



Common psychological repercussions of extended night shifts among medical staff in Saudi Arabia

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ABSTRACT

Background: There are numerous health consequences associated with night shift work, particularly for healthcare professionals. This study aims to evaluate the prevalent psychological effects experienced by medical personnel working extended night shifts in Saudi Arabia. **Methodology:** This was a prospective descriptive study done in Al-Kharj, Saudi Arabia, from April 2025 to May 2025. Data for this study was collected through an online questionnaire. **Results:** The highest prevalence of depression was observed in score (5), followed by scores (3) and (4), accounting for 30%, 26%, and 22%, respectively. Negative health impacts were reported by 88% of the study participants, comprising 85.7% of males and 88.9% of females. Concerning exhaustion, most participants achieved a score of (5), followed by a score of (4) and a score of (3), corresponding to 42%, 28%, and 18%, respectively. **Conclusion:** Depression, adverse health effects, sleep problems, fatigue, and headaches are the predominant psychiatric illnesses linked to prolonged night shift employment among the entire medical workforce in Saudi Arabia.

Keywords: Night shift, depression, anxiety, medical personnel, Saudi Arabia

INTRODUCTION

Night shift work encompasses employment, including transmeridian travel, conducted during the conventional sleeping hours of the

general population. This alters exposure to the natural light-dark cycle and disrupts circadian rhythms. "Night" or "nighttime" is generally defined as the period from sunset to sunrise within a 24-hour cycle. The human biological



night depends on individual circadian rhythms, typically spanning from 23:00 to 07:00, a timeframe generally reserved for sleep; nonetheless, variations may occur due to cultural and other influences [1].

The night shift is a prevalent work arrangement in medical hospitals, necessitating continuous health monitoring and timely decision-making by healthcare professionals. Night shifts can lead to notable health problems for medical personnel, including cognitive impairments, insufficient sleep, and inflammatory responses, potentially disrupting the gut-brain axis [2]. Night shift workers exhibited pooled relative risks of 1.02 (95% CI: 0.99, 1.06) for all-cause mortality, 1.18 (95% CI: 0.94, 1.47) for cardiovascular mortality, and 1.05 (95% CI: 0.83, 1.34) for cancer mortality compared to daytime workers [3].

Shift workers face various hazards that affect their health, quality of life, and safety in the workplace. Individuals engaged in nocturnal labor exhibit heightened susceptibility. Healthcare professionals must identify the risks associated with night shifts to develop strategies that alleviate sleep and health problems. Shift and night workers should have the opportunity to undergo screening for issues related to their employment [4].

The psychological well-being of mental health care workers has become a significant area of research, driven by increasing expectations and stressors in

their work environment. The findings suggest that interventions to reduce the negative impacts of night shifts are necessary, including improvements in shift systems, increased organizational support, and the implementation of targeted mental health programs. The implementation of these measures would enhance the health and job satisfaction of night shift workers, thereby improving the overall quality of healthcare services [5].

Several studies conducted in Saudi Arabia have reported the negative health and social impacts of night shift work on medical personnel [6-9]. This study aimed to estimate the psychological consequences associated with prolonged night shift work among medical personnel.

MATERIALS AND METHODS

This was a prospective descriptive research study conducted in Al-Kharj, Saudi Arabia, from April 2025 to May 2025. Data for this study was collected through an online questionnaire. The questionnaire was disseminated to healthcare providers, including physicians and nurses. In addition to the demographic information of the study participants, the questionnaire incorporated inquiries regarding stress, anxiety, and depression.

Data analysis

The data pertinent to this study was first organized in a data sheet and subsequently input into a statistical software package for Social Sciences (SPSS). Frequencies, percentages,

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means, and cross-tabulations were collected. The chi-square test was calculated with a 95% confidence interval in mind. A p-value of less than 0.05 was deemed statistically significant.

