

Il Work Ability Index come strumento di Educazione alla Salute

Work Ability Index, a tool of Health Education

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Abstract

The aim of this study is to highlight the value of the Work Ability Index (WAI) as a health education tool, especially for the age group 18 to 65 years. Public and private organizations can play a decisive role in spreading the culture of prevention and care of their mental and physical well-being. The Work Ability Index measures the working ability of people employed in public and private facilities, exploring external and internal areas of the individual. Work ability considers a number of factors, within which the mental and physical conditions in which the worker performs their activity, play a primary role in determining their degree of adaptation to the work itself. Maintaining good working skills is related to good working conditions and personal health, which are backed up by an active personal life-style. This translates into a better quality of life and greater productivity. In this sense, demonstrating that good health and environmental conditions increase productivity and quality of work, it can push public and private organizations to promote programs to disseminate a health culture. The study looks at the results of various national and international research on the instrument.

Lo scopo di questo studio è evidenziare la valenza del Work Ability Index (WAI) come strumento di educazione alla salute, soprattutto per la fascia di età dai 18 ai 65 anni. Le organizzazioni pubbliche e private possono avere un ruolo determinante nella diffusione della cultura della prevenzione e cura del proprio benessere psico-fisico. Il Work Ability Index misura l'abilità lavorativa delle persone impiegate in strutture pubbliche e private, esplorando aree esterne e interne all'individuo. La capacità di lavoro deriva da numerosi fattori, all'interno dei quali, le condizioni psico-fisiche in cui il lavoratore svolge la propria attività rivestono un ruolo di primaria importanza nel determinare il suo grado di adattamento al lavoro stesso. Il mantenimento di una buona capacità di lavoro è in relazione con buone condizioni d'impiego e di salute, le quali sono, a loro volta, sostenute da stili di vita personali attivi. Ciò si traduce in una migliore qualità della vita e in una maggiore produttività. In questo senso, dimostrare che buone condizioni di salute e ambientali aumentano la produttività e qualità lavorativa, può spingere le organizzazioni pubbliche e private a promuovere programmi di diffusione di una cultura della salute. Lo studio prende in esame i risultati di diverse ricerche che in ambito nazionale e internazionale sullo strumento.

Keywords

Work Ability Index, Health Education, Physical Activity, Well-being, Life-style

Work Ability Index, Educazione alla Salute, Attività Fisica, Benessere, Stile di vita

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Introduction

One of the strategic goals of “Health 2020” international project, promoted by the World Health Organization (WHO), says that governments need to work together to improve the health of all citizens and to reduce inequalities. Health promotion goes through the diffusion of a culture of a proper lifestyle, in terms of nutrition, physical movement, consumption of harmful substances (Ministero della Salute, 2015). Furthermore, it is important to consider that Eurostat demographic projections (2011) indicate that the ratio of inactive elderly people and working age people (between 15 and 65), in the twenty-two European countries analyzed, will pass from 23.7 per cent average of 2011 to 50.2 percent in 2050. In Italy, in 2011, the ratio between inactive and working people was 32 percent, the highest among the analyzed European countries. The competitiveness of the European Union over the coming decades will depend on the contribution of its older workers, especially by comparing it with North America and Asia. If we consider that having a proper lifestyle benefits, both the health of individuals and their performance in the labor and social areas, this highlights how it is strategic and important to involve public and private economic organizations in educational programs to health. This could be possible linking psycho-physical wellness programs within the organization to quality of work and productivity. Moreover, it is important to consider that such public and private structures generally employ individuals between the ages of 18 and 65, a population that is difficult to reach systematically from other institutions. In this context, it is crucial to identify simple ways of monitoring the working ability of the population. The Work Ability Index, a tool developed by the Finnish Institute of Occupational Health (FIOH) (Tuomi et al., 1998), relates the lifestyle and health of workers with their work skills. The underlying principle of the instrument is that the maintenance of good working skills is related to good working conditions and health, which in turn is supported by satisfactory working conditions (environmental and relational) and from personalized lifestyles. This leads to a better quality of life and greater productivity at work. In this concept, the adoption of the WAI as a tool to diagnose the degree of work ability of the organization can bring companies to develop programs focused on the spread of proper and active lifestyles, considering that healthy employees work harder and better.

