal communication (P<0.1), and health responsibility (P<0.001). In other words, per one unit increase in health literacy, health nutrition, interpersonal communication, and health responsibility increased by 0.06, 0.04, and 0.16, respectively (Table 3).

**Table 1. Demographic characteristics of participants (n=188)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>31-40</td>
<td>131</td>
<td>96.7</td>
</tr>
<tr>
<td>&gt;40</td>
<td>27</td>
<td>14.4</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46</td>
<td>23</td>
</tr>
<tr>
<td>Female</td>
<td>142</td>
<td>71</td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under diploma</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Diploma</td>
<td>12</td>
<td>6.4</td>
</tr>
<tr>
<td>Above diploma</td>
<td>16</td>
<td>8.5</td>
</tr>
<tr>
<td>License</td>
<td>74</td>
<td>39.4</td>
</tr>
<tr>
<td>Above license</td>
<td>66</td>
<td>35.1</td>
</tr>
<tr>
<td>PhD</td>
<td>16</td>
<td>8.5</td>
</tr>
<tr>
<td>Single</td>
<td>49</td>
<td>26.1</td>
</tr>
<tr>
<td>Material status</td>
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<td></td>
</tr>
<tr>
<td>Married</td>
<td>139</td>
<td>73.9</td>
</tr>
<tr>
<td>Low</td>
<td>10</td>
<td>5.3</td>
</tr>
<tr>
<td>Economic status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>80</td>
<td>42.6</td>
</tr>
<tr>
<td>Good</td>
<td>93</td>
<td>49.5</td>
</tr>
<tr>
<td>Excellent</td>
<td>5</td>
<td>2.7</td>
</tr>
</tbody>
</table>

**Table 2. Health literacy and health promoting behaviours status of participants (n=188)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Inadequate</th>
<th>Borderline</th>
<th>Adequate</th>
<th>Excellent</th>
<th>Low</th>
<th>Acceptable</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>23</td>
<td>87</td>
<td>69</td>
<td>9</td>
<td>168</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>%</td>
<td>12.2</td>
<td>46.3</td>
<td>36.7</td>
<td>4.8</td>
<td>89.4</td>
<td>10.6</td>
<td>0</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>114.4±24.0</td>
<td>64.3±12.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3. The relationship of health literacy on the components of health promoting behaviors**

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE</th>
<th>t</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical activity</td>
<td>-0.00</td>
<td>0.02</td>
<td>-0.14</td>
<td>0.983</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>0.04</td>
<td>0.02</td>
<td>1.99</td>
<td>0.050*</td>
</tr>
<tr>
<td>communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress management</td>
<td>0.02</td>
<td>0.01</td>
<td>1.37</td>
<td>0.171</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.06</td>
<td>0.02</td>
<td>2.19</td>
<td>0.030*</td>
</tr>
<tr>
<td>Spiritual growth</td>
<td>0.02</td>
<td>0.03</td>
<td>0.79</td>
<td>0.429</td>
</tr>
<tr>
<td>Responsibility</td>
<td>0.16</td>
<td>0.03</td>
<td>5.22</td>
<td>0.001**</td>
</tr>
</tbody>
</table>

(P<0.05)*, (P<0.001)**

**Conclusion:**

To the best of our knowledge, this study is the first to assess the relationship between health literacy and health-promoting behaviors in the Iranian workplace. Generally, the health literacy and health-promoting behaviors of the employees of the Hamadan University of Medical Sciences are of undesirable levels Also, health literacy had the positive effect on nutritional behavior, interpersonal communication, and responsibility toward health. More than half of the employees (58.5%) exhibited inadequate or borderline health literacy, similar to the results derived by Peyman (3). Our findings are also consistent with those of Banihashemi who reported that 56.6% of the study subjects showed borderline or inadequate health literacy (2). The health literacy of individuals in other countries is generally better than that of individuals in Iran. In England, for example, 88.6% of people exhibited adequate health literacy (13).
In the Iranian context, the proportion of individuals with adequate health literacy varied from 8.8% (22) to 45.4% (23). These variations can be attributed to differences in age groups studied and instruments used to measure health literacy levels.

Another important finding of the current work was that the mean score of health-promoting behaviors was 114.4. In the study of Motlaq (24) the mean score of health-promoting behaviors was higher. This variance in results may be ascribed to differences in target groups and average ages of participants; young people obtain a higher average score in relation to health promotion than do older individuals because of the higher life expectancy and lower risk of chronic diseases among the former (24).

The present study also found a significant relationship between health literacy and nutrition—a finding that coincides with the results of Von Wagner in England (13), Chang in Taiwan (17), and Speirs in Maryland (25). People with higher health literacy eat healthier diets. Health literacy can affect the diet of each individual, as evidence by the tendency of people with low health literacy to consume a minimal proportion of fruits and vegetables (23).

However, the results of study in the Netherlands did not show any significant relationship between health literacy and nutritional style (26). This contradiction may be attributed to differences in age groups, food security, and access to healthy food in places of residence (27).