RESULTS

The study included 100 medical staff between the ages of 20 and 61, with a mean age of 37.4 ± 7.7 years. Regarding tiredness, the majority of participants scored (5), followed by Score (4) and Score (3), comprising 42/100 (42%), 28%, and 18%, respectively. The majority of subjects

reported a headache (72%). Males had 17/28 (60.7%) headaches, while females had 54/72 (75%). The incidence of headache linked with an extended night shift among females, the relative risk (RR), and the 95% confidence interval (95%CI): RR (95%CI) = 0.816 (0.597-1.116), P value = 0.122. Approximately 63% of subjects reported difficulties sleeping, with 17/28 (60.7%) males and 46/72 (63.9%) females.

About 88% of the study subjects reported a negative health impact, including 24/28 (85.7%) males and 64/72 (88.9%) females, as shown in Table 1 and Figure 1.

Table 1. Distribution of the study subjects according to sex and psychological influences

Variable	Males	Females	Total
Exhaustion Score			
1	1	1	2
2	4	6	10
3	7	11	18
4	7	21	28
5	9	33	42
Total	28	72	100
Headache			
No	11	18	29
Yes	17	54	71
Total	28	72	100
Sleeping difficulty			
No	11	26	37
Yes	17	46	63
Total	28	72	100
Negative health impact			
No	1	2	3
Not Sure	3	6	9
Yes	24	64	88
Total	28	72	100

