

Effect of Shift Work on Physical and Psychological Health of Nursing Staff

Thesis

Submitted for Partial Fulfilment of the Master
Degree in Psychiatric Mental Health Nursing

By

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B.C Faculty of Nursing - Ain Shams University

*Faculty of Nursing
Ain Shams University
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Candidate

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List of Abbreviations

<i>Abbr.</i>	<i>Full-term</i>
BMI	: Body mass index
CDC	: Central for Disease Control
CFR	: Carrier federal regulation
CMV	: Commercial motor vehicle
CVD	: Cardiovascular disease
EIRO	: European Industrial Relation Observatory
EU	: European Union
FD	: Functional dyspepsia
FGIDs	: Functional gastrointestinal disorders
GI disorders	: Gastro intestinal disorders
HPA	: Hypothalamus-pituitary-adrenal
IBS	: Irritable bowel syndrome
ILO	: International labour office
IOM	: Institute of Medicine
NREM	: Non rapid eye movement
REM	: Rapid eye movement
SAM	: Sympathetic-adrenal-medullary
SCN	: Suprachiasmatic nuclei
SWD	: Shift work disorder
SWS	: Slow wave sleep
SWSD	: shift work sleep disorders

List of Abbreviations *(Cont.)*

<i>Abbr.</i>	<i>Full-term</i>
SWT	: Shift work tolerance
US	: United States
WHO	: World Health Organizations
WHR	: Waist-hip-circumference ratio (WHR)

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ABSTRACT

The aim of this study was to assess the effect of shift work on physical and psychological health of nursing staff. **The design** of this study is a descriptive cross-sectional design. **The subjects** of the present study included 100 females nursing staff, their age 30:50 years old and engaged in shift work. **The study conducted** at Ain shams specialized hospital, affiliated to Ain shams university hospitals. **Tool** used for data collection was interviewing questionnaire sheet, it consisted of three parts 1) nurses sociodemographic data, 2) procedures used in designing shift work and 3) Assessment the effect of shift work on physical and psychological health of nursing staff. **The study results** revealed that the highest percentage of the nursing staff had afternoon shift, while the lowest percentage of them were night shift. Concerning the effect of shift work on the physical health of nursing staff, the results indicated that half of the nursing staff suffered from insomnia mostly and sometimes had a night without sleep. As regards to the effect on the psychological health the study found that a quarter of the nursing staff sometimes feeling depressed and one third of them sometimes had job strain. **The study concluded** that there are no statistical significant differences between physical and psychological stress of nursing staff and the mean score of their sociodemographic data. **The following recommendations** are suggested that nursing organization should be fixing the roster for the nursing staff to improve quality and quantity of their sleep and also to avoid the work related mistakes. Also counseling unit should be existing in the hospitals to explain for the nursing staff how to cope with work shift physical and psychological stress.

Key words: Shift work-Physical health-Psychological health-Nursing staff

GLOSSARY

- **Hypothalamus-pituitary-adrenal (HPA) axis response** is a physiological response to perceived stress resulting in cortisol release from the adrenal glands. A chronically stimulated HPA axis will result in chronically elevated cortisol levels (*Bjorntorp, 2010*).
- **Waist-hip-circumference ratio (WHR).** This ratio functions as an indicator of the central fat accumulation which occurs with cortisol release from chronic HPA axis activation. Individuals with greater stress exposure may express greater amounts of central fat. WHRs strongly correlate with *salivary* cortisol levels, which have been proven to correlate with serum cortisol levels. Current data suggests that high WHRs in women may be stronger predictors of mortality than their body mass index (BMI) (*Berrington, 2010*).
- **Nursing day shift.** Four, eight, or 12 hour workdays which consistently occur within 7 a.m. to 7 p.m.
- **Nursing night shift.** Four, eight, or 12 hour workdays which consistently occur within 7 p.m. to 7 a.m.
- **Nursing rotating shift.** Any other work schedule with shifts that fall within 7 a.m. to 7 p.m., and 7 p.m. to 7 a.m.

Introduction

Sleeping is a biological phenomenon and is one of physiological needs of human being for maintaining physical and mental balance. Sleeping disorder is often an initial sign of mental diseases. Insufficient sleep defined as inadequate or mistimed sleep, is increasingly recognized as contributing to a wide range of health problems such as cardiovascular disease and impaired vigilance and cognition (*Cappuccio et al., 2010*).

