

# Small and medium sized enterprises

A literature review of workplace health promotion

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## Summary

This literature review is first giving a broad summary from the European Network of Workplace Health Promotion (WHP). It is based on material published in 2001 and it concludes:

- Small and medium sized enterprises (SMEs) include 2/3 of all jobs in Europe
- Why should WHP be conducted in SMEs?
  - high prevention potential
  - high accident rates
  - greater strains in specific work situations

### Positive results

Occupational Health and Safety (OHS) gained significance through implementation of EU directives into national law

- obligatory tasks (e.g. implementation of risk assessment)
- prevention of accidents expanded to prevention of work-related health risks

### Negative results

SMEs have both qualitative and quantitative problems

- labour inspectorate is insufficient
- very little financial latitude leads to cheapest offer and the results will be below standard
- lack of skills and qualifications

What SMEs need is:

- models and solutions that can be implemented easily and without further costs
- co-operation - pooling of resources (money, knowledge, experience etc.)
- training concepts adapted to the current standard

## Conclusions of the whole literature review

- SMEs face challenges
  - financial problem
  - external support
  - lack of time etc.
- responsibility?
- successful WHP involves workers and management
- even short interventions can work
- gender aspects is not (yet?) a big issue in WHP

## **I. The current status of Workplace Health Promotion in small and medium-sized enterprises (SMEs) in Europe**

This is the summary of a brochure published in the year 2001 by the European Network of Workplace Health Promotion<sup>1</sup>. The brochure was written after having done a project, which aimed at assessing the current situation of WHP in European SMEs, as these employ the majority of employees in the EU.

Almost 20 million companies within 19 European states employ fewer than 250 people. That is more than 99% of all companies and 77 million employees. About 93% of these enterprises employ fewer than 10 people (micro enterprises). The expansion of the service sector, more and more outsourcing of activities and dynamism of certain sectors, such as information technology, have lead to this employment growth in SMEs recently.

Nowadays SMEs provide 2/3 of the jobs in Europe. In general the textile and clothing industry, the processing of timber and metal products and the recycling and construction industries show the highest percentage of SMEs. Also within the service sector – hotel, restaurant, financial and business services, health and social work etc. – there is a high percentage of SMEs.

Recently increasing attention has been paid to SMEs at community level and within the member states regarding their economic and social significance.

There do exist directives that deal with how safety and health at the workplace have to be improved and they have been transpositioned into national law. Still it is hard to get SMEs to accept these guidelines without threatening with punishment.

SMEs differ from larger companies. That is why specific policies and strategies must be developed for them. Therefore the ENWHP has concentrated on SMEs and has tried to find practical approaches to improve health and well-being at the SME workplace.

### **1. General Conditions**

It is extremely difficult to obtain a clear picture of the present state of health and safety in Europe's SMEs on the basis of the information and statistics gained from each country's report. The documentation methods vary too much between countries and furthermore, many countries have difficulties in obtaining relevant information on occupational health and safety at all.

#### *Accident at work*

According to data, the risk of suffering an accident is much higher in SMEs than in large companies (except for Austria, Denmark and Sweden). Fatal occupational accidents are even twice as likely to happen compared to larger companies.

Most accidents occur in the building industry and in industrial production processes. The lowest rate shows the service sector.

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<sup>1</sup> Federal Association of Company Health Insurance Funds. (2001). Report on the Current Status of Workplace Health Promotion in Small and Medium-Sized Enterprises (SMEs). Essen.

### *Occupational diseases*

Only sparse information is available on this issue. Still we know that most occupational diseases are reported in the building industry, the metal-working sector, health services and agriculture.

### *Occupational sickness absence*

It seems as if the number of sickness absence in EU companies is connected to the company size. The larger the company, the higher the sickness absence rates (except for Norway and Greece).

High sickness rates are also reported in the public sector, the building industry, the transport sector as well as certain private services (such as health service and education). The most prevalent type of sickness is that of muscular-skeletal complaints.

### *Strain at work*

The improved working conditions have not led to a long-term decrease in strain at work. Especially repetitive movements, working at very high speed and working to tight deadlines cause problems (survey year 2000). An increasing percentage of employees believe that their health is suffering due to strains at the workplace. The most frequently mentioned problems relate to the muscular-skeletal system, as well as to stress. Especially mental / nervous stress factors are increasing.

### *Physical work strains*

When it comes to physical work strains, major discrepancies exist between micro and larger enterprises. The trend is that the fewer employees there are in the company, the greater the physical strains are (except for Netherlands and Sweden). Affected are especially the building industry, the processing industry and agriculture where workers are most frequently exposed to working in painful positions, moving heavy loads or repetitive movements.

### *Exposure to chemicals*

The results of the studies conducted do not allow for any well-substantiated conclusions.

### *Psychosocial working stress*

There is a connection between company size and work stress. Some areas of stress are greater in SMEs (having to work at high speed...), some are more prevalent in larger companies (monotony...).

