AGE RELATED WORK LOAD
– A WORK ENVIRONMENT INTERVENTION WITH A LIFE
COUSE PERSPECTIVE

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Key Words
Age; Work Ability; Work Environment; Intervention; HR

Abstract
A work environment intervention, based on a model of age related work load by combining the
Work Ability Index with a financial human resource estimate, was carried out for one year in
three hospital wards at a local hospital. After presenting a development programme the wards
were given funding in relation to the existing age structure, to carry out the changes and to
recruit younger persons. The results showed that the experience of workload, the ergonomic and
psychosocial troubles and the experience of work stress had decreased at the same time as the
experience of stimulation in the working situation and the experience of joy at work had
increased. It was not possible to see any reduction in the HR costs or change in the working time
and sick leaves. The development programmes presented showed, limited suggestions of
changes. Work environment interventions to improve work environment and work health are
complicated and work environment problems and work health problems are complex and
influenced by many factors. One year is a very short time for an intervention, which aims at
improving the work environment and work health. The importance of the experience of the staff
of an improved work environment is however not to be diminished.

Introduction
The definition of who is to be considered an older person in the work force is unclear. In a study
of older people’s ability to work, the WHO defines the group as people over the age of 45, while
the ILO defines older workers as all people who risk encountering difficulties at their job due to
their age (WHO 1993). A study from the Swedish National Insurance Board about employers’
attitude toward older workers (2001:9) and a study of the Norwegian municipal sector (Mykletun

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2000) indicate that individuals start to be perceived as older workers when they are between 50 and 55 years old. This means that who is counted as older varies between different areas and in different work environments. Age is thus not the only significant factor, but also the structure of the work environment and how the work is organized.

As people get older they are at increased risk for illnesses that make it difficult for them to do their jobs. There is a biological connection between ill health and age and as early as the age of 40, a person’s physical abilities begin to decrease. At the same time the incidence of illness increases somewhat (Kilbom and Torgén 1996). A person’s physical ability to function has an impact on how he or she is able to manage the physical strain of his or her job. The physical ability to function is particularly important in jobs that are physically demanding. The higher a person’s physical abilities the less demanding the work becomes. Because a person’s physical abilities decrease with advancing age its significance increases for the older people in the labor market. The demands from the job do not decrease automatically as the physical abilities decrease (Nygård and Ilmarinen 1991).

Between the ages of 40 and 65 the changes in mobility and in the body’s circulatory system are the most notable (Nygård and Ilmarinen 1991). Many older people have jobs with high demands on the abilities of circulation and mobility. Jobs within the health care sector, which employ mostly women, are heavy. The demands from the jobs are also usually the same regardless of age. The stress of the most demanding jobs may exceed a person’s abilities as early as the ages of 44-55 (Kilbom 1997). In absolute numbers, the demands on health care workers may be reasonable, but a person with a limited capacity becomes tired during the workday and in addition, the fatigue appears to accumulate during the workweek. The risks of accumulated fatigue are particularly high for employees who are not able to set the pace themselves and if the opportunities for breaks are limited.

It is common among employees within the health care sector that older employees reach or even exceed the limit that is considered reasonable with regard to their ability (Nygård 1988). Within the health care sector it is also difficult to eliminate fully the physically demanding tasks by introducing technological aids. Control and influence over the work situation may however, constitute an opportunity for older people in the work force to adapt the demands of their job to their own ability to perform it (Aronsson and Sjögren 1994). This means that how the job is organized and structured has a large impact on older people’s ability to continue working until retirement with their health intact. High job requirements combined with little control increases the risk of overuse injuries while high demands combined with a high degree of control of the work situation has favorable consequences for the personal health as well as with regard to the
The individual’s ability to work must be related not only to age and life span but also to how the work is organized, the responsibilities and the work place. The individual’s ability to work must be viewed from several aspects and the organization’s demands on the individual must be adapted according to that individual’s specific conditions. For many older health care workers, the job and its organization look the same today as they did when the employees completed their training 30-40 years ago. A person’s ability to work may be expressed as a whole where the individual, her responsibilities, health, knowledge and work place constitute the parts. This whole varies with life span and age, but also according to changes that occur in the job and in society. A person’s ability to work means that the individual’s ability to function is compatible with the demands from the job.

The concept ability to work and the different methods of estimating a person’s current and future abilities have been used and discussed within occupational medicine and occupational epidemiology research during the last few decades. One way to measure the ability to work, which is currently used in a number of countries, is by using the Work Ability Index (Tuomi et al 1994). The ability to work is measured by using the index partly through subjective self-evaluations of health and mental abilities and partly through information about illness and absence due to illness in relation to the demands of the job. The measurements are then compiled in a scale.

