Ageing and work ability: Implications for promoting healthy working life in an underground coal mine environment

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1. Introduction

The ageing of the Australian workforce raises important questions concerning the maintenance of a good person-organisation fit over a working-life. Older workers have a higher rate and cost of some injuries and disease than younger workers. Work injuries are particularly prolific in the mining sector, with an increase in the number of injury claims by 11\% between 2000 and 2009. It is also known that physical capacity (fitness, muscle strength and flexibility) declines with increasing age, which is of major concern especially for workers involved in physically demanding work such as underground coal mining operations. Lower physical capacity with ageing may be partly due to lower levels of participation in physical activity and increased sedentariness in home, transport and leisure. Importantly, physical inactivity and sedentary behaviour are known to be independently associated with higher risk of chronic disease-related morbidity and mortality and, as with ageing, are associated with declining work ability. The promotion of work ability has been found to reduce the incidence of work disability and the likelihood of premature retirement and absenteeism; increase productivity and competence of the workforce; improve the public image of a company; and improve quality of life and well-being among workers themselves, effects which have been shown to carry over into retirement.

The aim of this study was to measure the work ability of a group of workers at an underground coal mine and to determine the effect of a 16-week health and wellbeing intervention on the work ability of study participants.

2. Methods

Employees of an underground coal mine in the Hunter Valley NSW Australia were invited to participate in a holistic health and wellbeing program over 16-week period and a study to determine the impact of the program on work ability. Prior to program commencement all employees were invited to complete a self-report measure of work ability using a comprehensive questionnaire, the Work Ability Survey (WAS) (McLoughlin et al 2011), which measures work ability in terms of two dimensions; organisational capacity and personal capacity.

Volunteer participants of the health and well-being program also completed comprehensive health and fitness assessments at baseline. The health and wellbeing program was individually tailored and participants were required to log their progress online at a dedicated website and received weekly emails and SMS messages of encouragement in response to their progress. Work ability and health outcomes were assessed again at end-intervention.

An overall ‘work ability score’ was constructed consisting of scores for both the ‘personal capacity’ and ‘organisational capacity’ dimensions. Work ability, and its sub-components, were also analysed according to work unit and age group.

3. Results

228 of 325 coal mine workers (mean age 37 years [18-64], 95\% male) in six work units (five underground, one surface) were recruited for the study and had work ability measured at baseline. 113 of these had a health assessment and volunteered to participate in the 16-week health and well-being program, while the remaining 115 workers acted as a comparison group.

At baseline, scores on the different dimensions of work ability varied considerably across participants. Surface staff reported the highest level of work control but the poorest work-life balance and psychological well-being compared to the underground work units. For organisational capacity, the oldest workers (50-65 years) reported the highest level of perceived discrimination and the lowest levels of training, perceived
respect from management, career support and general health, compared to workers aged 18 – 49 years. For personal capacity, increasing age was associated with poorer health, lower intrinsic and extrinsic rewards, and a poorer work-life balance (Figure 1).

Participation in the health and wellbeing program showed significant improvements in the respondents’ self-rating of general health and perceived managerial respect for workers in the WAS survey. However, there were no significant changes in the other components of work ability.

4. Discussion
The results of this study suggest a need for a range of organisational interventions focusing on sub-groups of the coal mine workers, such as those aged over 50 years. They also indicate that the organisation might focus more broadly on leadership skills, personal control over work tasks, intrinsic and extrinsic work benefits, and the promotion of work-life balance, particularly in the older workers.

Figure 1. Work ability scores according to age group.

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References