→ There are a number of arguments for boosting WHP in SMEs:

- high prevention potential owing to a large number of employees
- relatively high accident rates compared to large companies
- relatively greater strain in specific work situations.

→ We face a branch-specific need for prevention!

## **2. Structures and practice in WHP**

### *Legislative framework*

The regulations and directives issued by the EU must be transposed by laws and ordinances into national legislation:

directives according to Section 100a of the EEC Treaty

directives according to Section 118a of the EEC Treaty

ad a) These directives serve to break down trade barriers. The different technical requirements placed on products are standardized through the entire EU economic area.

ad b) These directives are socio-political and relate to an internal market that has no trade barriers. They are aimed at improving the occupational health and safety of employees. The directives outline minimum regulations, which have to be fulfilled.

Important general conditions for occupational health and safety have changed with the Framework Directive 89/391/EEC and the resultant changes in national law. The focus is now set on preventive and cause-oriented risk avoidance, adaptation of the working conditions to people and the development of comprehensive policies. Moreover, the responsibility of the employer has been redefined – according to this, jobs have to be assessed for any risk and appropriate action has to be taken.

In a number of countries, the adaptation process was linked to a more comprehensive legal reform project, which resulted in major changes in existing regulations. In other countries only marginal changes took place (UK, France) – only minimum requirements were fulfilled.

### *Labour inspection*

Inspectors' duties have generally been expanded in two directions:

what is to be inspected and monitored has changed

→ work organization, work content, psychosocial stress...

it is more about consultancy and information

→ employers are to be advised and informed by the inspectors

Labor inspection has trouble with too few staff and insufficient funds. In addition to this, there are often qualification shortcomings concerning the new strategies.

The smaller the enterprise, the less the likelihood of an inspection. By SMEs labor inspectorate activities are perceived as being costly and time-consuming. Employers feel that the regulations limit their entrepreneurial autonomy.

### *Occupational health and safety services*

In most of the countries involved the employers are legally obliged to provide health care for their employees. But the smaller the enterprise, the less favorable is the situation. For example, a risk assessment is obligatory in most countries but it only takes place in 30-50% of small enterprises. Whereas in larger companies (>100 employees) the corresponding rate is almost 90%.

The role of the employer regarding employee safety must not be underestimated. When only employing up to about 50 people, the employer in a small or micro enterprise can take the responsibility for employee safety himself. There are pilot projects underway, called “employer model”, which focus on the possible employer’s lack of knowledge and motivation regarding occupational health and safety. This model works with training courses and seminars designed to inform and to inspire.

The “employer model” seems to have a future because it is specially designed for SMEs. Where tried, the cooperation with the labor inspectorate got better and the acceptance of occupational health and safety as being an important issue has increased.

What is also getting more and more common is that individual entrepreneurs are joining together to fund the services of an external body, usually for cost reasons. The occupational and safety units under the joint model are set up and financed by several enterprises working together.

### *Health and safety committees and representatives*

The establishment of occupational health and safety committees and the nomination of health and safety officers have a long tradition in the older industrial countries (except for Greece, Ireland and Portugal).

Health and safety representatives are often linked to trade unions. The greater the direct influence of the trade union in the company, the greater the potential for employee participation on WHP issues. Still in a number of countries, employees in SMEs are completely excluded from co-determination and participation possibilities.

In terms of employee participation we differentiate between committees and individual delegates. The establishment of such committees is only obligatory for businesses of a certain size (limit is between 20 and 50 employees, depending on the country). In many countries not all employees have the right to assert their rights in occupational health and safety – in enterprises below a certain size, employees are even excluded from this right. This does not mean that small enterprises are not doing anything about their employees’ health. Surveys from Germany, Denmark and Spain have shown that – depending on the country – about 30% of all enterprises with fewer than 10 employees have established a safety organization although this is not obligatory.

## **3. Summarizing evaluation of WHP**

### *Pros +*

Occupational health and safety has definitely gained significance in SMEs through the implementation of the European directives into national law. This has led to major changes in occupational health and safety. The provision of care and the implementation of risk assessments have become obligatory. There is a greater focus on management tasks, advice and system monitoring has become more common, there is a close co-operation with all people involved and generally a modern understanding of state action. This means more quality assurance and mediation. Traditional prevention of accidents was expanded to include prevention of work-related health risks (physical, chemical, psycho-social).

### *Cons -*

Still the practical implementation faces a series of quantitative and qualitative problems in the SME sector. The labor inspectorate and other service resources are insufficient and cannot serve the amount of SMEs that need to be supported.



Also SMEs have a very little financial latitude and therefore pick the cheapest offer when it comes to WHP – this results in below standard care.

Most small enterprises do not have occupational health and safety infrastructure at all and that is why they lack fundamental skills and qualifications. The priority of the small entrepreneur is running the business. He/She perceives labor inspection still as a time -consuming formal requirement.

Acceptance of WHO programs by SMEs is therefore largely dependent on models and solutions, which can be implemented easily and without any further costs.

