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**THE IMPACT OF SHIFT WORKS ON JOB SATISFACTION, PHYSICAL
HEALTH AND ILLNESS OF NURSES IN HOSPITAL TENGKU AMPUAN**

RAHIMAH, KLANG.



**By
NOR SYAHILA BINTI AHMAD MARZUKI**

UUM
Universiti Utara Malaysia

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ABSTRACT

Shift work is known as a job that does not follow the standard working schedule but usually involves two or three working schedules which are decided based on the suitability of the operations. Shift schedule is the main component for those who are involved in this kind of working system since this determines the working hour period of their working days. Shift schedule must be monitored and reviewed carefully in order to maintain the quality of work, productivity of the operations and efficiency of the process. There are many sectors applying this type of working method which includes the health care sector. This study evaluates the effect of shift work on nurses and the relationship of shift work with physical health and job satisfaction as well as identifies the main illness that is usually suffered by the nurses. 278 nurses at Hospital Tengku Ampuan Rahimah (HTAR), Klang were taken as sample and they were required to answer the questionnaires in order to provide the data for this study. Based on the analysis there was a positive relationship between shiftwork with job satisfaction, physical health and illness. Besides that, the common illness that is faced by the nurses which is passive lifestyle was able to be identified. Therefore, from the findings of the study, valuable guidance was able to be provided for researchers to identify the solutions in order to improve any issues related to shiftwork.

Keywords: shift work, job satisfaction, physical health, illness.

ABSTRAK

Peralihan kerja dikenali sebagai kerja yang tidak mengikut jadual kerja yang normal tetapi biasanya melibatkan dua atau tiga jadual kerja yang ditentukan mengikut kesesuaian operasi. Jadual giliran kerja merupakan komponen utama bagi pekerja yang terlibat di dalam sistem kerja ini kerana ianya akan menentukan tempoh waktu kerja bagi hari bekerja mereka. Jadual giliran mesti diawasi dan dikaji dengan teliti untuk mengekalkan kualiti kerja, produktiviti operasi dan kecekapan proses. Terdapat banyak sektor yang menggunakan jenis kaedah kerja peralihan termasuk sektor penjagaan kesihatan. Kajian ini menilai kesan peralihan kerja pada jururawat dan hubungan peralihan kerja dengan kepuasan kerja dan kesihatan fizikal serta mengenal pasti penyakit yang biasanya dialami oleh jururawat. Semua pembolehubah-pembolehubah bebas telah diukur di kalangan 278 jururawat di Hospital Tengku Ampuan Rahimah (HTAR), Klang. Hasil kajian menunjukkan terdapat hubungan yang positif di antara peralihan kerja dengan kepuasan kerja, kesihatan fizikal dan penyakit. Selain itu, penyakit yang dikenal pasti sering dihadapi oleh para jururawat adalah gaya hidup yang pasif. Oleh itu, penemuan kajian ini dapat dijadikan panduan kepada para penyelidik untuk mengenalpasti penyelesaian bagi sebarang isu yang berkaitan dengan kerja peralihan.

Kata kunci: kerja peralihan, kepuasan kerja, kesihatan fizikal, penyakit.

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LIST OF ABBREVIATION

BMI	Body Mass Index
CDC	Center for Disease Control
HKL	Hospital Kuala Lumpur
HTAR	Hospital Tengku Ampuan Rahimah
ICU	Intensive Care Unit
IHD	Ischemic Heart Disease
IWS	Index for Work Satisfaction
MMSS	Mueller Satisfaction Scale
PTSD	Post-Traumatic Stress Disorder
SPM	Sijil Pelajaran Malaysia
SPSS	Statistical Package for the Social Science
STPM	Sijil Tinggi Pelajaran Malaysia
UUM	Universiti Utara Malaysia

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

In the time of globalization, the part of medical attendants is expected to give the best health awareness to the public. As stated by Shinjo (2017), medical caretakers assume a vital part to help individuals to give treatment, as well as enable patients to confront the sickness by giving passionate and physical to help. Nurses Day celebration which falls on May 12 consistently with the themed for 2017 “Nurses: A Voice to Lead, Achieving the Sustainable Development Goals” is welcomed by all nurses worldwide. The celebration was held at this time is to give all the chance to contribute at their own particular level and perceive the endeavors they as of now make each day to accomplish these objectives. In the United States, the professional group which is potentially vulnerable to burnout is nursing staff (Roberts, 2015). Based on the information from the Malaysian Human Resources for 2014 Health Country Profiles, the number of nurses in the nation is 92,681 which include 64,348 nurses in the public sector and 28,333 in the private sector. It is estimated that the amount of nurses needed by 2020 is 130,000 qualified nurses (Pillay, 2017). This proves that the need for nurses is vital as the number of patients per year is increasing. Thus, shift work is needed to ensure the continuity and efficiency of patient care and hospital facilities.

According to Williams (2008), shift work can be defined as a job in any work schedule that does not follow the normal work schedule. Hence, shift work can be defined as work that is carried out after standard working hours of 8am to 5pm from Monday to Friday that involves different members working in series to carry out a particular job (Saksvik-Lehouillier et al., 2012). The shift system is a work arrangement that provides opportunity to benefit the available time for the work operations. In other context, shift work allows the transition of duties from one to another worker after certain period of time in order to ensure the operational activities is still on going. The employees perform their duties based on the rotation that has been assigned by the management. Shift work is usually divided into three rotations period which are morning, evening and night shift.

According to Employment Act 1955 (2012), a worker should not work more than 48 hours per week which indicates a minimum of 8 hours and maximum 12 hours work per day; depending on the organization working hour. Due to this, the shifting hour is usually between two or three shift schedules with 8 or 12-hour rotation within the 24 hours of working hour. As mentioned by Eberly and Feldman (2010), shift work is also considered as working time that exceeds the normal 8 hours of daytime working which includes night shift work, irregular work hour and rotating shift work between the third of the 24-hour cycle. The shift schedule must be reviewed carefully by considering the needs of worker and workload in order to maintain the quality of work (Managing Shiftwork, 2006).

Besides that, the schedule must also be planned systematically to avoid the occurrence of overlapping.

For some people, this is described as an abnormal working hour since it opposes human biological clock and they assume this could lead to health issues such as sleeping disturbance, anxiety, stress, obesity, cardiovascular disease, depression, diabetes, cognitive disease, breast cancer and hypertension (Jehan et al., 2017). The shifting schedule is taken seriously because shift work could affect any individuals and expose them to health risks and danger. Shift work also changes the individual's normal life routine. Their lifestyle pattern totally is changed since they tend to rest more during the day and stay active at night.

Burch et al. (2005) said that shift work is taken seriously as it could cause any risks and danger to individuals' health which in turn can affect their physical and psychological well-being; which eventually leads to a decrease in job performance. Psychological well-being is defined as "the general viability of a person's mental working" as identified with essential features of life which are work, family and community (Wright et al., 2000, p.491). According to Baptiste (2008), in order to determine the job satisfaction, it is important to look at the psychological well-being at the workplace. Workplace pressure has been recognized as one of the causes of employee job dissatisfaction which ultimately affect their psychological and physical health (Sanaz et al., 2015). Job satisfaction is an important element for an employee to be able to do work effectively in order

to achieve the company's goals. In the study of Abd Rahim Damit (2007), the result showed positive relationship between job satisfaction and one's satisfaction in the personal life. The objective of this study is to determine whether shift work is associated with risk factors that contribute to poorer health conditions and lower job satisfaction.