The current research found a significant relationship between health literacy and interpersonal communication. This finding is consistent with the results of Chang (17) and Manganello (28) studies. People with high health literacy solve interpersonal problems more actively and have healthier relationship with others (29). In the Iranian culture, people at work talk to their peers about their health problems and health statuses; when possible, they adopt the solutions recommended by their colleagues. Our study indicated that the existence of extensive social networks and increased social support for employees facilitated increased sharing of health-related information. Note that the participants of this study were employed at the Hamadan University of Medical Sciences, and their relationship with the professors and students of the university has effectively promoted health literacy.

Health literacy had a significant relationship with health responsibility. People who have higher health literacy exhibit more responsibility toward health (6). Such literacy enables people to perform self-care (22). Our results in this regard are inconsistent with Chang’s study in Taiwan (17) probably because of differences in the average ages of the participants. In our study, the participant's people were at an age wherein they understand their responsibility toward their health; in Chang’s work, the study subjects were teenagers, whose decision making is dependent on their parents (17).

No significant relationship was found between health literacy and physical activity. This finding is similar to Chang (17) and Von Wagner (13) but inconsistent with Geboers in Netherland (27) and Adams’s findings (30). The two previous studies showed that people with low levels of health literacy engaged in less physical activity than those with high levels of health literacy. The contradiction in results may be due to differences in age groups, accessibility to sports facilities, and cultural diversity.

Aside from identifying the effects of health literacy on health-promoting behaviors among Iranian employees, this study determined which components of health-promoting behaviors require prioritization. As with other studies, however, the current research suffers from certain limitations. First, this research was of a cross-sectional design; a study conducted over a longer period of time may more comprehensively illuminate the causal relationships among variables. Second, a small sample size was chosen, thus reducing the generalizability of the results. Finally, the instruments used are self-report questionnaires, which can lead to reminder problems.

The overall results showed that the health literacy and health-promoting behaviors of the employees of the Hamadan University of Medical Sciences are of undesirable levels. Also, health literacy had the positive relationship on nutritional behavior, interpersonal communication, and responsibility toward health.
Policymakers and health authorities should pay special attention to training programs aimed at increasing university employees’ health literacy so that such employees can develop a healthy lifestyle and enhance the efficiency with which they accomplish their duties.

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Conflict of interest statement:

No conflict of interest is declared.

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17. Chang LC. Health literacy, self-reported status and health promoting behaviours for


بررسی وضعیت سواد سلامت و ارتباط آن رفتارهای ارتقا هنده سلامت در کارمندان همدان

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چکیده
مقدمه: سواد سلامت یکی از اصلی‌ترین تعیین‌کننده‌های رفتارهای ارتقا دهنده سلامت محسوب می‌شود. هدف این مطالعه بررسی وضعیت سواد سلامت و ارتباط آن با رفتارهای ارتقا دهنده سلامت در جمعیت کارمندان دانشگاه علوم پزشکی همدان بود.

روش کار: پژوهش حاضر یک مطالعه مقطعی بود که در سال 1393 انجام شد. در این مطالعه از طریق روش نمونه‌گیری طبقه‌ای، 599 نفر از کارمندان هفت دانشکده دانشگاه علوم پزشکی همدان وارد مطالعه شدند. ابزار گردآوری اطلاعات دو پرسشنامه (HELIA Health Literacy for Iranian Adults) و (HPLP-II Health promoting life style II) بود که از طریق خودگزارش به دست معینی و آزمون رکوردر خلاصه‌شده توسط نرم‌افزار SPSS نرخ‌های معنی‌داری 0.05 در نظر گرفته شد.

نتایج: میانگین ± انحراف معیار سن کارمندان 94/6 ± 92/96 (سال بود. اکثر شرکت‌کنندگان (15/12 درصد) اطلاعات مربوط به سلامت را از طریق اینترنت کسب می‌کردند. وضعیت سواد سلامت و رفتارهای ارتقا دهنده سلامت نامطلوب و ناکافی بود. بین سواد سلامت و رفتارهای ارتقا دهنده سلامت ارتباط معنی‌داری وجود داشت (P<0/04). بین سواد سلامت و تغذیه و مسئولیت نسبت به سلامت ارتباط معنی‌داری وجود نداشت.

نتیجه‌گیری: سواد سلامت و رفتارهای ارتقا دهنده سلامت در کارمندان نامطلوب بود. همچنین سواد سلامت ارتباط معینی با رفتارهای ارتقا دهنده سلامت نسبت به سلامت و فردی و رفتارهای ارتقا دهنده سلامت مثبت و معنی‌دار بود به طوری که در این نژاد انسان نمایه‌های اصلی ارتقا سلامت کارمندان ناشته‌بودند که نشان‌گذار آن‌ها در برنامه‌های حفظ و بهبود سلامتی پایه‌گذارند.

کلیدواژه‌ها: سواد سلامت، ارتقا سلامت، رفتار، سلامت، کارمندان

نوع مقاله: پژوهشی

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