



IMPACT OF SHIFT WORK ON SLEEP QUALITY AMONG SECURITY GUARDS

Home Science

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ABSTRACT

The current assess is to study the impact of sleep quality among security guards. The data for the current study was gathered using a systematic questionnaire and interview schedule, which include general profile, occupational profile and Pittsburgh Sleep Quality Index (PSQI) scale. The study were randomly selected, working in same field 150 respondents. The good sleep quality was observed in permanent based security guards as they sleep maximum number of hours at night ($\mu=1.17$) and least step disturbance ($\mu=1.33$). Temporary based Security guards met maximum step disturbed sleep ($\mu=1.57$) as compare to contractual ($\mu=1.56$) and daily wages ($\mu=1.47$). It was found that security personnels work both in day and night faced maximum sleep latency ($\mu=1.74$), habitual sleep efficiency and sleep disturbance ($\mu=1.58$). Good sleep quality was observed in permanent based security guards. The study clears that sleeping quality is largely depend on the shift works which need to be inspect, more research and make precise strategies to mitigate the issues.

KEYWORDS

Physical Health, Sleep Quality, Step disturbance, Security Guards.

INTRODUCTION

Security guards (service related to security) is one of the fastest growing occupations in today's world and their services are more vulnerable to violence at work than the general population.[1,2] They are described as a uniformed private employee that is recruited or paid to safeguard a specific area of property as well as people using various approaches such as direct and indirect methods.[3] Persons who work in these occupations are unable to leave their workplace, even if they are seriously threatened, because they are called upon for assistance and are also burdened with the primary responsibility of preserving law and order in society. In addition to this, security guards may also frequently exposed to a diverse level of hazards, including assaults [4,5]. Under this profession, there is a risk on physical and mental health because of exposure to vocal and physical aggression (the use of physical force) with high accountability so as to guard the individuals and their lives [6,7,8].

Shift works may be defined as the arrangement of working hours by using more than two groups of workers so as to extend the time of work operation [9, 10]. Shift work has been characterized as an infrequent or asymmetrical work schedules beyond the normal working hours [11, 12]. Females also do security jobs and sometimes, possess high occupational stress as compare to male security guards[3]. Work-related stress is considered a major risk factor for the inception of any health disorders [13]. These problems can be minimized by regular walking, doing exercises, yogas, jogging and related other similar actions [14].

Sleep is an universal and vital function for humans that considered as one of the three basic pillars of health together with diet and exercises [15]. Poor sleep quality has a significant negative effect on diverse health areas i.e., type 2 diabetes, hypertension, chronic pain, high body mass index and other adverse consequences[15,16]. Sleep quality measures under sleep latency, sleep efficiency, sleep disturbances, sleep duration and use of sleeping medication. Sleeping disorder, fatigue, stress and eating disorder are the most common problems in the security guards [17]. Shift working on night or rotatory basis may disturbs the quality and quantity of sleep that alters the daily levels of alertness and job performance, favoring fatigue[18]. Therefore, the purpose is to study the impact of sleep quality among security guards.

MATERIALS AND METHODS

Collection of data

The study consists of respondents were randomly selected among security guards working in Ratankhand, Ruchikhand, RML hospital, PGI hospital, BBAU (A Central university), Lucknow. The survey was conducted during January- March in 2021 with a sample size of 150 respondents. These respondents were divided into four groups based

on their age (20-29 years, 30-39 years, 40-49 years and 50-59 years). Before data collection process, respondents were informed about the purpose of study and its associated information. All the doubts and queries were cleared to ensure more precise collection of data/information. After agreement to participate, a general and work profile sheet along with physical health related questionnaires were given to collect the relevant information.

General information sheet was developed such as data on age, gender, profession, marital status and education level. Work profile sheet was also developed to procure information regarding working years, number of working days, working duration in a day and shift of work. The Pittsburgh Sleep Quality Index (PSQI) is a self-report questionnaire and was used for assessing the level of difficulty and quality of sleep of the respondent that provides a global score [18].

