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Impact of night shifts on health: Recommendations for employers

Introduction

In the advancement of new technologies and modern globalization, there is a surge in demand for night shift works. This is especially crucial during this Covid-19 pandemic years. Since the repetitive lockdown in March 2020, Malaysia’s economic was heavily affected. According to the data from the Oxford Covid-19 Government Response Trackers (OXCGR), this tool aims to track the government policies and intervention during the Covid-19 pandemic. It measures the government stringency towards the pandemic. From the Stringency Index (SI), Malaysia is one of the strictest countries during the lockdown period between May to Jun 2020 with a SI of 70 and above (1). As a result of this lockdown, it was reported that 40% of people had loss of income and 16% of people had loss of job and 52% of people had reduction of working hours within May to June 2020 (Figure 1)(1).

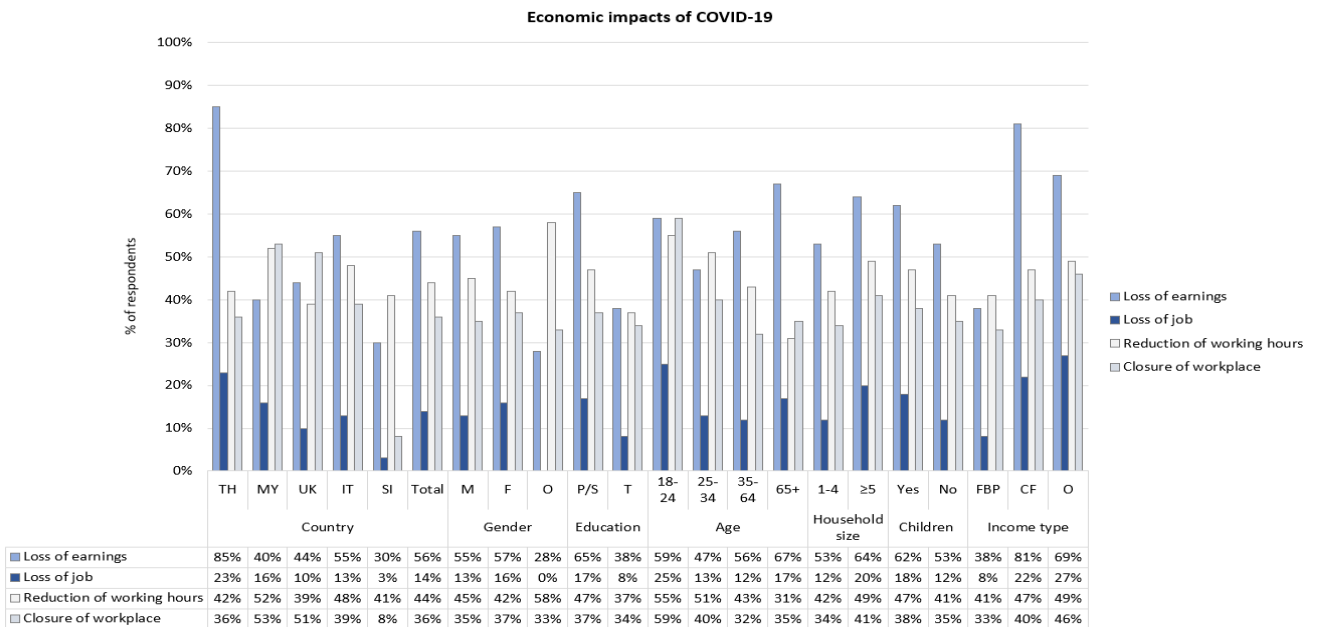


Figure 1: The figure above shows the loss of earnings and job, reduction of working hours and closure of workplace in 5 countries during the Covid-19 pandemic from May to June 2020. TH: Thailand, MY: Malaysia, UK: United Kingdom, IT: Italy and SI: Slovenia.

During this lockdown period, many time-based development involving construction, gas and oil projects were delayed. As the lockdown ease and the society is returning back to their respective workplace, people are working around the clock to increase productivity to compensate the time that has been cut.

Night shift is a condition where an individual or a group of people working throughout the night between 11pm to 7am (2). There are two categories of night shift (i) rotating - morning to afternoon/afternoon to night or night to morning and (ii) permanent night shifts. The rotating shift can be sub-divided into clockwise and anti-clockwise. As night shift work is important for a continuous of 24-hour services in defense sectors, healthcare sectors, transportation, construction and manufacturing and production sectors, nevertheless, there are many adverse health related outcomes that comes along with it.

