

Shift Work and Depression

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1. Introduction

Social expectations, is one of the reasons for shift work for access to certain services around the clock. Surprisingly, in India, very meager work has been done in shift workers from chronobiological point of view. Thus, work schedules and work load factors need to be examined in combination to obtain a realistic picture of the effects of shift work and health.

Work of this nature is of considerable significance to India, especially because the number of shift workers is likely to go up and if shift work posed a threat to health of the workers it would become a problem of national importance. In India, the adversaries being faced by the shift workers have not received much attention from the researchers and required a systematic documentation of the studies on the impacts of the altered biological rhythms on the health, social and domestic well being of the workers, along with the public safety. In view of this dearth, the present study is contemplated and focuses on the Railway shift workers, perhaps the largest group under a single employer in India. Unfortunately, so far a proper strategy could not be evolved. It is also surprising that a consensus has yet to be reached among workers in this field concerning the identification and use of proper chronobiologic index/indices to ascertain individual shift workers tolerance.

Today shift work has become a routine feature in industries, hospitals and many other essential sectors (Gupta et al, 1997). Desynchronization of circadian rhythms attributed to shift work may lead to several clinical complications. It may produce disastrous chronopharmacologic effects such as impaired metabolism and impaired responsiveness to medications. Various studies (Schor 199; Tarumi et al, 1992; Harrington 1994; Morimoto, 1994; Maruyama et al, 1995; Maruyama and Morimoto 1996; Spurgeon et al, 1997; Sparks et al, 1997) have reported that long hours of work are one of the possible risk factors which may cause health defects in employees working in varying shift schedules more likely to suffer major depression than those without insomnia. There is extensive evidence that shift work including night work, increases the risk of developing psychological and physiological health problems

(Andlauer 1960; Koller 1983; Bohle and Tilley 1989; Scott et al, 1997). Akerstedt and Folkard, (1997) found that alertness deficits for instance are caused not only by the length of a shift but also by working hours shifting within the circadian phase indicated that, shiftwork that involves night shifts strongly influences the psychology and psychophysiology of the individuals. Thereby several other physical and mental stresses follow and make them vulnerable. In view of the above, this paper entitled “Shift work and Depression” has been contemplated to identify the different types of stress associated with the shift work and understand the impacts on health of the shift staff.

2. Methodology

The study followed “*Syndrome Approach*” to realize the objectives of the study, by adopting a combination of the methods of obtaining data on the study respondents. The focus of the study being the health problems associated with the shift work, sampling was carried out by selecting the employees. The *Standard Shift Work Index* developed by the Shift work Research Team MRC/ERSC Social and Applied Psychology Unit was used in the present study with few modifications to suit the local conditions. Results obtained were analyzed statistically wherever necessary.

3. Results

The sample population was stratified in to four Age Groups (AG), with an interval of 10 years. The employees were divided into : (1) *Loco Pilots (LP)*; (2) *Train Guards(GD)*, who travel along with the train; (3) *Train Ticket Examiners (TTE)*, (4) *Office Staff(OS)*, and (5) *Technicians(TN)* . Symptoms of the health problems related to the disturbance of biological clock were considered as *Stress* problem categories like (a) Sleeplessness; (b) Stress; (c) Anxiety; (d) Anger; (e) Depression; and (f) Mental perturbations. Stress and Mental health affected individuals among the shift workers were identified based on their own ratings and respondents, on their own perception rated each of the symptom on a 4-point scale.

Table 1: Stress symptoms by Depression, and the distribution of the affected in various age-sex groups.

| S. No. | Employee Type | AG-1 | | AG-2 | | AG-3 | | AG-4 | | TOTAL | |
|--------|---------------|------|-------|------|-------|------|-------|------|-------|-------|-------|
| | | N | % | N | % | N | % | N | % | N | % |
| 1 | LP | 14 | 41.18 | 15 | 44.12 | 4 | 11.76 | 1 | 2.94 | 34 | 47.89 |
| 2 | GD | 2 | 40.00 | 0 | 0 | 2 | 40.00 | 1 | 20.00 | 5 | 7.04 |
| 3 | TTE | 4 | 80.00 | 1 | 20.00 | 0 | 0 | 0 | 0 | 5 | 7.04 |
| 4 | OS | 12 | 66.67 | 6 | 33.33 | 0 | 0 | 0 | 0 | 18 | 25.35 |
| 5 | TN | 4 | 44.45 | 2 | 22.22 | 3 | 33.33 | 0 | 0 | 9 | 12.68 |
| 6 | Total | 36 | 50.70 | 24 | 33.80 | 9 | 12.68 | 2 | 2.82 | 71 | |

3.1 Incidence of Depression Stress

The incidence of Depression stress was found in 23.67% of the total respondents or 49.65% of the respondents identified as affected by the stress. Of the total affected, 28.17% were women and 71.83% were males.