1.2 Problem Statement

Since nurses are involved with the shift work system, it is a need to identify the relationship between shift work with their physical health and illness. As stated by Antunes et al. (2010), shift work has long been known as an occupational system that could harm the individual health; and this view stays true until now. This has been agreed by Eberly and Feldman (2010) who stated that shift work disturbs the 24-hour biological rhythms and has been linked with many health disorders. In addition, there are also some proofs which show that shift work in general does affect the workers by exposing them to acute and chronic health condition (Costa, 2003; Harrington, 2001). Shift work is an atypical working system that may involve long hours of working or unusual night schedule. Due to the odd working hour in shift scheduling, physiological problems may arise such as the disturbances in circadian rhythm that could affect an individual's performance and sleep pattern. To add, this could also lead to mental illness, cardiovascular risk and an increase of accident rates. Besides that, it also affects the reproductive health that is related to disruption of menstrual cycle and individual issues such as sex activities, age and also personality. Therefore, the shift workers must be able

to cope with these problems related to their work scheduling in order to avoid any chronic disruptions on their mental, physical and social wellness (Harrington, 2016).

Costa (2010) gave an overview of occupational health which relates to shift work. The health disorders that are usually faced by shift workers are physiological and mental health issues which include irritability, nervousness and anxiety among workers. Besides that, shift workers also suffer metabolic disorders that comprise obesity, increased triglycerides, high cholesterol and high blood pressure. Shift work could also lead to disability to sleep and circadian rhythm disorder. It may also cause cancer and women's reproductive dysfunction. At the end of the study, the researcher concluded that shift work and health disorders are very complex and must be prevented and cured.

In another study by Knutsson (2003), it is mentioned that there is evidence that shows the association between working at night or shift work and specific medical disorders. One of the examples, this working system could result in gastrointestinal diseases which includes pain in bowel such as constipation or diarrhea. Shift work also cause cardiovascular disease, diabetes, metabolic disturbance, cancer and affect pregnancy outcome. These possible diseases have been linked with circadian rhythm because shift workers usually suffer from sleep disturbances.

According to the study by Singh and Majid (2006), in the view of job satisfaction among staff nurse in Hospital Kuala Lumpur (HKL), they found that 27.6% of staff nurses in HKL are unsatisfied with their job. It is discovered that one of the factors that contributes to the dissatisfaction is the arrangement of the work schedule. According to Atkinson et al (2008), job satisfaction plays an important role in employees' personal life. In spite of the fact that there have been different conclusions, a large portion of the writing expresses that there is an intrinsic factor making shift workers less satisfied with their job compared to workers who work in a normal working hour (Dunham, 1977).

Al-Enezi et al. (2009) mentioned that the groups of senior nurses have higher mean scores in satisfaction with shift work scheduling compared to the junior nurses. Shift workers who have a low level of satisfaction at work are more likely to experience low quality of life (Yun et al., 2012). In the study by Jong et al. (2014), it is shown that the levels of satisfaction among shift workers depend on their gender, promotion and work contribution. Employers need to develop systematic procedures to ensure that their employees work scheduling, promotion and job description processes are well organized. There is a distinction between the physical health of nurses who work 9-hour shifts and those who work in normal working shifts. Working longer cause the nurses to become more fatigued with a lot of health complaints and make them less satisfied with their job. Finally, their performances indeed decrease. Sheward et al. (2005) found that the working environment of staff nurse influence job satisfaction; an unhealthy

working environment often leads to increased emotional and physical exhaustion. Lastly, Meltzer and Huckabay (2004) studied 60 nurses in the Intensive Care Unit (ICU) Coronary and Neurological who worked full-time to show that the situation of moral tension has strong relationships with emotional exhaustion which triggers the dissatisfaction with their career.

Although there are many studies done on the relation of health issues and the consequences of shift work, the job satisfaction responses to shift work among the nurses are still not well understood, especially in Asian countries; and this calls for a further study (Saber et al., 2014). To help narrow this gap, this study investigated the relationship between the shift work and job satisfaction among the nurses in Hospital Tengku Ampuan Rahimah (HTAR), Klang. In line with this, there are also a few studies specifically addressed impact of shift work associated with job satisfaction, physical health and illness. So, this is a good opportunity to takes the lead to discuss on it in this study.

1.3 Research Question

This research is conducted to determine whether there is an association between the independent variable which is shift work; and the dependent variables which are job satisfaction, physical health and illness for the nurses in HTAR, Klang. Based on the previous subsection in the problem statement, a few questions have surfaced and are used as basis for this study. This research seeks to determine the answer for the following questions:

1. Is there any relationship between shift work and physical health among nurses in HTAR, Klang?
2. Is there any relationship between shift work and job satisfaction among nurses in HTAR, Klang?
3. Is there any relationship between shift work and illness among nurses in HTAR, Klang?
4. What is the common illness that is usually faced by the shift nurses at HTAR, Klang?

1.4 Research Objective

By referring to the problems and research questions that are stated previously, the researcher has decided to further discuss the association of shift work with physical health issues, job satisfaction and illness in order to achieve the objectives that are divided as followed:

1. To determine the relationship between shift work and physical health among nurses in HTAR, Klang.
2. To determine the relationship between shift work and job satisfaction among nurses in HTAR, Klang.
3. To determine the relationship between shift work and illness among nurses in HTAR, Klang.
4. To investigate the common illness that is usually faced by the shift nurses.

1.5 Scope and Limitation of Study

The scope of this study is to identify the relationship of shift work with job satisfaction, physical health and illness in HTAR, Klang. HTAR was selected for this study because it is the oldest hospital in Selangor. In Malaysia, HTAR has the second highest recorded number of inpatient after Hospital Kuala Lumpur (The Star, 2014). Therefore, it is relevant to conduct the research at HTAR. In this study also allows to see how HTAR manages their employees' job satisfaction and work scheduling as their work are mainly based on shift work basis. Burch et al. (2005) said that shift work is taken seriously because shift work could affect any individual and potentially expose them to any risks and danger that is related to health issues which in turn can affect their physical and psychological well-being. This eventually leads to a decrease in their job satisfaction and performance. As stated in the problem statement, therefore, this research is intended to identify three aspects that can be affected due to shift work which are physical health, job satisfaction and impact of shiftwork to health among the nurses. All these aspects are undertaken in order to identify the job satisfaction and health condition of the nurses who work in HTAR.

One of the limitations of this study is that the researcher only conducted an analysis of quantitative data in order to collect data from the respondents. In this study, questionnaires were distributed among the nurses and one of the main problems faced during the data collection was to get the cooperation from respondents to answer the questionnaires given. It is understandable that due to

their nature of work that needs them to focus on the patients' needs, they have no time to answer the entire questions given. Another limitation of this study is that it can only be done in one hospital which is HTAR, Klang. The study could not be carried out in all hospitals in Malaysia because the process of obtaining the approval takes a long time as it is necessary to get the approval from the hospital itself; and each hospital has its own standard of procedure. Other than that, this study is significantly focused on the job satisfaction and physical health of shift nurses only. The researcher determines the possible limitations to be made as reference for better research in the future. It is very important for the respondents to be aware of their level of job satisfaction and physical health condition if they plan to work based on shift system for a long time since it indirectly impact their work productivity and quality.

1.6 Significance of Study

This research investigates the impact shift work has on nurses' job satisfaction, physical health and illness which makes this study important and significant. Previous researches were focused either on the effect of job satisfaction and physical health condition towards women shift workers, only specific health problem or just generally discussing psychological issue among shift workers. Hence, this has led the researcher to take this study on a different level by investigating the health problems that usually occur and specifically focusing on the job satisfaction among the shift workers.