Work Ability Index

The Finnish Institute of Occupational Health (FIOH) has developed a tool called “Work Ability Index (WAI)” (Tuomi et al., 1998). The assumption in the development of this tool is that the maintenance of good working skills is related to good working conditions and health, which, in turn, is supported by satisfactory working conditions (environmental and relational) and by personal lifestyles. This leads to a better quality of life and greater productivity. The Work Ability Index can be defined as the degree of compatibility between work demands and individual resources (Ilmarinen et al., 2004). Work ability derives from a number of factors and the conditions in which the worker performs his activity play a primary role in determining his degree of adaptation to the work itself. The worker contributes to his / her work ability through psycho-physical health, functional abilities, knowledge, skills and motivation. The workplace affects the worker’s work ability through organizational factors of work, in particular management and leadership, such as job demands and the working environment, including social aspects. Indeed, in addition to physical factors, psychosocial aspects may also have negative effects, through the potential stress generated by exposed individuals. Stress can also negatively affect motivation levels, with significant organizational implications such as rising absenteeism and turnover rates and lowering productivity. It has important repercussions on work ability, as it reduces the chances of adapting individuals to work demands. Ilmarinen and Tuomi (2004) represent the concept of Work Ability as a building (see Figure 1), the basis of which is the

worker's health, which is the foundation of work ability. The first floor contains the social and professional skills needed to support work demands and more and more important at a time, such as the present one, where changes in the workplace are normal. On the second floor, they lay the motivation and values of the person. In this plan, respect, esteem and sense of justice play an important role in engaging in organization, motivation and commitment. These values influence skills and motivation for learning and improvement (the underlying plan). The last floor contains all aspects of work (physical, psychological and social demands), the environment and the organization of work. Here, leadership has a fundamental influence, but also other work factors such as the possibility of development and decision-making in the work. Around the building, very close, there are the family, social and private aspects of the worker who also have an impact on the work ability.

