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Original Article

Effects of Work-Related Stress on Work Ability Index among Iranian Workers

Vahid Gharibi [1], Hamidreza Mokarami [2,*], Abrahim Taban [1], Mohsen Yazdani Aval [1], Kazem Samimi [1], Mahmood Salesi [3]

[1] Department of Occupational Health Engineering, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
[2] Department of Ergonomics, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran
[3] Research Center for Prevention of Oral and Dental Diseases, Baqiyatallah University of Medical Sciences, Tehran, Iran

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ABSTRACT

Background: Work Ability Index (WAI) is a well-known and valid self-report tool that has been widely used in various studies to identify and avoid early retirement and work-related disability. Nevertheless, very few studies have been carried out to evaluate work ability in Iran. We aimed to investigate the WAI and the effect of work-related stress on it among Iranian workers.

Methods: A cross-sectional, descriptive and analytic study was carried out among 449 workers from five working sectors in three big cities of Iran. Work ability and work-related stress were measured using the Persian version of WAI and the Persian version of Health and Safety Executive Stress Indicator Tool.

Results: More than a third of the workers surveyed (34.70%) did not have an appropriate level of work ability (WAI < 37). There was a significant correlation between subscales of work-related stress and the mean score of WAI. Furthermore, the variables of body mass index, sleep quality, exercise activity, job tenure, and three subscales of work-related stress including demands, supervisor support, and role were significant predictors of WAI.

Conclusion: According to the results of this study, the interventional programs must be focused on improving supervisors support, eliminating ambiguity and conflicts in the role of workers in their job and organization, reducing job demands, improving sleep quality, and increasing exercise activity.

1. Introduction

With increasing age, physical and mental capabilities will also be reduced. In addition, the work ability of elderly people will become limited due to suffering from different diseases and health problems. Workforce in Iran, as in many developing countries, is rapidly aging. As a result, maintaining health and extending the working life of the Iranian workforce should be considered as a priority. In this regard, one of the solutions to achieve this goal is to maintain and improve the work ability [1,2]. In recent years, promoting the work ability has been identified as one of the effective ways to prevent work-related disability and early retirement [2]. Different tools and methods are used for the measurement of work ability of workers. Among the well-known tools, Work Ability Index (WAI) is a valid self-report tool that has been widely used in various studies to assess the work ability [3,4]. The aims of this index are to identify and avoid early retirement and work-related disability. It has some questions about the health condition and capabilities of workers, as well as the mental and physical demands and the nature of the job [1,5].

A review of the literature showed that the WAI could be influenced by various work-related stress. van den Berg et al [4] in their review study reported that the high physical and mental demands of job and low control over the job had a negative impact on the mean WAI score [4]. The results of other studies also showed that lack of support from supervisors [6], role ambiguity, and lack of information about changes in the organization [7] were strongly associated with this index. Rotenberg et al [8] in their study among

* Corresponding author. Department of Ergonomics, School of Health, Shiraz University of Medical Sciences, PO Box 71645-111, Shiraz, Iran.
E-mail address: hamidreza.mokarami@yahoo.com (H. Mokarami).

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nurses reported that high workload can cause poor WAI. Despite this finding, other work-related stress factors that might influence WAI, such as relationships and demands, have been less investigated. Stress can be affected by the contexts, cultures, norms, and value systems of different societies [9]. In fact, workers from different cultures have different perceptions about the importance of work-related stress [10]. Thus, for the development of effective ergonomic and occupational health intervention programs and to maintain and improve the health of employees from a specific culture and society, assessment of relative importance of different work-related stress factors is needed. Our literature review showed that most studies that investigated the impact of work-related stress factors on the WAI had been designed and conducted in developed and industrialized countries and there is little information on the subject in developing countries, especially in Iran. In addition, very few studies have been carried out to evaluate the work ability of Iranian workers. As a corollary, the purpose of this study was to investigate the WAI and the effect of work-related stress on it among workers in three big cities of Iran (Sabzevar, Birjand, and Isfahan). Moreover, the effect of sociodemographic, health, and work-related factors on WAI was also assessed.

