Influence Of Turnicity And Quality Of Life On Sleep Disturbances In Operators Of A Security Company – 2025

Echeverría Martínez Monica Patricia [1], Sánchez Barros Mercedes Viviana [2], Sango Calo Klever Vinicio [3], Villafuerte Ledesma Kelvin Wladimir [4]

[1] *Author - Physician, Graduate School, Technical University of the North, Ecuador.*
[2] *Co Author - Professor , Graduate School, Technical University of the North, Ecuador.*
[3] *Professor, Graduate School, Technical University of the North, Ecuador.*
[4] *Professor, Faculty of Health Sciences, Technical University of the North, Ecuador.*

Keywords:
quality of life, sleep disorders, shift work, security operators.

Summary

Objective: To analyze the relationship between shift work, quality of work life, and sleep disorders in security company operators during 2025, given the growing evidence of the negative impact of shift work on workers' overall health.

Methods: This was a quantitative, non-experimental, cross-sectional, correlational study. Ninety-five male security workers participated in the study, using a census-based sampling. The Monterrey Sleep Disorders Questionnaire and the WRQoL scale were used to measure quality of work life. Statistical analysis was performed using SPSS v25, using Pearson's correlation coefficient with a significance level of $p \leq 0.05$.

Results: 97.9% of participants presented at least one type of sleep disorder, the most prevalent being insomnia (83.2%), isolated symptoms (85.3%), and hypersomnia (78.9%). Furthermore, 35.8% reported low work-life quality. A significant correlation was identified between insomnia ($r=0.227$; $p=0.007$), hypersomnia ($r=0.278$; $p=0.006$), and abnormal sleep movements ($r=0.222$; $p=0.030$) and low work-life quality.

Conclusions: The results show that sleep disorders are significantly associated with a decrease in the quality of work life of operators exposed to rotating shifts. These findings underscore the urgency of implementing organizational strategies focused on circadian health to improve the well-being and performance of security personnel.

Introduction

Economic demands, globalization, and rapid industrial growth require services and production processes to operate uninterruptedly. According to the Spanish government's Institute for Occupational Health and Safety and the Working Conditions Observatory, more than 40% of employees work rotating shifts, and around 30% work night shifts. These figures explain the need for personnel to cover health and safety services, which require 24-hour attention.(1)

The World Health Organization (2), for its part, estimates that of the total world population, about 60% of individuals are actively working, and of this figure, at least 40% mention difficulties in

sleeping properly, one of the factors that most influences shift work, which has a direct impact on daily activities, health and quality of life of workers due in large part to the difficulty in adapting, caused by interference with the natural sleep and wake cycles to which they are exposed, since it can trigger alterations and even sleep disorders. (3).

Given the magnitude of this problem, numerous studies have shown that shift work can have a direct negative impact on both the health of workers and their job performance, mainly due to the state of chronic fatigue to which they are exposed (4). In this regard, research conducted by the Department of Occupational Medicine and the Faculty of Medicine and Health Sciences of the University of Barcelona revealed that a decrease in sleep quality increases the risk of workplace accidents by 225%. On the other hand, the study The Cost of Poor Sleep , prepared by the American College of Occupational and Environmental Medicine estimated that companies lose approximately $1,967 annually for each employee with an undiagnosed sleep disorder (5).

Security workers in companies that provide surveillance or security services are exposed to high physical and psychological demands, which, combined with shift work patterns, can directly impact their quality of life. According to the World Health Organization, quality of work life is understood as "the perception that people have of their position in life, based on their culture, value system, goals, expectations, and concerns (6)." In this regard, a study conducted by Posada et al. (7)among security personnel in the city of Barranquilla, Colombia, showed that the highest levels of dissatisfaction with quality of work life are concentrated in aspects such as work overload and difficulty balancing work responsibilities with family life and free time.

In this context, this study aims to analyze the relationship between shift work patterns, quality of life, and sleep disturbances among security company workers. It identifies risk patterns and contributes empirical data to improving working conditions in this sector, promoting strategies that enhance worker well-being and performance.

Methodology

A non-experimental, cross-sectional study with a correlational approach was conducted, using a quantitative approach to data collection. The study population corresponded to the sample, comprising 100% of the 102 employees of a private security company nationwide in the year 2025.

Inclusion criteria were established as workers with a minimum tenure of one month with the company and a voluntary willingness to participate in the study by means of a signed informed consent. Exclusion criteria included providing incomplete information on the digital questionnaires, as the quality and completeness of the information was essential for the validity of the analysis. The dependent variables evaluated were sleep disturbances, and the independent variable was the worker's quality of life.

Among the techniques and instruments used for data collection, a survey was conducted to characterize the population's sociodemographic characteristics, including age, sex, marital status, educational level, and a description of work shifts.