Among the affected women, 90% were in the AG-1 and 10% were in AG-2, while none were in AG-3 and AG-4 groups. Among the affected Men, 35.29% were in AG-1; 43.14% were in AG-2; 17.65% were in AG-3 and 3.92% were in AG-4. The mean incidence of depression was at 22.64%; mean incidence for Anxiety was at 13.91%; and the mean incidences for mental stress and anger were at 3.15% and 1.03%, respectively. It is alarming that 84.62% of the affected by Anxiety stress; and 84.5% of the affected by Depression stress were in the AG1 and AG2 groups, while all the affected by mental stress were in the AG1 group. It is important to note that 67.83% of the stress affected had more than one type of stress symptoms. .Of the total affected, 47.89% were LPs, 25.35% were OSs, 12.68% were TNs, and 7.04% each were in GDs and TTEs . However, among the each employee type, a majority of the affected were in the lower age groups: Among the TTEs and OSs all the affected were in the first two age groups; while in LPs, about 85.3% were in AG-1 and AG-2 groups, while among the TNs 44.45%, 22.22% and 33.33% of the affected were in AG-1, AG-2 and AG-3, respectively. However, among the affected belonging to AG-4 group, incidence among GDs, was high.

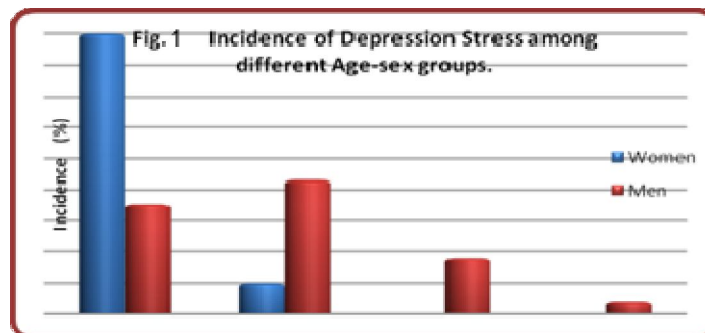


Fig. 1: Incidence of Depression Stress among different Age- Sex groups



Fig. 2: Distribution of the Stress affected among different Employee types.

4. Discussion

Keeping in view of the high incidences of the specific health problems especially in the lower age groups (between 20 and 40 years); and among the employee types like Loco Pilots, Train Guards, and Technicians (like track staff and signal controllers) the study recommends that the night shift be limited to 4 hrs duration, and the ideal break up can be as follows:

| | | | |
|---------------|---------------------|---------------|---------------------|
| Day Shift 1 | : 0600 to 1400 hrs; | Day Shift 2 | : 1400 to 2200 hrs; |
| Night Shift 1 | : 2200 to 0200 hrs; | Night Shift 2 | : 0200 to 0400 hrs. |

Further, it is essential that an ideal rotation of the shifts be adopted so as to reduce the sleeplessness and fatigue among the shift workers, ideally limiting the total work hours to less than 50hrs/week and night shift hours to less than 8hrs/week. Thus, the intensity of the stress reduces and the physical ability to cope up increases.

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References

- [1] Andlauer, P.I, 1960, The effect of shift working on the workers' health. European Productivity Agency, TU Information Bulletin, 29
- [2] Akerstedt T, Folkard S, 1997, The three process model of alertness and its extension to performance sleep latency and sleep length. *Chronobiology International* 14.115-23
- [3] Bohle P, Tilley AJ, 1989, The impact of night work on psychological well-being. *Ergonomics*. 1989;32:1089-1099.
- [4] Gupta S, Pati AK, Levi F, 1997, Pattern of shift rota modulates oral temperature rhythm and sleep wakefulness profiles in shift workers. *Journal of Biosciences* 22:477-488
- [5] Harrington JM., 1994, Prevalence of Common Infections in different work schedules. *Shift work and health. A critical review of the literature on working hours. Ann Acad Med Singap.*1994;23:699-705
- [6] Koller, M., 1983, Health risks related to shift work: *Int Arch Occup Environ Health*, v. 53, p. 59-75.
- [7] Maruyama S, Morimoto K, 1996, Effects of long work hours on life-style, stress and quality of life among intermediate Japanese managers. *Scandinavian Journal of Work, Environment and Health* ;22(5):353-59

- [8] Maruyama S, Kohno K, Morimoto K., 1995, A study of preventive medicine in relation to mental health among white-collar middle-management employees. *Jap J Hyg* 50, 849-60
- [9] Maruyama S, Morimoto K, 1996, Effects of long working hours on lifestyle, stress and quality of life among intermediate Japanese managers. *Scan J Work Env Heal* 22,353-9
- [10] Morimoto K. , 1994, Behavioral lifestyle and mental health status of Japanese factory workers. *Prev Med* 23, 98-105
- [11] Scott, A. J., Monk T. H., and Brink L. L, 1997, Shiftwork as a risk factor for depression: A pilot study: *International Journal of Occupational and Environmental Health*, v. 3, p. 2-9
- [12] Schor, J. B., 1991, *The overworked American*. New York: Basic Books
- [13] Salma.U, Kameswara Rao K, 2012, Shift work and Health, *Asian Journal of Management Studies*, Vol (2), 2012 Issue (2), 821-826
- [14] Salma.U, Kameswara Rao K, 2012, Shift work and Fatigue, *Int Jour.for Env. Sc., Tox.and Food Tech*, Vol 1,issue 3 pp 17-21
- [15] Tarumi K, Hagihara A, Morimoto K, 1992, Working hours and commuting time form the viewpoint of health care management in occupational settings - An investigation of the effects on lifestyle. *J. Pub Health* 39, 163-71