The result of this research is not only significant for HTAR organization but it can also be benefited by other organizations that apply 24-hour operation. The results could be used to improve the awareness of the health disorders and to identify the level of satisfaction among shift workers. The outcomes of this study should provide helpful information related to shift work towards job satisfaction, physical health issues, illness that would benefit everyone in the organization before the problems become more serious. Thus, precautionary steps and strategies could be taken by the management as it is their responsibility to take care of the staff welfare. With the completion of this research, the researcher hopes that it shows a beneficial guideline for HTAR itself as well as other organizations when it comes to matters concerning the level of job satisfaction and physical health of their man power especially shift workers. Since working system does contribute to the performance of the workers, hence this research is study the influence of shift work which could impact job satisfaction, physical health and illness among the employees.

Therefore, this research could be used as a reference for future studies on the relation between shift work with job satisfaction, physical health and illness issues. Besides, this research can also be used for replication of study by conducting the study in different organization with shift work system to produce more reliable and effective outcomes. Any recommendations from this study could be adapted by the organization in order to improve and maintain healthy

lifestyle among the workers. Thus, it could positively contribute to the betterment of work productivity and performance.

1.7 Definition of Key Terms

The important terms that used in this research are as following:

i. **Job Satisfaction:**

The feeling of joy that you feel when you do the work that you are needed or required to do (Armstrong, 2006)

ii. **Physical Health:**

A state of physical well-being in which an individual is physically fit to perform their everyday activities without limitations (Artour, 2009).

iii. **Illness:**

A person's unhealthy conditions that can affect their body or mind (Singh, 2008).

iv. **Shift Work:**

Work that is done in relay by different groups of employees which involve cyclical work schedule but requires employees to perform the same duties (Susan, 2016).

1.8 Organization of Study

This research consists of five chapters which include Chapter One that describes the introduction of the research, Chapter Two which is the literature review and Chapter Three which presents the methodology of this research paper. Chapter Four explains the findings of the study while the last chapter covers conclusion and recommendations.

Chapter one is also known as an introductory chapter. The researcher provides an overview of this research in order to give the readers the direction about what they can expect to read in the following chapters. This chapter discusses more on the background of the research, problem statement, research questions, research objectives, scope and limitation of study, significance of study and the definition of key terms.

In Chapter Two, the literature reviews are related to the selected area of study by referring to the past published papers. This evaluative information is described, summarized and assessed. It must also be clarified by citing the name of the author and the year the paper is published. This chapter acts as the base of this research. This chapter comprises the relationship between shift work; and job satisfaction, physical health and illness. Besides, this chapter also discusses each of the dependent variables which are job satisfaction, physical health and some of illnesses that shift workers suffer from such as obesity, cardiovascular disease and sleep disorders.

Next, in Chapter Three which is the research methodology, the steps that are intended to be used in order to collect the data for the research purpose are presented. It also takes into consideration the theories and concepts that underlies the method. This section includes the research framework, hypotheses development, and research design, as well as operational definition, measurement of variables, data collection method and procedure, research sampling and techniques of data analysis.

Proceeding to Chapter Four, this chapter discusses the findings of this study. This chapter determines whether this research is able to achieve the intended objectives. The researcher presents the results and interprets the value obtained in order to ensure readers' understanding of the purpose of this study.

Lastly, in Chapter Five the researcher presents the conclusion, discussion and recommendation of the research. In the conclusion part, the researcher wraps up the whole study which answers the objectives of the study. The researcher discusses the final result of this study to support the four proposed hypotheses. While for the recommendations, the researcher is required to suggest any steps or measures for future actions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses published information regarding the relationship between shift work and job satisfaction and health issues. Besides that, this chapter also discusses the relation of each of the listed independent variables with shift work. The discussions present arguments, ideas, structures, theories, comparison and deductive listing based on the researches that have been carried out and discussed previously.

2.2 Role of Nurse

In most parts of the world, nurses are the largest group of health-care providers (Schober et al., 2006). By expanding their roles and scope of practice, the quality and cost-effectiveness of health-care systems can be improved (Sheer et al., 2008). Nurses work in diverse advanced roles such as nurse practitioner, clinical nurse specialist, nurse anesthetists, nurse midwife and case manager (Hamric, 2009). The roles of nurses originate not only from patient needs but also from the needs of health-care organizations. Yet in many countries, access to health-care services, especially primary care, constitutes an even more common reason for expanding nurse's scope of practice (Schober et al., 2006). Nurse leaders play a central role in the implementation of advanced practice nurses roles. According to Bryant-Lukosius et al. (2004), the development of new advanced practice nurses

roles requires the assessment of environmental factors that may undermine evolving advanced practice nurses roles. The absence of government policies, regulations and stable funding to support advanced practice nurses have contributed to inconsistent role development and ineffective implementation processes (Cameron and Masterson, 2000). Strategic leadership on the national level is needed for successful implementation (Lindblad et al., 2010). Leading sustainable organizational change requires strategic leadership competence.

The main responsibility of a nurse is to construct the conditions for evidence-based practice by creating the contextual, cultural and professional prerequisites for nurses that allow nurses to provide good patient care (Fagerström, 2009). Central contextual factors for the advanced practice nurses' role include practical resources with which advanced practice nursing can occur, for example time resources, adequate office and clinical examination space, sufficient equipment and educational opportunities (Bryant-Lukosius and DiCenso 2004, Nieminen et al. 2011). Implementing and providing advanced practice nursing is challenging for nurses and requires both competence and personal readiness to bear greater responsibility for the care and cure of patients, which in turn necessitates nurses being provided more support (A° berg et al., 2006).

2.3 Definition of Shift Work

Shift work is an employment practice for an organization that operates 24 hours each day of the week and also known as 24/7 operation organization (Susan,

2016). The employees perform their duties based on the rotation that has been assigned by the management. Shift work is usually divided into three rotations period which are morning, afternoon and evening period.

The shift system is a work arrangement that provides an opportunity to benefit the available time for the work operations. In other context, shift work also means the transition of duties from one to another worker after certain period of time in order to ensure the operation activities are still on going.

This is depending on the organization working hour. Due to this, the working hour is usually divided between two or three shift schedules with 8 or 12-hour rotation within the 24 hours of working hour. As mentioned by Eberly and Feldman (2010), shift work is also considered as working time that exceeds the normal 8 hours of daytime working which includes night shift work, irregular work hour and rotating shift work which is between the third of the 24-hour cycle. The shift schedule must be reviewed carefully by considering the needs of worker and workload in order to maintain the quality of work (Costa, 2010). Besides that, the schedule must also be planned systemically so that there is no occurrence of overlapping.

According to Akerstedt (2003), the shifting schedule should be taken seriously because shift work could affect any individual and possibly expose them to any risks and danger related to health issues. This is because shift work may cause a

person to have a problem managing their sleeping plan. This scenario could bring stress to the individual in order to change their normal life routine. Sleeping too brief or sleeping during inappropriate time could lead to long term health issues. This is because it could affect an individual biologically and emotionally as it disturbs the circadian rhythm of sleep, wake cycle, temperature pattern and the production of adrenalin.

More than 50% of full-time shift workers surveyed by the Bureau of Labor reported that they still need to work in shifts because it is the nature of the job itself (McMenamin, 2004). Work ability is a term used to convey a worker's capacity to fulfill their work expectations and is generally affected by work demands and available resources (Golubic et al., 2009).

2.4 The Relationship between Shift Work and Job Satisfaction

Job satisfaction is imperative in retaining nurses. The Journal of Nursing Management (2015) reported that the nursing shortage has been linked to overall job satisfaction and specifically to nurses' satisfaction with the professional practice environment such as their work schedule, team commitment and etc. Job satisfaction, particularly in nursing career, is a critical challenge for healthcare organizations as labor costs are high and shortages are fairly common. As the demand for nursing staff increases, supply is insufficient to meet the demand. Zangaro and Soeken (2007) argued that an additional of 703,000 jobs would be

created for registered nurses between 2004 and 2014; which is 29% more than already employed nurses.