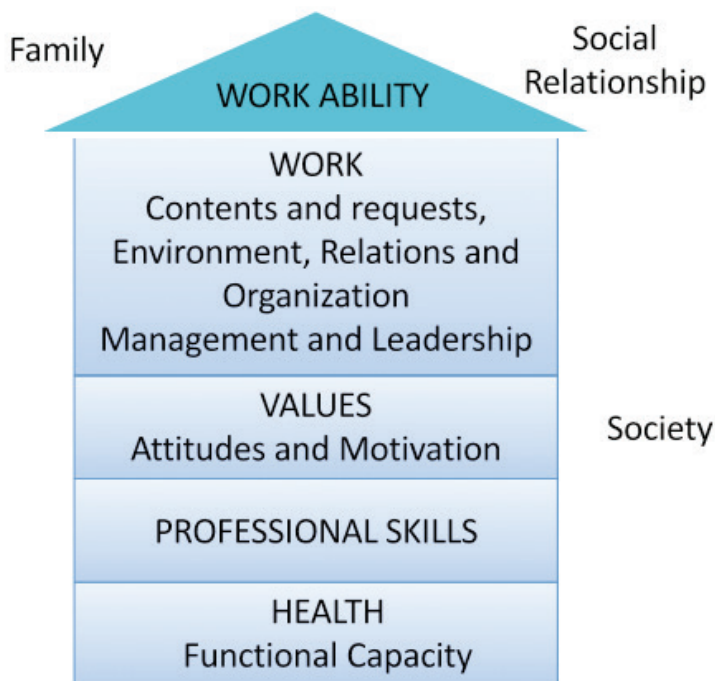


Figure 1 – “Work Ability” House

In addition, the building has a single roof that is the work ability that combines all the aspects mentioned above, which are essential for maintaining and promoting work ability in the organization. All floors must be in balance, one with each other. If the work ability index is low in a person or group, it is important to consider all four aspects. In a work organization that promotes health and safety, it is useful to apply such a model already in the preventive field, considering a holistic view of the organization and ensuring a good communication flow between the various plans by mobilizing internal and external resources, if necessary. The WAI, or Work Ability Index, is calculated based on the answers given by the worker to a series of questions that take into account both the physical and mental demands of the job, the health status and the worker's resources. It is very important how the subject evaluates his / her work ability, as this affects the way he or she will deal with work issues. This tool can have different uses within organizations. Mainly, the WAI can help you in the following activities:

- estimating the organization's current and future potential in terms of workforce;
- identification of risks at individual and group level at a pre-emptive stage;
- definition of preventative action at individual or group level or entire organization;
- measuring the effects of any interventions.

These functions can be developed on different levels: single worker, workgroup or whole structure. This tool can be a valuable help to organizations that are concerned with employee health and the productivity of their organization, especially in the long term. It takes into account some aspects of the lifestyle of the worker that are crucial to the health of the subject and which have important influences on the physical, psychological and even in terms of work productivity

2.1 The questionnaire

The questionnaire consists of a first part with personal and general information and a part related to questions regarding physical and psychological aspects. The questions are related to seven dimensions that make up the Work Ability Index, and they are:

- current level of working ability in relation to the highest level;
- current level of working ability in relation to requests;
- current illnesses diagnosed by a physician;
- illness effects at work;
- absences due to illness;
- estimation of work ability in the following two years;
- mental resources.

There is then a last part, which does not fall into the final score calculation, which concerns the different types of impediments that their condition implies.

The answers to the questionnaire give a score that can range from 7 to 49. A score of 49 points indicates the highest level of work ability, while a seven-point score indicates a low level of work ability. Individual work ability can be classified into four categories: low (7 to 27 points), moderate (28 to 36 points), good (37 to 43 points) and excellent (44 to 49 points). A low level of working capacity means that job demands and worker resources are not balanced; this may be due to poor working conditions or limitations in worker's condition, or both.

2.2 Results reading and possible actions

In their book, Rautio and Michelsen (2014) recommend some actions and preventive measures to be implemented depending on the results obtained in the Work Ability Index, hoping to work closely with supervisors in the workplace and the responsible for public and private health services. With an excellent WAI score (44 to 49 points), the authors state that it is important to maintain the health and well-being of workers by ensuring that working conditions are optimal, that the organization supports work processes, skills and the employee's work activities develop naturally and that workplace conditions favor healthy choices and habits (eg, the possibility of eating healthy meals) and the adoption of optimal working methods. If the WAI result is good (from 37 to 43 points), they suggest that you take the actions and abilities described above for the previous level so that you can increase the well-being and health of workers. It is also essential that any Work Ability Decrease Risk Signs be immediately intercepted and act with support and interventions.

For workers where the WAI result is moderate (from 28 to 36 points), the organization should act to restore a good level of work ability through specific training and support and mod-

ifying working conditions by continuously monitoring the situation and periodically providing the employees with the questionnaire. In organizations, however, where Work Ability is low (7 to 27), close collaboration between employer and health services is strongly recommended in order to restore an acceptable Work Ability level. Targeted actions are required in cooperation between work organization and medical specialists in the sector, with rehabilitation interventions, specific training, psychological support and whatever is needed. Additionally, continuous employee status monitoring is required with low WAI in order to make the changes or adjustments required for the defined program.

