

Associated Aid of Rest and Restorative Sleep in Nurses: A Conceptual Approach

*Major Navjeet Kaur, Dr. Harminder Kaur Gujral

PhD. Scholar-Amity Business School, Amity University, Noida (U.P)- 201301

Professor – Amity Business School, Amity University (U.P)- 201301

Corresponding Author: Major Navjeet Kaur

Abstract: With increasing globalization and challenging work environment, an individual puts in a large part of his life and time to cope up with turbulent changes for work-life balance. The impact of fatigue upon physical, cognitive, psychological and social activities and the experience of fatigue (such as its intensity, frequency and duration), divided fatigue conceptually by (Glaus, 1998; North American Nursing Diagnosis Association, 1996; Stewart, Hays & Ware, 1992). “Hospitals get stuck in the traditional way of thinking about scheduling, and it takes a really tenacious person to advocate for something that might sound radical but actually works out better for both nurses and patients”, Forsythe says (march 2015).” Management needs to assess the organisation for consecutive staffing to reduce fatigue-related risks such as under-staffing. A fatigue management plan is required to educate staff about the good sleep, hygiene and effects of fatigue. When the staff notice a colleague suffering from effects of fatigue it’s his/her responsibility to intervene to management. Restorative, comfortable rest at least for seven hours daily is essential for human health and a necessity for nurses. More stamina, better judgment, greater motivation, improved learning, boosted mood, heightened alertness, increased energy are benefits of healthy sleep.” Sleepiness” and “fatigue” are used interchangeably often but they are distinct phenomena. Fatigue and sleepiness coexist often as a consequence of deprivation of sleep. There are 3.4 percent chance of an error while nurses get 12 or fewer hours of sleep in the prior 48 hours and 6 or fewer hours of sleep in the prior 24 hours determined by (Rogers AE, 2008). In addition nurses risking their own safety and health who fails to obtain adequate amounts of sleep. Nurses working fewer hours per day remains alert more significantly than the nurses working 12.5 hours or longer (Rogers AE,2008). Earlier there was eight hours shifts for hospital nurses, but it is increased to twelve hours now a days. Nurses are working for twelve hours or more in the most of the hospitals. According to this schedule nurses should be given a three day work week, which provides potential for better flexibility and work-life balance . But in actual scenario shift lengths are unpredictable quite often because of unanticipated staffing changes and fluctuations in patient needs. However, nurses put in unplanned overtime which are beyond the shift length scheduled. Nurses are at risk fatigue and burnout, which may compromise patient care because of long shifts of twelve hours are combined with overtime, frequently changing of shifts that rotate between day and night duty, and consecutive shifts.

Keywords: restorative sleep, rest, fatigue, nurses, concept analysis, nursing

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I. Introduction

Fatigue is defined as an overwhelming, debilitating and sustained sense of exhaustion that decreases one’s ability to carry out daily activities, including the ability to work effectively and to function at one’s usual level in family or social roles. Management needs adopt strategies, on time management to provide adequate rest to nurses to reduce fatigue caused by overtime and excessive workload. REST AND SLEEP are fundamental components of well to being. All individuals require certain periods of calm and lesser activity so that their bodies can regain energy and rebuild stamina. According to national heart, lung and blood institute (US department of health and human services) Sleep helps brain to work properly, while sleeping brain is preparing for the next days, forming new pathways to help to learn and remember information. Sleep has an important role in physical health, it helps in healing and repair of heart and blood vessels. Sleep deficiency increases the risk of heart disease, kidney disease, stroke, high blood pressure, diabetes, obesity and stroke. Sleep maintains the balance in hormones feel hungry (ghrelin) or full (leptin). If the person is not taking enough sleep the hormone Ghrelin goes up and hormone Leptin goes down hence results in feeling more hungrier and obese. Sleep also affects the hormone Insulin, acts to control blood glucose levels, sleep deficiency results in impaired blood sugar control. Sleep deficient people are less productive at school and work. They have slower reaction time, less productive and make more mistakes. According to Bjorn Bjorvatn (Apr.2,2012) “ Individuals