Two standardized instruments were used to measure the core variables. The first was the Monterrey Sleep Disorders Questionnaire, composed of 30 items that explore symptoms associated with various sleep disorders (insomnia, daytime sleepiness, sleep apnea, sleepwalking, among others). Its response scale is a five-point Likert-type (1 = never to 5 = always), with a total score that can range from 30

to 150 points, and which can be transformed into a range of 0 to 100 to facilitate interpretation. Higher scores reflect a greater presence of symptoms (8).

The second instrument was the Work-Related scale Quality of Life (WRQoL), a psychometric tool used to measure employees' perceived quality of life, consists of 24 items distributed across six subdimensions: job control, overall well-being, work-home relationship, job and career satisfaction, job stress, and work environment conditions. Responses are collected using a five-point Likert-type scale, allowing quality of life to be categorized as high, average, or low (9).

Data processing was carried out using SPSS version 25.0 statistical software. Descriptive analyses were performed using absolute and relative frequencies for categorical variables such as age, sex, marital status, and educational level. To analyze the relationship between qualitative and ordinal variables, the nonparametric Pearson correlation test was used, with a significance level of 95% ($p \leq 0.05$) to establish the relationship between sleep disturbances and worker quality of life.

The study was conducted in compliance with fundamental ethical principles, safeguarding the confidentiality and anonymity of the participants in accordance with current regulations on personal data protection. Furthermore, each participant was informed of the study's objective and obtained their informed consent digitally before formal inclusion in the research.

Results

The study population consisted of 95 security operators, comprised entirely of men, with 100% participation (n=95). The age range was mostly concentrated between 25 and 44 years, representing 63.20% (n=60). Regarding marital status, the majority of operators were married (49.50%, n=47), followed by singles (31.60%, n=30). Regarding educational level, the majority had completed secondary school (89.50%, n=85). Regarding work schedules, 95.8% worked rotating shifts and 78.9% worked more than 12 hours a day, while 85.3% had one day off per week.

Table 1: Sociodemographic characteristics of the participating security personnel (N=95).

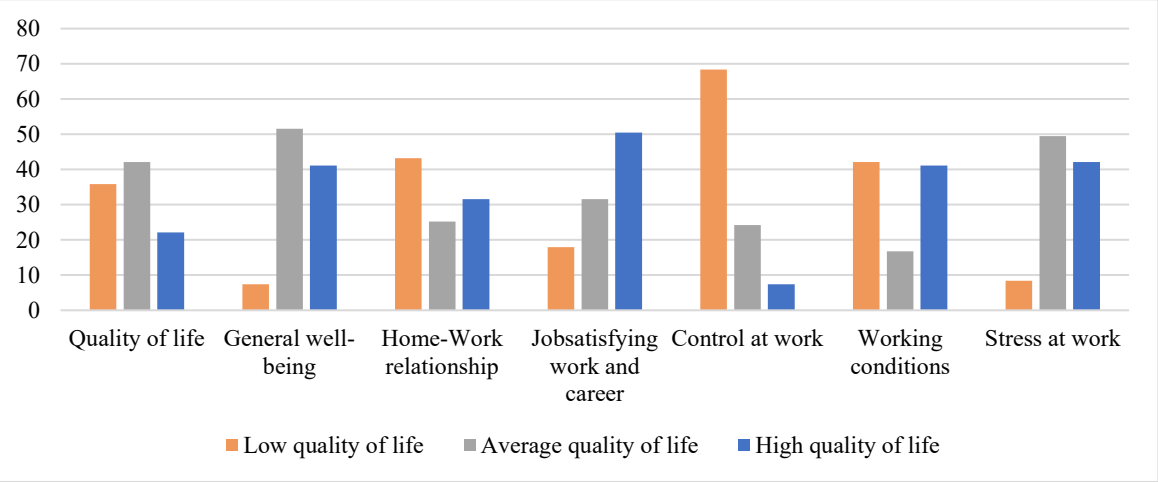
Sociodemographic characteristics		**N=95**	**%=100**
Age	18-24 years old	6	6.30
	25-44 years old	60	63.20
	45-64 years old	29	30.50
	greater than or equal to 65 years	0	0
Gender	Male	95	100
	Female	0	0
Marital status	Single	30	31.60
	Married	47	49.50
	Divorced	7	7.40
	Widower	0	0
	Free union	11	11.60
Level of Education	First Level	4	4.20
	Second Level	85	89.50
	Third Level	6	6.30
	Fourth level	0	0
	Day	2	2.10

Shift to which it corresponds	Evening	0	0
	Night	2	2.10
	Rotary	91	95.80
Working hours	Equal to or < 10 hours	0	0
	11-12 hours	75	78.90
	Greater than 12 hours	20	21.10
Rest days	1 day	81	85.30
	2 days	14	14.70
	Equal to or >3 days	0	0

Source: Prepared by the author.