Another weakness is the lack of co-operation between labor inspectors and preventive services as well as within the preventive services themselves. There is not enough pooling of resources.

Training concepts have to be adapted to the current standards of legislation and practicability, almost all occupational and safety professionals are inadequately prepared for their role.

Further weaknesses mentioned:

WHO projects still remain isolated from other projects within the enterprise

WHP projects are one sided, only concentrating on behavioral and lifestyle issues and ignoring hazardous working conditions

WHO projects tend to be geared less to health and social needs than to immediate demands (it is important not only to concentrate on employees suffering from temporary health disorders, but on those who are habitually exposed to the greatest hazards).

### *Consequences and need for action*

Traditional occupational health and safety is not suited to SMEs. WHP must be focused more on **motivation, co-operation and consultancy** as well as **interest and acceptance**. Services and measures need to be closely **related to the practical problems and experiences of SMEs** and they have to be readily accessible, as local as possible.

In order to achieve the goals set, **public relations** work must be used to highlight WHP successes and to **encourage acceptance** among SMEs.

The optimization of WHP can only be achieved with the **co-operation** of all those involved.

At a political level this means developing **new policies** and integrating existing ones. It means setting up **WHP institutes**, establishing the **dialogue** between interested parties etc.

At the implementation and intervention level, **networking and partnership-building models** are in demand. This means the development and the maintenance of enterprise and expert networks, which will ensure the **sharing of knowledge and experience**. It is further necessary to develop new **training concepts** in order to be equipped to meet the new targets.

## **II. Additional literature research**

This research was accomplished in order to find out more about workplace health promotion from an international point of view. Unfortunately it was very hard to define the various (governmental and/or non-governmental etc.) organizations that focus on this very issue. Worldwide there exist several networks, companies, societies that work in this field – varying in size, focus etc. After trying to do so, it was found to be impossible to give exact numbers on the prevalence rates of different programs (how many focus on exercise, on nutrition, on empowerment...).

Being given a few keywords and special fields of WHP (empowerment, exercise programs) finally made it possible to go on searching.

To accomplish the research several databases were searched for studies. These were *Arbline* (empowerment and the workplace, education at workplace; n=2), *NIOSH* (workplace health promotion, occupational health and municipalities; n=6), *PUBMED* (occupational health and exercise, educational programs at the workplace, empowerment at the workplace; n=10), *Psyinfo* (empowerment at the workplace; n=1) and the *Science Citation Index* (empowerment at the workplace, exercise at the workplace, workplace health promotion; n=3). Research in *HighWire Press* and *Ergonomics Abstracts* did not result in any relevant studies. Research was limited concerning language, only English data could be taken into consideration (especially of importance for *Arbline*, which is mostly a Swedish database), and the available time was only four weeks.

The exact (mesh) terms that were used for the search are noted in the brackets, the number n=... indicates the studies that were taken into closer consideration and where as a result the abstracts were read. Finally 22 abstracts were given to Lena Karlqvist to decide on the relevant ones that were then ordered in the full-text version. These were one booklet and 12 studies and articles, of which finally 7 could be used. Two did not arrive on time, the others were either too old, failing regarding the content or would go too deep into detail. Still they will be mentioned in the list of references attached to this report.

The following short summaries of the most relevant studies will provide further information about WHP in small and medium sized enterprises, will give evidence for the efficacy of empowerment trainings of the workplace, will present an example of how even a brief intervention can improve employees' health. More information about preferences of employees when it comes to exercise programs will be provided as well.

**Lippin, T., Eckman, A., Calkin, K. & McQuiston, T. (2000). Empowerment-Based Health and Safety Training: Evidence of Workplace Change from four Industrial Sectors. *American Journal of Industrial Medicine*. 38: 697-706.**

**Method:** cross-sectional telephone interview survey, about 50 questions

**Study population:**

	blue collar public sector	chemical processing	hospitals	nuclear facilities
workers	112	40	32	62
management	80	3	16	17
total	192	43	48	79 → <b>362</b>

**Aim:** to assess how two union-led, empowerment-based hazardous material training programs impacted health and safety workplace conditions across four industrial sectors

The background of this American study is the assumption that if workers are trained and supported to take action in health and safety issues this is the key to an improved work environment.

The study tries to assess via a cross-sectional telephone interview survey how two union-led, empowerment-based hazardous material training programs impacted health and safety workplace conditions across four industrial sectors. The focus is so set on four different workplaces and on the question, how such training affects these workplaces. The study evaluated both, the willingness of workers to raise health and safety concerns as well as the management's willingness to do so and to react. Also the final changes were examined. The data for this study were drawn from three years of program evaluation of two hazardous material training programs, the *Paper, Allied-Industrial, Chemical and Energy Workers International Union (PACE)* and the *Service Employees International Union (SEIU)*. Both training programs worked with empowerment approaches to health and safety and can be characterized as a combination of problem-solving and empowerment approaches (worker-centered learning, training led by worker trainers...). Workers' experience and learning are at the centre of the trainings. The goal is for them to gain knowledge and skills to recognize and enhance their technical expertise and to be able to take action based on these skills back in the workplace. Quantitative as well as qualitative data were collected.

