

The health promotion model as assessed by ageing workers

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Aims. This study describes qualitatively ageing workers and their health promotion. It also describes quantitatively the importance of individual, workplace and occupational health promoting factors, the impact of health promotion and the contributions of the other co-partners promoting the health of ageing workers. These form the foundation for a model of health promotion.

Background. Very little is known about the health promotion factors exclusively focused at ageing workers.

Methods. A pretested questionnaire with structured and some open-ended questions were devised to form the basis of qualitative data and sent to 150 ageing workers, of whom 93 (62%) returned it. Qualitative data were analysed by content analysis. Statistical analyses were performed using frequencies and means.

Results. Over 90% of respondents stated that health habits, individual arrangements at the workplace, a good workplace spirit, health checks, counselling and access to nursing care were important factors for health promotion. Better health (99%), work satisfaction (95%) and motivation of employees (96%) were the factors impacting on health promotion. Ageing workers stated that health and safety organization (94%) and rehabilitation institutes (93%) were the most important co-partners.

Conclusions. This study confirms extremely high importance of different health promotion factors, their impact and some co-partners. Health problems, early retirement and work absenteeism are rather common in ageing workers. If we are to avoid these problems, it is important to support their work ability effectively and systematically to allow these workers to stay employed until the normal retirement age.

Relevance to clinical practice. It is necessary, that management appreciate the benefits of ageing workers; they have to take a positive attitude toward these workers and participate more effectively in their health promotion. Occupational health professionals play a key role in training workers and management to undertake the required measures.

Key words: ageing, health promotion, model, occupational health, worker

Introduction

Individuals over the age of 45 are called ageing workers in Finland (Korpivuoma & Pirttilä 2001, Reina-Knuutila 2001). 'Ageing' is therefore used in this study to refer to

workers over 45 years. All people age chronologically at the same speed, but the way in which people physically age depends on their genetics, health habits, illnesses, environment and their occupation. Work ability declines after 45 years of age due to the heavy physical work, extreme

stresses and unhealthy life style. Ageing itself does not invariably represent increased morbidity, but as individuals age they are at an increased risk of suffering permanent loss of good health (Heikkinen 1994).

An ageing worker can be defined as a mature adult. It is impossible to establish an exact age for being an ageing worker, because everyone ages in a personal way. Ageing is recognized, for example, from the person's wrinkled skin. An ageing person also has some physical and psychological limits. Weakened work ability, stiff and slow movements, various symptoms, illnesses and exhaustion are as the most general physical restrictive elements. Psychological limits were, e.g. unwillingness, rigidity, boredom, as well as memory and learning problems. On the other hand, ageing persons have some mental strength. Mental health is manifested as holism, maturity, wisdom, importance of values, self-confidence, flexibility, courage, freedom, responsibility and desire for pleasure. An ageing person is committed to work. Extensive, broad and deep skills can be reached through vast experience from life and work. The limits imposed by ageing can be compensated by certain strengths (Salo & Naumanen-Tuomela 2003).

Many Finnish and international studies have dealt with how physical, psychological and social changes can have an impact on older workers and impair their work ability and health. Attempts have been made to match these temporal changes with the demands, productivity and changes in work procedures in different professions. The physical ability to work weakens between the ages of 50 and 60 years, but this decline can be prevented by exercise (Lipow 1997, Ilmarinen 1999, Ilmarinen & Louhevaara 2001). The psychological ability to work, as well as many intellectual functions may even improve or stay at the same level during adulthood. Clear age-related differences are only found after 75 years of age (Ruoppila & Suutama 1994). Obviously, older workers have more experience in social interaction with other people (Heikkinen 1994). Enhanced psychological and social work ability compensates for their declining physical work capabilities (Wegman 1999). Older workers in high-stress jobs may be at increased risk to experience stress-related health problems (Gershon *et al.* 2002). Older people have both positive and negative experiences from ageing. Ageing can be experienced as personal development, but also as weakened physical work ability, low self-esteem and feelings of being unneeded. Good health, a high level of education, an optimistic outlook on life and social relationships positively affect the experience of ageing (Steverink *et al.* 2001). It seems that the productivity of an older worker does not necessarily decrease (Reina-Knuutila 2001), even though that individual's morbidity may well increase (Broersen *et al.*