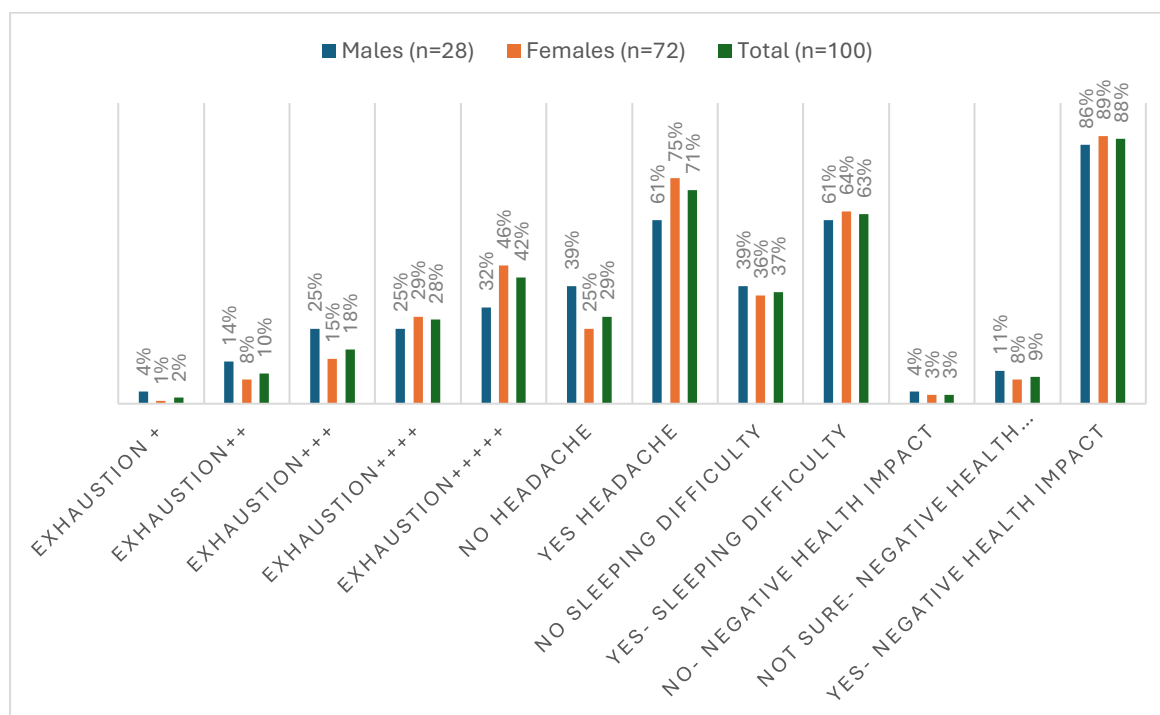


Figure 1. Description of the study subjects by sex and psychological influences

Table 2 and Figure 2 show the distribution of stress, anxiety, and depression scores by gender. Most participants reported the highest stress score (5), followed by (4) and (3), which accounted for 33%, 28%, and 23%, respectively. The majority of males indicated a stress score of 4, followed by scores of 2 and 3, comprising 9/28 (32%), 8 (28.5%), and 6 (21.4%), in that order; thus, females were more frequent with a score of 5, followed by 4 and 3, representing 28/72 (38.9%), 19 (26.4%), and 17 (23.6%), respectively. 22% of the contributors reported anxiety, with 5/28 (17.8%) males and 17/72 (23.6%)

females. The risk of anxiety in women: RR (95% CI) = 0.913 (0.698-1.193), P-value = 0.369. The highest depression frequency was detected in score (5), followed by scores (3) and (4), which were 30%, 26%, and 22%, respectively. Most males reported a score of 3, followed by scores of 4 and 5, accounting for 8/28 (28.6%) and 6/28 (21.4%), respectively, per capita. The majority of females reported a score of 5, followed by 3 and 4, representing 33.3%, 18 (25%), and 16 (22.2%), respectively, as shown in Table 2 and Figure 2.

Table 2. Distribution of stress, anxiety, and depression scores by sex

Variable	Males	Females	Total
Stress Score			
1	0	0	0
2	8	8	16
3	6	17	23

4	9	19	28
5	5	28	33
Total	28	72	100
Anxiety			
No	23	55	78
Yes	5	17	22
Total	28	72	100
Depression score			
1	3	5	8
2	5	9	14
3	8	18	26
4	6	16	22
5	6	24	30
Total	28	72	100