**Results:** Over 89% of respondents from each facility said that they were more aware of health and safety issues because of the training. 55,4% to 72,9% even said they were a great deal more aware. Concerning the usage of reference material, half of the people interviewed did so and even a higher percentage of every facility had shared information with others.

62,3% to 73,7% of all people interviewed responded that workers in their area followed the established safety rules more since the training. When it comes to hazardous material incidents, almost all of the interviewed participants said that they felt better prepared to react safely to an emergency. About half at each type of facility said that they were "much better" prepared.

The primary goal of the trainings was to prepare participants to recognize hazardous conditions and situations and to stand up themselves for health and safety at their workplace. When they were asked about raising concerns after the training, between half and three quarters of respondents from each type of facility reported that they were more willing to raise concerns after the training – this increased willingness is the same for workers and managers.

The actual concerns raised were also part of the questionnaire. 55,8% of the blue-collar public sector and the chemical processing workers have raised at least one concern since the training. The lowest rate is still 36,3% of workers in nuclear facilities. In general, a greater percentage of workers than managers seem to have actually raised concerns.

Talking about the changes made in reaction to raised concerns, over half of the people who had reported a concern said that their intervention resulted in a change. With 65,7% of all reports resulting in a change the blue collar workers in the public sector are ranging first place, the lowest rate is still 54,7%, more than half, in the chemical processing sector. Changes following management initiative range from 15,2% in hospital settings up to 47,4% in the chemical processing workplaces.

The reason for this was the change in manager's attitude concerning health and safety issues at the workplace and an increasing willingness to make changes to the better.

Also local unions were influenced. An average of 38% to 56,7% of respondents from each sector said that after the training it was easier for local unions to be active on health and safety.

**Discussion:** The findings of this study show that the two trainings done influenced participants to raise concerns regarding health and safety at their workplace. As their concerns really resulted in changes, the training actually influenced workplace health and safety itself.

What is very important to note here are that the trainings involved two organizational factors, the management and the local union. Both workers and managers perceived that the training led to more understanding in management - it was effective in shifting decision-makers' attitudes.

Still the sample size of this study was relatively small and the results may not necessarily be generalizable. In a different workplace context, workers may face more barriers to raising concerns and winning health and safety changes.

**Barbeau, E., Roelofs. C., Youngstrom, R., Sorensen, G., Stoddard, A. & LaMontagne, AD. (2004). Assessment of Occupational Safety and Health Programs in Small Businesses. *American Journal of Industrial Medicine*. 45: 371-379.**

**Method:** in-person interviews with the staff person identified by management as being most responsible for health and safety

**Study population:** 25 small worksites, on average 96 workers

**Aim:** to present an assessment tool for evaluation and to report descriptive quantitative and qualitative data from a cancer prevention trial in small worksites

This American study adapted an occupational safety and health administration (OSHA) survey instrument in order to assess management commitment and employee participation, workplace analysis, hazard prevention and control, and education and training. Empirical research on OSH programs is needed to better inform practice and policy development in the area of small workplaces.

The objective of this study was to present an assessment tool for evaluation and to report descriptive quantitative and qualitative data from a cancer prevention trial in small worksites. Data was obtained through in-person interviews with the staff person identified by management as being most responsible for health and safety. This included directors of human resources, production managers, environmental health and safety managers, occupational health nurses and others, in one case the company president.

**Results:** Only 11 out of 25 companies set health and safety goals on a regular basis, 10 had a written policy statement regarding OSH issues for outside contractors working at the facility, and just under half (n=12) count health and safety performance in supervisor/manager promotions, pay raises or bonuses. 20 out of these 25 worksites assigned health and safety as a responsibility to one particular employee, some to more than one employee.

One particular interest of this study was to find out how small businesses handle education and training in multi-lingual and mixed-literacy workforces. Nearly all workforces in this study reported employing workers for whom English was not the first language. 18 companies made provisions regarding training for these workers. About half of the worksites stated employing workers with limited literacy skills, 9 of them reported making provisions for training these workers.

A third of all worksites had a health and safety incentive program, however, only one of these 8 worksites reported rewarding prevention activities rather than outcomes such as reduced injury reports.

Qualitative interviews were also part of the study. The results of these were that most companies have set up health and safety committees and training programs. Other responses had a much more systematic approach (such as regular inspections and processes for addressing problems). The most often noted well-done aspect of workplace health promotion (opinion of the company itself) was sustained management commitment and good communication between workers and management.

The areas for improvement ranged from more employee involvement (n=10), training and education (n=8), management commitment (n=7) to worksite analysis (n=4), hazard prevention and control (n=3) and ergonomic issues.

