ORIGINAL ARTICLE

Effects of Increased Workload on Sleep and Rest States in House Officers

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ABSTRACT

Background: A survey study that was cross-sectional in nature with aim to analyze the consequences of work load effect on Medical House officers sleep cycle.
Aim: To analyze the effects of increased workload on sleep cycle of house officers
Time and place of study: This Study took place between in year 2018-19 on volunteer Medical House officers that are working actively in Different Public Hospitals of Sargodha, Lahore Rawalpindi and Faisalabad
Methods: This Survey study was carried out in Different Public sectors Hospitals of Sargodha, Lahore and Faisalabad and participated by 200 volunteer house officers. Three different scales were employed to assess sleep, workload and sleep quality. In his study like TISS -28 (therapeutic intervention scoring system-28) for analysis of candidates workload, Epworth sleepiness scale that determines level of sleepiness and Pittsburg sleep quality index that aimed at measuring sleep quality.
Results: With respect to workload about half (n=79) of the Medical House officers . It is accepted that general population of House Officer do a standard shift. Moreover, there is a definite relationship in statistics terms between decreased sleeping quality (Pittsburgh and Epworth) with high work load on Medical House officers (TISS-28).
Conclusion: With increased in work load of Medical House officers their sleep cycles as well as rested status worsen. This worsening of quality of sleep and rested states deeply influences their health status both mentally and physically as well as reduces their efficiency towards their work. This whole poor sleep quality induces depression and stress in them. In order to save Medical House officers from these harmful consequences, strategies should be made to improve their working conditions and shifts so that work load doesn't interrupt and interfere with their sleep cycles.
Keywords: Medical House Officer, sleep disorders, increased workload,

INTRODUCTION

Although we regard sleep as a passive process, yet in reality it is active process along with its own internal dynamics that plays a vital role in rejuvenation of the human body. The main purpose of this research is to study and understand the effect and influence of workload Medical House officers working schedule on their sleep cycles and rested state. Sleep is regarded as basic human need for proper function and quality living for all the ages. If sleep cycles are interrupted or quality is compromised then it creates a state of sleepiness in individuals. The excessive daytime sleepiness is characterized by a feeling of tiredness and sleepy whole day[1].

Following good quality sleep, individual feel well, rested and full of energy and quality of sleep can be influenced by changes in daily life, personae life style, social life, health issues and daily stessors and can be influenced by many factors such as fluctuations in business life, personal life style, social life, health issues and daily stress induced factors[2]. Disturbed sleep quality is one of the hot topic related to healthcare professionals as they are overworked. Especially for working individuals involved in professions like medical staff who work in busy places and shifts. The disturbed sleep quality in medical professional can lead to compromised patient safety which can become trigger for to catastrophic accidents[1].

As Hospitals are operational 24/7 in order to provide medical facilities all time. all member of healthcare establishment work hard, however more work have been relegated to house officers Medical House officers are working very harder and work load on them has been increasing day by day. They have stressful working hours with immense work load and heavy responsibilities. The long working hours with increased wok and patient related responsibilities effect sleep patterns. The changed sleeps

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pattern manifest as increased day time sleepiness, leading to increased body fatigue. Medical House officers especially who are working in various hours shifts have day time sleepiness and the one working at night have increased body fatigues, stress, reduced work efficacy, and most importantly circadian rhythm disorders. These sleep deprivation has potentially harmful effect on health of these house officers.

It is very important to check and identify properly the sleep status of Medical House officers for increasing their work efficacy and accomplishment from both qualitative and quantitative aspect..

MATERIAL AND METHODS

This Study took place between in year 2018-19 on volunteer Medical House officers that are working actively in Different Public Hospitals of Sargodha, Lahore and Faisalabad services with the consent of committee of ethics. From all the volunteer House officers, informed consent was taken ethically and they were completely guided about the case from all aspects before carrying out any study. For checking this all sleeping status of House officers' TISS-28 (therapeutic intervention scoring system-28) survey was developed that aid in finding the work load on Medical House officers and secondly, Epworth and Pittsburg survey that identify sleep-rested status of the House Officer who are working in departments like internal and surgical inside the Different Public and Private Hospitals . All the data obtained from two surveys was analyzed statistically and the influence of workload on sleep-rested status was documented.

For data analysis of case study, different scales and parameters were use like surveys of "TISS-28", (ESS) and "Pittsburgh sleep quality index" (PSQI) and "Epworth sleepiness scale". From all the surveys and parameters data was collected and analyzed statistically.