Risk factors of night shift

As night shift work is indispensable in today's society, it is crucial that we look into the physical, psychosocial and social as well as work related injury associated with it. These negative long term outcomes have shown detrimental effects on the night shift workers' health. Short term physical consequence such as headache, fatigue and sleepiness has been reported commonly in night shift workers during working periods. Unfortunately, prolong exposure to light at night will cause suppression of melatonin production resulting circadian rhythm disruption. Misalignment of circadian rhythms will lead to poor quality and shorter duration of sleep. It has been reported chronic cardiovascular disease are associated with poor and disruption of sleeping pattern(3). Prolong sleep deprivation and disruption in the biological clock may affect the cognitive and motor impairment of an individual. For an example, quick return refers to returning back to the next working shift in less than 8 hours of rest may often lead to work related injuries. The common work related injuries reported are needle stick injuries for healthcare givers or machinery accidents in manufacturing and road incidents on their journey home.

Other than that, lack of vitamin D in this group of night workers has shown a lower immune system. From the *High body mass index and night shift work are associated with Covid-19 in health care workers* article, it was found that there was a significant association between infection, obesity and prolong sleep deprivation (4). During the Covid-19 pandemic, healthcare workers whom had a BMI more than 30 and worked night shift had a higher possibility being infected with the disease(4).

According to *Negative Impacts of Shiftwork and Long Work Hours* journal, night shift workers tends to be more engaged in smoking behavior, substance abuse such as caffeine or alcohol consumption and less active in physical activity

which leads to obesity (3). Night shift workers tend to smoke more during working hours, this behavior is to prevent sleepiness and reduce stress. Other than that, poor eating habit during odd working hours is associated with obesity. For instance, high intake of carbohydrates and fats containing meals due to take out, frequent snacking and consumptions of energy drinks in order to maintain alertness.

A study has proved that night workers tend to be more nervous, anxious, depress and stressful compared to individual working day shift (5). Due to these psychological factors, absenteeism and the use of psychotropic drugs such as sedative or hypnotics tends to be common in these group of people. In additional to that, job dissatisfaction and burnout tends to be higher in this group of workers. On top of the job dissatisfaction and burnout, night shift workers tends to have limited and poorer quality time with family by missing out on social activities.

Discussion on intervention

Based on the Malaysia Employment Act 1955, it has limited regulation in safeguarding the wealth fares of night shift workers. The Employment Acts 1955 covers the minimum salary for an individual and the rates of overtime that should be pay if an employee is required to work more than 8 hours shift. Sadly, the Act did not highlight any protection or extra benefit for any individual working through the night time. According to evidence based studies, there has been reported that accident in night shift work is 30% higher compared to day oriented shift. In addition to that, the risk of accident increases from 6% to 36% after working consecutively for 4 nights(6). Since it was highlighted that the accidents rate at night are higher, it would be suggested that the employers can purchase group insurance coverage for these workers. This intervention would benefit both parties, as workers does not require to folk out personal money for the treatment. On the other hand, the respective employers will be eligible for tax relief for paying the premium.

The government should revise the Employment Acts 1955 looking into the gaps for night shift workers. At least the issue that should be address is to ensure that every night shift workers receives a minimum 8 hours of rest between the next working shifts. Other than that, to encourage employers to arrange working schedule according to the clockwise



rotation as well as replacement number of rest day especially after prolong days of night shift. In addition to that, the overtime rate of working night shift should be calculated differently from the day oriented overtime rate shift.

Organization plays a major role in determining the health of their night shift workers. From the organization perspectives, it is important to ensure that the workers are working within the 48 hours per week arrangement. Organization should take the initiative to introduce meal subsidy and nap breaks with a minimum of 30 minutes. A qualitative study from the nurses sample population has shown that napping can improve night performance, alertness and reduce fatigue(7). It is recommended that organization may engaged an occupational specialist in arranging the working schedule based on ergonomic criteria as well as performing health assessment on individual to evaluate their physical and mental conditions before starting them on night shift. Besides that, continuous assessment at a regular interval between 2 -3 years for each employee should be conducted as health surveillance of the employee.

In a mutidispinary approach, personal lifestyle and behavior of the workers are not to be excluded. A team comprises of occupational specialist, medical doctor and nutritionist should be form to provide education and information regarding the knowledge and negative influences of night work to the workers. Health education should include information on balanced nutrition, ways to maintain alertness during work without using substance and how to improve quality of sleep. Based on a four hour workshop mandatory study, it shows a significant improve of night shift workers were able to adapt to their daily activities at home compared to workers whom did not attend the workshop (8). Through empowerment, it would be possible for them to make changes of their diets, habits and lifestyle adjustment. For example, spending 8 hours in bed and waking up close to the working hours of night shift may reduce the self- reported sleepiness during night shift (9). Other than that, annual bloods check to identify any pre-cardiovascular or pre-diabetic conditions should be conducted.



Conclusion

It is nearly impossible to segregate health, development of the society and night shift work altogether. However, it is possible to maintain a balance within these three aspects. If the upstream is able to ensure that the organization is able to provide a safe and healthy working condition to the workers, the future morbidity and mortality among these workers can be minimized. In conclusion, these selflessness night shift workers dutiful ensure that our country continue to progress, maintaining law and services. It is also our duty to provide the upmost education, social benefit and protection for them to safeguard their health and benefits for their contributions.

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