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WORK ABILITY, INDIVIDUAL AND LIFESTYLE ASPECTS AMONG ZAGAZIG UNIVERSITY EMPLOYEES

By

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Abstract

Introduction: Work ability is a dynamic process of human resources in relation to work and affected by many factors including sociodemographic characteristics, lifestyle and work demands through which health is considered as a primary determinant of work ability. **Aim of work:** to measure the work ability among employees at Zagazig University and its relationship with some individual and life style aspects. **Materials and methods:** A cross sectional study was conducted over a period of 4 months upon 251 employees at Zagazig University. The validated work ability index issued by Finnish Institute of Occupational Health is used to measure the employees' work ability and a structured questionnaire is used for assessing some individual and life style factors. Our participants were taken through multistage cluster technique. **Results:** The majority of our sample had good work ability (59.4%). There was significant relationship between work ability and some individual factors which are aging (OR= 2.5) and normal weight (OR= 2.5). Also, several lifestyle aspects showed significant relationship with employees' work ability with the following Odds Ratios; proper physical activity (OR= 37.5), adequate fiber intake (OR= 2.7) and coping with stress (OR= 4.9). **Conclusion and recommendations:** Individual and lifestyle aspects has been significantly associated with work ability, therefore policy makers has to take into consideration planning and implementation of health promotion programs concerning work related individual and life style factors to improve the performance of employees. Further researches are needed to study the work related factors, micro and macro environment outside the work life as work ability is multifactorial in nature.

Key words: Work ability, Lifestyle, Employees, Zagazig University and Physical activity.

Introduction

Work ability is stated as 'How good is the worker at present and in the near future and how able is he/she to do his/her work with respect to work demands, health and mental resources" (Ilmarinen, 2001).

According to the traditional models, the work ability concept is based on the balance between a person's resources and work demands. Recently the multidimensional and integrated models took in consideration the work community, management, and the micro and macro environments outside work life (Gould et al., 2008).

Individual characteristics, lifestyle and work-related factors influence work ability. The theoretical concept behind work ability said that healthy workers and those with high coping capacities against work demands will have higher work ability than unhealthy workers and those with low coping capacities (Ghaddar et al., 2011). Correct it as in references

An unhealthy lifestyle as physical inactivity, stress and unhealthy food can cause many diseases as well as affect work disability (Kenny, 2008). Improving work ability is very important to enhance the ability and to prevent disability and early retirement (Gharibi et al., 2016).

Assessment of work ability should measure the ability of workers to perform their jobs, after considering psychosocial and physical work-related factors, mental, physical capabilities, and health (Ilmarinen et al., 1991).

According to a study conducted in Ain shams University among office workers , the work ability was poor among 8% and 54% of the sample was of moderate work ability (Abdel-Hamid and El-Bagoury 2012). Several studies have shown that work ability of low score is highly predictive of work disability during follow-up (Liira et al., 2000),

Aim of Work

The aim of the work is to assess the work ability among employee at Zagazig University and its relationship with some lifestyle aspects.

Materials and methods

Study Design: It is a cross sectional study.

Place and duration of the study: The study was conducted at Zagazig University over a period of 4 months (from January 2014 to May 2014).

Study Sample: A sample of 251 employees was drawn based on a total number of 7811 employees working in Zagazig University, the expected frequency of the factor understudy calculated from the pilot study which was 9.1, confidence interval of 95% and design effect 2. A Multistage sampling technique was used through simple random selection of two administrative buildings (Medicine and Science colleges) from 32 administrative buildings and they were taken as clusters.

Inclusion Criteria: The studied group was selected to be of age >45 as The factors that weaken work ability begin to accumulate in middle age and are seen in workers from about 45 years of age (Tuomi et al., 1998).

Study methods:

Work ability index (WAI) is a validated instrument issued by Finnish Institute of Occupational Health to assess the individual work ability of an employee (Tuomi et al., 1998).

This questionnaire consists of 7 dimensions:

- Current work ability compared with the lifetime best with a score ranging from 0 to 10 points;
- Work ability in relation to the demands of the job based on two questions on the nature of work (physical, mental, or mixed) that, when weighted, yield a score ranging from 2 to 10 points;
- Number of current diseases diagnosed by physician based on a list of 51 diseases that defines a score ranging from1 to 7 points;
- Estimated work impairment due to diseases based on a question with a score ranging from 1 to 6 points;
- Sick leave during the past year based on a question (5-categories) on the number of absences with score ranging from 1 to 5 points;
- Own prognosis of work ability two years from now based on a question with a score of either 1, 4 or 7 points; and
- Mental resources based on a score ranging from 1 to 4 points obtained

by weighting the answers to three questions.

The results of these seven dimensions provide a measure of work ability that ranges from 7 to 49 points. Higher scores indicate better work ability. Work ability index was considered "Poor" if the (<50%) of total score and "Good" if (>50%) of total score.

A structured questionnaire was used to assess some individual and life style aspects as: age, gender, Body Mass Index (BMI), physical activity, having social support, daily fiber intake, smoking, sleeping hours and coping with stress.