2. Materials and methods

2.1. Study design and study sample

This was a cross-sectional, descriptive and analytic study, which was carried out in five working sectors in three big cities of Iran (Sabzevar, Birjand, and Isfahan). Workers engaged in five different working sectors including two training and medical hospitals, three banks, one oil refinery company, one cable manufacturing company, and one fire station were invited to participate in this study. After obtaining permission from the management of the working sectors, the study was conducted from July to September 2014. First, the researchers attended the workplaces and explained the purpose of the study to all workers; after gaining the trust and obtaining the informed consent of those who were eligible, the questionnaire was given to the participants, who completed it individually and in complete privacy. Anonymous questionnaires were used in the study and all the collected data were analyzed together. A total of 461 workers accepted to participate in this study. After reviewing the questionnaires and removing questionnaires with incomplete data, totally 449 questionnaires were used for statistical analysis. The Scientific and Medical Ethics Committee of all study sectors approved the ethical standards of the study.

2.2. Persian version of the WAI

WAI was developed by the Finland Institute of Occupational Health Research [5]. This index is aimed to identify and avoid early retirement and work-related disabilities. The work ability is calculated by summing up the scores obtained for the seven dimensions. The best possible estimate of the index has 49 points and the worst estimate has 7 points. Finally, based on the scores obtained, the work ability is classified into one of the four categories of poor (7–27), moderate (28–36), good (37–43), and excellent (44–49) [11]. The WAI questionnaire was translated into Persian and its validity and reliability were determined in Iran by Abdolalizadeh et al [12].

2.3. Persian version of Health and Safety Executive Stress Indicator Tool

To measure work-related stress, we used the Persian version of Stress Inventory developed by the Health and Safety Executive (HSE) Management of the United Kingdom. The questionnaire includes 35 questions that measures seven subscales of demands, control, supervisor support, peer support, relationships, role, and changes [13]. Scoring the answers is based on a 5-option Likert scale (never, seldom, sometimes, often, or always). Reliability and validity of the Persian version of this questionnaire were verified and approved by Azad Marzabadi and Gholami Fesharaki [14]. Compared with the other questionnaires in the field of measuring work-related stress, the HSE indicator contains limited number of questions, but includes multiple dimensions associated with work-related stress factor [15]. In addition, the HSE indicator has been developed as a part of the management standards approach based on available scientific literature [16]. The results from the confirmatory factor analysis conducted by Edwards et al [16] indicated an acceptable fit to the data for the instrument, which suggests that the original 35-item seven-factor measurement scale is a psychometrically robust instrument [16]. Furthermore, the HSE indicator has also been reported to be cross-culturally invariant [17].

2.4. Sociodemographic, health, and work-related factors questionnaire

To evaluate these factors we used a separate questionnaire that was designed by the researchers. Sociodemographic factors included age, gender, marital status, and educational level; health-related factors included smoking, exercise activity, sleep quality, and body mass index (BMI); work-related factors included work sector, job tenure, work schedule, second job, overtime working, work hours per weekly, work demands, workload, and occupational injuries.

2.5. Statistical analysis

To analyze the collected data we used SPSS version 21 (IBM Corp., Armonk, NY, USA). Descriptive statistical methods were used to demonstrate the characteristics and features of the study population. Independent t tests and univariate analyses of variance were used to examine the effects of sociodemographic and health and work-related variables on the WAI score. Pearson correlation coefficient was used to examine the correlations between seven subscales of Persian version of HSE and the WAI score. Finally, a hierarchical multiple regression analysis was used to predict the WAI score. In the first step, sociodemographic characteristics, health-related factors, and work-related factors were entered into the regression model. Then, in the second step, subscales of work-related stress were entered into the model. A significance level was set at $p < 0.05$.

Table 1
Descriptive statistic for the WAI dimensions

Variables	Mean (SD)	Range
1. Current work ability compared with lifetime best	7.69 (1.9)	3–10
2. Work ability in relation to the demands of the job	7.76 (1.6)	2–10
3. Numbers of current diseases diagnosed by a physician	4.81 (2.2)	1–7
4. Estimated work impairment due to diseases	4.95 (1.1)	1–6
5. Sick leave during the past 12 mo	4.44 (0.96)	1–5
6. Personal prognosis of work ability 2 y from now	5.76 (1.7)	1–7
7. Mental resources	2.62 (0.97)	1–4
Total WAI score	38.04 (6.3)	18–49

SD, standard deviation; WAI, Work Ability Index.