The WRQoL Questionnaire (Figure 1) shows that 35.8% of participants reported a low quality of work life, 42.1% an average quality of life, and only 22.1% a high quality of life. Within the low quality of life group, the most affected factors were perceived control over work (68.4%) and work-home relationship (43.2%), followed by unfavorable working conditions (42.1%). In contrast, individuals who reported a high quality of work life were characterized by higher levels of job satisfaction (50.5%) and greater general well-being (41.1%), as well as a lower prevalence of occupational stress (42.1%).

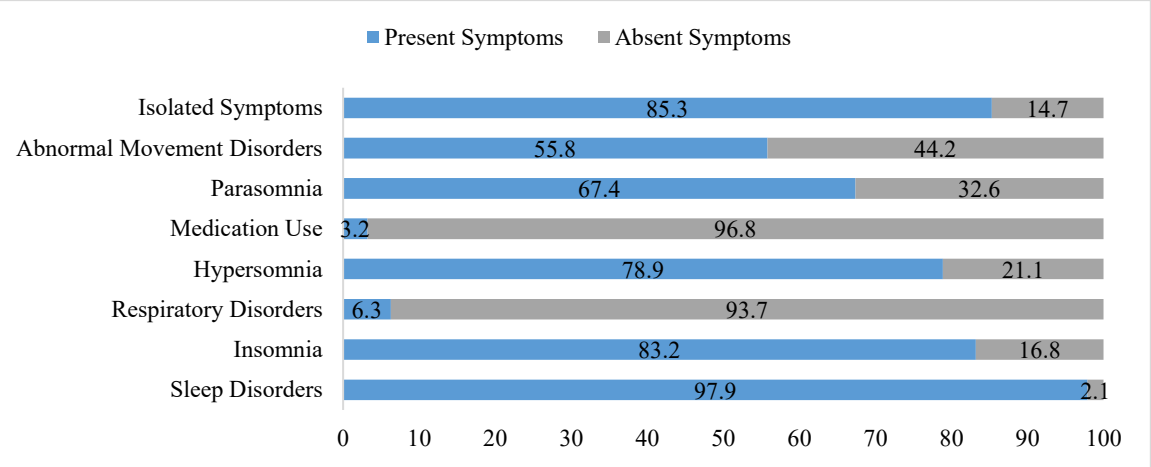
Illustration 1: Quality of work life in security personnel (WRQOL Scale).



Source: Prepared by the author.

Among the data obtained from the Monterrey Questionnaire (Figure 2), a significantly high prevalence of symptoms associated with sleep disorders in security personnel is evident. Specifically, 97.9% of participants reported the presence of at least one type of sleep disorder. Among the subscales evaluated, the most frequently reported were insomnia (83.2%), hypersomnia (78.9%), and isolated sleep-related symptoms (85.3%), suggesting a multidimensional impact on nighttime rest in this population. In contrast, sleep-disordered breathing (6.3%) and medication use (3.2%) were the least prevalent manifestations.

Illustration 2: Sleep disorders in security operators (Monterrey Questionnaire).



Source: Prepared by the author.

Table 2 shows the analysis of the correlation between sleep disorders and quality of life revealed significant associations. Specifically, insomnia (r = 0.227, p = 0.007), hypersomnias (r = 0.278, p = 0.006) and abnormal movements during sleep (r = 0.222, p = 0.030) presented positive and statistically significant correlations with low quality of life, suggesting that the presence of these disorders could contribute in a relevant way to the deterioration of general well-being. In contrast, the average quality of life shows a low negative correlation with the presence of insomnia (r = -0.18, p = 0.07), respiratory disorders (r = 0.12, p = 0.21), and abnormal movements (r = -0.18, p = 0.07) but without reaching statistical significance, which indicates a lower influence of these alterations at intermediate levels of quality of life.

Table 2: Correlation between sleep disorders and the quality of work life of security personnel.

Sleep disorders	**Low quality of life**		**Average quality of life**	
	r	p	r	p
Insomnia	0.227	0.007	-0.186	0.071
Respiratory disorders	-0.104	0.318	0.129	0.219
Hypersomnias	0.278	0.006	-0.030	0.771
Use of medications	-0.009	0.929	-0.032	0.758
Parasomnias	0.051	0.622	-0.043	0.678
Abnormal movements	0.222	0.030	-0.185	0.072
Isolated symptoms	-0.123	0.234	-0.006	0.951

Source: Prepared by the author.

Discussion

This study aimed to analyze the relationship between quality of life and sleep disorders in security personnel, a topic that has been little addressed in the scientific literature, despite its relevance to the well-being and performance of individuals in this field. While most existing studies have focused primarily on healthcare personnel, whose working conditions and associated risks have been widely documented, security personnel also face similar challenges. Their work, characterized by irregular shifts, high physical and emotional demands, can have a significant impact, thus highlighting the need for focused studies that can contribute to a better understanding of these links (10).

