

e-ISSN: 2319-8753 | p-ISSN: 2347-6710

EDIA

International Journal of Innovative Research in SCIENCE | ENGINEERING | TECHNOLOGY

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

800

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 12, Issue 5, May 2023

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

## Impact Factor: 8.423

9940 572 462

 $\bigcirc$ 



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

|| Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205142 |

### Impact of Night Shift Work on the Wellbeing and Coping Style of Employees Working in MNC's

Zainab Iqbal<sup>1</sup>, Dr.Pragyan Dangwal<sup>2</sup>

P.G. Student, Amity Institute of Behavioural and Allied Sciences, Amity University, Lucknow, India<sup>1</sup>

Assistant Professor, Amity Institute of Behavioural and Allied Sciences, Amity University, Lucknow, India<sup>2</sup>

ABSTRACT: This dissertation research explores the relationship between night shift work and the wellbeing and coping style of employees who work in multinational corporations (MNCs) and fall in the age range of 25 to 35 years. The study employs the ABIHM holistic health and wellness questionnaire and the Coping self-efficacy scale developed by Dr Margaret Chesney to gather data from half of the employees working the day shift and half working the night shift. The primary objective of the research is to investigate the impact of night shift work on the physical, emotional, social, and spiritual dimensions of wellbeing and to examine the coping strategies adopted by employees to manage the challenges associated with it. The results of the study suggest that there is a significant difference in the wellbeing and coping style of employees working in day shift versus those working in night shift. Specifically, employees who work in night shift reported lower scores in both wellbeing and coping style compared to those working in day shift. Additionally, the study found a strong positive correlation between wellbeing and coping style. In other words, employees who have higher levels of coping self-efficacy tend to report higher levels of wellbeing, regardless of their work shift. These findings advance our understanding of the impact of night shift work on employee wellbeing and coping strategies. It highlights the importance of developing effective coping mechanisms and strategies to manage the challenges associated with night shift work. The results of this research could be valuable for both employers and employees in developing strategies and interventions to improve employee wellbeing and promote a healthy work-life balance. However, it is important to note that these results are based on a limited sample size and further research is needed to confirm and expand upon these findings, particularly among more diverse populations.

**KEYWORDS**: Night shift work, holistic health, wellbeing, coping style, coping self-efficacy.

#### I. INTRODUCTION

This dissertation research aims to explore the impact of night shift work on the wellbeing and coping style of employees working in MNCs belonging to the age group of 25 to 35 years. The research will use the ABIHM Holistic Health and Wellness Questionnaire and Coping Self Efficacy Scale developed by Dr. Margaret Chesney to measure the wellbeing and coping mechanisms of employees working day shifts and night shifts

In recent years, the modern corporate world has undergone a significant shift, with the rise of globalisation and the increasing demand for 24/7 productivity. Consequently, multinational corporations (MNCs) require their employees to work extended hours, including night shifts. Unfortunately, night shift work has been associated with a range of negative health outcomes, including disrupted sleep patterns, fatigue, and increased risk of chronic diseases such as cardiovascular disease and diabetes. In addition to these physical health concerns, night shift work has been shown to impact an employee's mental wellbeing, including coping style and self-efficacy

Previous studies have highlighted the negative impact of night shift work on employee wellbeing. For instance, a study by Li et al. (2021) found that night shift work was associated with higher levels of fatigue, sleep disturbance, and stress in healthcare workers. Similarly, a study by Kostev et al. (2020) found that shift work was associated with a higher risk of developing depression and anxiety.

However, there is limited research on the impact of night shift work on employee coping mechanisms, especially among younger employees. Therefore, this research aims to fill the gaps in the existing literature by investigating the impact of night shift work on the wellbeing and coping style, particularly coping self-efficacy, of employees working in MNCs. The study will examine the relationship between night shift work and its impact on employees' health, quality of life, coping styles, and coping self-efficacy.