It consists of 19 items and 7 clinically relevant domains (sub-scales) i.e., subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication and daytime dysfunction. A global score of overall sleep quality has been calculated by adding up the single scores of these dimensions, producing scores ranging from 0 to 21 (higher scores represent poorer sleep quality) (Carbonel., 2021).

Statistical Analysis

The data was coded, tabulated and analyzed using IBM SPSS 20.0 Software. Sleep quality was determined with the help of frequency, percentage, mean, standard deviation, and significance was tested using ANOVA.

RESULT AND DISCUSSION

Table 1: Demographic profile of Security guards

Demographic profile		
S.No.	Age	Frequency (Percentage)
1	20-29 years	32 (21.3)
2	30-39 years	58 (38.7)
3	40-49 years	50 (33.3)
4	50-59 years	10 (6.7)
	Total	150 (100)
Gender		
1	Illiterate	6 (4.0)
2	Secondary	4 (2.7)
3	High school	42 (28.0)
4	Intermediate	52 (34.7)
5	Graduation	42 (28.0)
6	Post graduate	4 (2.7)
	Total	150 (100)

Marital status		
1	Unmarried	15 (10.0)
2	Married	128 (85.3)
3	Divorced	7 (4.7)
	Total	150 (100)

Table 1 shows the demographic data and general information of security guards. Majority of security guards were aged 30-39 years (38.7%), followed by 40-49 years (33.3%) and 20-29 years (21.3%). Out of 150 respondents, 130 (86.7 percent) were male and only 20 (13.3%) females may be due to females are mostly involved in remote working [2] since they need to work in home like cleaning, sweeping, cooking etc[20]. Majority of the respondents were passed intermediate (34.7%) followed by high school (28.0%), graduates (28%) and illiterate (4.0%). Regarding marital status, 128 (85.3%), 15 (10.0%) and 7 (4.7%) respondents are married, unmarried and divorced, respectively. A similar study also conducted and evaluated the profiles of security guards by [14, 4].

Table 2: Occupational profile of The Respondents

S.No.	Occupational profile	
Year of working	Frequency (Percentage)	
1	0-5 year	82 (54.7)
2	5-10 year	43 (28.7)
3	10-15 year	12 (8.0)
4	More than 15year	13 (8.7)
	Total	150 (100)
Number of working days		
1	5 days	32 (21.3)
2	6 days	106 (70.7)
3	7 days	12 (8.0)
	Total	150 (100)
Working duration in a days		
1	Less than 6 hours	2 (1.3)
2	6-8 hours	100 (66.7)
3	8-10 hours	37 (24.7)
4	10-12 hours	11 (7.3)
	Total	150 (100)
Shift of work of the respondents		
1	Day	96 (64.0)
2	Night	23 (15.0)
3	Both (day & night)	31 (20.7)
	Total	150 (100)

The data (table 2) demonstrate the occupational profile in which most of the security guards (54.7%) were had a work experience of 0-5 years, whereas only 8% were with a work experience of 10-15 years. Table 2 also indicates majority (70.7%) of them were working all the 6 days in a week, whereas only (8%) go to work for 7 days. It can also be deduced from the data that majority of the respondents (66.7%) were working for 6-8 hours/day. Majority of Security guards work in day shift and interestingly 31 respondents work in both day and night shifts.