A few factors ought to be noted while considering how shiftwork is linked with work satisfaction, in particular; which shift they work in and the age of the workers. Hypothesizing about which move is most alluring and which is slightest attractive relies on the group's introduction to shiftwork for example the community that familiar with the shift working schedule and vice versa. In a community that is familiar with shiftwork, night shift (11:00 p.m. to 7:00 a.m.) revealed somewhat higher satisfaction level on some factors than other shifts. Be that as it may, in groups which are not familiar with shiftwork, night shift had the least general satisfaction level, while the day shift (7:00 a.m. to 3:00 p.m.) had the most elevated satisfaction level (Dunham, 1977). Besides that, Yoon et al (1999) stated that the work and personal satisfaction were poorer for the medical attendants who were on a pivoting shift work schedule and who had higher hypochondriac pattern. On the opposite, a higher satisfaction level is found in the individuals who were on a settled daytime work timetable and who had progressively an extroversive pattern.

According to Tahnee (2014), personal and job satisfaction varied in every person. In the nature of shift worker, rotating shifts, compensation and working conditions have given a big impact to the workers' job satisfaction. It was said that the individuals who worked day shift did not have low job satisfaction,

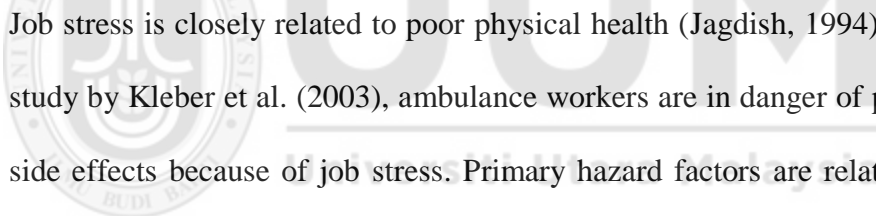
however this could be because of worker of this work nature hold higher positions like chiefs, leaders and for the most part individuals of more prominent significance (Tahnee, 2014). Therefore, the researcher concluded that by keeping in mind the end goal to build up a more congruous connection amongst work and personal life; to restrain stretch and permit cooperation, it has been recommended that staff have more prominent control of their day of work shift.

2.5 Definition of Physical Health

Based on the article “Physical Health: Take Care of Your Body” (2016), physical health is characterized similar to the state of your body. Great physical health is the point at which your body is working as it is intended to work. Poor physical health can lead to an expanded danger of creating emotional wellness issues. According to Syed Faheem (2017), the whole of a person's well-being is more appropriate to be defined as physical health. Physical health is very important as it refers to overall well-being and is the most significant of the various dimensions of health. If one's health is not at a good level it manifests itself physically (Koshuta, 2015). People with depression often experience more severe physical health, as well as their own health that are worse than those who are not depressed (Collingwood, 2016).

Basically, there are four classifications of things that influence physical health. These are lifestyle, human biology, environment and health services (“Physical health: Take Care of Your Body”, 2016). This discussion focus on lifestyle factor

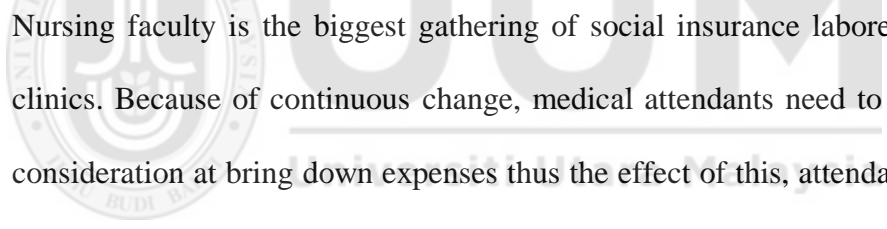
as it is the component of physical health that we have the most control over. According to Davison et al. (1992), healthy lifestyle means parts of conduct and wellbeing related prerequisites that include the components of individual activity at the individual level. In this component, emotional health is one of the elements that needs to be managed. The study by Watson et al. (1989) showed that psychosocial stressors adversely affect physical health. Meanwhile, the discovery of Costa et al. (1987) stated that many stress-health connections may be spuriously expanded on account of the basic impact of neuroticism at the point when both stress and physical health factors are measured through individual report.



Job stress is closely related to poor physical health (Jagdish, 1994). Based on the study by Kleber et al. (2003), ambulance workers are in danger of physical health side effects because of job stress. Primary hazard factors are related with social parts of the workplace, specifically the absence of help from the chief and partners; and poor correspondence. Monk (1990) found that The General Health Questionnaire distinguished the greater part of the crisis workers with these post-traumatic stress disorder (PTSD) manifestations as mental cases. The consequences of this examination additionally indicated an abnormal state of moderately changeless stressors that were incessantly present in the work circumstance. Illustrations were time pressure and shift schedule. It shows that stress had a strong impact on the physical health.

2.6 The Relationship between Shift Work and Physical Health

The nature of the job in the field of nursing demands round the clock cares for patients. Consequently, nurses may be at risk of decreased personal health and increased errors in patient care resulting from the cumulative stressful effects of shift work. Studies have documented that the effects of night shift work include decreased psychosocial and physiological health of the individual, as well as decreased job performance (Parikh et al., 2010). Physical health relates to the functioning of the physical body. Poor physical health brings an increased risk of depression, social and relationship problems and may potentially lead to mental illness, directly or indirectly (Mental Health Commission of NSW, 2016).



Nursing faculty is the biggest gathering of social insurance laborers utilized by clinics. Because of continuous change, medical attendants need to give amazing consideration at bring down expenses thus the effect of this, attendants have been impressive and broad. With less staff to tend to patients, the workload for attendants has fundamentally expanded. For the most part, feeling of anxiety increments when more patients must be taken care of in a similar number of hours and turnover is speedier than before (Aiken et al., 2002).

Farrington (1995) expressed that a nursing society in the 1990's normally epitomizes the ideas of stress and burnout in view of the predetermined number of medical attendants. These discoveries are likewise astounding in light of proceeding with reports of high pressure (Semmens, 2000), expanding weights in

medicinal services (Zellars, Hochwater, and Perrewew, 2000), issues of holding existing Registered Nurses (Ledgister, 2003a, 2003b), high rate of attendants work disappointment (Aiken et al., 2002a), and conjectures of future medical caretaker deficiencies (Keidel, 2002).

Occupational stress in the nursing field has shown that the consequences are not only to the workers, but also to the patients (Golubic, Milosevic, Knezevic, & Mustajbegovic, 2009). Nurses who work night shifts or rotating shifts are noted to have higher stress level than their co-workers who work in the daytime, ultimately subjecting them to an increased risk for compromised health and work ability (Fuller et al, 2010).

In order to ensure the nurses continuously provide good patient care, shift working system needs to be incorporated in the nurses' work schedule (Auerbach et al., 2007). Shift work is not a normal working condition for any workers. This situation could benefit and also harm any individual. As in the article written by Clarke et al. (2008), shift work allows people to work on flexible working hour where the working pattern is managed according to the organization system. The flexible working hour means the worker could change their shift with other workers based on consensual agreement if they have urgent matter. This means that these workers are not tied to the normal working hour since they have the leniency in changing their working hour. Other than taking a leave, a person could change their working hour with other people if they have any unexpected matter.

Therefore, most of the workers choose to work based on shifting system due to the flexibility of the working hour (Alexander, 2011).

As stated by Antunes et al. (2010), shift work has long been known as an occupational method that could harm the individual health. This has been agreed by Eberly and Feldman (2010) who stated that shift work disturbs the 24-hour biological rhythms and has been linked with many health disorders. In addition, there are also some proofs that show shift work in general does affect the workers by potentially risking them of acute and chronic health condition, both physically and mentally (Costa, 2003; Harrington, 2001).