2.3 Studies on Work Ability Index

The reliability of WAI has been tested by De Zwart et al. (2002) using a test-retest method, with a four-week interval between measurements, by submitting the questionnaire to ninety-seven building workers from the age of 40. The method has shown that the WAI has an acceptable level of confidence in the classification of worker's work ability. At group level, the instrument confirmed the stability of the four-week distance measurements. In some studies conducted on a variety of professional groups, it has been shown that elements such as age, obesity, lack of physical activity during leisure time, low musculoskeletal function, high mental demands, lack of autonomy and high physical workload, all have a negative impact on the Work Ability Index level (Van Den Berg et al., 2009). Sartori and al. (2007) conducted a cross-study on non-medical healthcare professionals in seven hospitals in Mantova, delivering the WAI along with other tools. The study found that WAI has been sensitive to identifying changes in work ability in relation to sex and age. Women generally show a significantly lower Work Ability Index than men, with a gradual decrease in the index in relation to the rise in age, among women. However, there were no significant differences in the decrease in the age-related WAI index, between different qualifications, between different work areas and type of working time.

Some researchers have focused on the predictive value of the WAI tool. Tuomi (1997) conducted a longitudinal study on Helsinki City Workers focusing on aging and demonstrated that the Work Ability Index was able to predict the incidence of incapacity for work in 50-year-old workers. Approximately two-thirds of the workers who had a low work ability index received a disability annuity within the next eleven years. Those who obtained a low index but had the chance to continue working in the same activity has been able to improve their work ability through adequate organizational and rehabilitative support for a third. Other studies have shown that a low or decreasing level of the Work Ability Index increases the likelihood of prolonged absence for disability (Alavinia et al., 2009) and disease (Kujala et al., 2006) and early retirement (Salonen et al., 2003) but also premature death (Tuomi et al., 1997). According to the study of Tuomi et al. (2001), good work skills are significantly correlated with high quality and high productivity in their work. The comparison between the group with an excellent level of work ability and the group with a low level of work ability results in a high quality work and high productivity >1.5-fold more common among the former. Besides, the corresponding figures for high quality of work alone and high productivity alone were >1.9-fold and >1.3-fold, respectively. Younger age, better perceived general health and higher beliefs of pain self-efficacy were associated with higher work ability. Younger age, higher beliefs of pain self-efficacy, lower physical work demand category and having a part-time job were associated with higher work performance (Haitze et al, 2013). Chung et al (2015) found out that work ability had a positive correlation with cognitive function, but there was no significant correlation between work ability and age or number of years of service. Several studies have shown that people with a high work ability index have a lower risk of premature labor outbreak and higher quality of life even after retirement (Ilmarinen et al., 2004). The same studies have also shown that if the right actions are taken, it is possible to increase the labor capacity index, even in advanced age.

3. Conclusions

The results of the above studies show that Work Ability Index has a good correlation with psycho-physical condition and with productivity and work performance. In this way, WAI could be a meaningful tool to be used by companies to assess their workers' work ability and, consequently, to act to restore a good level of performance and productivity, if necessary. If private companies will involve themselves in health program for their workers, they will actively contribute to health promotion and inequalities reduction, as stated by OMS. It is important to produce more studies that correlate the work ability index with performance and labor productivity, in order to strengthen the companies' conviction of investing in wellness and health programs for workers.