differ in terms of how they tolerate shift work, with effects on sleep and other health parameters varying correspondingly, shift work disorder (SWD) is a sleep disorder characterized by sleepiness and insomnia, which can be attributed to the person's work schedule". Reservation of energy for conservation is the main purpose of sleep. Sleep growth hormone excretion during the first hours of sleep results in restoration of tissues and growth. It helps in cell mitosis and increased synthesis of protein. It helps in maintaining thermoregulation and emotion regulation in humans. Disturbances of emotional behaviour occur due to sleep deprivation. During the sleep there is an information transfer between cortex and hippocampus that results in memory traces fixation. The significant bindings are abolished during REM (rapid eye movement) sleep. It helps in Neural maturation, the percentage of REM sleep of total sleep time decreases with age – in about 6 months of prenatal phase the children spend about 80 percent of sleep in REM sleep, but young adult people only 25 percent. If the person will not get proper sleep it will result in being prone to accidents, impaired attention, alertness, concentration, reasoning and problem solving, can lead to serious health problems like heart disease, heart attack, heart failure, irregular heartbeat, high blood pressure, stroke, diabetes, contribute to depression, aging of skin, dark circles under the eyes, fine lines, lacklustre skin.

II. Research Objectives

- To observe the need and importance of proper sleep and rest in nursing profession.
- To study scenario of working hours of nurses in various hospitals.
- To study the level of satisfaction among nurses.
- To draw conclusion and offer suggestion for better management of working hours in hospitals.

III. Review Of Literature

The amount of sleep necessary to maintain a normal level of daily functioning varies greatly from individual to individual (Banks and Dinges, 2007). The homeostatic process entails an accumulating need for sleep as a function of the preceding period of wakefulness (Borbely, 1982). Sleep deprivation results in an increased propensity (Banks and DINGS, 2007). This increased propensity to fall asleep defines excessive sleepiness which is characterised by increased risk of micro-sleep (seconds of sleep bouts) or nodding off (AASM, 2005). Sleep deprivation is subsequently followed by "recovery sleep" typically characterized by an increase of SWS, and a subsequent REM sleep rebound (Borbely et al., 1981). The homeostatic process is influential for sleep quality as accumulated need for sleep is positively related to SWS (Banks and Dinges, 2007). Sleep restriction and the homeostatic process may thus affect a shift workers' sleep quality. Different physiological systems in humans typically show varying activity throughout the day and night. As diurnal primates, humans' physiology is attuned to be active during the day and at rest during the night (Akerstedt and Gillberg, 1981). Circadian rhythms are evident in behaviour and performance, with cyclic variability in terms of sleepiness and alertness. It is well established that sleepiness is increased and performance impaired during the night, as compared to during the day (Wright Jr, Hull, and Czeisler, 2002; Wright Jr, Lowry, and LeBourgeois, 2012b). The lowest point (nadir) in alertness and peak in sleepiness usually coincides with the nadir in core body temperature at approximately 0500 hours in the morning (Czeisler et al., 1980). These internal rhythms are coordinated by neurological and endocrinological systems with the circadian pacemaker, the hypothalamic suprachiasmatic nuclei (SCN) functioning as the "master clock" (Datta and MacLean, 2007). Nurses not receiving proper breaks who are working for longer hours (e.g., free of patient care responsibilities 10 minutes every 2 hours and a 30 minutes meal period) (Rogers AE, 2008). Short breaks are effective in controlling the accumulation of risk associated with improved performance, sleepiness, and reduce subjective fatigue, as proved by studies (e.g., 2 hours sustained work). Field studies and laboratory suggest that naps (15 minutes to 3 hours) are quite effective in increasing alertness during extended work periods or at night but napping during breaks or meals periods is often prohibited. For example, The speed of responses on a vigilance task at the end of the shift is improved by 20 minute single naps (Rogers AE, 2008). Stamatakis and Punjabi (2010) found that induced disruption of normal sleep cycle at night for two nights has reduced glucose effectiveness and insulin sensitivity in participants who experienced experimentally despite having a normal sleep duration (7-8 hours). A self-reported poor quality sleep in mid-life a prospective study of adults reports had worse cognitive function scores in later life. Other studies report person with poor quality sleep has reduced cognitive function and worse memory. Fragmented sleep is associated with an increased risk for developing type 2 diabetes and hypertension even when controlling for sleep disorders and body mass index. There are higher rate of mortality shows in one prospective study reports in men who had sleep disruption (insomnia) along with short duration of sleep compared with normal sleepers (Vgontzas et al. 2010). "Fatigue is a pretty well documented concern, but it is not often related to nurses", Boothman says (2015) "we went through years of worry about resident work-hours restrictions, and we keep meticulous records of how many hours resident work, and truck drivers are under some stringent restrictions. There is no reason to think nurses are immune to the same problem, and in some ways it's worse" (Boothman 2015). Boothman (March 2015) explained how much fatigue is threatening for patient