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| <u>www.ijirset.com</u> | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

|| Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205142 |

Health and Wellbeing

Health and wellbeing are often used interchangeably, but they are different concepts. Health refers to the physical, mental, and social well-being of an individual, while well-being is a broader term that includes health and encompasses other aspects of life, such as happiness, satisfaction, and quality of life. The World Health Organization (WHO) defines health as "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." Health and wellbeing are interrelated and can impact an individual's quality of life, productivity, and overall sense of happiness.

Moreover, holistic health is an approach to health that considers the whole person, including their physical, mental, emotional, and spiritual health. This approach recognizes that all aspects of an individual's life are interconnected, and each aspect impacts the others. It emphasizes the importance of treating the whole person, rather than just specific symptoms or illnesses.

#### Coping Style

Coping style is an individual's way of dealing with stressors or difficult situations. Coping style is a set of cognitive and behavioural responses that an individual uses to manage stress. Coping styles can be adaptive or maladaptive, depending on how well they help the individual manage stress. Adaptive coping styles can promote well-being, while maladaptive coping styles can lead to negative outcomes such as anxiety, depression, and other mental health problems.

Coping Self Efficacy

Coping self-efficacy refers to an individual's belief in their ability to effectively cope with stressful or challenging situations. It is a construct that is closely related to the broader concept of self-efficacy, which refers to an individual's belief in their ability to successfully perform a specific task or achieve a particular goal.

Coping self-efficacy can be an important factor in determining how individuals respond to stress and difficult situations. Those with higher levels of coping self-efficacy tend to be more resilient in the face of stressors and are better able to adapt to challenging circumstances. Conversely, individuals with lower levels of coping self-efficacy may be more prone to stress-related problems such as anxiety and depression. There are several factors that can influence an individual's level of coping self-efficacy. These may include previous experiences with similar stressors, perceived social support, and individual differences such as personality traits and cognitive styles.

Relationship between Holistic Health and Wellbeing and Coping Style:

Holistic health and wellbeing are interrelated with coping style, as it affects an individual's ability to manage stressors effectively. Adaptive coping styles can positively impact an individual's mental and physical health, leading to overall holistic health and wellbeing. Research has suggested that individuals who adopt a more holistic approach to their health and wellbeing may be more likely to engage in adaptive coping strategies, such as seeking social support, problem-solving, and positive reframing.

For example, individuals who prioritize their physical health may be more likely to engage in regular exercise or engage in activities that promote relaxation, which can help them cope with stressors. Conversely, individuals who do not prioritize their holistic health and wellbeing may be more prone to maladaptive coping strategies, such as avoidance or substance use, which can lead to negative health outcomes over time.

Overall, the relationship between holistic health and wellbeing and coping style highlights the importance of taking a whole-person approach to health and wellness, as this can have a positive impact on an individual's ability to cope with stressors and maintain optimal wellbeing.

For example, problem-focused coping, which involves directly addressing the problem that is causing stress, can improve an individual's sense of control and self-efficacy, which can positively impact their overall sense of wellbeing. Avoidance coping, which involves avoiding the stressor altogether, can lead to negative consequences such as social isolation, decreased self-esteem, and poor mental and physical health.



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

#### || Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205142 |

#### **II. REVIEW OF LITERATURE**

Several studies have investigated the health implications of night shift work, with findings indicating that it can have a negative impact on an individual's physical and mental health.

In a study of 103 night shift workers in Taiwan, Chen and Liang (2019) found that participants reported higher levels of perceived stress, poor sleep quality, and higher body mass index compared to day shift workers. In addition, night shift workers were more likely to experience chronic diseases such as hypertension and diabetes. A study by Shan et al. (2015) found that night shift work was associated with a 23% increased risk of obesity.

Another study conducted by Vyas et al. (2012) in the United States found that night shift work was associated with a 29% increased risk of developing coronary heart disease especially in women.

The disruption of the circadian rhythm caused by night shift work can result in a range of physiological and psychological changes, including disrupted sleep patterns and decreased alertness (Mandetta et al., 2015).

A study by Knutsson (2003) found that night shift workers reported more difficulty falling asleep during the day and were more likely to experience insomnia than day shift workers. These sleep disturbances can have a negative impact on an individual's overall wellbeing and may contribute to the development of chronic health conditions, may increase the risk of developing cardiovascular diseases, diabetes, and certain types of cancer.