References

- Alavinia SM, De Boera A, Van Dyuvebviideb JC, Frings-Dresen MH, Burdorf A. (2009). *Determinants of work ability and its predictive value for disability*, *Occup Med*, 59: 32–37.
- Chung J, Park J, Cho M, Park Y, Kim D, Yang D, Yang Y (2015). *A study on the relationship between age, work experience, cognition and work ability in older employees working in heavy industry*, *J Phys. Ther. Sci*, 27 (1): 155-157
- De Vries HJ, Reneman MF, Groothoff JW, Geertzen JHB, Brouwer S. (2013) *Self-reported Work Ability Index and Work Performance in Workers with Chronic Nonspecific Musculoskeletal Pain*, *J Occup Rehabil*, 23: 1-10
- De Zwart BCH, Frings-Dresen MHW, Van Duivenbooden JC. (2002) *Test–retest reliability of the Work Ability Index questionnaire*, *Occupational Medicine*, 52 (4): 177 - 181
- Eskelinen L, Kohvakka A, Merisalo T, Hurri H, Wagar G, (1991) *Relationship between the self-assessment and clinical assessment of health status and work ability*, *Scand J Work Environ Health*, 17 (Suppl 1): 40-47
- Eurostat. (2011), *People in the EU: who are we and how do we live?*, Lussemburgo
- Ilmarinen, J., Tuomi, K. (2004), Past, Present and Future of Work Ability. In *Past, Present and Future of Work Ability. People and Work*, Research Reports n. 65, Finnish Institute of Occupational Health
- Ilmarinen J, Louhevaara V, eds FinnAge (1999), *Respect for the Aging: Action Programme to Promote Health, Work Ability and Well-being of Aging Workers in 1990-96*. People and Work, Research Reports 26. FIOH
- Ilmarinen J, Tuomi K, Klockars M. (1997) *Changes in the work ability of active employees over an 11-year period*, *Scand J Work Environ Health*, 17 (Suppl 1): 128-134
- Kettunen O, Vourimaa T, Vasankari T. (2014) *12-mo Intervention of physical exercise improved work ability, especially in subjects with low baseline work ability*. *International Journal of Environmental Research and Public Health*, 11: 3859-3869
- Kujala V, Tammelin T, Remes J, Vammavaara E, Ek E, Laitinen J. (2006) *Work ability index of young employees and their sickness absence during the following year*, *Scand J Work Environment Health*, 32: 75–84
- Ministero della Salute, *Guadagnare salute, rendere facili le scelte salutari*. (2015), Roma
- Rautio M, Michelsen T. (2014) *How to use the Work Ability Index questionnaire*, Finnish Institute of Occupational Health, 18 – 20
- Salonen P, Arola H, Nygard CH, Huhtala H, Koivisto AM. (2003) *Factors associated with premature departure from working life among ageing food industry employees*, *Occup Med*, 53: 65–68
- Sartori, S., Conway, P.M., Dotti, R., Costa, G. (2007), *L'indice di capacità di lavoro come strumento dell'epidemiologia della prevenzione in relazione all'invecchiamento: risultati di uno studio multicentrico in operatori sanitari*. In Atti del 31° Congresso Associazione Italiana di Epidemiologia "L'epidemiologia dell'invecchiamento", Marina di Ostini, 17-19 ottobre, 154

- Tuomi K, Eskelinen L, Toikkanen J, Jarvinen E, Ilmarinen J, Klockars M, (1991) *Work load and individual factors affecting work ability among aging municipal employees*, Scand J Work Environment Health, 17 (Suppl 1): 40-47
- Tuomi K. (1997) *Eleven-year follow-up of aging workers*”, Scand J Work Environment Health, 23 (Suppl 1): 1-71
- Tuomi K, Ilmarinen J, Martikainen R, Klockars M. (1997) *Aging work, life-style and work ability among Finnish municipal workers in 1981-1992*, Scand J Work Environment Health, 23 (Suppl 1): 58-65
- Tuomi, K., Ilmarinen, J., Jahkola, A., Katajarinne, L., Tulkku, A. (1998), *Work Ability Index* (2nd ed.), Helsinki: FIOH
- Tuomi K, Huuhtanen P, Nykyri E, Ilmarinen J. (2001) *Promotion of work ability, the quality of work and retirement*, Occup. Med., 51(5): 318-324
- Van Den Berg, T.I., Elders, L.A., De Zwart B.C., Burdorf, A. (2009) *The effects of work-related and individual factors on the Work Ability Index: a systematic review*, Occup Environ Med, 66: 211–220