



Editorial

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Workplace interventions: a challenge for promoting long-term health among shift workers

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Workplace interventions: a challenge for promoting long-term health among shift workers

According to the last World Health Organization report (1), chronic diseases (nowadays called non-communicable diseases, NCD) are responsible for 60% of all global deaths. Most of the countries (92%) have developed at least one policy or strategy to respond to NCD and/or their risk factors. Nevertheless, many of these strategies were not implemented. The WHO report concludes with a list of countermeasures, such as implementation and improvement of policies, including coverage of all risk factors and diseases and evaluation of goals. Cardiovascular disease, diabetes, and cancer are among the main chronic diseases included in these statistics.

Shift work has been associated with some NCD as well as with recognized risk factor for them [ie, unhealthy diet, physical inactivity, tobacco use, unbalanced blood glucose, hypertension, and overweight/obesity (1)]. However, the association between shiftwork and chronic diseases is still not clear. The link between shiftwork and disease is questioned (ie, 2–3) thus it is important that the scientific community continues to contribute to the establishment of the main risk factors for NCD, as well as to suggest mitigation strategies. Thus, workplace interventions are excellent strategies to investigate appropriate measures that may support national government policies to prevent NCD, particularly those related to shift worker health.

In the present issue of the *Scandinavian Journal of Work, Environment and Health*, Neil and co-workers (4) present the paper “Health-related interventions among night shift workers: a critical review of the literature” where they review interventional designs within four areas in working life to prevent negative health effects among shift workers, namely, controlled light and dark exposure, shift schedule changes, behavioral or lifestyle interventions, and pharmacological aids to promote sleep or alertness. Articles published before August 2012 were systematically searched (the oldest published in 1982) and the systematic review considered >5000 articles. Laboratory or simulated studies were excluded, resulting in 44 “real life” articles. The review included health outcomes such as sleep quantity or quality, markers of circadian disruption, biological markers of chronic disease, and WHO-identified risk factors for chronic disease. Overall, it was not fruitful to draw any major conclusions and to point towards specific health-related recommendations since the variety and directions of the studies differed. Even though most studies included in the review showed positive effects, for example for health promoting bio-markers and sleep, any long-term health effects were not reported or planned in the designs. Furthermore, the authors concluded that very few or no intervention designs use a combination of possible approaches to promote health, a strategy that could show stronger effects. They also suggest to develop the field using modern technology.

One example is the use of smartphones approaching a spectrum of shiftwork-related behaviors in interventions as described by van Drongelen et al’s “Evaluation of an mHealth intervention aiming to improve health-related behavior and sleep and reduce fatigue among airline pilots” (5). The authors used a mobile phone app to direct airline pilots to websites offering either tailored advice or general advice only (control group). After six months, the intervention group showed improvements in fatigue, sleep quality, physical activity, and snacking behavior. Although some other health-related aspects were not affected, the authors conclude that tailored advice through an intervention is an effective mean to support employees coping with irregular flight schedules and circadian disruption.

Viewed together, these articles show the difficulties of performing interventions in real life to promote

long-lasting effects on shift workers' health. Field studies are difficult to run in general, but the realization of an intervention for the prevention of chronic diseases is much more complex. Firstly, all countries face chronic diseases, it thus seems the causes of these diseases remain the same regardless of socioeconomic level and gender (1, 6). Secondly, in case of working life, there is a need to take into account that modifiable risk factors for chronic diseases such as unhealthy diet, tobacco use, and physical inactivity may be developed or aggravated by factors such as work organization, (ie, shift work schedules). This means shift work interventions should also include actions related to work organization. Alertness and cognition aids to avoid problems due to circadian misalignment and inverted sleep-wake cycle could be included in these actions to influence the worker's lifestyle. In other words, chronic diseases are also affected by political, cultural, environmental, and social determinants. Thirdly, lasting effects of an intervention on health require longer follow-ups and information from representative samples of workers. To ensure that data is representative, there is often a strong dependence of the participation of workers at multiple time points. In future, we might have to seek methods to increase compliance. As outlined here, new technology could be an alternative but also other methods such as material incentives to support compliance with a study protocol (7) might be necessary.

While many interventions are a first step in the prevention of NCD they also address other negative health aspects such as safety at work and absenteeism, necessitating medical care with high costs for society. Interventions addressing these problems are another important step towards improving shift worker health. Some of these areas are clearly related to shift work and not touched upon in the referred articles but are of growing importance, such as mental health problems (8), neuropsychological performance impairments (9), and problems related to the ageing shift worker (10).

In short, the present issue of the Journal includes a useful overview of the effectiveness of shift work interventions to improve health. The issue also presents an example of how to include a broad variety of health-promoting strategies, individually systematized through use of modern technology. In the future, it is clear we need further interventions that include a broad spectrum of actions, but also consider a long-term perspective in order to demonstrate hopefully long-lasting effects.

Although use of modern technology permits a tailored approach adapted to the individual, the authors of both mentioned articles argue there is still limited evidence that such methods have proven to be successful. The study by van Drongelen and co-workers (5) was presented at the 21st Symposium on Shift Work and Working Time in Salvador, Brazil. Readers who wish to follow the line of research of shift work interventions more closely are hereby invited to the 22nd Symposium to be held in Elsinore 40 km north of Copenhagen, Denmark, on 8–12 June 2015. The overall theme of the conference is “Challenges and Solutions for Healthy Working Hours” (www.shiftwork2015.net/).

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