TISS-28 is regarded as evaluation test that was discovered to identify severity of any disorder but currently these days, this scale aids in determination and evaluation of activities of House officers. It consists of 28 therapeutic interventions and choice for answers are graded as "yes" and "no". 1 TISS-28 point corresponds to 10,6 minutes of workload[3].

Epworth Sleepiness Scale: This scale was discovered in 1991 by it was Johns. There are 8 items included in this scale, which are graded between 0 and 3. The sum of the points shows the level of sleepiness. The difference between these scales is different from other similar scale as it allows us to measure and assessment of day time sleepiness. This quality of scale make it distinguish from all others and widely used in shift system like nursing by professionals.

If the sum of score that is calculated above a total of 24 points comes out to be 9 or higher, then this situation is regarded clinically significant[4,5].

Pittsburgh Sleep Quality Index: In 1989, this scale was discovered by Buysse and His[6] there are total seven components of this scale that measure and identify quality of sleep over 1 month period. The total Pittsburgh Sleep Quality Index score is achieved when the points with respect to the seven components that is, sleep latency, subjective sleep quality habitual sleep efficiency sleep duration, sleep disturbances, daytime dysfunction, are and use of sleep medication are all summed up. The questions have grades between 0 and 3. Total summed score ranges between 0 and 21, indicating more higher the score poor will be sleep quality and if the sore is lower than persons sleep quality is said to be adequate and satisfactory. If person score comes out to be over 5, it is consider as poor quality and disturbance in sleeping patterns clinically[6,7].

Total number of Medical House officers working actively was divided into sections of four as slices of 25% based on the workload score taken in the TISS-28 survey as 15, 30, 45, and 60. Each sub group's scores were compared to the sleep of being rested levels.

All the data obtained from subgroups were noted and marked according to survey's own scales. The program that was used in accessing and analyzing was SPSS program. From statistical point of view evaluation; the confidence interval (ci) p<0, 05 taken as significant. Correlation and regression, also ROC-AUC (receiver operator characteristics – area under curve) assessment was also taken in account.

RESULTS

Total volunteers candidates who participated (n=200) were all the Medical House officers who were working actively in university of xxxxx ,faculty of medicine hospital clinics. In Table-1, TISS-28, ESS and PSQI values have been presented. Epworth Sleepiness level of Medical House officers is identified as high in Medical House officers of all the workgroups. These high rates at the same time are increasing continuously in serious amounts (p<0.05).

Table 1: TISS-28, ESS and PSQI Values (n=200)

Groups	TISS-28 (Mean ± SD)	ESS (Mean ± SD)	PSQI (Mean ± SD)
Sub group(0 – 25%) n: 61	12,49 ± 5,92	31,62±21,101	5,17±4,081
Sub group (26%– 50%) n:79	31,00± 5,01	31,50±18,001	6,18±4,780
Sub group (51%– 75%) n: 44	50,44±5,70	32,59± 1601	5,75± 45,01
Sub group (76%– 100%) n: 16	71,98±8.99	42,88±15,821	7,51± 5,622

DISCUSSION

A case study and research TISS-28 survey has been done on House Officer who served in clinical departments of Public Hospitals and comparison was made between sleep disorders due to sleepiness vs. well rested states in order to improve working conditions of House Officer working there so that they could serve effectively. From survey, it was cleared that with respect to workload, about half of House Officer have standard shift hours. Moreover, it was also observed that House Officer having average values of workload also suffer from sleep disorders if their work load increases.

Due to increased working hours and increased level of sleepiness they have increased level of stress .The risk factors are always there irrespective of profession. The main factors that are responsible for stress at working places are over work load in limited time, inappropriate physical condition, and issues due to technical reason, psychological pressure and management issues. Among all others professionals, House Officer seemed to be under high risk of all those stress factors due to nature of their job and day to day dealing and handling of patients .So, for a successful and satisfied healing center, it is important that House Officer health should be optimal with minimal stress level so that they can play their role in healing and managing patients with high motivation and passion and concentrate effectively on their work[8,9]. The decline in quality of sleep with increase in workload is clearly evident with this research. Moreover, we also observed that every negative physiologic mechanism has some degree of tolerance level and when this tolerance level is crossed, everything gets worse.