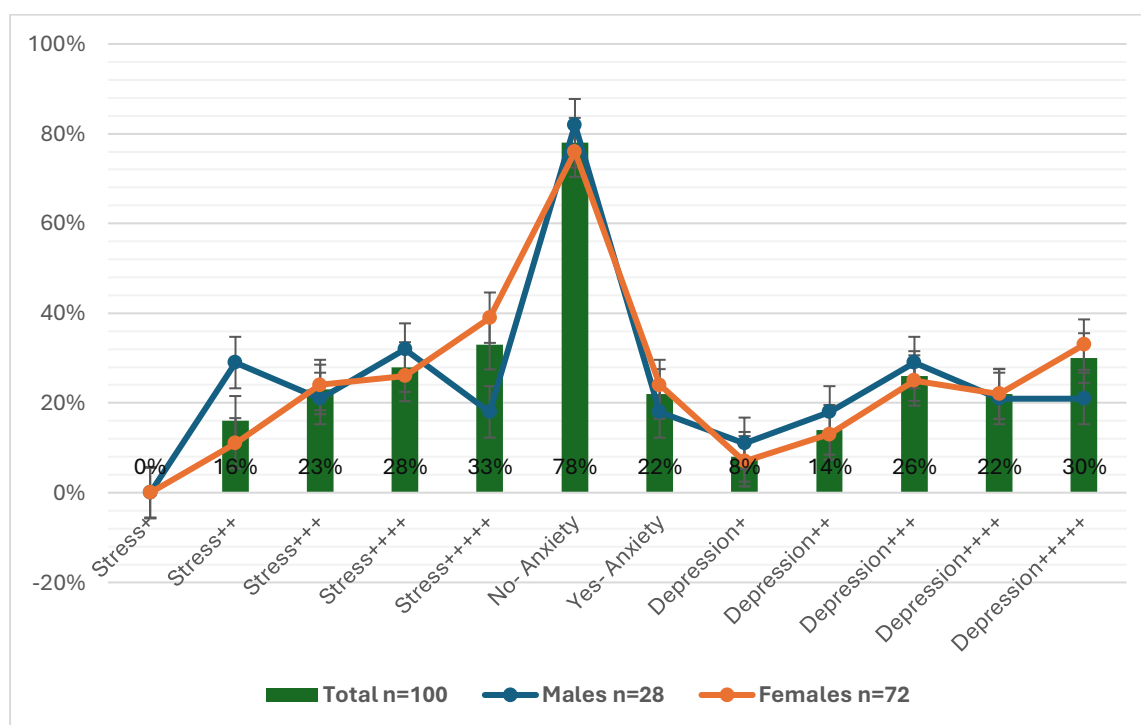


Figure 2. Description of stress, anxiety, and depression scores by sex

DISCUSSION

Long-term night shift work has various health and social consequences. Healthcare personnel are at an increased risk for various health disorders linked to night shift work globally. However, the aim of the present study was to investigate the psychiatric

issues related to night shift work among medical staff in Saudi Arabia. Many organisms possess circadian rhythms that enable them to anticipate changes in their environment. The circadian clock regulates food intake, sleep patterns, physical activity, and cortisol levels. The circadian clock is regulated by environmental light signals



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and can be disturbed by factors such as shift work, jet lag, stress, aging, and exposure to artificial light at night. Mood exhibits a daily cycle. Patients with depression exhibit irregular biological rhythms in sleep, appetite, activity, and cortisol levels, indicating that circadian rhythmicity plays a significant role in the etiology and pathophysiology of the disorder.

The findings of this study indicate elevated depression scores. The cumulative percentage of individuals with a score of 3 or higher exceeded 78%. Additionally, over 20% of the study participants reported experiencing anxiety and stress. Nonetheless, a comparable study has presented differing results. The study evaluated 9,181 nurses working night shifts. Depression was reported in 58.82% of participants, while anxiety was reported in 62.08%. The discrepancies may be attributed to the limited sample size and the inclusion of all medical staff rather than focusing solely on nurses. The study's extensive sample size and evaluated parameters encompass fatigue during shift work, psychological stress before, during, and after night shifts, feelings of refreshment following rest before and after night shifts, use of sleep medication prior to and following night shifts, physical discomfort experienced during night shifts, busyness during night shifts, food intake during shift work, working over 40 hours per week during shift work, and sleep quality before and after night shifts [10]. As a result, their findings may exhibit greater reliability than ours. Depression constitutes 4.3% of the global disease burden and incidence, with projections indicating that mental disorders will incur costs of US \$16.3 million by 2030. Approximately 20% of individuals in the

United States and Europe engage in shift work, which correlates with a heightened risk of adverse mental health outcomes. Consequently, industries that rely on shift work represent a critical area for intervention aimed at alleviating this issue. Health promotion programs in the workplace are essential to reduce the risk of poor mental health among shift workers [11]. In the current study, over 70% of participants reported experiencing headaches. Shift work correlates with musculoskeletal pain and headaches [12]. A significant trend suggested that the risk of headaches was elevated on workday 3 compared to workday 2 for night shifts (OR 1.13, 95% CI 0.99 to 1.28). The risk decreased when sleep duration was considered (OR 0.37, 95% CI 0.17 to 0.81) [13]. A significant number of participants experienced sleep disturbances, exhaustion, and negative impacts. Working more than eight-night shifts per month is associated with a higher risk of insomnia, fatigue, and depression. The risk of these conditions was significantly and directly proportional to the number of night shifts conducted per month [14]. Shift work is associated with reduced sleep and shift work disorder, as well as various sleep disorders, including insomnia, sleep-related breathing disorders, and sleep-related movement disorders. Our findings suggest that education on coping strategies is particularly crucial for young and lower-educated shift workers [15]. Countermeasures for wakefulness and sleep promotion may mitigate sleepiness and enhance sleep quality; however, currently, there are no effective treatments capable of fully counteracting the adverse effects of shift work schedules on human