In order to realise these improvements, companies reported they needed more time (n=5) and outside expertise (n=7). Also education and management support, additional resources and greater employee involvement were mentioned as being needed.

When it comes to barriers to OSH, employee defensiveness, language differences, low literacy and time and budget constraints were the most occurring reasons.

Motivations for OSH programs within the company range from compliance requirements and accidents and fatalities in earlier days to economic issues such as workers' compensation claims. External forces and resources like parent corporations or ISO quality assurance auditors, contracted occupational health nurses or assistance agencies, were mentioned by several companies as having a hand in OSH activities.

**Discussion:** The results contribute to important empirical evidence on how small businesses address OSH issues in general and how they could be supported in improving these activities. One important finding is that many worksites feel a need for greater employee involvement. Still management respondents did not specify how they want to achieve this. What is surprising to me, is that on the one hand more employee involvement is wanted, but on the other hand 20 out of 25 worksites said health and safety is actually a responsibility of employees. The question is whether involvement is understood as "taking action" or "taking part".

The mentioned barriers, such as language or lack of time, do not seem to cause the greatest problems. Apparently companies can find ways to deal with these factors on their own.

To summarize the results of this study, small companies may be able to develop OSH activities themselves, smallness does not appear to be a barrier. However, these worksites have to rely on external support to execute and motivate program elements. So, external forces play an important role in OSH activities (parent corporations, ISO standards, fear of compensation claims...).

The strength of this study is that it has combined qualitative and quantitative approaches through close-ended questions as well as open-ended questions. Still a few limitations must be considered. The worksites that participated did this voluntarily – so there must already be a certain interest in workplace health promotion. The sample was drawn from a limited region of the country and due to lack of resources, only one single management-level worksite representative was interviewed.

**Method:** computer-assisted telephone interview

**Study population:** random sample of 3628 worksites with 15 to 99 employees, of which 2680 responded

**Aim:** to document activities related to health promotion, worksite policies regarding health and safety, health insurance and philanthropic activities

In the states, as everywhere else in developed countries, there has been a trend towards downsizing when it comes to company size. In the US approximately 95% of all worksites have fewer than 50 employees, this means that 42% of all employees in the states work for such an organization.

For this study small worksites were classified as those employing 15 to 99 people. Data from larger worksites were included for comparison purpose. The sample, based on the number of employees and industry type, was drawn from the American Business Lists master file (1995). The interviews were accomplished with support of the computer-assisted telephone interview system (CATIS). The initial point of contact was the company owner or the human resources manager.

**Results:** The results compare prevalence rates of small worksites with those of large ones (>100 employees).

One in four small worksites offered some type of health promotion program in the previous year, 44% of large worksites did so (significant). For small worksites the most common programs were occupational safety and health, back injury prevention and CPR (cardiopulmonary resuscitation). These programs were also the most offered in larger companies (insignificant difference).

When it comes to lifestyle, small worksites were less likely to offer programs dealing with nutrition, weight management, blood pressure, cholesterol and health risk appraisal than were larger worksites (not statistically significant). Also programs addressing physical activity, fitness and smoking cessation were less common. Alcohol and drug abuse programs were equally prevalent across the two categories. HIV/AIDS (significant) as well as maternal and prenatal health programs (insignificant increase) were found more often in larger companies than in small ones.

When it comes to responsibilities in occupational health and safety, the incidence of specific persons or departments being responsible for health promotion, occupational health and safety and employee assistance increased significantly with company size.

Almost all worksites that offered programs on OHS made them available to all employees, the availability to family members or retirees was much less common – there was no significant difference concerning company size. Also regardless of size did the vast majority of companies allow their employees to participate in these activities within working hours.

The large majority of small as well as larger companies had special policies on alcohol and illegal drug abuse at the workplace. The difference was statistically significant for drug policies but not for alcohol. Smoking policies were less common – there was a significant difference between large (86,7%) and small (77,8%) worksites.

A very high percentage of small worksites offered some type of group health insurance to their employees. The percentage increased significantly with size of workforce (small: 98,1%, large: 99,5%). Group health plans almost always covered full-time employees and frequently family members and other dependents (small: 80,8%, large: 83%). Coverage was less common for part-time employees and retirees.

**Discussion:** The results of this study show that worksites with more than 100 employees are almost twice as likely to have implemented OHS programs than smaller companies with fewer than 100 people.

Regardless of workplace size the most frequent programs dealt more with health protection than promotion, occupational safety and health was the most common program. So the emphasis is laid on job-related hazards – this can be traced to legislation and state level requirements.

Still larger worksites are, mostly because of greater financial and human resource possibilities, able to expand their programs to nonoccupational and lifestyle issues also.

The implementations of alcohol and illegal drug use policies have a long history compared to smoking and occupant protection policies, which have been set up more recently.

The findings from this study highlight four conclusions:

1. small worksites are involved in providing OSH programs
2. however, they do so generally less often and with focus on job-related hazards
3. still they are as likely as larger companies to have set up alcohol, illegal drug use and smoking policies, as well as rules regarding seatbelt usage
4. most small worksites provide some type of group health insurance to their employees.