Table 3: Sleep Quality determinants and Gender of the respondents

S.No.	Items	Gender of the respondent		F-value	P-value
		Male Mean $\pm$ SD	Female Mean $\pm$ SD		
1	Overall rate sleep quality	0.65 $\pm$ 0.669	1.25 $\pm$ 0.851	0.070	0.792
2	No. of hour actual sleep at night	0.75 $\pm$ 0.674	1.55 $\pm$ 0.605	4.776	0.030
3	Medicine help in sleep	0.15 $\pm$ 0.451	0.30 $\pm$ 0.571	0.439	0.509
4	Sleep latency	1.72 $\pm$ 0.835	1.45 $\pm$ 0.945	0.513	0.475
5	Habitual sleep efficiency	0.90 $\pm$ 0.939	1.20 $\pm$ 1.005	0.173	0.678
6	Step disturbance	1.48 $\pm$ 0.600	1.75 $\pm$ 0.639	0.201	0.654
7	Daytime dysfunction	0.98 $\pm$ 0.840	1.45 $\pm$ 0.945	1.386	0.241

In the study, we found significant difference between number of hour actual sleep at night and gender of the respondents (Table 3). Data demonstrates that the female security guards have high rate of overall

sleeping quality ($\mu=1.25$), number of hour actual sleep at night ($\mu=1.55$), medicine help in sleep ($\mu=0.30$), habitual sleep efficiency ($\mu=1.20$), step disturbance ($\mu=1.75$) and daytime dysfunction (1.45) except sleep latency indicated that females affected more as compare to male security guards. Male security personnel's faced high sleep latency ($\mu=1.72$) as compare to female ($\mu=1.45$) ones implies that male usually sleep late.

Table 4: Sleep quality and types of work

S. No.	Items	Types of works				F-value	P-value
		Permanent Mean $\pm$ S.D	Temporary Mean $\pm$ S.D	Contractual Mean $\pm$ S.D	Daily wage Mean $\pm$ S.D		
1.	Overall rate sleep quality	0.50 $\pm$ 0.837	0.54 $\pm$ 0.800	1.33 $\pm$ 0.707	0.83 $\pm$ 0.581	4.543	0.004
2.	No. of hour actual sleep at night	1.17 $\pm$ 0.753	0.67 $\pm$ 0.718	0.89 $\pm$ 0.601	0.99 $\pm$ 0.702	2.721	0.047
3.	Medicine help in sleep	0.17 $\pm$ 0.408	0.17 $\pm$ 0.423	0.33 $\pm$ 1.000	0.14 $\pm$ 0.421	0.463	0.708
4.	Sleep latency	1.33 $\pm$ 1.033	1.59 $\pm$ 0.796	2.11 $\pm$ 0.782	1.75 $\pm$ 0.884	1.521	0.212
5.	Habitual sleep efficiency	0.67 $\pm$ 0.516	0.90 $\pm$ 1.073	1.22 $\pm$ 1.093	0.96 $\pm$ 0.846	0.463	0.708
6.	Step disturbance	1.33 $\pm$ 0.516	1.57 $\pm$ 0.640	1.56 $\pm$ 0.726	1.47 $\pm$ 0.581	0.483	0.695
7.	Daytime dysfunction	0.67 $\pm$ 0.816	0.78 $\pm$ 0.991	1.78 $\pm$ 0.972	1.21 $\pm$ 0.627	5.913	0.001

In the study, we found significant difference between sleep quality and number of hour actual sleep at night and daytime dysfunction (Table 4). Data demonstrates that the security guards working on contractual wages, faced maximum adverse effect on sleep quality ($\mu=1.33$) along with sleep latency ($\mu=2.11$), habitual sleep efficiency ($\mu=1.22$), habitual sleep efficiency ($\mu=1.22$) and daytime dysfunction ($\mu=1.17$). However the good sleep quality was observed in permanent based security guards as they sleep maximum number of hours at night ($\mu=1.17$) and least step disturbance ($\mu=1.33$). Most of the contractual based security guards were used to take medicine for sleep as compare to others. In contrary to this, very little amount of sleep medicine was taken by daily wages ($\mu=0.14$) security guards. Temporary based Security guards met maximum step disturbed sleep ($\mu=1.57$) as compare to contractual ($\mu=1.56$) and daily wages ($\mu=1.47$).