Pilot study

Before starting of data collection a pilot study was conducted on 14 employees for checking the clarity of the questionnaires and for estimation of the prevalence of the factor understudy, these employees were not included in the study group.

Consent

Verbal consent was taken from the study group and they were assured about the confidentiality of their data.

Ethical approval:

Before conduction of the study an official permission was obtained from the dean of the Faculty of Medicine and Science.

Data management

After data collection, data was entered, analyzed and presented using statistical package of social sciences (SPSS version 19). Odds ratio was used to compare the two categories of work ability regarding lifestyle aspects. Odds ratio was considered significant if the confidence limits excludes null values.

Results

Table 1: Characteristics of the studied sample.

	Total No=251	%
Gender		
Male	143	57
Female	108	43
Working ability		
Poor	102	40.6
Good	149	59.4
Body mass index		
Normal	93	37.1
Overweight	34	13.5
Obese	124	49.4
Age	Mean ±SD 52.2 ±4.8	

Table 1 showed that the total number of the studied group was 251, their mean age was 52.2+4.8. Males constituted 57% of the participants and 49.4% of the studied group were obese and 59.4% had good work ability.

Table 2: Relationship between work ability and some related factors among the studied group.

	Poor 102(%)	Good 149(%)	0dds	Confidence limits
Gender				
Male	62(60.8)	81(54.4)	1.3	0.8 - 2.2
Female	40(39.2)	68(45.6)		
Age (years)				
45-	36(35.3)	33(22.1)	1	
50-	30(29.4)	34(22.8)	1.2	0.6 - 2.4
55-	36(35.3)	82(55.1)	2.5	1.3 - 4.6*
Body mass index				
Normal	47(46.1)	46(30.9)	1	
Overweight	10(9.8)	24(16.1)	2.5	1.1 – 5.7*
Obese	45(44.1)	79(53)	1.7	1.1 – 3.1*
Having social support				
Yes	76(74.5)	101(67.8)	1.4	0.8
No	26(25.5)	48(32.2)		

* Significant

Table 2 showed that, the employee group who were less than 55 years old had statistical significant risk to have poor work ability 2.5 times those who were more than 55 years old. Also, the overweight and obese employees were at higher statistical significant risk to have poor work ability 2.5 and 1.7 times the normal weight employees respectively.

Table 3: Relationship between working ability and some lifestyle factors among the studied group.

	Poor 102(%)	Good 149(%)	Odds	Confidence limits
Physical activity:				
3< days/week	69(67.6)	12(8.5)	37.5	17.7 -79.5*
3> days/week	23(22.5)	131(87.9)		
Fiber intake:				
Two or more servings	62(60.8)	59(39.6)	1	
One serving	23(22.5)	60(40.3)	2.7	1.5 - 4.9*
Not eat	17(16.7)	30(20.1)	1.9	0.9 - 3.7
Numbers of sleeping hours:				
6-8 h	59(57.8)	70(47)	1	
Less than 6 h	38(37.3)	67(44.9)	1.5	0.9 - 7.5
More than 8 h	5(4.9)	12(8.1)	2.02	0.7 - 6.1
Smoking				
No	77(75.5)	107(71.8)	1.2	0.7-2.1
Yes	25(24.5)	42(28.2)		
Coping with stress:				
Most of time	15(14.7)	6(4)	1	
Sometimes	23(22.6)	18(12.1)	1.96	0.6- 6.1
Never	64(62.7)	125(83.9)	4.9	1.8-13.2*

*: Significant

Table 3 showed that, the participants practicing physical activity less than 3 days weekly had significant risk of poor work ability 37.5 times those practicing physical activity more than 3 days weekly. The employees eating one serving of fiber rich food daily had statistical significant risk to have poor work ability than those who eat two and more servings daily. Participants who never cope with stress showed significant risk of poor work ability 4.9 times those cope with stress most of the time.

Discussion

Work ability is a complex feature and its level reflects the interactions between the volume of both physical and mental activities, functional capabilities of workers and their health (Tuomi et al., 1994). The findings of our study revealed that, the majority of the studied group had good Work Ability Index (WA1I) score (59.4%) (Table 1) . This result was higher than the result of a study conducted in Poland by Kaleta et al., 2006 who founding that, 39.2% of workers achieved good WAI score. On the other hand, our result was much lower than a study carried out on the Western European workers who detected that 71.9% of employees were with excellent abilities to work (Ilmarinen, 1999). This difference in the work ability index between employee in Egypt and West Europe seems to be due to several factors as different living habits, work environments and socio-economic situations.