This shows that without further help and support from public or non-governmental organisations many small worksites will not be able to provide health promotion programs or to expand them.

The comparison of these finding to the report published by the ENWHP shows an interesting difference between SMEs in American and Europe. As the ENWHP states, in Europe small companies focus on behavioural and lifestyle issues rather than on hazardous working conditions<sup>2</sup>.

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<sup>2</sup> Federal Association of Company Health Insurance Funds. (2001). Report on the Current Status of Workplace Health Promotion in Small and Medium-Sized Enterprises (SMEs). Essen.



**Purath, J., Miller, A., McCabe, G. & Wilbur, J. (2004). A Brief Intervention to Increase Physical Activity in Sedentary Working Women. *Canadian Journal of Nursing Research*. 36(1): 76-91.**

**Method:** intervention based on the PACE<sup>®</sup> Model (Patient-Centered Assessment and Counseling for Exercise) which is based on the Transtheoretical Model

**Study population:** prospective randomised trial (intervention group, n=134 and control group, n=153), women aged 18 to 65 who voluntarily attended a university-provided health screening as part of a wellness program

**Aim:** to find out whether a brief (six weeks), tailored counselling intervention is effective for increasing physical activity in sedentary women, when delivered in the workplace (here the university)

Recent research has shown that a brief, focused behavioural intervention can facilitate change in a variety of health behaviours, like smoking and alcohol consumption as well as physical activity, when delivered by a physician's office. Since 60% of women in the US work, offering a brief behavioural intervention at the workplace could reach a high number of sedentary women.

The Transtheoretical Model's central construct are the stages of change: *precontemplation* (not thinking of change), *contemplation* (thinking about change), *preparation* (deciding and preparing to change but not actually do it), *action* (behaviour change, first 6 months engaging in a behaviour) and *maintenance* (long-term continuation of a behaviour).

The intervention and the control group were screened for medical condition and measured at baseline and after six weeks. The intervention group was offered a brief intervention, which made it possible to assign every member to one stage of the Transtheoretical Model. According to the stages, goals were set and the women signed a contract that they would achieve them. Two weeks later a nurse practitioner called them to ask about the progress, when information was needed it was provided.

Those in the control group received health promotion counselling by nursing or health promotion students. This included advice and focused on the participants' identified goal (weight reduction, smoking cessation...). There was no additional contact with the teaching person or any kind of further intervention or call.

**Results:** The average participant was between the stages of *contemplation* and *preparation* at the baseline and there was no significant difference between the intervention and the control group concerning physical activity variables.

After the 6-week-follow up the intervention group showed greater improvement in five of ten physical activity outcome measures – stage of change, blocks walked per day, vigorous and moderate weekend activity, minutes walked for exercise and total minutes walked per week. When talking specifically about the stages of change, 21% of the intervention group and 53,1% of the controls remained the same. But more than 41% of the intervention group increased one stage, 35,5% increased even two or more stages – in the control group it was 29,6% and 10,3%. Considering that most of the participants were defined being between *contemplation* and *preparation* at the baseline, this means that now those belonging to the intervention group have gone up to at least *preparation* or even *action* or *maintenance*. This means, they really have made the change and work towards a lifestyle, where exercise is part of everyday routine.

It was also found that non-completers were far less educated than completers of the study.

**Discussion:** This study showed that a brief, tailored intervention could result in sedentary working woman becoming more physically active. This is the first document of a nurse

practitioner led program that has improved women's physical activity using the PACE<sup>®</sup> model.

The results show clearly that, in order to be successful, a workplace health promotion program does not necessarily have to be set up for a long period of time – which of course still is required and preferred in the long run. But even a short intervention – if really adapted to the workers medical condition – can result in remarkable changes.

The strength of this study is the randomised prospective design, using the control group to add convincing evidence.

The limitation of this study is that women had to report themselves about their physical activity, which of course can be a bias. Also the potential for a biased sample can be seen as a limitation. The women took part voluntarily, so show interest in their health and in improving it. Because the intervention was self-selected, the generalizability is limited to women attending worksite health screenings.

It would also be interesting to see, for how long the women kept up their newly adapted behaviour. The follow-up after the six weeks may have been a moral booster and motivator, but what happens after that?

**Method:** questionnaire

**Study population:** 203 employees in 21 businesses in Louisiana

**Aim:** to determine what kind of exercises workers are willing to do in order to relieve musculoskeletal stress

Today a lot of work is done in front of the computer, long hours of sitting are common for most of all employees. Constrained postures impart static loads on the neck, back, shoulders and upper extremities and this loads musculoskeletal stress on a worker's body. Discomfort and even pain are the result. Physical exercise can reduce musculoskeletal stress. Simple movements to relieve the tense parts of the body can even be performed right at the workplace without major demands on time.

If such exercise programmes are implemented at a worksite, this also leads to benefits for the employer – such as improved productivity and reduced absenteeism, for example.