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physiology and behaviour. Further research is required to elucidate the reasons behind certain individuals' susceptibility to nighttime sleepiness and daytime insomnia [16]. Shift work elevated the overall risk of adverse mental health outcomes, including depression and anxiety, by 28% [11]. Occupational physicians have long debated the association between night shift work and depression, as well as other concurrent mental health issues, focusing on work-related, biological, individual, and environmental factors. A recent meta-analysis demonstrated a significant correlation between night shift work, the resultant circadian and sleep disruption, and the increased risk of depression among nurses. This indicates that nurses employed in night shifts are susceptible to the development of depression [17]. The literature on night shift work is limited; however, the study revealed a significant psychosocial impact on nurses engaged in night shifts. It is recommended to develop incentives and support structures for nurses engaged in night shift work [18]. This study encourages authorities to provide support for psychiatric disorders related to night shift work among medical teams; however, it has limitations, such as a small sample size and the use of an online cross-sectional survey design.

In conclusion, depression, negative health impacts, sleep disturbances, exhaustion, and headaches are the most

REFERENCES

- 1- IARC Working Group on the Identification of Carcinogenic Hazards to Humans. Night Shift Work. Lyon (FR): International Agency for Research on Cancer; 2020. (IARC Monographs on the Identification of Carcinogenic Hazards to

prevalent psychiatric disorders linked to prolonged night shift work among medical staff in Saudi Arabia. Support initiatives are considered essential for medical staff to mitigate the adverse effects of night shifts.

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Conflict of interest

The authors declare no conflict of interest.

Ethical consent

Before completing out the questionnaire, each participant gave permission to participate.

Ethical approval

The Human Research Ethics Committee at MRCC has approved the study's proposal. Approval Number: HREC0015/PMRCC.4/25.

Data availability

Data regarding this study is available from the corresponding author.

Humans, No. 124.) 1. Exposure Data. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK568199/>