Work ability of Zagazig university employee was significantly associated with several factors, such as aging, overweight and obesity, physical activity, adequate fiber intake and coping with stress (Table 2, 3). We noted a significant association of good WAI score with increased age in our study. The risk for a poor WAI was over two times higher among the young aged employee than elderly (adjusted OR = 2.5; 95% CI: 1.3 – 4.6) (Table 2). However, this result was inconsistent with the results of a systematic review studying the effects of individual and work related factors on the work ability index which revealed that, the older age was associated with poor work ability (Van den Berg et al., 2009). There are many possible explanations for our finding, might be good social relations at work promote the work ability of elderly workers, or a greater experience of older workers about work requirements and skills advancing their work ability, or more importantly in our opinion that, the nature of employee's work doesn't need extensive physical work load. This explanation agreed with a study done by Ilmarinen et al., 1997 who detected that, the association of aging and work ability was strong among workers with physical work load as the installation, auxiliary, transport workers and women doing home care work.

The prevalence of overweight and obesity is almost rising worldwide; in our study group, 13.5% were overweight and 49.4% were obese. Unhealthy weight may cause serious health complications, that can contribute to decreased work ability (WHO, 2002 and Kaleta et al., 2005).The results of our study showed that, significant association of proper work ability with normal weight, the risk for a poor WAI was higher among the overweight and obese employees than in those with normal weight (adjusted OR = 2.5; 95% CI: 1.1 – 5.7 and OR = 1.7; 95% CI: 1.1 – 3.1 respectively) (Table 2). This result is similar to a study done by Kaleta et al., 2006 who declared that, the risk of poor and moderate WAI was over two times higher among the group of overweight workers than in workers with normal weight (adjusted OR = 2.33; 95% CI: 1.09 -7.96) .

The present study revealed that, there was a strong association between the work ability and practicing physical activity. The employee who practiced physical activity less than three days weekly showed risk of having poor WAI significantly higher than those who practiced physical activity more than three days weekly (adjusted OR = 37.5; 95% CI: 17.7 – 79.5) (Table 3). The positive influence of vigorous physical activity on work ability is concordant with the results of a 4-year follow-up study which revealed that, the physical performance of workers over 45 years of age decreases in the absence of regular vigorous physical activity (Ilmarinen, 1999). Other previous researches were consistent with our finding and mentioned that; lack of vigorous physical activity was associated with poor work ability (Van den Berg et al., 2008 and Van den Berg et al., 2009), insufficient physical activity (OR 1.12) was associated with decreased work ability and the presence of sick leave (Robroek et al., 2011), and improved work ability was strongly positive and associated with regular physical activity (Tuomi et al., 1997 and Kaleta et al., 2006).

In the current study we noted that, there was a strong association between healthy diet with adequate fiber intake and improved work ability. The risk of having a poor WAI was 2.7 times higher among participants with inadequate

daily fiber intake than those with adequate daily fiber intake (Adjusted OR = 2.7; 95% CI: 1.5- 4.9) (Table 3). An explanation of this finding is that, persons consuming healthy diet are likely to have other healthy habits as regular physical activity, not smoke and regular follow up of their weights which improve work ability. Another explanation is that, healthy diet may reduce the risk of serious diseases, improve health and thus enhancing work ability and decreasing sick leaves. This finding is consistent with other studies; the first study mentioned that, in studied group with fiber intake < 30 gm fiber/day, the risk of moderate work ability was 27.63 times greater than in those who consumed ≥ 30 gm fiber/day (OR = 27.63; 95% CI: 3.44 - 221.7) (Kaleta et al., 2006). The second study in the Netherlands mentioned that, insufficient fruit and vegetable intake was associated with decreased productivity and work ability (OR 1.22) (Robroek et al., 2011).

Regarding the coping with stress we found significant association between good work ability and the ability to cope with stressful events. The participants who cannot cope with stress were at risk to have a poor WAI 4.9 times than those can cope with stress most of the time (Adjusted OR = 4.9; 95% CI: 1.8 – 13.2) (Table 3). Previous researches were in agreement with our findings which revealed that; there was strong positive association between coping with stressful life events and work ability (Pohjonen, 2001, Sjogren-Ronka et al., 2002 and Ali et al., 2012).

The cross-sectional design has some limitations that not distinguishing the causal effect relationships between the studied factors and work ability. For instance, it is not obvious whether, poor coping with stress will decrease work ability or decreased work ability will cause a poorer coping with stress. Our study results cannot solve this problem, but we can assume that, useful changes in the lifestyle as regular physical activity, healthy diet and coping with stress may improve ability to work.

In summary, the results of the current study emphasized that, work ability was strongly associated from one hand with some individual factors as increased age and body mass index, and from the other hand with life style

factors as proper physical activity, healthy diet with adequate fiber intake and coping with stress. These results outline the importance of these factors among workers with regard to work ability.

Conclusion and recommendations

This study was done to assess the work ability of employee in our community and the effect of several individual and life style factors. The ability to work is the center of sustainable development in any community. Therefore, we praise the need to develop health promotion programs take into consideration work related individual and life style factors as recreational physical activity, healthy eating habits as well as strategies for coping with stress. Also, due to the multifactorial nature of work ability further studies are needed to study the work related factors and micro and macro environment outside the work life which may affect the work ability. Finally, due to the limitations of cross-sectional study further studies should be conducted to distinguish the causal effect relationships between the individual life style factors and work ability.

Conflict of interest

The authors declare that there is no conflict of interests.

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