So, it is known that nursing care is required 24 hours a day, 7 days a week. Over recent years National Health Service managers have been under increasing government pressure to improve efficiency within the service and utilize resources as effectively as possible. These 24 hours care is provided through a three shift working system, so shift work is important (*Akerstedt et al., 2008*).

Also, shift work is an established labor pattern that affects substantial proportion of work force, it usually refers to three working shifts, days, evenings, nights and it also refers to permanent shift, slow shift rotation, rapid shift rotation and weekly shift rotation. Shift work exists whenever employees, are required to begin working at times other than 7 to 9 in the morning (*Admi et al., 2008*).

Each system of shift work has its advantages and disadvantages and an impact on nurses health and well-being. Shift workers experience a variety of health problems including sleep- wake disorders, gastrointestinal problems, emotional disorders and an increased risk of cardiovascular disease and also impaired family relationship. These are usually associated with disruption to normal synchronization of workers circadian rhythms. For these reasons and others, shift work was considered as an important factor leading to employee stress and burnout (*Matheson et al; 2014*).

Many studies have focused on the effect of sleepiness on reaction time and driving performance still few studies have specifically investigated shift work disorder (SWD); a condition characterized by excessive sleepiness and insomnia due to unfavourable work hours (*Dimilial and Rogors, 2012*).

The 2nd edition of the International Classification Of Sleep Disorders sets out the following criteria to diagnose shift work disorder: 1) complaints of insomnia or excessive sleepiness temporarily associated with a recurring work schedule that overlaps the usual time for sleep; 2) symptoms must be associated with the work schedule for at least one month; 3) evidence that the circadian and sleep- time misalignment were present for 7 days using sleep log or actigraphic recording; and,4) the sleep disturbance cannot be

explained by another sleep, medical, neurological or mental disorder, or the result of medication or substance abuse (*American Academy of Sleep Medicine, 2005*).

Mental distress associated with rotating shift work may be due to night work and subsequent disruption of the biological rhythm. Additionally, rotating shift work disturbs social and family life, which may further affect the mental health status. Shift work may affect the quality of patient care through mental health problems, work dissatisfaction and social problems, and sleeping problems (*Admi et al., 2008*).

Arafa with his colleagues conducted a study in Egypt, and reported moderate to severe psychological symptoms as sleeping disorders, nervousness, illusion and aggression in 21.7% of hospital nurses. The nurses who worked rotating shifts had higher rates of symptoms compared to day shift nurses (26.83% vs.11.58%) (*Arafa et al., 2003*).

Also Abou EL-Soud conducted a study in Egypt about the prevalence of low back pain among shift working nurses in Zagazig University Hospitals and reported that the highest percentage of low back pain was found among nurses working in rotating shifts (95.0%) and the least percentage among those working in the day shift (64.0%)(*Abou EL-Soud et al., 2014*).

Significance of the study:

Change of work shifts can have adverse impact on the physical and psychological health of nurses and these effects such as sleep disorders, disorders of family relationships, digestive problems and heart disease. These effects lead to deterioration in job performance of nurses and this must be emphasized on the need to evaluate it among nurses. So an adequate staff nurse workforce is vital to patient safety, job satisfaction and nurse retention. Additionally, adequate staffing in patient units decreases the overall intent to leave the profession and ultimately contributes to career satisfaction as a direct care. In light of the prevalence of shift work in nursing profession and the suggestive research to date about its possible health effects, it is clear that additional research efforts are needed to fully understand health risks and mechanisms through which they arise. The research so far leaves us with uncertainty about the magnitude of the health impacts, the mechanisms through which these impacts occur, individual differences in susceptibility to adverse health outcomes, and the particular forms of shift work that are most troublesome. In order to get a better sense of these issues, future research should: pay more attention to the mechanisms through which shift work affects nurses health and patients safety, continue to explore whether some individuals are more susceptible to adverse health effects from shift work, and measure exposure to shift work much more carefully by clearly distinguishing different types of shift work, and measuring time spent on shift schedules more precisely.

Aim of the Study

The aim of this study was:-

To assess effect of shift work on physical and psychological health of nursing staff.