1996, Nurminen 1997, de Zwart *et al.* 1997). Improving the work environment, modifying the work tasks and professional skills, as well as the positive attitude of supervisors and fellow workers toward older colleagues, is essential for maintaining the work ability of older workers (Ilmarinen 1999, Ilmarinen & Louhevaara 2001, Tuomi *et al.* 2001).

In occupational health studies, health promotion focuses on both the worker and the workplace. The worker's health means individual and holistic well being, work ability and health habits associated with good physical condition, energy and vitality (Wilcock *et al.* 1998). The health of the work community is defined as well being at work (Ness 1997). Health promotion means preventing, minimizing and eliminating health hazards at the workplace, maintaining and promoting one's work ability and developing work, working methods and the work environment (Naumanen-Tuomela 2001a).

The main activities of Finnish occupational health care professionals are workplace visits including evaluating and measuring environmental hazards at work, informing and counselling employees about health and work environment risks and making proposals to eliminate these deficiencies. They also monitor the health and work ability of the personnel, including disabled workers and plan and organize activities for maintaining their health and work ability, collaborate with different co-partners, maintain the first aid skills of the workers and monitor the effectiveness and quality of their own actions. Health examinations, workplace visits, counselling, advising, informing and education are preventive occupational health care measures. Occupational health professionals can also purchase health care services, such as nursing and rehabilitation (Naumanen-Tuomela 2001b, Occupational Health Care Act 1383 2001). It is also possible consulting services to find ways to improve work environment, joint workplace activities and projects to support work ability maintenance (Mäkitalo *et al.* 1995). Counselling, treating illnesses and injuries, evaluating when an employee can safely return to work, as well as tracking worker compensation cases were the activities identified by employers in North America (Martin *et al.* 1993). The key occupational health activities in Australia were the management of occupational health care services and health promotion activities, treatment of illnesses and injuries, evaluation of the work environment and the workers' health, education and training, rehabilitation and research (Davey 1995). Improved health, well being and quality of life, as well as healthier lifestyle habits for workers, a safer and healthier work environment, higher productivity and an improved image of the workplaces, as well as savings and increased tax revenues are all thought to

be attributable to health promotion interventions (Naumanen-Tuomela 2001a,b).