### Methods

A work environment intervention that came to be called *Age related workload* and which aimed at supporting the staff was conducted in the hospital in Varberg between 1999 and 2001. The purpose of the work environment intervention was to test a model of age related workload by combining the work ability index with a financial human resource estimate and thereby motivate the financing of a further development of the work environment. The idea was that the factors, which should be influenced by this intervention was workload, ergonomic problems, psychosomatic problems, stress, cooperation and social climate as well as job satisfaction.
The intervention was made on health care staff in three different wards. One rehabilitation ward with 39 employees; one gynecological ward with 28 employees and a medical outpatient ward with 14 employees. The intervention meant that the staff received training about life span, work and the ability to work. During the training, efforts at making changes in the work place were encouraged with regard to developing routines as well as how the work is organized. Each work place was given a grant, which was based on each work place’s age structure and the assumption that an individual’s ability to work may be estimated to decrease with 25% between the ages of 50 and 65, or by 2.0% annually; as well as on the average income for each professional group. The basis for the grant was that a larger number of older employees in a work place would mean a higher grant (Table 1).

Table 1
An example of the estimate of financial compensation: The Rehabilitation Ward

<table>
<thead>
<tr>
<th>Position</th>
<th>Age</th>
<th>Degree of Employment</th>
<th>% Estimated Decrease in Work Ability 1999*</th>
<th>Financial Compensation 1999 SEK/Month</th>
<th>% Estimated Decrease in Work Ability 2000*</th>
<th>Financial Compensation 2000 SEK/Month**</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN</td>
<td>61</td>
<td>80.20%</td>
<td>22.00%</td>
<td>3 755 SEK</td>
<td>24.00%</td>
<td>4 096 SEK</td>
</tr>
<tr>
<td>CNA night</td>
<td>61</td>
<td>64.20%</td>
<td>22.00%</td>
<td>3 006 SEK</td>
<td>24.00%</td>
<td>3 279 SEK</td>
</tr>
<tr>
<td>Supervisor</td>
<td>59</td>
<td>100.00%</td>
<td>18.00%</td>
<td>3 830 SEK</td>
<td>20.00%</td>
<td>4 256 SEK</td>
</tr>
<tr>
<td>CNA night</td>
<td>59</td>
<td>64.20%</td>
<td>18.00%</td>
<td>2 459 SEK</td>
<td>20.00%</td>
<td>2 732 SEK</td>
</tr>
</tbody>
</table>

* Calculated as a part of a position: A decrease of 25% between the ages of 50 and 65, 2% annually.

** Calculated as a part of the median salary within the base unit 1999, 15 299 SEK/month, plus human resource costs of 40% of the salary, which adds up to 21 280 SEK/month.

The grant would make it possible to make changes, which in the long term would counteract the exclusion of older staff members, but also make it possible to hire younger people earlier than planned. In order for the work places to be eligible for the grant they had to present an action plan for their internal transformation efforts. The work environment intervention was followed up through a combination of surveys of attitudes and financial human resource evaluations (Cascio 1987; Flamholz 1989). In the spring of 1999, prior to the start of the intervention, a first survey of the work environment was made to measure how the staff perceived their work environment. Another survey was made after the intervention had been going on for eleven months. After that, data has been produced concerning time management and costs for human resources for the three years of 1999, 2000 and 2001. Finally, the changes that the different work places had prioritized in their respective action plans were analyzed. The most important parameters of the overall data collection were the perceived changes in the work environment; the possible effects on work hours and absences due to illness; the possible effects on costs for
human resources as well as the suggestions for changes in the way the work is organized and performed, which were uncovered in the action plans. The collected data has been analyzed from both individual and organizational perspectives.

**Results**

From an individual perspective, the analysis has been made mainly using the work environment survey. Because the time period for the work environment intervention is relatively short and the population is small, we are unable to conclude reliably that the work environment intervention has had an impact on the staff’s workload and job satisfaction. There are however, differences in how the work environment is perceived that may indicate a positive development. At all the participating work places, the staff perceives an increased motivation as well as an increased job satisfaction.

From an organizational perspective, the analysis has been made using changes in time spent on the job, absences due to illness and costs for human resources as well as by using the action plans. The time spent on the job and absences due to illness vary from year to year in the three participating work places. A more detailed analysis is needed, but also more extensive periods of intervention and follow-up than what was possible within the framework for this project, in order to find a possible connection to the work environment intervention or to find other causes of the variations in the time spent on the job and absences due to illness. An analysis must also be made of the individual causes for absences due to illness in order to exclude absences that are not caused by the work environment. The suggestions for changes in the way the job is performed and how the work is organized, which were presented in the action plans were very limited and were to a high degree dependent on the ward supervisors’ involvement in the project. One department in particular, presented several suggestions concerning change in work schedules, with fewer but longer shifts to provide opportunities for improving the planning of the work day, to give more time and continuity in the work with patients and also to provide for more opportunities for employees to take breaks together and for common planning.