2.7 The Relationship between Shift Work and Illness

Shift work is an atypical working hour that may involve long hours of working or unusual night schedule. For some people, this is described as an abnormal working hour since it opposes human biological clock and they assume this could lead to illnesses such as sleeping disturbance, anxiety, stress, obesity, cardiovascular disease, depression, diabetes, cognitive disease, breast cancer and hypertension (Knutsson, 2003).

This odd working hour could cause physiological problem due to the shift scheduling that leads to the disturbances in circadian rhythm which could affect the individual's performance and sleep patterns; increase accident rates as well as expose the individual to mental illness and cardiovascular risk. Besides that, it

also affects the reproductive health such as the disruption of menstrual cycle and individual issues such as sex activities, age and also personality. Therefore, shift workers must be able to cope with these harmful problems arising from their work scheduling in order to avoid any chronic disruption on mental, physical and social wellness (Harrington, 2016).

Costa (2010) gave the overview of the occupational health that is related to shift work. The study found the illnesses that are usually faced by shift workers are physiological and mental health which includes irritability, nervousness and anxiety among workers. The result also shows that the shift workers also suffer metabolic disorders including obesity, increased triglycerides, high cholesterol and high blood pressure. According to Davis et al. (2006), shift work also lead to disability to sleep and disturbance of circadian rhythm. It also found that night shift worker have a high probability to bear risk of cancer and women's reproductive dysfunction. At the end of study, the researcher classified shift work and health disorders as very complex and must be prevented and cured (Costa, 2010).

In other study by Knutsson (2003), it is mentioned that there are evidences that show the association between working at night or shift work with specific medical disorders. From the study it shows that, this working system could lead to gastrointestinal disease such as pain in bowel that is caused by constipation or diarrhoea. It may also cause cardiovascular disease, diabetes, metabolic disturbance, cancer and affect the pregnancy outcome. Related to it, these possible

diseases are said to have a link mechanism with circadian rhythm as shift workers usually have sleep disturbances.

2.7.1 Obesity

Kim et al. (2013) mentioned in their study that shift work has been hypothesized as one of the risk factors of obesity among female nurses in Korea. At the end of the study, the hypothesis is accepted; when the duration of shift work increases, the risk of weight gain also increase and later could lead to obesity or overweight in nurses in Korea.

In other study by Peplonska et al. (2015), it is suggested that shift work influence the weight gain among nurses and midwives as shown in the mounting epidemiological evidence. The findings of the study showed the positive relationship between night shift work and the development of obesity. Besides, it could also lead to another disease which is central adiposity. The longer the night shift work, the higher the influence it has on weight gaining and obesity.

In addition, Nigatu et al. (2014) in their study observed the relationship between work functioning; and being overweight or obesity. They carried out this study to analyse whether this relationship varies among the workers with different working time arrangement. The study found that overweight condition and obesity are not rare among the working population of shift workers. The result shows that there is a positive relationship between obesity and work functioning in shift workers but

not in on-call and day workers. However, there is no relationship found between being overweight and work functioning. Thus, it can be concluded that obesity may cause a drop in work functioning especially among the shift workers.

Moreover, study by Robinson (2013) shows that obesity is undeniably one of the dangerous health problems and has become an epidemic in the United States. Based on the study, it found that one of factor that mostly contributes to obesity rate is nurses who work on shift hour especially at night. Most nurses are not aware of the risk factors of obesity and the effect of working on night shift on obesity. The book *Night shift work linked to an increased risk of obesity* (2017) showed the correlation between night shift and obesity. It stated that those who works on night shift tend to be overweight compared to those who work day shift. It can be concluded that the gaining of weight is affected due to the change in lifestyle that include eating habits and exercise. Besides, it also causes disturbance of circadian rhythm and chronic fatigue that contribute to the weight gain among night shift workers (Robinson, 2013).

According to Eberly and Feldman (2010), their study aims to examine the hypothesis on how shift work leads to a major health problem, obesity. The study draws the same conclusion as previous researches which are; those who do shift work have higher possibility to gain weight compared to those who work on daytime hours. The exact cause cannot be determined but eating habits and exercise practices as well as disruption of circadian rhythm do contribute to this disease.

Lastly, McGlynn et al. (2015) also investigated the association between shift work and obesity. This study produced different results for every occupation type. One result shows that night and rotating work do cause sleep disturbances that lead to increase of weight. Another result found that shift work disturbs the circadian rhythm which affects the hormones, metabolism and environment that also lead to obesity. Despite the proven relationship, one sample showed that there is no association between both variables and it is said that shift work is not linked to obesity as it is caused by other occurrence such as workplace stress. Therefore, it can be concluded that the relationship between shift work and obesity is very complex because it could be depending on the vulnerability of the occupational and educational factors.

2.7.2 Cardiovascular Disease

A study by Hemamalini et al. (2013) is to examine whether prolonged duration of shift work could increase the risk factor of cardiovascular disorders. It also compares the results of this study with the day workers. The outcomes of the study show the body mass index (BMI) of the shift worker increasing after 3 years of working which differs from normal workers. When the body weight increases, the blood pressure may also increase hence leading to cardiovascular disease. The result shows that there is a significant relation between weight gain and cardiovascular disease.

This has also been agreed by Pimenta et al. (2011) who studied the relationship between shift work and cardiovascular risk among employees of public university. The study found that there is an independent positive association between these two variables. After multivariate adjustment, there were 67% of night shift worker of the public university who had cardiovascular risk compared to normal workers. Hence, it can be said that the night shift workers have higher potential of being exposed to the occurrence of cardiovascular disease.

Besides that, Bøggild (2000) realised that shift work has been interconnected with heart disease since a long time ago. In his study, he wanted to investigate whether shift work could be one of the major factors for ischemic heart disease (IHD). There are many known terms that are related to heart disease and IHD is one of the diseases that is included in the term of cardiovascular disease. The timing of eating is an intermediate factor that connects shift work to IHD. Therefore, it can be concluded that shift work could possibly lead to heart or cardiovascular diseases with the presence of intermediary aspect such as lifestyle factor.

Moreover, there is a study by Amit et al (2012) which has the same aim that is; to examine the relationship between the risk of cardiovascular diseases and shift work. Cardiovascular disease is one of the main public health problems that involve some occupational factors such as shift work schedule. There is a positive relationship between cardiovascular disease and shift work. This disease could be started when shift work leads to several illnesses such as hypertension, high BMI, high cholesterol, diabetes, high metabolic syndrome and finally cause

cardiovascular disease to shift workers if they do not prevent and cure the symptoms earlier (Esquirol et al., 2011).

Lastly, Mosendane et al. (2008) said that shift work scheduling is a norm in emergency services such as health and security institutions. It found that this schedule has also been applied to many organizations that need to operate more than 24 hours. Hence, the employees need to work on shift working arrangement. This situation encouraged the researcher to investigate the effect of shift work on health disease. However, this study is only focused on the connection between shift work and its effects on the cardiovascular system. According to previous researches that had been analysed by the researchers, those who work in shifts for more than six years are more at risk to develop cardiovascular disease compared to those who work in day time (Costa, 2010). This has been agreed by the researcher since shift workers experience the disruption of circadian rhythm, changing of lifestyle and psychosocial stress (James, 2017). Therefore, it is not abnormal if the shift workers develop cardiovascular disease at a very young age since the working time does affect a person's health (Price, 2011).

2.7.3 Sleep Disorders

According to Tucker et al. (2015), working time schedule is a crucial factor that influences one's health condition, fatigue and sleep. The parameter of working schedule that include the timing, duration and series of shifts as well as the off day are some of the factors that lead to sleep disturbances. In the study, they

stated that the working time is a barrier for the physician's sleeps and well-being. The relationship between the frequency of long shifts and frequency of short sleeps is caused by the work time control. The physicians who worked on night shifts for more than four times in a month are lack of work time control and had frequent short sleeps and experienced sleep disturbances. Therefore, the researchers concluded that work time does affect the health condition of the workers. Hence, physicians should optimize the balance between the flexibility of the schedule and their sleep when working at night to reduce the fatigue level in ensuring their patients are well cared for.