The health promotion project for ageing workers

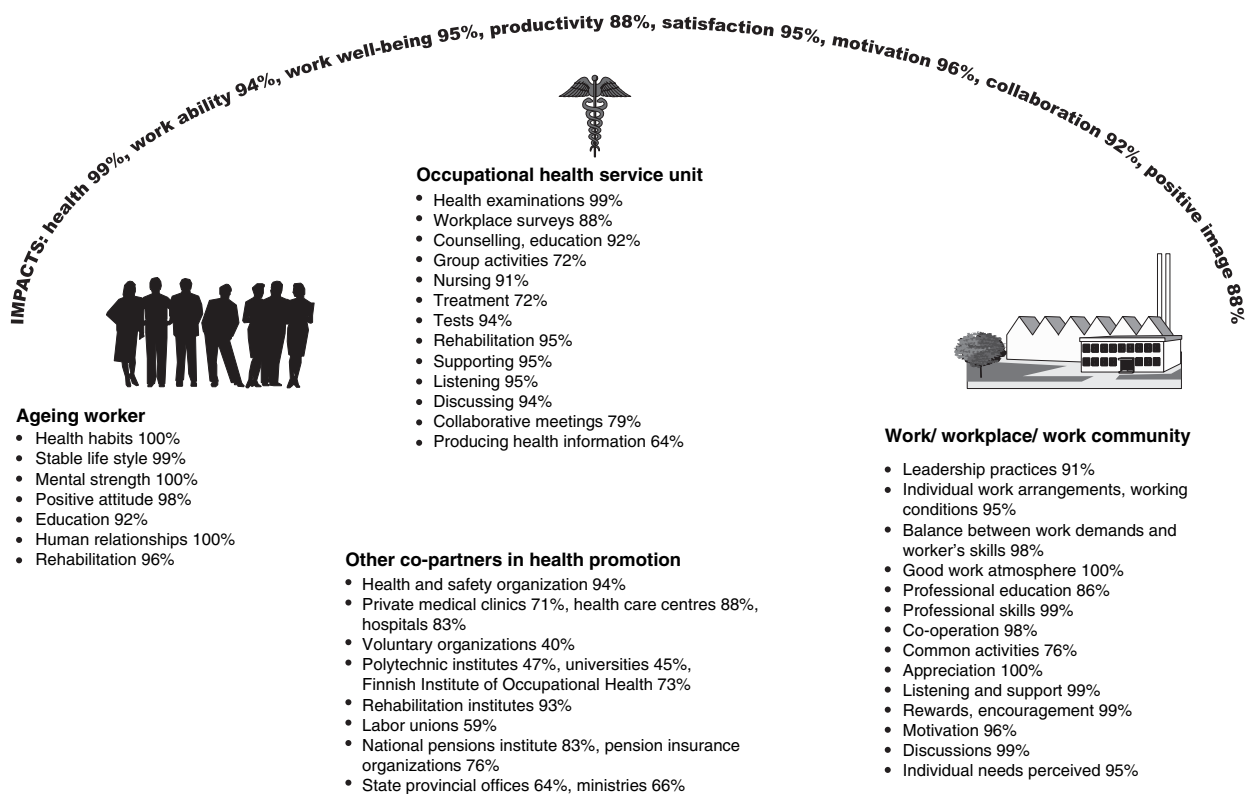
This project was part of the National Development Programme of Work Life organized by the Ministry of Labour and it was carried out in 2002 and 2003 in northern Karelia, Finland. The earlier qualitative study described the health promotion of ageing worker from the point of view of occupational health professionals. The findings revealed that an ageing employee was defined as a mature worker and health promotion was defined as early prevention of the influence of health hazards. A worker could improve his/her health through living habits, a stable lifestyle, a positive attitude, personal relationships and development of professional skills. Individual work arrangements, a good work atmosphere, professional education, appreciative and supportive leadership and co-operation were essential factors for the health of workers in the workplaces. Occupational health professionals provide support to workers by health exami-

nations, workplace visits, counselling, access to nursing and rehabilitative services and organizing variety of activities. The impact of health promotion activities was better health, well being and workability of workers, productivity of work, motivation, collaboration, positive image of workplace and work satisfaction. These issues have formed the basis for the creation of a health promotion model of ageing worker presented in Fig. 1 (Salo & Naumanen-Tuomela 2003).

The present study describes the views of ageing workers about ageing workers and their health promotion qualitatively. It also describes as percentages the employees' own health-promoting activities, those of the workplace and occupational health service units, the impact of health promotion, as well as the other co-partners participating in occupational health promotion from the perspective of ageing workers. All the quantitative results are presented in Fig. 1.

The aims

The present study aims were to describe the following from the perspective of ageing workers: (1) the qualitative defini-



Health promotion of ageing workers

Figure 1 The importance of health promotion factors concerning ageing worker, occupational health service unit, and workplace, their impact, and co-partners promoting health of ageing workers.

tion of ageing worker, (2) the qualitative definition health promotion of ageing workers, (3) description of individual health promotion factors of ageing workers, (4) the description of workplace health promotion factors of ageing workers, (5) the description of health promotion factors of ageing workers in occupational health care, (6) the description of co-partners participating in health promotion and (7) the description of the impacts of the health promotion of ageing workers presented quantitatively as percentages.