- 2- Yao T, Chao YP, Huang CM, Lee HC, Liu CY, Li KW, Hsu AL, Tung YT, Wu CW. Impacts of night shift on medical professionals: a pilot study of brain connectivity and gut microbiota. *Front Neurosci.* 2025 Feb 17; 19:1503176. doi: 10.3389/fnins.2025.1503176.
- 3- Su F, Huang D, Wang H, Yang Z. Associations of shift work and night work with risk of all-cause, cardiovascular and cancer mortality: a meta-analysis of cohort studies. *Sleep Med.* 2021 Oct; 86:90-98. doi: 10.1016/j.sleep.2021.08.017.
- 4- Czyż-Szybenbejl K, Mędrzycka-Dąbrowska W. The Impact of Night Work on the Sleep and Health of Medical Staff-A Review of the Latest Scientific Reports. *J Clin Med.* 2024 Aug 1;13(15):4505. doi: 10.3390/jcm13154505.
- 5- Chen CC, Ping LY, Lan YL, Huang CY. The impact of night shifts on the physical and mental health of psychiatric medical staff: the influence of occupational burnout. *BMC Psychiatry.* 2025 Mar 19;25(1):256. doi: 10.1186/s12888-025-06701-x.
- 6- Qanash S, Alwafi H, Barasheed S, Bashnaini S, Andergiri R, Yaghmour L, Murad W, Shabrawishi M, Naser AY, Alsyyid B. Impact of night shifts on sleeping patterns, psychosocial and physical well-being among healthcare professionals: a cross-sectional study in a tertiary hospital in Saudi Arabia. *BMJ Open.* 2021 Sep 2;11(9):e046036. doi: 10.1136/bmjopen-2020-046036.
- 7- Aljuaid M, Alajman N, Alsafadi A, Alnajjar F, Alshaikh M. Medication Error During the Day and Night Shift on Weekdays and Weekends: A Single Teaching Hospital Experience in Riyadh, Saudi Arabia. *Risk Manag Healthc Policy.* 2021 Jun 21;14:2571-2578. doi: 10.2147/RMHP.S311638.
- 8- AlHassan AK, AlSaqat RT, Al Sweleh FS. Sexual workplace violence in the health sector in Saudi Arabia: a cross sectional study. *BMC Health Serv Res.* 2023 Oct 6;23(1):1065. doi: 10.1186/s12913-023-10080-y.
- 9- Al Maqwash LS, Sufyani AM, Bichara MM, Rajikhan YT, Albishri M, Hamood NA, Al Dligan RH, Tawhari I. The Association Between Shift Work and Migraine Attacks Among Healthcare Workers in the Kingdom of Saudi Arabia. *Cureus.* 2024 Jan 31;16(1):e53315. doi: 10.7759/cureus.53315.
- 10- Li Y, Wang Y, Lv X, Li R, Guan X, Li L, Li J, Cao Y. Effects of Factors Related to Shift Work on Depression and Anxiety in Nurses. *Front Public Health.* 2022 Jul 11;10:926988. doi: 10.3389/fpubh.2022.926988.
- 11- Torquati L, Mielke GI, Brown WJ, Burton NW, Kolbe-Alexander TL. Shift Work and Poor Mental Health: A Meta-Analysis of Longitudinal Studies. *Am J Public Health.* 2019 Nov;109(11):e13-e20. doi: 10.2105/AJPH.2019.305278.
- 12- Stavås JA, Nilsen KB, Matre D. The association between proportion of night shifts and musculoskeletal pain and headaches in nurses: a cross-sectional study. *BMC Musculoskeletal Disord.* 2024 Jan 16;25(1):67. doi: 10.1186/s12891-024-07196-5.
- 13- Katsifaraki M, Nilsen KB, Christensen JO, Wærsted M, Knardahl S, Bjorvatn B, Härmä M, Matre D. Pain complaints after consecutive nights and quick returns in Norwegian nurses working three-shift rotation: an observational study. *BMJ Open.* 2020 Sep 9;10(9):e035533. doi: 10.1136/bmjopen-2019-035533.
- 14- Alqahtani JS, Arowosegbe A, Oyelade T, Aldhahir AM, Alghamdi SM, Alqarni AA, Siraj RA, Alenezi M, Alnaam LY, AlDraiwiash IA, Alqahtani AS, Algarzae TA, AlRabeeah SM, Naser AY, Alwafi H, Hjazi AM, Alanazi TM, Al Rajeh AM, Alzahrani EM. The effect of cumulative night shift duties on insomnia, fatigue, and mental health in intensive care unit. *Heliyon.* 2024 May 10;10(10):e31066. doi: 10.1016/j.heliyon.2024.e31066.
- 15- Boersma GJ, Mijster T, Vantighem P, Kerkhof GA, Lancel M. Shift work is associated with extensively disordered sleep, especially when working nights. *Front Psychiatry.* 2023 Dec 7;14:1233640. doi: 10.3389/fpsy.2023.1233640.
- 16- Akerstedt T, Wright KP Jr. Sleep Loss and Fatigue in Shift Work and Shift Work Disorder. *Sleep Med Clin.* 2009 Jun 1;4(2):257-271. doi: 10.1016/j.jsmc.2009.03.001.
- 17- Okechukwu CE, Colaprico C, Di Mario S, Oko-Oboh AG, Shaholli D, Manai MV, La Torre G. The Relationship between Working Night Shifts and



Medical Research Updates Journal

ORIGINAL RESEARCH | [DOI: <https://doi.org/10.70084/mruj.0000.P232>

Depression among Nurses: A Systematic Review and Meta-Analysis. Healthcare (Basel). 2023 Mar 24;11(7):937. doi: 10.3390/healthcare11070937.

18- Alsharari AF. Psychosocial Impact of Night Shift Work among Nurses in Saudi Arabia. American Journal of Nursing Research. 2019, 7(3), 238-247. DOI: 10.12691/ajnr-7-3-2