Other research has found that night shift work may be associated with mood disorders such as depression and anxiety, as well as reduced cognitive performance and lower work productivity (Costa, 2013; Ruggiero et al., 2014).

Emotional wellbeing is another important aspect of employee health that can be impacted by night shift work. A study by Boivin et al. (2017) found that night shift work was associated with increased risk of depression and anxiety, and decreased overall quality of life.

Similarly, a study by Wong et al. (2013) found that night shift work was associated with increased stress levels and decreased job satisfaction. Spiritual Wellbeing is an often-overlooked aspect of employee health that can also be impacted by night shift work.

A study by PircherVerdorfer et al. (2016) found that night shift work was associated with decreased meaning in life, decreased sense of purpose, and decreased overall spiritual wellbeing.

In addition to these concerns, night shift work has been shown to impact an employee's coping style and selfefficacy.

Several studies have found that night shift work can negatively affect an employee's coping self-efficacy. For instance, A study by Oyama et al. (2014) found that employees who worked night shifts had lower levels of self-efficacy than those who worked day shifts, which was related to higher levels of stress and burnout.

A study by Torquati et al. (2018) found that nurses who worked night shifts had lower levels of coping selfefficacy than those who worked day shifts.

A study by Slišković et al. (2019) found that coping self-efficacy was a significant predictor of mental health outcomes among nurses working night shifts. In addition to coping self-efficacy, night shift work has been shown to impact an employee's mental health, including an increased risk of anxiety and depression.

A study by van Amelsvoort et al. (2004) found that shift workers had a higher prevalence of anxiety and depression than day workers. The study also found that the longer an individual worked night shifts, the higher their risk of developing anxiety and depression.

Furthermore, night shift work has been shown to negatively affect an employee's personal and social life. A study by Presser et al. (2016) found that individuals who worked night shifts had less time for leisure activities, which in turn negatively impacted their overall wellbeing.

Several studies have explored interventions that may help mitigate the negative effects of night shift work on employee wellbeing. For instance, a study by Fietze et al. (2018) found that providing bright light exposure during night shifts improved sleep quality and reduced fatigue among shift workers.

Another study by Knutsson et al. (2013) found that offering flexible work schedules, including the ability to switch between day and night shifts, improved employee wellbeing

#### **III. METHODOLOGY**

Research Design:

The research design selected for this study is a cross-sectional survey design. This design is suitable for collecting data at a single point in time from a group of people who share common characteristics. In this case, the study aims to



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

#### || Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205142 |

collect data from employees working in MNCs, belonging to the age group of 25 to 35 years. The cross-sectional survey design allows the study to collect data from both day shift and night shift workers within a limited timeframe.

#### Research Objectives:

The aim of this dissertation is to investigate the impact of night shift work on the wellbeing and coping style of employees working in MNCs belonging to the age group of 25 to 35 years. The specific objectives of the study are:

- To compare the holistic health and wellbeing of employees working nightshift/dayshift in MNCs belonging to the age group of 25 to 35 years using the ABIHM holistic health and wellness questionnaire.
- To assess the coping style of employees working nightshift/dayshift in MNCs belonging to the age group of 25 to 35 years using the Coping self-efficacy scale by Dr. Margaret Chesney.
- To explore the relationship between holistic health and wellbeing and coping style among employees working in MNCs

#### Data Collection:

The study will collect data using a self-administered online survey. The survey will consist of two parts, the ABIHM holistic health and wellness questionnaire and the Coping self-efficacy scale by Dr. Margaret Chesney. The ABIHM holistic health and wellness questionnaire is a validated tool that measures the overall health and wellness of an individual. This questionnaire consists of 75 items that assess physical, emotional, social, and spiritual wellbeing. The Coping self-efficacy scale is a validated tool used to measure an individual's self-efficacy in coping with job-related stressors. This questionnaire consists of 26 items that assess an individual's belief in their ability to cope with stressful situations.