Table 5: Association between Sleep Quality and Work shift of the respondents

S. No.	Item	Shift of the work of the respondents			F-value	P-value
		Day Mean $\pm$ S.D	Night Mean $\pm$ S.D	Both Mean $\pm$ S.D		
1	Overall rate sleep quality	0.00 $\pm$ 0.737	1.00 $\pm$ 0.603	0.74 $\pm$ 0.729	2.141	0.121
2	No. of hour actual sleep at night	0.88 $\pm$ 0.729	1.00 $\pm$ 0.603	0.68 $\pm$ 0.748	1.464	0.235
3	Medicine help in sleep	0.18 $\pm$ 0.435	0.26 $\pm$ 0.752	0.06 $\pm$ 0.250	1.224	0.297
4	Sleep latency	1.68 $\pm$ 0.888	1.65 $\pm$ 0.775	1.74 $\pm$ 0.815	0.089	0.915
5	Habitual sleep efficiency	0.91 $\pm$ 0.985	0.78 $\pm$ 0.795	1.16 $\pm$ 0.934	1.221	0.298
6	Step disturbance	1.48 $\pm$ 0.598	1.57 $\pm$ 0.662	1.58 $\pm$ 0.620	0.419	0.658
7	Daytime dysfunction	0.98 $\pm$ 0.870	1.30 $\pm$ 0.822	1.03 $\pm$ 0.875	1.315	0.272

The data (table 5) demonstrates the relationship between sleep quality and shift work of the respondent. Night shift security personnel's have

good sleep quality ($\mu=1.00$) as compare to day shift may be due to maximum number of sleeping hours ($\mu=1.00$) and medicine help in sleep ($\mu=0.26$) along with minimum sleep latency ($\mu=1.65$) and habitual sleep efficiency ($\mu=0.78$). It was found that security personnels work both in day and night faced maximum sleep latency ($\mu=1.74$), habitual sleep efficiency and sleep disturbance ($\mu=1.58$). Least step disturbance, habitual sleep efficiency and daytime dysfunction were observed in day shift ($\mu=1.48$, $\mu=0.91$ and $\mu=0.98$) security guards. An association of poor sleep quality was also studied in some researcher [21,22,23].

CONCLUSION

Our study highlights the security guard professional and occupational profiles, relationship of sleep quality with shift work. Most of the security guard respondents were aged 30-39 years, male, married, working experience of 0-5 years (young), work 6 days in a week, 6-8 hours/day in day and night shifts. Good sleep quality was observed in permanent based security guards. Shift works affects and deteriorates the sleep quality. However, this issue needs to be taken serious and do more research extract the exact picture for making more precise strategies regarding the shift work and sleeping quality of security guards