Methods

Ethical considerations

The heads of the occupational health service units provided permission for this study. The occupational health nurses handed the voluntary participants an introductory letter along with the questionnaire. The letter explained the purpose, aims and methods of the study and assured the participants that the study was purely voluntary: the anonymity of the participants would be ensured during and after the study and data security would be guaranteed. They had also a possibility to contact researcher to obtain more information.

Data collection

The author developed the instrument used in this study, based on qualitative study results collected from 16 Finnish occupational health professionals, who participated in the Health Promotion Project of Ageing Workers in Northern Karelia during the years 2002 and 2003 (Salo & Naumanen-Tuomela 2003). The instrument included 56 variables, six background factors and two open questions concerning the descriptions of ageing worker and health promotion of ageing worker. The open questions were formed 'How do you define an ageing worker?' and 'How do you define the health promotion of an ageing worker?'

In September 2003 Finnish occupational health nurses of five Northern Karelian units were sent a total of 150 structured and pretested questionnaires (30 to each unit) with introductory letters and return envelopes. They were asked to seek out volunteers from over 45-year-old ageing workers requesting them to answer the questionnaires when waiting in the reception area of the occupational health service unit. These units returned a total of 93 (62%) questionnaires by the end of December 2003.

The respondents were asked to respond to statements on a scale from one (strongly disagree) to four (strongly agree). These were reclassified into two classes by combining

alternatives one and two and alternatives three and four, which were then called 'disagree' and 'agree' to form bigger groups and to make different statistical analysis possible. Age, sex, professional education, work experience and position in the workplace were entered as background factors. The researcher assessed the face validity and two experts assessed the content validity of the instrument. The internal consistency of the instrument has been tested by split-half correlation and it ranged from 0.90–0.91. Cronbach's alpha varied from 0.78 to 0.89 and the total scale α was 0.94. These α values were above Nunnally's criterion of $r > 0.70$ for a new scale (Nunnally 1978).

Data analysis

The data were analysed statistically by SPSS Windows 11.5 program. Frequencies were computed for all items and medians and means for age and work experience years. The percentages of results concerning employees' own health-promoting activities, those of the workplace and occupational health service units, the impact of health promotion, as well as the other co-partners participating in occupational health promotion are presented in the health promotion model for the ageing worker (Fig. 1) to confirm the factors presented in the model. More sophisticated statistical analysis results referring to background factors will be presented in a subsequent paper.

The qualitative data were analysed by content analysis. After reading the data, the significant themes were underlined and simplified. Similar expressions were grouped into two groups and named according to their content to the definition of ageing worker and to the definition of health promotion for the ageing worker (Krippendorff 1986, Kyngäs & Vanhanen 1999). The qualitative results are presented by the main categories with their subcategories as well as by using the participants' own remarks as examples.

Data

The final sample size participating in quantitative part was 93 (62%) subjects, of whom 72 were women and 21 men (Table 1). Altogether 80 of 93 participants answered to the both qualitative open questions. The average age of the all participants was 52 years (range 44–63 years). They had worked on average for 29 years (range 7–49 years). A total of 52% ($n = 46$) of the respondents had a college degree. The rest had completed vocational courses (15%), university (10%), polytechnic (2%), or some other education (10%). Some of participants had only completed basic schooling (11%). The respondents held positions of regular employees (79%), management (16%) and substitute employees (5%).

Table 1 The demographics of the ageing workers (*n*, %, mean)

Demographics	<i>n</i>	%
Age (years), mean = 52		
45–54	62	67
55–64	31	33
Total	93	100
Sex		
Female	72	77
Male	21	23
Total	93	100
Professional education		
Only basic schooling	10	11
Vocational course	13	15
College	46	52
Polytechnic	2	2
University	9	10
Other	9	10
Total	89	100
Work experience years in health care, mean = 29		
0–20	14	15
21–30	41	45
31–40	32	35
41–50	5	5
Total	92	100
Part-/full time workers		
Full-time	80	87
Part-time	12	13
Total	92	100
Position		
Management	15	16
Regular	73	79
Temporary	4	5
Total	92	100

The majority of participants worked as full-time employees (87%) and the remainder worked as part-time employees (13%).