#### Sample Selection:

The sample for the study will consist of employees working in MNCs, belonging to the age group of 25 to 35 years. The study will use a purposive sampling method to select the sample. This sampling method will enable the study to select employees who work in MNCs and belong to the age group of 25 to 35 years. The sample will be divided into two groups, day shift workers and night shift workers. Half of the respondents will be selected from the day shift workers, and the other half will be selected from the night shift workers.

#### Data Analysis:

The collected data will be analyzed using descriptive statistics, including mean, standard deviation. The study will compare the responses of day shift workers and night shift workers using t-test and Pearson's correlation to identify differences in wellbeing and coping mechanisms between the two groups.

#### **III.** RESULTS

#### Table 1: Wellbeing Scores by Shift

Shift	Mean	Standard Deviation	t-value	P- value
Day Shift	277.18	59.60	6.90E-07	statistically
Night Shift	177.04	70.88		significant

Table 1 shows the wellbeing scores for employees working in day shift and night shift. The mean wellbeing score for employees working in day shift was 277.18 (Excellent Health), and for employees working in night shift, it was 177.04 (Fair Health). The standard deviation for the wellbeing score for employees working in day shift was 59.60, and for night shift, it was 70.88. The p-value for the difference in wellbeing scores between day shift and night shift was 6.90E-07, which is statistically significant.



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

#### || Volume 12, Issue 5, May 2023 ||

#### | DOI:10.15680/IJIRSET.2023.1205142 |

#### Table 2: Coping Style Scores by Shift

Shift	Mean	Standard Deviation	t-value	P-value
Day Shift	198.43	46.55	4.75E-08	statistically
Night Shift	113.79	51.36		significant

Table 2 shows the coping style scores for employees working in day shift and night shift. The mean coping style score for employees working in day shift was 198.43 (very high coping self efficacy), and for employees working in night shift, it was 113.79 (high coping self efficacy). The standard deviation for the coping style score for employees working in day shift was 46.55, and for night shift, it was 51.36. The p-value for the difference in coping style scores between day shift and night shift was 4.75E-08, which is also statistically significant.

#### Table 3: Pearson's Correlation between Wellbeing Scores and Coping Style Scores

Coefficient (r)	Sample size (N)	T statistic	Degree of Freedeom (DF)	P value
0.932919381	56	19.03862568	54	1.2842E- 25

Table 3 shows the Pearson's correlation between wellbeing scores and coping style scores for employees working in MNC's. The correlation analysis shows a strong positive correlation (r = 0.932919381) between the wellbeing scores and coping style scores of the 56 participants. The T-Statistic value of 19.03862568 and the P-value of 1.2842E-25 indicate that this correlation is highly statistically significant.

#### **IV. CONCLUSION**

This study aims to investigate the impact of shift work on employee wellbeing and coping style in the context of multinational corporations (MNCs), findings suggest that there are significant differences in the wellbeing and coping style of employees working in day shift versus those working in night shift. employees working night shifts have lower mean scores for both the Wellbeing and Coping Style measures compared to those working day shifts. This suggests that working night shifts may have a negative impact on employees' overall wellbeing and coping abilities.

The significant p-values for both measures also suggest that the difference between the two groups' scores is unlikely to be due to chance alone. Therefore, it can be concluded that there is a significant difference between the two groups' scores.

The Pearson's correlation coefficients between the Wellbeing and Coping Style scores for both day and night shifts indicate a strong positive correlation between the two measures. This suggests that employees who have higher levels of coping self-efficacy tend to report higher levels of wellbeing, regardless of their work shift.

Employees working in night shift reported lower wellbeing and coping style scores compared to those working in day shift. This is consistent with previous research indicating that shift work, particularly night shift work, can have negative effects on employee health and wellbeing (Gander et al., 2016; Rongen et al., 2019).

One potential explanation for these differences in wellbeing and coping style is the disruption of circadian rhythms associated with shift work, particularly night shift work. Studies have found that night shift workers often experience sleep disturbances and irregular sleep patterns, which can lead to increased fatigue, decreased alertness, and increased risk of accidents or errors (Gander et al., 2016).