As many people know, shift work is related to many types of health effects and sleep disorder is one of the most common risks. Sleep disturbance is an illness that is related to the circadian rhythm and it has exact effect due to shift organization that consists of speed and direction of rotation scheduling. Those who work on shift system have the possibility to suffer acute symptoms such as sleep difficulty, shortened sleep and also sleepiness during working hour that could continuously occur even on the off day. Thus, the researcher concluded that the disturbances the worker suffer from are similar to clinical insomnia but not a very chronic case that could cause fatigue related accident and reduction of production (Åkerstedt, 2003).

2.8 Summary of Chapter 2

This chapter presents the empirical support shown by various authors in order to give detailed explanation to the readers regarding the effect on nurse's job satisfaction, physical health and illness due to shiftwork. Based on the previous published papers, it is shown that there is a relationship between shiftwork with job satisfaction, physical health and illness issues. Therefore, in this study the researcher has decided to evaluate the impact of shiftwork on the three dependent variable stated above among HTAR shift nurses in order to meet the objectives of this study.



CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter provides the details of the methods or procedures of the research that need to be carried out. It presents the systematic and theoretical analysis in gathering and analyzing the data. This chapter is one of the important factors in ensuring high reliability, validity and effective results. Thus, all procedures must be conducted properly in order to avoid any attainment of inaccurate, blurred information and invalid results.

This chapter describes and discusses the research method which includes research framework, hypotheses development, research design and operational definitions. Besides that, the measurement of variables, data collection method and procedure, research sampling and techniques of data analysis also is included in this study. All techniques must be done correctly and accordingly in order to achieve the objectives of this study.

3.2 Research Framework

This study focuses on examining the impact of the independent variable which is shift work with the dependent variables which are job satisfaction, physical health and illness. Thus, in analyzing the relationship between the dependent and independent variables, a research framework is developed as shown in Figure 3.1.

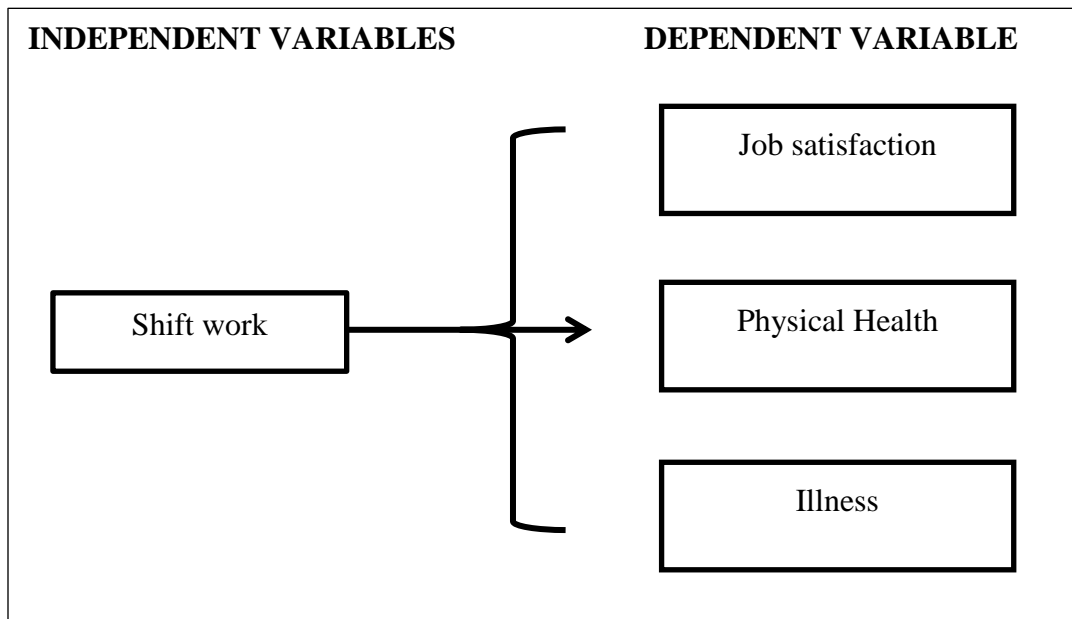


Figure 3.1: Research Framework

The independent variable of this study is shift work. The dependent variables in this study that causes the occurrence of the independent variable are job satisfaction, physical health and illness. Thus, analyzing these variables by checking the relationship between the independent variable and dependent variables, assist the researcher to fulfil the main objective of this study which is to identify the relationship between shift work; and job satisfaction, physical health as well as illness of shift workers. At the same time, this study assists the researcher to identify the common illnesses that are usually faced by shift nurses.

3.3 Hypotheses Development

The researcher has developed three hypotheses in order to achieve the objectives of the study. This study aims to determine the relationship between shift work and

job satisfaction, physical health and illness of shift workers and also to identify the common illness that are usually faced by shift nurses. However, this objective could be achieved by ensuring that there is an association between the job satisfaction, physical health, illness and shift work. The hypotheses that have been developed for the purpose of this study are listed as following:

H1: There is a positive relationship between shift work and physical health among nurses in HTAR, Klang.

H2: There is a positive relationship between shift work and job satisfaction among nurses in HTAR, Klang.

H3: There is a positive relationship between shift work and illness among nurses in HTAR, Klang.

3.4 Research Design

The research design is the overall plan that has been chosen by the researcher to integrate the different components of the study. This is important because it is described as the framework of the research in order to obtain information. It also guides researchers in the process of data collection, analyzing and making interpretation from the results of the research that had been carried out. Research design is a model that enables researchers to make inferences regarding the variables studied (Creswell, 2013). In this study, the researcher only uses quantitative method. The questionnaire is used as the means of data collection. By using questionnaires, it is more effective than other methods and the parallel-test

method is conducted to obtain information from respondents (Joshi, 2015). In Figure 3.2, the flow of the components in the research design is presented. Further details of each component are discussed in each subtopic respectively.

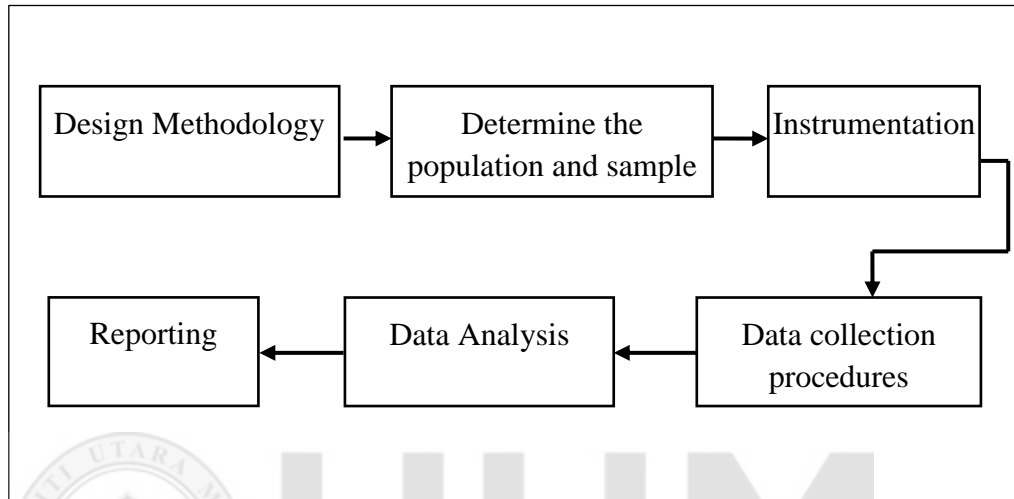


Figure 3.2: Flow of Research Design

3.5 Operational Definition

The important terms that used in this research are as following:

i. Shift Work:

Shift work is work that takes place on a schedule outside the traditional working hour. It can involve evening or night shift, early morning shift, and rotating shifts (Muecke, 2005).

ii. Job Satisfaction:

Adams and Bond (2000) define job satisfaction as a degree of the affective reaction to a job that results from the comparison of perceived positive or negative outcomes towards a job or its components.

iii. Physical Health:

Physical health relates to the functioning of the physical body. Poor physical health brings an increased risk of depression, as do the social and relationship problems and can also lead to mental illness, directly or indirectly (Mental Health Commission of NSW, 2016).

iv. Illness:

Illness is defined as poor health that results in sickness or diseases which affect our body or mind (Cambridge, 2016).

v. Nurse:

A person trained to care for the sick or infirm person especially in a hospital (Bastable, 2003).