But people are unwilling to accept certain conditions when it comes to exercising and this keeps them from taking part, making them miss the opportunity to improve their health. So this study wants to determine what kind of exercises workers are willing to do in order to relieve musculoskeletal stress.

To answer this question, a questionnaire was developed. It contained of four sections:

1. demographic information
2. how much time is spent in front of the computer or at the workplace, pain/discomfort, medical condition, attitude towards exercise programs, existing facilities at the workplace, formal exercise programs
- either 3. information about existing programs
- or 4. whether respondents exercise on their own and would be willing to participate in a formal exercise program

The questionnaire was sent to the managers of the companies who encouraged their employees engaged in sedentary work to complete it. A letter of explanation was included and after follow-ups and visits 21 companies had their employees (n=203) fill out the questionnaire.

**Results:** The demographic data of the participants: female 82,3% and male 17,7%, aged between 20 and 50, 50% did sedentary work for fewer than 11 years, around 30% for fewer than 5 years and 15% for more than 20 years. Regarding the job description announced, from most common to least: secretarial, management, financial, technical and other.

A high proportion of workers spent six hours or more at the computer or their workstation. The overwhelming majority (82,2%) experienced pain and discomfort as a result of work. More than half suffered eye fatigue, more than 40% back and neck pain. Also hand/wrist/arm pain was common. The majority (84,7%) said that no medical condition contributed to the pain, so it was all a result of the bad conditions at work. 70% answered that an exercise program would be beneficial to them, still 25% were unsure about that. Only 3% (6 workers) indicated that the company they work for had a formal exercise program for employees engaged in sedentary work. Out of these six, most reported that they did not take part in the program. 65,8% of the participants did not exercise on their own. Over two thirds would be willing to participate in a formal exercise program offered at the workplace.

When it comes to preferences concerning exercise programs, half of the respondents said that they would do difficult exercises if they were more beneficial. One third likes to exercise in a group. 40% indicated that embarrassment was not an issue for them, another 40% said that no

embarrassing exercises are acceptable to them. 59,3% prefer to exercise in a private room on company premises. Only 6,2% want to be reminded by their computer that they should work out, 49,5% said that they want to decide themselves when it is time for exercise. 40% want the company to set up an exercise schedule – apparently people will rather do things when they are scheduled. Over a half want exercises that are targeted at special parts of the body. Only 8,2% prefer aerobic exercises – which is quite surprising regarding the large number of women in the sample.

In general, “types of exercise” and “degree of difficulty” were the two most important categories to the participants. “Level of embarrassment” was found the least important.

**Discussion:** Individuals involved in sedentary work are willing to exercise in order to reduce their pain. These exercises should be targeted at the special parts of the body that hurt and be offered at a scheduled time. Workers are also willing to accept more advanced and difficult exercises if they are more beneficial to them.

A program to reduce discomfort and pain and rest breaks during working hours can reduce musculoskeletal stress and therefore lead to improved productivity. It may also be a moral booster for employees, who feel that the employer cares for their well-being.

The generalizability of this study might be limited for the sample contains mostly of women. Since the results here were not listed with male and female quotas separated, a sample with the same percentage of men and women participating might have shown different findings.

### III. Conclusions

Workplace Health Promotion is an important issue worldwide. The Jakarta Declaration (1997) declared the workplace, among other settings, as one priority when it comes to health promotion in the 21<sup>st</sup> century. Over the years the worksite has become one of the most important influencing factors on health, in addition to that it offers the possibility to easily reach a large audience.<sup>3</sup>

As times get harder regarding competition and fast changing and demanding markets force companies and entrepreneurs to find ways to produce better, faster and cheaper than the others, the understanding that future success is only possible, if workers are healthy, qualified and motivated, has grown. WHP is the solution if a company lacks these competences. In the long run it improves the health of participating employees – the primary goal, of course -, but along with that goes increased motivation, for the employees feel the management cares. And health and motivation, two important factors when it comes to competing successfully, lead to better productivity. So, WHP is not only beneficial to the individual that is taking part, but also to the employer. The company will profit (keyword: return on investment) regarding image and of course revenue. After all, the productivity of a whole economy appears to be linked to the condition of its workers' health<sup>4</sup>.

When talking about small and medium sized companies, we know that these face different challenges when it comes to occupational health and safety at the workplace – as already mentioned in the report published by the ENWHP. SMEs in America, for example, also face the financial problems, still they need to rely on external support in order to be able to realise high-quality WHP. Also time and employee defensiveness, language differences and low literacy were mentioned as being barriers if present.<sup>5</sup>

Another American study supports these findings. It found out that 25% of all small companies in the sample offered WHP, whereas 44% of the larger enterprises did so. Here another reason besides those already mentioned came up – responsibility. The chance that persons or departments were specifically in charge of WHP raises with the company size, of course a matter of financial resources as well as of necessity.<sup>6</sup> Small entrepreneurs should more and more focus on developing networks in order to use the limited resources they have collectively.

