Commentary I
The "black hole" of work organization interventions

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Effective work organization interventions are needed to reduce or eliminate the negative consequences of modern workplace trends on workers' health and safety. A comprehensive review is presented by Murphy and Sauter (this issue) regarding interventions targeted at worker health and well-being; however, there is little consideration given by the authors to workplace safety. In truth, this represents the "black hole" of the stress management intervention literature. Working in a stressful environment increases the risk not only of suffering physical illness or symptoms of psychological distress, but also work-related accidents and injuries (Clarke & Cooper 2004). However, the implications of changing organizational structures and practices are rarely considered from the perspective of workplace safety (Clarke 2003). The evidence suggests that work organization interventions can be more effective when they form part of an integrated approach, which encompasses both health and safety-related outcomes (Clarke & Cooper 2004).

The review by Murphy and Sauter (this issue) fails to give adequate consideration to the safety intervention literature. An overview of this literature indicates that work organization interventions targeted at safety outcomes have been focused largely at the individual-level. These interventions can be categorised as either attitude modification (including counselling, education and information measures, such as leaflets and posters) or behaviour modification (including rewards for desired behaviour, instruction, skills training and feedback) (Lund & Aaro 2003). The theoretical assumption underpinning most individual-level safety interventions is that workers' attitudes influence their behaviour, which in turn affects accidents. Attempts at the direct manipulation of workers' attitudes have frequently proven ineffectual; however, behavioural modification programs, which aim to change specific safety-related behaviours, have a long track record of success (McAfee & Winn 1989). Safety interventions aimed directly at changing structural, social or contextual factors are comparatively rare, but particularly effective (Lund & Aaro 2003). As noted by Murphy and Sauter (this issue), primary interventions take place at the level of legislative/policy, employer/organization or job/task. At the legislative/policy level, there is limited evidence, but this is positive. For example, Gray and Scholz (1993) reported that the introduction in 1970 of the US Occupational Safety and Health Act (OSHA) resulted in a reduction in injuries by 22% over a three-year period. Interventions at the employer/organization level are also infrequent, but reviews are encouraging about their success (Guastello 1993). At the job/task level, there is little empirical investigation of interventions linking stress and ergonomics, reducing stress outcomes through redesigning the work environment.

Although interventions which aim to change workers' attitudes are frequently unsuccessful, attitude change can be effected through interventions designed to influence social norms and those which target organizational policies and practices, resulting in improvements in the safety culture. Attitude change is often observed as the result of behavioural modification programs, which have a disproportionately positive effect in terms of accident reduction. Where this effect occurs, the evidence suggests it is the result of wider cultural changes initiated by a new atmosphere of trust generated by the intervention (Saari 1994). Although rarely conducted, a recent study by Zohar (2002) illustrates the effect of a primary-level safety intervention targeted at the job/task. The aim of the intervention was to improve group safety climate, not by directly targeting workers' attitudes, but through an intervention to change *supervisors'*

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behaviour. The frequency of supervisors' safety-oriented interactions with workers increased from 9% to 58% at the end of the eight-week intervention period (and was maintained after five months). As a result, group safety climate scores demonstrated significant improvement as workers' attitudes towards safety had become more positive. Consequently, there was a significant reduction in injuries and an increase in safety equipment usage by workers. This study demonstrates how changes in the underlying safety culture can have wide-ranging effects.

As illustrated in the review by Murphy and Sauter (this issue), the majority of stress interventions are instigated with the intention to improve employee health outcomes. Such interventions are often fairly narrowly defined and conceptualised as health initiatives. However, the assessment of safety risks, in addition to health, within a risk management approach, can allow the design of intervention programs that influence both sets of outcomes (Clarke & Cooper 2004). The narrow focus on influencing worker health has lead to isolated interventions, which focus on changing single outcomes. However, researchers have noted the benefits of broadening the scope of interventions to include safety, as well as health, implications. For example, Morrow and Crum (1998) note that interventions which focus on safety improvements, particularly those which aim to change the safety culture, are "one of the few managerial interventions that appear to have widespread effect". For example, health promotion schemes can be employed to improve both health and safety outcomes. The positive benefits of health promotion programmes (e.g., improved diet, increased exercise, weight loss) have been demonstrated for employees' health (Demmer 1995). Such programmes have also had favourable results for organisations, e.g., reductions in medical and disability costs, absenteeism and turnover (Neck & Cooper 2000). However, there is little recognition that such programmes can be integrated into interventions aimed at safety risks. Mearns, Whitaker and Flin (2003) found that fewer lost time injuries were significantly related to health promotion. The provision of health promotion programs may influence safety outcomes in two ways; firstly, by demonstrating the company's concern for employee well-being, thus improving the safety climate, and secondly, improved worker health will provide increased resistance to stress and, therefore, reduced accident liability.

There is a need for further research into the design of organisational interventions that influence a broad range of outcome measures, as noted by Murphy and Sauter (this issue). To this end, Clarke and Cooper (2004) have described a systematic risk management approach to workplace stress, which allows the design of interventions that influence both employee health and safety-related outcomes. The evidence, briefly reviewed here, suggests that such interventions should target cultural aspects of the organization, for the most wide-ranging effects.

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