3.6 Sampling

In this study, the sampling technique used is the purposive sampling method. This method is also known as judgement, selective or subjective sampling. It is one of the sampling types that involve non-probability technique. The sample of this

study is chosen by the researcher based on who are appropriate for this study. This technique is mostly used when there are a limited number of respondents that are specializing in the particular expertise being researched. The advantage of this technique is that it is easy to make the generalization about the sample, however it could also lead to biasness of the study. Therefore, in order to avoid this bias, a larger number of respondents are taken as sample of this study to provide a confident outcome for this research.

The researcher has selected the staff nurse of HTAR from different departments who are involved with shift work system as the subject sample for this study. The selections of samples are done based on the basis of convenience of the staffs and their availability. It is known that most staff nurses work according to shift working hour system in order to provide good patient care. Hence, the problem that arises is whether shift work affects the nurses' job satisfaction and physical health. Therefore, this is the main reason why this study is chosen to be conducted by the researcher.

The population target for this research is 1,000 staff nurse of HTAR. Based on Krejcie and Morgan (1970), the number of sample size is 278 shift workers ranging from 24 to 47 years and above, male and female are involved in this questionnaire as the representatives for all shift workers in HTAR to achieve the objectives of this study. The number of respondents is large in order to obtain confident, valid and accurate data. The larger sample data could improve the

power of statistical in the study. This questionnaire is posted or sent by hand to the respondents and the expected responses for this study are very encouraged.

3.7 Instrumentation

In this study, the researcher uses questionnaire as method of data collection. The questionnaire that is used in this study contains close-ended questions where the respondents only answer based on the limited stated alternatives and no personal judgement and opinion is required. This is to make both parties' job easier where the respondents only need to choose the appropriate answer from the listed choices and the researcher can easily analyze and interpret the results.

The questionnaire for this study considers the two variables which are independent and dependent variable. Thus, in order to produce significant findings of these variables, there are some aspects and areas that need to be considered as the instruments of the questionnaire. The questionnaire for this study is not newly constructed as it is replicated from the previous studies which have been carried out by a former researcher as stated in Table 3.1 but some modification has been done by the researcher in order to achieve the objectives of the study.

Table 3.1
Description of research instruments

No	Description	Total Questions	Source
1	Demographic details	9	-
2	Job Satisfaction	5	Nelson (2013)
3	Shift Work	5	Peacock (2008)
4	Physical Health	5	Alsaqri (2014)
5	Illness	5	Teixeira & Mantovani (2009)

Based on table above, we can see that the research instrument is developed based on the various research sources. This questionnaire is distributed to the staff nurse of HTAR in order to gather the necessary information for this study.

3.8 Data Collection Procedures

The first step in data collection procedures is to build a questionnaire based on the literature review. The questionnaire is held strictly confidential. To obtain the cooperation from the staff nurse of HTAR, the researcher brings along the official letter from Universiti Utara Malaysia (UUM) that allows the researcher to carry out the survey among HTAR staff nurse and also explains the purpose of the questionnaire. There are about 278 questionnaires that are distributed among the HTAR staff nurse and the researcher is responsible to guide the respondents in answering the questionnaires. The larger the total number of respondents, the more reliable and valid data is obtained. Therefore, at the end of the study the researcher hopes that through the questionnaire, the impact of shift work on the

nurses' job satisfaction, physical health and illness could be revealed and answered.

The distribution of the questionnaire takes at least a month starting from the spreading until the collection process. The mode of answering the questionnaire is decided by the respondents themselves depending on their preference and ease of accessibility. The time that is taken by the respondents to answer the questionnaire is very reasonable which should be less than five minutes.

In this study, the researcher uses Likert Scale for the measurement of variables. The response options were on a 6 point Likert Scale ranging from Strongly Disagree to Strongly Agree.

3.9 Technique of Data Analysis

Data analysis is the process of evaluating data into useful information that can be used for decision making and suggesting a conclusion. This study uses Statistical Package for the Social Science (SPSS) as the software to evaluate the data. In SPSS, the number of instructions is emphasized to represent each variable. According to Neuman (2016), one indicator is not sufficient to represent a variable. Kline (2011) has made an enlightenment that every variable must have at least three (3) instructions and it can represent one variable if it has the power to explain the variables compared to a lot of the instructions but could not explain clearly what it represents.

3.9.1 Reliability Analysis

Reliability of the instrument is tested to determine the level of internal consistency of the studied variables (Hair et al., 2010). Three key indicators analysis used to determine the internal consistency of variables are; alpha value of standardized (Standardised Alpha), the alpha Cronbach if the item is deleted (Cronbach's Alpha if Item Deleted), and the item-total correlations corrected (corrected item-total correlation) (Hair et al., 2010). In this study, the figure is measured using Cronbach's Alpha. According to Nunnaly (1994) in social science research, the Cronbach's Alpha of 0.7 or greater is acceptable.

3.9.2 Descriptive Analysis

Specifically, the descriptive analysis in the statistics which basically include standard deviation, range, skewness and kurtosis process were used by the researcher to describe the background of the respondents. When the information gathering process is finished in HTAR Klang, initial tests is directed by the researcher to decide the reaction rate, inter-rater agreement, validity and the reliability of the study develop. The reaction rate of this examination is registered by computing the recurrence and rate that are gotten from the input of the respondents and it will later be contrasted with the research sample size, keeping in mind the end goal to do estimation before the genuine information gathering is directed. The principle point of the analyst is to decide the qualities of the exploration test by utilizing the investigation of enlightening insights to be

specific to comprehend the gathered information as far as; mean, middle, standard deviation, frequencies, and rates.

3.9.3 Correlation Analysis

Correlation analysis is used to explain the strength and direction of the actual relationship between the measured variables. There are four research variables in this study. The correlational analysis attempts to examine and justify the relationship between the dependent and the independent variables. This is to determine and identify from this research whether some relationships among all the four variables (independent and dependent variables) exist. According to Sekaran et al., (2013) and Hair et al., (2013), normally, correlation analysis is a good analysis to be used in evaluating relationship based study, for example to examine the nature direction and significance of bivariate relationship between the proposed variable used in this research.

CHAPTER 4

RESEARCH FINDINGS

4.1 Introduction

This chapter provides the findings of the study from the data that have been analyzed by using Statistical Package for Social Science (SPSS) version 21 in order to meet the objectives of the study. The data were tested using correlation analysis, descriptive analysis, and reliability analysis.

4.2 Response Rate

This study evaluates the data based on the questionnaires that have been distributed among 278 respondents as sample of the study, who were nurses from Hospital Tengku Ampuan Rahimah (HTAR), Klang, Selangor. A brief clarification on the objectives of the study was given to the respondents. They were also informed that the details obtained from them not be disclosed and are kept private and confidential by the researcher since the information is only for the study purposes. All respondents were given enough time to complete the questionnaires although they need to answer it directly since the completed questionnaire is collected immediately by the researcher. All in all, it can be stated that the response rate is 100% since zero unreturned and incomplete answered has been recorded.