It is obvious for any working nurse to face depression, stress, and loss of attention if she has poor sleep quality and increased work load. The group in which this problem is evident seems to be the group that scored 60 or above with respect to work load. In this same group, decline in sleep quality is also evident. It is not surprising to see House Officer in this group facing a lot of anomalous situations[10,11]. With the increase in the values of PSQI and Epworth values that we used to calculate the quality of sleep by 3rd quarter workers shows that with the increase in workload scores in House Officer of this group, there is increase in sleep disorders and sleepiness observed. These results clearly shows that good and sound healthy sleep is so much important and vital for physical and mental health whereas with s sleep deprivation physical performance becomes poor with poor concentration and increased level of routine mistakes. Moreover, with the sleep deprivation and poor sleep quality, there is loss in sensory and motor functions, increased level of forgetfulness as well at extreme cases lethal accidents .This is very dangerous for any health care center as it disrupts working conditions of the center as well as causes a serious material as well as spiritual losses[12]. If we observe the regression analyses we find that with the increase in 15 points from TISS-28 survey there is 2 fold increase in levels of ESS and PSQI and geometric increase on the sleep quality due to workload. From this analysis, we can conclude that even little differences in working conditions can results in disastrous changes. The increase in values are clearly evident as in convinces increases and this increased score may cause some mistakes that has no return way due to over workload[13,14]. From our case research, it is clear that with the increase in workload there is increased level of sleepiness and poor quality of sleep observed specially in House Officer having score of work load 60 or above in Trakya university. This poor quality of sleep quality not only destroys their physical as well as mental health but also reduce their concentration and efficiency towards their work .This poor quality of sleep is a main inducer of stress and its related problems in such working areas .Serious attention should be given to improve and reduce working conditions and load on House Officer so that it may not disrupts their sleep cycles and sleep status. One should be very cautious in scheduling working hours and shifts of House Officer especially the night shifts. This subject need to be paid attention in our country so that effective, good quality and satisfied medical facilities can be provided as healthier the staff, happier will be the patients . Moreover, achievement of efficient labor policies could be easy.

REFERENCES

1. Tracey H. Coventry, Sian E. Maslin-Prothero, Gilly, Smith Organizational impact of nurse supply and workload on nurses continuing professional development opportunities: an integrative review, Journal of Clinical Nursing 2016;71:12 https://doi.org/10.1111/jan.12724
2. Scott LD, Engoren CA Engoren MC, Association of Sleep and Fatigue With Decision Regret Among Critical Care Nurses. Am J Crit Care 2014;23:13-23
3. Miranda DR, de Rijk, Schaufeli W. Simplified Therapeutic Intervention Scoring System : the TISS-28 items. Results from a multicenter study. Crit Care Med 1996;24(1):64-73.
4. Johns MW. A new method for measuring daytime sleepiness: The Epworth sleepiness scale. American Sleep Disorders Association and Sleep Research Society. Sleep 1991;14,540-5.
5. Aleo F, Pedreso A, Tavares SM. Epworth sleepiness scale outcome in 616 Brazilian medical students. Arq Neuropsiquiatr 1997;55:220-6.
6. Buysse DJ, Reynolds CF, Monk TH. The Pittsburgh Sleep Quality Index: New Instrument for Psychiatric Practice and Research. Psychiatry Res 1989;28:193-213.
7. Üstün Y, Çınar Yücel Ş. Hemşirelerin Uyku Kalitesinin İncelenmesi. Maltepe Üniversitesi Hemşirelik Bilim ve Sanatı Dergisi 2011;4(1):29-38.
8. Dede M, Çınar S. Dahiliye Yoğun Bakım Hemşirelerinin Karşılaştıkları Güçlükler ve İş Doyumlarının Belirlenmesi. Maltepe Üniversitesi Hemşirelik Bilimve Sanatı Dergisi 2008;1(1):3-14.
9. Demir A. Hemşirelikte Tükenmişliğe Bir Bakış.Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi 2004;7(1):71-80.
10. Poissonnet MC, Veron M. Health Effects of Work Schedules in Healthcare Professions. Journol of Clinical Nursing 2000;9:13-23.
11. Dorrian J, Lamond N, Van Den Heuvel C, Pincombe J, Rogers AE, Dawson D. Sleep and Errors in a Group of Australian Hospital Nurses at Work and During the Commute. Applied Ergonomics 2008;39(5):605-13.
12. Millman RP. Working Group on Sleepiness in Adolescents/Young Adults; and AAP Committee on Adolescence. Excessive Sleepiness in Adolescents and Young Adults: Causes, Consequences, and Treatment Strategies. Pediatrics 2005;115:1774.
13. Aldrich MS. Automobile Accidents in Patients with Sleep Disorders. Sleep 1989;12:487-94.