Results

Qualitative results

Ageing worker

The most crucial characteristics of the ageing worker are his/her age years, appearance, as well as his/her limitations and strengths. It is impossible to set any exact age defining year for when a worker becomes an ageing worker. Ageing varies from 40 to 60 years, since everyone ages in his/her own distinct way and it depends also on individual experience. Greying hair, wrinkled skin and slouched posture are typical signs of an ageing worker. The ageing person exhibits also physical and psychological limitations. Weakened work ability, stiff, clumsy and slow movements, suffering a variety

of symptoms, illnesses and pains, exhaustion, declining senses of hearing and sight and routine action were identified as the most general physical limits. Working ability depends on age, health and work tasks. Psychological limits were recognized unwillingness to change habits, inflexibility, boredom, as well as memory and learning deficits.

Conversely, the ageing person has may exhibit mental and professional strengths. Mental health emerges as open-mindedness, willingness to take responsibility, self-confidence, motivation, maturity and wisdom. The ageing worker is experienced, committed, hardworking and skilled worker. The following statements well feelings of illustrate the typical ageing worker:

The ageing person has mental strengths and wisdom, she or he has the ability to view things calmly and rationally, but it may not be possible to motivate him/her to learn how to use new technologies such information technology (Participant 8).

You are becoming clumsier, your memory is worsening and learning new skills takes more time (Participant 5).

Personal experience that you are not as full of fire as the youngsters. You have diseases that may weaken your working ability. Ageing consumes more individual resources and burns off energy at work (Participant 64).

Health promotion of ageing worker

The respondents appreciated that health promotion of ageing worker includes activities and responsibilities implemented by themselves, workplaces and health care system. Each individual person must take responsibility for their own health and condition but in this they can be supported by health habits and leisure time activities. Individual arrangements and human resources management and leadership are essential for maintaining working ability. Regular physical examinations are important to find possible health problems in order to treat them in time. The following comments define the ageing worker's view of health promotion:

Exercise, healthy food, a happy family life, a comfortable working environment and the appreciation of fellow employees are important for health promotion (Participant 79).

It starts from the individual. One should assess the health risks at the workplace and take preventive measures. Supporting of working ability is essential if one is to avoid exhaustion. The employee should have the possibility of choice, e.g. job rotation, part-time work, studying and shift or regular working time (Participant 4).

There should be more frequent routine health checks in order to identify possible health problems as early as possible (Participant 30).

Quantitative results

Individual health promotion factors

Each individual worker can promote his/her own health by taking care personal responsibility for health habits and enjoying a stable life with a balance between work and leisure time. (All the quantitative results can be found in Fig. 1.) Close personal relationships, mental strength and positive attitude toward health, life and work, development of skills through training and self-rehabilitation are essential factors for personal health. More than 95% of the 93 ageing workers agreed on the importance of these factors for health.

Workplace health promotion factors

Over 90% of ageing workers thought that individual arrangements at the workplace, balanced work demands taking into account the worker's capabilities, good atmosphere and co-operation were necessary for health. Also personnel leadership (91%), appreciation of employees (100%), listening (99%), encouraging (99%) and motivating them (96%), as well as discussing with them (99%) were thought to be important for health, whereas common activities (76%) were considered as less important. The majority of respondents stated that professional education (86%) and professional skills (99%) also promoted the health of ageing workers.

Occupational health promotion factors

Over 90% of participants thought that the services provided by occupational health professionals, e.g. health checks, counselling and education, nursing, health condition tests, rehabilitation, as well as interactive activities were important for their health. The significance of group activities (72%), treatment (72%), collaborative meetings (79%) and the collection of health statistics (64%) were considered as less important occupational activities for health.

The impact of health promotion of ageing worker

The majority of respondents thought that the consequences of health promotion activities were better health (99%), good working ability (94%), well being of entire work community (95%), work satisfaction (95%), motivation of employees (96%) and co-operation (92%). Less than 90% of participants thought that productivity (88%) and good image for the worksite (88%) had a meaningful impact on health promotion.

