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Insomnia in the Workplace: Implications for Occupational Health and the Role of Nursing

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Introduction

Sleep is a fundamental biological process essential for physical, cognitive, and emotional functioning. Insomnia, defined as persistent difficulty initiating or maintaining sleep accompanied by daytime impairment, has become one of the most prevalent sleep disorders worldwide. In occupational settings, insomnia is increasingly recognized as a significant public health issue, affecting worker safety, productivity, and overall well-being.

The relationship between work and sleep is bidirectional. Occupational factors such as shift work, psychosocial stress, workload, and exposure to artificial light can disrupt circadian rhythms and contribute to insomnia. Conversely, insufficient or poor-quality sleep negatively impacts cognitive performance, decision-making, and emotional regulation, increasing the risk of occupational accidents and chronic disease (1,2).

This article explores insomnia in the workplace from an occupational health perspective, incorporating recent evidence on workplace-based interventions and highlighting the role of Occupational Health Nursing.

Epidemiology and Occupational Determinants of Insomnia

Insomnia affects approximately 10–30% of the adult population, with higher prevalence among workers exposed to irregular schedules and high job strain (3). Shift workers, particularly those engaged in night and rotating shifts, are at increased risk due to circadian misalignment (4).

Key occupational determinants include:

- Shift work and night work: Disruption of circadian rhythms leading to sleep difficulties (4).

- Psychosocial stress: High job demands and low control are strongly associated with insomnia (5).
- Environmental factors: Noise, temperature, and light exposure negatively affect sleep (6).
- Technological factors: Increased screen exposure and work-life boundary blurring contribute to sleep disturbances (7).

These determinants often interact, increasing vulnerability among workers.

Health and Occupational Consequences

Insomnia has wide-ranging effects on health and occupational functioning. Chronic sleep deprivation is associated with cardiovascular disease, metabolic disorders, and mental health conditions (8,9).

From an occupational perspective, insomnia contributes to:

- Reduced cognitive performance and vigilance (2)
- Increased risk of occupational accidents (10)
- Absenteeism and presenteeism (11)
- Increased risk of anxiety and depression (9)

These consequences highlight insomnia as a critical occupational health issue requiring structured intervention.

Evidence-Based Interventions in the Workplace

Recent evidence has strengthened the case for implementing targeted workplace interventions for insomnia. A systematic review and meta-analysis by Vega-Escaño et al. demonstrated that workplace-based interventions—particularly those based on cognitive behavioral therapy for insomnia (CBT-I)—are effective in improving sleep quality and reducing insomnia symptoms among workers (15).

The study also highlighted that:

- Multicomponent interventions combining education, behavioral strategies, and organizational changes are more effective.
- Digital and group-based CBT-I programs are promising in occupational settings.

- Workplace interventions can improve not only sleep outcomes but also productivity and mental health.

These findings reinforce the importance of integrating sleep health into occupational health programs and support the implementation of evidence-based interventions at the organizational level.

Insomnia and Shift Work Disorder

Shift Work Disorder (SWD) is a circadian rhythm sleep disorder characterized by insomnia and/or excessive sleepiness associated with work schedules that conflict with biological rhythms. It affects approximately 10–20% of shift workers (4).

SWD is particularly relevant in sectors requiring continuous operations. Workers with SWD are at increased risk of chronic fatigue, impaired performance, and long-term health consequences (12).

Recognition and management of SWD are essential components of occupational health practice.

Assessment and Diagnosis in Occupational Health

The identification of insomnia in occupational settings requires a comprehensive assessment integrating clinical and occupational factors. This includes:

- Sleep history and symptom evaluation
- Work schedule analysis
- Psychosocial risk assessment
- Lifestyle factors
- Use of validated instruments such as the Insomnia Severity Index

Occupational Health Nurses play a key role in early detection through routine health surveillance.

The Role of Occupational Health Nursing

Occupational Health Nurses are central to the prevention and management of insomnia in the workplace. Their role includes:

1. Health surveillance: Identifying at-risk workers.

2. Health education: Promoting sleep hygiene and awareness.
3. Implementation of interventions: Supporting workplace-based programs such as CBT-I (15).
4. Risk assessment: Identifying organizational and environmental contributors.
5. Coordination of care: Facilitating referral and follow-up.

The integration of evidence-based interventions, as highlighted by Vega-Escaño et al., further strengthens the role of nursing in improving sleep health outcomes.

Preventive and Organizational Strategies

Effective management of insomnia requires combined individual and organizational approaches:

- Optimization of shift schedules (13)
- Implementation of fatigue risk management systems (10)
- Promotion of work-life balance
- Environmental improvements (lighting, noise control)
- Implementation of CBT-I and educational programs (14,15)

These strategies align with a comprehensive occupational health approach.

Future Directions and Challenges

Despite growing evidence, insomnia remains underrecognized in occupational health. Key challenges include lack of awareness, insufficient training, and limited integration into occupational health policies.

Future priorities include:

- Incorporating sleep health into occupational risk assessments
- Developing standardized protocols
- Expanding workplace-based intervention programs
- Strengthening research in real-world settings

Conclusion

Insomnia is a prevalent and impactful occupational health issue with significant implications for worker safety and well-being. Evidence supports the effectiveness of workplace-based interventions, particularly those grounded in cognitive behavioral approaches.

Occupational Health Nursing plays a pivotal role in translating this evidence into practice. Integrating sleep health into occupational health strategies is essential to promote safer, healthier, and more sustainable workplaces.

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