**Discussion**

The aim of this work environment intervention was to educate the participants about life span and work and thereby create an understanding for the problems in the work environment that the age structure in the work places within the health care sector may cause and that this understanding might produce a further development of routines as well as of how the work is organized. There was also a hope that it would be possible to measure the effect of the
intervention by measuring a perceived improvement in the work environment, changes in absences due to illness, and thereby the subsequent changes in costs for human resources. The analysis does however indicate that the directly measurable effects of the work environment intervention - changes in time spent on the job and costs for human resources- are limited. This is not surprising considering that the work environment intervention was limited in scope as well as in time.

What is surprising however, is the very limited number of suggestions for changes in routines as well as in the how the work organized that were provided in the action plans by the staff in the surveyed work places. The expectation was that every work place would give a large number of suggestions of smaller changes in for example work hours, or suggestions for changes in routines, which could facilitate the daily work in the work place. The basic idea behind action research is that individuals are viewed as self-directing and full of initiatives and that they are interested in taking responsibility for their own learning and development. It is also assumed that the individuals themselves are active and want to influence their organization (Kemmis och McTaggart 1988). The fact that these effects did not materialize may however, also provide us with additional knowledge about the work environment within the health care sector and its institutional arrangements, which have contributed to the rise of the problems with older workers and, which also make it difficult to do something about these problems.

The researcher who uses interventions in the work environment for his or her research must be aware that he or she thereby also imposes demands on the individuals who participate in the intervention. These demands may be difficult for an individual work place within the overall health care organization to fulfill. Within the complex system of the health care sector (Perrow 1986), with its strong ideas of safety, a detailed coordination, and a strict hierarchic leadership structure, it is difficult for individuals in a single work place to make changes in the routines and how the work is organized, even if they know and understand the actions, which could be taken to improve the organization’s work environment.

Much of the research on aging/life span and work indicates that it is important for the individual to have the opportunity for flexibility and for adapting his or her work environment, the responsibilities and how work is structured to his or her own needs. For older workers who have physically demanding jobs, the opportunities to adapt the demands of the job to their own ability to work through control and influence over their own situation, is of critical significance. High demands from the job combined with little control causes overuse injuries, while high demands combined with a high degree of control has a positive impact on both health and skills. Control over work schedules and the opportunity to influence one’s work, the opportunity for
breaks and working at one’s own pace is important for the recovery after psychological or physical exertion not only for older workers but for people of all ages (Theorell et al 1999).

The strict hierarchy and the high degree of coordination within the health care sector limit the possibilities for flexibility within the organization and also make it difficult to make changes in routines and how the work is organized. This also means that the hierarchy and the coordination make it difficult for the organization to take advantage of the skills at all levels of the organization. The hierarchy and the coordination constrain the individuals so that the suggestions that are given in the work places are of the kind that the staff members from experience know they are allowed to give and, which are feasible.

Nurses and health care personnel are professions with a majority of women and they have been taught through all of their education and careers, that the highest goal of their job is to provide high quality care and to meet the patients’ needs in the best way. The patients are the center of the work and in most cases the patients suffers from more pain, more illness and a larger lack of control over their situation than the health care staff. The staff may also have a tendency to underestimate problems in their own work environment compared to their work with the patients and thereby they also underestimate the opportunities to prevent these problems. The organization’s leadership as well as the individual employees put the medical treatment of the patients and patient care at the center and this may have the result that changes in routines and how the work is organized that do not benefit the patients directly are not prioritized or even viewed as feasible (Mykletun 2000).

Conclusions
The costs for human resources, the salary expenses and sick leave are too rough an estimate for it to be possible to draw any conclusions of the effects of a work environment intervention on an organizational level. If costs for human resources and salary expenses are to be used when following up efforts to improve the work environment, these costs must also be related to the method of time management at the work places that are studied.

The conclusions that may be drawn concerning action plans are that the staff members within the health care sector are not used to work on their suggestions for change themselves concerning routines and how the work is organized. The organization’s complexity and the traditional hierarchy do not stimulate change, but the supervisors’ involvement and interest in changes are also critical to the result of the staff’s work.

Today’s health care organizations show a lack of possibilities for flexibility and for adapting the work environment, the responsibilities and how the work is structured to the individual. The
health care sector’s organizational structure, its professionalization, and institutional arrangements limit creativity, new thinking and the retaining of skills to such a high degree that it is doubtful whether it is possible to make internal changes in the work environment in this type of organization. It is necessary to highlight and question the organizational structure of the health care sector when we study the problems of its work environment. In the same way the opportunities to preserve the skills that exist within the organization must be highlighted.

The action research or the intervention studies, which have been conducted in Scandinavia concerning problems in the work environment within the health care sector, have largely been made by researchers from the natural science disciplines, occupational medicine and organizational psychology. These disciplines are themselves part of the health sector’s institutional arrangement. Reidar Mykletun, Martin Nielsen och Gustav Wickström (Wickström 2000) have however, stated that it is necessary for the scholars who conduct intervention studies in the work environment of the health care sector to abandon natural science principles. In addition, it is both essential and urgent to continue research that focuses on the mechanisms that constrain and stimulate the propensity for change within health care organizations.

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