Co-partners in health promotion

The majority of participants thought that health and safety organization (94%) and rehabilitation institutes (93%) were the most important co-partners supplementing health

promotion of ageing workers. Over 80% of respondents noted the importance of health care centres, hospitals and the National Pension Institute. Also private medical clinics (71%), Finnish Institute of Occupational Health (73%), pension insurance organization (76%) were important co-partners. There were some less important co-partners, e.g. ministries (66%), governmental provincial offices (64%) and labour unions (59%). Less than half of the respondents considered polytechnics (47%), universities (45%) and voluntary organizations (40%) to be crucial co-partners.

Discussion

The purpose of this study was to describe health promotion for the ageing worker from the perspective of the ageing workers themselves. It described ageing workers and their health promotion qualitatively, as well as individual, workplace and occupational health promotion factors, their impact and the relative importance of the co-partners supporting health promotion as percentages. This has not been determined in earlier studies.

Earlier definitions of ageing worker have emphasized the age of the individual (Korpivuoma & Pirttilä 2001, Reina-Knuutila 2001), whereas the present definition concentrates more on the mental and intellectual aspects in preference to the physical factors (Heikkinen 1994, Ruoppila & Suutama 1994, Salo & Naumanen-Tuomela 2003). Crucial health promotive activities are individual health habits, a positive attitude on life and work, development of personal skills, occupational health services provided by occupational health professionals and special arrangements at the workplaces. These results were also found from some earlier studies focusing on all workers in general (Mäkitalo *et al.* 1995, Ilmarinen 1999, Ilmarinen & Louhevaara 2001, Tuomi *et al.* 2001, Naumanen-Tuomela 2001a, Salo & Naumanen-Tuomela 2003).

According to this study, many co-partners can support health promotion and work ability maintenance in different ways. This study revealed the importance of appreciative and supportive leadership and the role of co-operative partners. It also confirmed the impacts of health promotion activities described in earlier studies (Naumanen-Tuomela 2001a,b, Salo & Naumanen-Tuomela 2003). The majority of respondents appreciated the importance of individual, workplace and occupational health care activities. However, the high percentages given to these factors did not guarantee that ageing workers and the heads of management at workplace actually adhere to them in their personal life and at the workplaces.

Some strengths and limitations were identified during the study. All participants did not answer the questionnaire and it

was not possible to repeat the inquiry, because the nurses did not register the names of participants who were given the questionnaire. The agreements of each health promotion factors were high even though the scale started from strongly disagree and ended strongly agree alternatives. Still, there is a possibility that participants just agreed them without thinking, because they thought the author would expect it. Even though the number of participants was small, the data collected were sufficient to permit on analysis. The participants represented different occupational professions and positions. The results were similar to those of earlier studies and they are applicable to all workers regardless of age. About the third of participants provided some written positive feedback about the necessity of this kind of research topic. The others rest did not provide any feedback. Earlier study results of this project were supported the factors presented in the model.

The findings highlight the various possibilities available to promote health, well being and work ability of ageing workers. The workers themselves, the workplace, occupational health care professionals and others implement these. The number of ageing workers will increase in the future. As the result of continual changes and new demands in the working life, health problems, early retirement and sickness absenteeism will increase, especially among ageing workers. Thus, it is important to support their work ability effectively and systematically. Employers should understand the strengths of ageing workers and assume a positive attitude toward them and their health promotion. Occupational health professionals have a key role to play in educating workers and supervisors to undertake the necessary health promotion activities and arrangements. Future research will be focused on evaluating the effectiveness of different health promotion activities.

Contributions

Study design: author was responsible for the study design; Data collection and analysis: occupational health professionals helped collecting the data and gave valuable comments for model building; Author was responsible for the data analysis process and manuscript preparation: author was responsible for the manuscript preparation. Editor Terttu Kaustia checked the language of the text.

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