safety that can be measured by the turnover. Nurses tend to select her job based on satisfaction that they are working by helping their patients “where people are asked to do too much with too little, you will see nurses moving in droves to other organisations” he says more than the income. “That can be a major red flag, so the risk manager should always keep a finger on the pulse of the hospital’s nurse turnover rate. It’s the best indicator of how happy your nurses are, and fatigue has a big effect on job satisfaction” Nurses have the most direct contact with patients, and fatigue-induced errors or oversights, the problem can be worsen when it starts as a chain reaction of improper care, Boothman explains, Residents who work long hours but can rest when they have time but Nurse are working constantly through the shift can be more susceptible to fatigue than residents, he says. Policies given by the accreditation Council for Graduate Medical Education have resulted in mandatory restriction in resident physician’s duty hours to no more than eighty hours a week. Similar policies for nurses- perhaps restricting the number of consecutive hours worked- should be considered by accrediting bodies. The evidence of relationship between nurse staffing levels and measures of patient safety is provided by 26 studies. Twenty-two of these studies have been published since 1996, and 21 were cross-sectional studies examining the relationship between measures of nursing staffing levels and adverse occurrences. Most commonly, these studies have examined in-hospital deaths and non-fatal adverse outcomes in hospitalised settings, including various types of nosocomial infections, decubitus ulcers, and falls. In some studies, process errors have been measured, including medication errors. One additional study was included it was based on a similar hypothesis (that higher work load leads to a greater number of errors). This study examined physician’s workload in an experimental setting, and its outcome measures was charting errors. An important methodological issue in this set of studies is the unit of analysis. All of the studies examining nursing workload used nurse-to-patient ratio as a method of estimate workload. None of the studies examined individual nurses, so they all estimated workload by compiling staffing and patient occupancy data. For some studies this was compiled by individual nursing units, while others aggregated this data for entire hospitals. The IOM report, “keeping patients safe: transforming the work environment of nurses, “Outlines the results from the nurses work environment study and patient safety (Scott, Rogers, Hulang and Zhang, 2006). The report addressed the effects of extended work hours on patient safety. The risk for health care errors increases due to decreased vigilance when shift duration exceeds 8.5 hours. The risk for making at least one error increase with overtime regardless of shift duration (Rogers et al. 2004; Scot et al; 2006). In 2008, the Washington state nurses association released a white paper entitled “Quality of care, nurses work schedules, and fatigue”. The paper highlighted individual and employer actions to be taken so that the goal of patient safety and quality of care can be achieved while retaining expert nurse in the profession (Ellis, 2008).

Dugan et al.(May 1996) explained there is relationship between burnout indicators, nursing injuries, stress among hospital nurses and patient incidents in the Midwest United States in a moderate sized hospital. Stress was measured using mailed survey on a single item measure of perceived stress and stress symptoms, but response were low. For nursing injuries, burnout indicators (unit-level sick leave, other absences and turnover) and patient incidents level of hospital units, a data prospectively collected hospital department were used which included a broad spectrum of hospital nursing care. Indicating that convergent validity was less than expected as the correlation between the two stress measures was only 0.59. Medication errors was not with reported stress symptoms. Perceived stress found to be significantly associated with patient falls. There was no correlation with either measure of stress, nor were nursing injuries or burnout indicators with intravenous administration errors. There was only weak evidence of relationship between perceived stress and medication errors or patient falls in this study.