Successful WHP needs to have a holistic and integrative approach and involves both, workers and management.<sup>7</sup> It should not only focus on the physical health and improvements concerning exercise, nutrition or else – it is more than that. WHP shall educate workers and management. If they learn more about occupational health and safety, workers, who are confronted with hazardous situations at their workplace every day, can be encouraged to raise concerns. And they do, as an American study recently showed. According to this study,

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<sup>3</sup> Chu, C., Breucker, G., Harris, N., Stitzel, A., Gan, X. & Dwyer, S. (2000). Health-promoting workplaces – international settings development. *Health Promotion International*. 15(2): 155-167.

<sup>4</sup> LaDou, J. (2003). International occupational health. *International Journal of Hygiene and Environmental Health*. 206: 303-313.

<sup>5</sup> Lippin, T., Eckman, A., Calkin, K. & McQuiston, T. (2000). Empowerment-Based Health and Safety Training: Evidence of Workplace Change from four Industrial Sectors. *American Journal of Industrial Medicine*. 38: 697-706.

<sup>6</sup> Wilson, M., DeJoy, D., Jorgensen, C. & Crump, C. (1999). Health Promotion Programs in Small Worksites: Results of a National Survey. *American Journal of Health Promotion*. 13(6): 358-365.

<sup>7</sup> Chu, C., Breucker, G., Harris, N., Stitzel, A., Gan, X. & Dwyer, S. (2000). Health-promoting workplaces – international settings development. *Health Promotion International*. 15(2): 155-167.

almost 90% of participating workers were more aware of health and safety at their workplace after training. They also got actively involved - at least a third up to half of the employees, depending on the industrial sector, raised a concern. And – as management was trained as well – 54,7% up till 65,7% of all concerns raised finally led to a change.<sup>8</sup>

Of course occupational health and safety are important issues that are worth being provided in a long-run project, dealing with various influencing factors on health. Still another study showed that even a short but tailored intervention could result in remarkable changes. The sample was limited to women though – so generalizability is restricted. Within six weeks and after only one tailored intervention at the beginning that really addressed the women's needs – picking them up at their current level of exercise – and a follow-up call after two weeks, the intervention group showed great improvement.<sup>9</sup>

Last but not least, if WHP programs are set up, the preferences of employees, who are encouraged to participate, should be an important and considered factor. As another American study demonstrated, there exist certain circumstances that keep people from doing exercise. The study aimed at finding out more about these factors in order to be able to eliminate them and to furthermore boost participation. The sample included only people involved in sedentary work but still the results might be generalizable. What employees want are exercises which are targeted at special parts of the body and offered at a scheduled time.<sup>10</sup> Not really an extraordinary and surprising result – but maybe not at all what some WHP provide.

Considering gender aspects, none of the included studies raised this issue. Only one was targeted especially at sedentary women<sup>11</sup> and another one at least gave information about the amount of male and female participants in the sample<sup>12</sup>. Still, when it comes to the results, there is no distinction made between the answers of men and women.

The other studies did not even go into detail regarding the composition of their sample. This may be a sign for the lack of understanding for gender differences, in workplace health promotion as well as other fields. It may not always be the women who are misrepresented – the big problem is that men and women, for example when it comes to exercise, have different needs and preferences. Programs have to adapt to these preferences in order to be attractive to the employee.

A few conclusions can be drawn from this literature research.

1. small enterprises still face difficulties in implementing occupational health and safety programs at the workplace

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<sup>8</sup> Lippin, T., Eckman, A., Calkin, K. & McQuiston, T. (2000). Empowerment-Based Health and Safety Training: Evidence of Workplace Change from four Industrial Sectors. *American Journal of Industrial Medicine*. 38: 697-706.

<sup>9</sup> Purath, J., Miller, A., McCabe, G. & Wilbur, J. (2004). A Brief Intervention to Increase Physical Activity in Sedentary Working Women. *Canadian Journal of Nursing Research*. 36(1): 76-91.

<sup>10</sup> Waikar, A. & Bradshaw, M. (1995). Exercise in the workplace? Employee preferences. *International Journal of Manpower*. 16(9): 16-30.

<sup>11</sup> Purath, J., Miller, A., McCabe, G. & Wilbur, J. (2004). A Brief Intervention to Increase Physical Activity in Sedentary Working Women. *Canadian Journal of Nursing Research*. 36(1): 76-91.

<sup>12</sup> Waikar, A. & Bradshaw, M. (1995). Exercise in the workplace? Employee preferences. *International Journal of Manpower*. 16(9): 16-30.

2. lack of time, limited financial resources and lack of knowledge are responsible for this default
3. BUT there exists evidence that even brief and not necessarily expensive programs, if well adapted, work.

Something has to be done in order to increase WHP in SMEs, which – all over the world – employ the majority of employees. Whether it is financial help as well as support as regards to knowledge, SMEs need to improve their level of occupational health and safety.

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