REFERENCES

- [1] Ahmad, A. and Mazlan, N.H. (2012). The Kind of Mental Health Problems and it Association with Aggressiveness: A Study on Security Guards. *International Journal of Psychology and Behavioral Sciences*, 2(6): 237-244.
- [2] Singh, N. and kiran, U.V (2021). Remote Working and Its Impact on Upper Extremities. *Journal of Ecophysiology and Occupational Health*, Vol 21(4), 1-5.
- [3] Yadav, N. and Kiran U.V. (2015). Occupational Stress among Security Guards. *Journal for Studies in Management and Planning*, 01(07).
- [4] Manandhar, N., Jha, A., Mishra, A., Mishra, A., Gupta, V., Baniya, T. and Joshi, S.K. (2021). Occupational Health Hazard among Security Guards in Kathmandu District, Nepal. *International Journal of Occupational Safety and Health*, 11 (1): 48 – 53.
- [5] Pandey, P. and Kiran, U.V (2020). Postural Discomfort and Musculoskeletal Disorders among Painters - An Analytical Study. *Journal of Ecophysiology and Occupational Health*, 20(3&4): 1-6.
- [6] Sugiraj M. (2016). A study on stress management of security guards with special reference to Trivandrum district. *Int J Res Granthaalayah*, 4(5SE):12–17.
- [7] Talas, R., Button, M., Doyle, M. and Das, J. (2020). Violence, abuse and the implications for mental health and wellbeing of security operatives in the United Kingdom: the invisible problem. *Policing Soc*, 1–16.
- [8] Niharika, Kiran, U.V., (2014), Occupational stress among bank employees, European Academic Research, 2(4), 5404-5411
- [9] Pati, A. K. Chandrawanshi, A. and Reinberg, A. (2001). *Shift work: Consequences and management*, 1:32-47. Retrieved 7 April 2011 from: www.ncbi.nlm.nih.gov/pubmed/11268624
- [10] Mishra, G., Kiran, U.V., (2014), Impact of marital status on mental health of working women, *Journal of medical science and clinical research*, 2(10), 2594-260
- [11] Wang, X., Armstrong, M., Cairns, B., Key, T. and Travis, R. (2011). Shift work and chronic disease: the epidemiological evidence. *Occup Med*; 61(2): 78-89.
- [12] Kaur, S., Kiran, U.V., (2015), Stress among parents and caregivers of differently abled children, *Journal for studies in management and planning*, 1(7).
- [13] Cannizzaro, E., Cirrincione, L., Mazzucco, W., Scoriapino, A., Catalano, C., Ramaci, T., Ledda, C. and Plescia, F. (2020). Night-Time Shift Work and Related Stress Responses: A Study on Security Guards. *Int. J. Environ. Res. Public Health*, 17: 562.
- [14] Patel, S.Y., Jadhav, A., Yadav, T. and Bathia, K. (2019). Assessment of Physical Health among Security Guards Working in Krishna Hospital, Karad-A Cross-Sectional Study. *Indian Journal of Physiotherapy and Occupational Therapy*. 13(3): 115-120.
- [15] Cirelli, C. and Tononi, G (2008). Is sleep essential. *PLOS Biology*, 6 (8): 1605-1611.
- [16] Carbonell, C. V., Tamarit, P. I., Aparicio, R. M. and Madrid-Valero, J.J. (2021). Sleep quality, mental and physical health: A Differential relationship, *International journal of Environment Research and public Health*, 18(2), 1-14.
- [17] Salehi, K., Alhani, F., Sadegh-Niat, K.H., Mahmoudifar, Y. and Rouhi, N. (2010). Quality of sleep and related factors among Imam Khomeini hospital staff nurses. *Iran J Nurs*, 23:18-25.
- [18] Buysse, D.J., Reynolds, C.F. 3rd, Monk, T.H., Berman, S.R. and Kupfer, D.J. (1989). The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. *Psychiatry Res*, 28:193-213.
- [19] Poursadeghiyan, M., Omid, L., Hami, M., Raei, M. and Biglari, H. (2016). Drowsiness and its relation with individual characteristics among night workers in a desert hospital in Iran. *Int J Trop Med*, 11:98-101.
- [20] Rai, N., Kiran, U.V., (2020), Challenges faced by female entrepreneur: An analytical study, *AJHS*, 15(1), 27-30
- [21] Waage, S., Moen, B.E., Pallesen, S., Eriksen, H.R., Ursin, H. and Akerstedt, T. (2009). Shift work disorder among oil rig workers in the North Sea. *Sleep*, 32:558-65.
- [22] Yazdi, Z., Sadeghniat-Haghighi, K., Loukzadeh, Z., Elmizadeh, K. and Abbasi, M. (2014). Prevalence of sleep disorders and their impacts on occupational performance: A Comparison between shift workers and nonshift workers. *Sleep Disord*, 870320.
- [23] Ohayon, M.M., Smolensky, M.H. and Roth, T. (2010). Consequences of shiftworking on sleep duration, sleepiness, and sleep attacks. *Chronobiol Int*, 27:575-89.