The study was conducted on the longer the shifts for hospital nurses, the higher the risk of burnouts and dissatisfaction in patients. Using 22, 275 registered nurses from the multistate nursing care and patient safety study. The nurses in the study worked in 577 hospitals in California, New Jersey, Pennsylvania, and Florida. Burnout was measured using the nine-item emotional exhaustion subscale of the Maslach burnout inventory. Nurse outcomes and shift length there is a bivariate relationship. With the increase in lengths of shift there is a significant increases in the odds of job dissatisfaction, burnout, intention to leave the job. The nurses who worked longer shifts than for nurses who worked shifts of 8-9 hours have upto 2.5 times higher burnout and job dissatisfaction. Shift working, particularly night shifts, traditionally attracts pay enhances but can have a signifant effect on personal and social life. Prolonged shift work, especially night shift-work, also has a health risk as it produces symptoms that correspond closely to those of mild or moderate distress (Efinger et al. 1995).The risk of cardiovascular disease has been suggested increases during long-term night shift working,(Simoni & Paterson 1997), as do the levels of social interaction and companionship at work (Ceslowitz 1989, Morano 1993, Healy & McKay 2000)

In aviation industry there is a requirement of 24 hours activities to meet the operational demands. It is essential for the crew (flight/ cabin) to get adequate rest to remain alert and perform aircraft operations and mitigate fatigue and according to the requirements of civil aviation safety.Aircraft operate international and domestic sectors under different circumstances and conditions such as day and night time, short, long and ultra-

long range, time zone differences, periods of circadian rhythm, composition, varying numbers of sectors (landing) crew etc. According to scientific knowledge available this report addresses these issues on sleep and fatigue, best current international practices and ICAO standards on the subject. In Indian journal of occupation and environmental medicine, a study on shift work disorder and related health problems among nurses working in a tertiary care hospital, banglore South India (2016) by S Anbazhagand, N Ramesh found a significant association of SWD with increasing age, more number of nights worked in a year and longer duration of working hours on health related problems. According to Barker and Nussbaum (2011), there is evidence consistently shows that the working longer than 12 hours has increased the probability of errors and the timing of most errors that occurs on a 12 hours shift is after the last two scheduled during or immediately hours. Furthermore, results shows in more than a 40 hour week any shift schedule greatly increases the employee fatigue as well as probability for errors (Bannai & Tamekoshi, 2014). There are more chances of burnout for nurses who work longer than 9 hours. There are two and a half times more likely to experience burnout. Twelve hour shifts are includes scheduled times of 12 hours, lunch break, handing and taking over, making actual hours at work 12.5 hours).

IV. Research Methodology

The research used an exploratory research technique based on past literature from respective journals, books, newspaper and magazines covering wide collection of academics literature on importance of sleep and rest. According to the objective of the study , the research design is of descriptive nature. Available secondary data was extensively used for the study.

V. Conclusion

Empowerment to achieve a healthy work-life among nurses is vital as the profession focuses on retention and continuous to advance forward. There is an significant increase in fatigue which leads to impaired performance with the extended duration work shifts strongly suggested by weighing current evidence. In the national cohort study shown working shifts of 24-30 consecutive hours unquestionably increase the risk of serious medical errors and increase the risk of harmful and fatal medical error and diagnostic mistakes. Long working hours increases the risk of medical errors, nursing shifts of more than 12.5 hrs are common which significantly leads to increase the risk . However the chances of occupational injury, physical disorder and psychological disorder increases in health care team specially in doctors and nurses and increases the risk of long term illness, chronic diseases and risk of high mortality rate in young age. Recognition of distress that arises from work place cannot be addressed overnight. Management needs to find the sources of distress for the mitigation and if it is not possible completely then along with this support circumstances should be available to exacerbate the stress at work place, provision of effective communication between staff to express their feelings and able to contact management level for their problems if the solution is not possible by there own and interaction needs to be researched to overcome problems in future. There should be a work-life balance because it is not possible to separate the workplace form their personal lives. Hence it is not safe from both the stand point of providers and patients, the long working hours without proper rest by health care providers. To reduce the unacceptably high rate of preventable fatigue-related medical error and injury among nurses. There is a need to established and enforce safe work-hour limits for nurses. Opportunities need to provide to staff their concern to express about fatigue. Collection of data on working hours, absenteeism, scheduling, worker's compromise, absenteeism ,adverse events, job satisfaction. When evaluating adverse events always analyse fatigue level also. Creative scheduling is required to provide work-life balance, adequate rest and restoration of health for nursing professionals.

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