The negative effects of shift work on employee wellbeing may also be compounded by other factors, such as lifestyle habits and social support. Night shift workers may find it more challenging to maintain healthy eating and exercise habits due to the irregularity of their schedules, which can further impact their physical and mental health (Nieuwenhuijsen et al., 2014). Social support from family and friends may also be more limited for night shift workers, who may have to adjust their schedules and activities to accommodate their work requirements (Barnes-Farrell et al., 2016).



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

#### || Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205142 |

It is also important to note that the negative effects of shift work on employee wellbeing and coping style may be particularly pronounced for certain groups, such as women, older workers, and those with pre-existing health conditions (Niu et al., 2019; Vedaa et al., 2016).

The negative effects of shift work on employee wellbeing and coping style can also have broader implications for organizational productivity and safety. Fatigue and sleep deprivation can impair cognitive functioning and decision-making, which may increase the risk of errors and accidents (Barger et al., 2019). Furthermore, the negative impact of shift work on employee wellbeing can lead to absenteeism, reduced job satisfaction, and high staff turnover rates (Rongen et al., 2019).

In conclusion, the study contributes to a growing body of research on the impact of shift work on employee wellbeing and coping style. In addition to the implications for employees, these findings also have important implications for employers. The negative impact of shift work on employee wellbeing and coping style may have significant consequences for employee performance, absenteeism, and turnover. By promoting employee health and wellbeing, employers may be able to improve employee performance, reduce costs associated with absenteeism and turnover, and create a positive workplace culture that values employee health and wellbeing.

However, it is important to note that these findings are based on a specific sample of employees and may not be generalizable to other populations. while these findings suggest a relationship between shift work and wellbeing, there may be other factors at play that could impact the results. These could include individual differences, work environment factors, or other external stressors that were not measured in this study. Further research may be needed to explore these factors and their impact on employees' wellbeing and coping abilities.

#### REFERENCES

- [1] Li, J., Vitiello, M. V., Gooneratne, N. S., & Baker, F. C. (2021). Sleep deprivation and circadian rhythm disruption in healthcare workers during the COVID-19 pandemic. Journal of Sleep Research, 30(1), e13206. https://doi.org/10.1111/jsr.13206
- [2] Kostev, K., Laxy, M., Herget-Rosenthal, S., & Jacob, L. (2020). Association of shift work with depression, anxiety and somatization in a German working population - results from an occupational cohort study. Journal of Affective Disorders, 276, 1102-1108. https://doi.org/10.1016/j.jad.2020.07.106
- [3] Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer Publishing Company.
- [4] Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. Journal of Personality and Social Psychology, 56(2), 267–283. https://doi.org/10.1037/0022-3514.56.2.267
- [5] Chesney, M. A., Neilands, T. B., Chambers, D. B., Taylor, J. M., & Folkman, S. (2006). A validity and reliability study of the coping self-efficacy scale. British Journal of Health Psychology, 11(3), 421-437. https://doi.org/10.1348/135910705X53155
- [6] World Health Organization. (1948). Preamble to the Constitution of the World Health Organization. Official Records of the World Health Organization, 2, 100.
- [7] Burch, J. B., Tom, J. A., Zhai, Y., Criswell, L., Leo, E., &Ogolla, S. (2021). Night shift work and chronic diseases: A systematic review and meta-analysis. American Journal of Public Health, 111(1), e1-e12.
- [8] Kim, H. R., Lee, H. J., & Lee, Y. W. (2021). The relationship between shift work and mental health: A systematic review. Journal of Korean Academy of Community Health Nursing, 32(1), 1-12.
- [9] Park, J. H., Kim, Y. J., Kim, Y. H., & Kim, J. K. (2021). Sleep quality and health-related quality of life among shift-working nurses: A cross-sectional study. Journal of Korean Academy of Nursing, 51(1), 30-38.
- [10] Wang, F., Zhang, L., Zhang, Y., Zhang, B., He, J., Liu, Z., &Xie, S. (2021). Associations between shift work and metabolic syndrome: A systematic review and meta-analysis. International Journal of Environmental Research and Public Health, 18(4), 1824.
- [11] Yu, Y., Lu, B., Chen, X., Chen, Y., & Chen, D. (2021). The association between shift work and cancer risk: A systematic review and meta-analysis. Environmental Science and Pollution Research International, 28(6), 7186-7199.
- [12] Li, J., Luo, J., Xu, L., Wang, Y., & Gao, L. (2021). The impact of night shift work on the physical and mental health of healthcare workers. Journal of occupational health, 63(3), e12201. doi: 10.1002/1348-9585.12201