In this sense, the results obtained in the study show a prevalence of average to low overall quality of life levels among the security personnel evaluated. These findings are comparable with those reported by Storman et al., (11)who evaluated 243 healthcare professionals in Polish hospitals, where approximately 38.27% rated their quality of life as low and 37.86% as average. These parallels demonstrate the importance of implementing this type of periodic survey in working populations with rotating shifts, in order to design strategies that promote healthy work environments that foster professional and personal development and improve human talent management. As highlighted by Eliyana et al. (12)Within the quality of work life, these aspects are directly related to organizational performance and employee commitment, key factors for institutional sustainability.

Regarding the specific dimensions of work-life quality, the most affected factors within the study group with low quality of life were job control, work-life balance, and working conditions. Similar results were documented by Astidillo et al. (13) in a sample of 638 healthcare and administrative workers, where work-life balance had the lowest score (54.5%). Similarly, a study of 484 healthcare professionals in Jordanian hospitals identified job control (62%), working conditions (56%), and work-life balance (54%) as the most impaired dimensions (14). These findings demonstrate the importance of promoting job autonomy and work-life balance as pillars of quality of life in highly demanding occupations.

Once the perception of the exposed working conditions has been analyzed, it is essential to analyze its association with sleep disturbances, since, in the group of security guards mostly exposed to rotating shifts, a high prevalence of sleep disorders was evident, and the most affected subscales corresponded to isolated symptoms (somniloquy and snoring), insomnia, and hypersomnia. These findings are consistent with the study by Ritika et al. , (15)who in a sample of 60 security guards found that 53.04% reported the presence of sleep disorders. Similarly, Lemus et al. (16) identified a high prevalence of snoring (58%), hypersomnia (37%), abnormal movements during sleep (26%), and insomnia (11%) in hospital medical personnel in Guatemala, which reinforces the evidence on the susceptibility of workers with atypical schedules to suffer alterations in sleep patterns.

In this context, understanding the interaction between the biological clock and the environment is essential for the proper diagnosis and management of sleep disorders. Exposure to work schedules such as rotating or night shifts impose abrupt and frequent changes in activity patterns that generate an imbalance between the endogenous circadian system and external environmental signals. This system, regulated mainly by the suprachiasmatic nucleus of the hypothalamus, governs physiological rhythms of approximately 24 hours, including melatonin and cortisol secretion, body temperature, alertness, and sleep-wake cycles (17). When these internal rhythms lose synchrony with light-dark cycles and social or work demands, both acute and chronic sleep disturbances occur. The consequences include an increased propensity to fatigue, an increased risk of work-related accidents, impaired cognitive performance, and a significant reduction in the worker's overall well-being (18).

Finally, the results obtained in this research confirm that the presence of sleep disorders significantly influences the decrease in the quality of life of security operators exposed to rotating shifts. This association is mainly manifested through a high prevalence of pathologies such as insomnia, hypersomnia, and abnormal movements during sleep. These findings are consistent with those reported by Jia-Ning et al, (19) who demonstrated a significant negative correlation between quality of work life and sleep disturbances ($r = –0.27$; $p < 0.01$). Additionally, studies such as those by Ghods et al. (20) and Xie et al. (21) confirmed that specific disorders, such as hypersomnia ($r = 0.50$; $p =$

0.001) and insomnia (r = 0.36; p = 0.01), are significantly associated with a reduction in the quality of life of workers subjected to rotating and night shifts. This background reinforces the need for multidisciplinary interventions to mitigate the impact of shift work on the sleep and overall health of security personnel.

However, it is essential to acknowledge certain limitations of this study. The cross-sectional design allows for the identification of associations between variables, but not for the establishment of causal relationships. Furthermore, although the instruments used have been previously validated and have demonstrated psychometric robustness, the possibility of information bias cannot be completely ruled out , either due to inadvertent omission or the influence of subjective factors on the perception and reporting of symptoms. Despite these considerations, the results obtained provide relevant and contextualized evidence to guide occupational health interventions, especially in settings characterized by shift work.

Conclusion

The results of this research show that sleep disorders, particularly insomnia, hypersomnia, and abnormal sleep movements, are significantly associated with a decreased quality of life in security guards exposed to rotating shifts. The disruption of the endogenous circadian system, caused by the desynchronization between internal biological rhythms and irregular work demands, contributes to the deterioration of these workers' physical, cognitive, and emotional well-being. This relationship underscores the urgent need to implement organizational and occupational health strategies that promote work environments that are more compatible with sleep physiology, in order to preserve the overall health and optimal performance of security personnel.

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