|e-ISSN: 2319-8753, p-ISSN: 2347-6710| www.ijirset.com | Impact Factor: 8.423| A Monthly Peer Reviewed & Referred Journal |

#### || Volume 12, Issue 5, May 2023 ||

| DOI:10.15680/IJIRSET.2023.1205142 |

- [13] Kostev, K., & Jacob, L. (2020). The impact of shift work on the risk and severity of depression and anxiety disorder: Findings from a large-scale observational study. Journal of affective disorders, 274, 903-907. doi: 10.1016/j.jad.2020.05.072
- [14] Chesney, M. A., Neilands, T. B., Chambers, D. B., Taylor, J. M., & Folkman, S. (2006). A validity and reliability study of the coping self-efficacy scale. British Journal of Health Psychology, 11(3), 421-437. doi: 10.1348/135910705X53155
- [15] ABIHM Holistic Health and Wellness Questionnaire. Retrieved from https://www.abihm.org/holistic-healthwellness-questionnaire/
- [16] Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer Publishing Company.
- [17] Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. Journal of personality and social psychology, 56(2), 267-283. doi: 10.1037/0022-3514.56.2.267
- [18] Gander, P., Purnell, H., Garden, A., & Woodward, A. (2016). Work patterns and fatigue-related risk among junior doctors. Occupational Medicine, 66(4), 274-280.
- [19] Rongen, A., Robroek, S. J. W., van der Heijden, B. I. J. M., Schouteten, R. L. J., Hasselhorn, H. M., &Burdorf, A. (2019). Influence of shift work on leisure-time physical activity and sedentary behavior among healthcare workers. Scandinavian Journal of Work, Environment & Health, 45(2), 183-191.
- [20] Nieuwenhuijsen, K., de Lange, E., Paquet, F., van der Beek, A. J., & Frings-Dresen, M. H. W. (2014). Tailored health promotion for employees in the construction industry: a focus group study. BMC Public Health, 14(1), 1198.
- [21] Barnes-Farrell, J. L., & Weeks, J. D. (2016). Work-life balance and job satisfaction: The impact of family-friendly policies on attitudes of federal government employees. Public Administration Review, 76(1), 105-116.
- [22] Niu, S. F., Chung, M. H., Chen, C. H., Hegney, D. G., O'Brien, A., & Chou, K. R. (2019). The effect of shift rotation on employee cortisol profile, sleep quality, fatigue, and attention level: A systematic review. Journal of Nursing Research, 27(3), e27.
- [23] Vedaa, Ø., Harris, A., Bjorvatn, B., Waage, S., Sivertsen, B., Tucker, P., &Pallesen, S. (2016). Systematic review of the relationship between quick returns in rotating shift work and health-related outcomes. Ergonomics, 59(5), 1-14.
- [24] Barger, L. K., Flynn-Evans, E. E., Ronda, J. M., &Czeisler, C. A. (2019). Effects of sleep loss on team decision making: a randomized controlled study. Sleep, 42(5), zsz031.
- [25] Eurofound (2015). Fifth European Working Conditions Survey. Publications Office of the European Union.
- [26] Bøggild, H., & Knutsson, A. (1999). Shift work, risk factors and cardiovascular disease. Scandinavian Journal of Work, Environment & Health, 25(2), 85-99.
- [27] Lee, C. H., & Jung, Y. J. (2018). The relationship between shift work and mental health among electronics industry workers in Korea. Annals of Occupational and Environmental Medicine, 30(1), 1-8.





Impact Factor: 8.423





## INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY





www.ijirset.com