4.3 Respondents Profile

The respondents were randomly selected among the nurses from different departments of HTAR, Klang, Selangor and they also have a variety of traits that differ them from each other. The profile of the respondents is described below:

Table 4.1
The Respondent's Profile

Criteria		Frequency	Percentage (%)
Gender	Male	10	4
	Female	268	96
Age	18-27	92	33
	28-37	140	50
	38-47	38	14
	47 and above	8	3
Race	Malay	214	77
	Chinese	32	12
	Indian	16	6
	Others (Kadazan, Bajau, Dusun)	16	6
Working position	Staff nurse / Clinician	251	90
	Student / Researcher	22	8
	Others (Community nurse)	5	2
	Nurse administrator / Manager	0	0
	Nurse practitioner / Anesthetist	0	0
	Clinical nurse specialist	0	0
Experience	Less than 1 year	58	21
	1-5 years	154	55
	More than 6 years	66	24

Table 4.1 (Continued)

Criteria		Frequency	Percentage (%)
Education level	STPM	164	59
	Others (Diploma)	52	19
	SPM	51	18
	Degree	11	4
	Master	0	0
Health disorders	Hypertension	7	3
	Stroke	0	0
	Obesity	26	9
	Infertility	3	1
	Anxiety	11	4
	Depression	1	0
	Chronic headaches	21	8
	Others	12	4
	NA	197	71
Shift duration	8 hours	204	73
	10 hours	68	24
	12 hours	6	2
Shift mode	Day	30	11
	Evening	1	0
	Night	3	1
	Rotating	244	88

Based on Table 4.1, it is shown that the questionnaires have been answered by a majority of female respondents which is 96% or 268 out of 278 respondents and only the remaining 4% or 10 respondents were male nurses. Thus, it indicates that the result of this study is mostly describing the female respondents' background.

The most number of respondents which is 50% of the total respondents are those between 28 to 37 years old. This is followed by those at the age of 18 to 27 years old with 33%, 14% of 38 to 47 years old respondents and the least number are those who are 47 years old and above who constitutes only 3% which is about 8 respondents.

This survey has been answered by 77% Malay respondents, followed by Chinese which is 12% and an equal percentage of 6% for Indians and other races which are mostly from Sabah's tribes.

In terms of working position, this survey has been responded by a majority of 251 staff nurse or clinician which constituted 90% of the respondents. This survey has also been responded by 8% of students or researcher and the remaining 2% are those with other positions which are community nurses.

Out of 278 respondents, 154 of them or 55% from the total respondents has been working at HTAR for around one to five years, while only 24% has contributed to the hospital for more than six years and about 21% or 58 respondents have been working for less than a year.

The largest respondent groups which consist of 164 nurses (59%) from total respondents are those with secondary qualification, Sijil Tinggi Pelajaran Malaysia (STPM). This is followed by respondents with other qualifications such

as Diploma at 19%, Sijil Pelajaran Malaysia (SPM) at 18% and last but not least is degree holder with 4% or 11 respondents. Thus, it indicates that the highest numbers of the respondents are those with secondary qualification which are either STPM or SPM.

The study on health disorders found that most of the respondents which is 71% does not face any health issues, while the remaining 9% are facing obesity, chronic headaches (8%) anxiety and other diseases which are asthma, gastritis and osteoarthritis at 4%. There are only a small group of respondents who are facing hypertension issues which is about 7 (3%) of the respondents and the remaining 1% has infertility problem.

Majority of the respondents, 204 respondents (73%) need to work eight hours per day which is in line with the labour law but some of them which is about 24% need to work at least 10 hours per day and only 6 respondents or 2% of them need to work as long as 12 hours per day.

The long working period is because they are involved in the shift working system where 244 respondents or 88% of them are involved with rotating mode, while 11% of the nurses are involved in day shift and a small percentage of 1% work night shift.

4.4 Reliability Analysis

Table 4.2
Cronbach's Alpha Value

Variables	Cronbach's Alpha Value
Shift work	0.949
Job satisfaction	0.932
Physical health	0.862
Illness	0.962

In Table 4.2 above, it shows the reliability analysis of the independent variables; shift work with the dependent variables; job satisfaction, physical health condition and illness which has been done via the Cronbach's Alpha method in order to determine the internal consistency of the variables. The reliability or Cronbach's Alpha value must range from 0.7 to 1 so that the variable is reliable for the study. If the reliability is lower than the acceptable value, it might be considered to be corrected and have the possibility to be removed from the study. The Cronbach's Alpha value for this study has been assigned to each variable where the value for shift work is 0.949, job satisfaction is 0.932, physical health is 0.862 and illness is 0.962. Since the Cronbach's Alpha value for all variables are approaching 1, so it indicates that the scales have high level of internal consistency among each of the variable.

4.5 Descriptive Analysis

Descriptive analysis is one of the approaches to summarize and describe data so that meaningful information are able to be provided for further measures. In this study, it shows that the Likert scale has been scaled at minimum around 1 to 2 and the maximum is 6. The physical health condition has the highest mean which is 4.435 and shift work has the lowest mean; 3.255. In term of standard deviation, the highest is shift work and the lowest is job satisfaction which are 1.870 and 1.136 respectively. A higher standard deviation value indicates greater spread in the data. This can be seen as displayed in the following table.

Table 4.3
Descriptive Analysis of the Variables

Variables	Minimum	Maximum	Mean	Std. Deviation
Shift work	1.00	6.00	3.255	1.870
Job satisfaction	2.00	6.00	3.500	1.136
Physical health	1.00	6.00	4.435	1.214
Illness	1.00	6.00	3.860	1.647

Frequencies of variables, N=278

4.6 Pearson Correlation Analysis

The Pearson Correlation Analysis is to show the relationship between one variable with another variable so that the variable is related among each other. It is also used to measure the strength of association between the variables. This analysis is being choose as it is good to be used in evaluate the relationship based study. The Pearson correlation which is also known as the R- value must be ranged between -1 to 1. The closer it is to 1 is better since it means that it displayed the perfect linear relationship between the variables.

Table 4.4
Pearson Correlation Analysis

Variables	Shift work	Job satisfaction	Physical health	Illness
Shift work	1			
Job satisfaction	0.952	1		
Physical health	0.816	0.815	1	
Illness	0.948	0.898	0.895	1

** Correlation is significant at 0.01 level with 1-tailed*

Based on the table above, the relationship between shift work and job satisfaction has the highest R-value at 0.952. This is followed by the relationship between shift work and illness at 0.948. Meanwhile, the relationship between physical health and shift work has the lowest R-value at 0.816. All correlation between the variables shows a positive R-value. This indicates a positive relationship. The

correlation among the four variables which are shift work, job satisfaction, physical health condition and illness is significant at 0.01 levels. Thus, it indicates that all variables have strong positive relationship to each other since the r value is within zero to one and more than 0.7. Hence, these variables are statistically significant since all p is equal to 0 which is less than 0.05, so the variables could be considered to be included in this study. Table 4.5 presents summary of hypotheses result.

Table 4.5
Hypotheses Results

Hypotheses	Result
<i>H1:</i> There is a positive relationship between shift work and physical health among nurses in HTAR, Klang.	Supported
<i>H2:</i> There is a positive relationship between shift work and job satisfaction among nurses in HTAR, Klang.	Supported
<i>H3:</i> There is a positive relationship between shift work and illness among nurses in HTAR, Klang.	Supported

4.7 Identification of Common Illness Analysis

By gathering the responses from 278 respondents at HTAR, the most common illnesses that are suffered by the nurses are shown as per below:

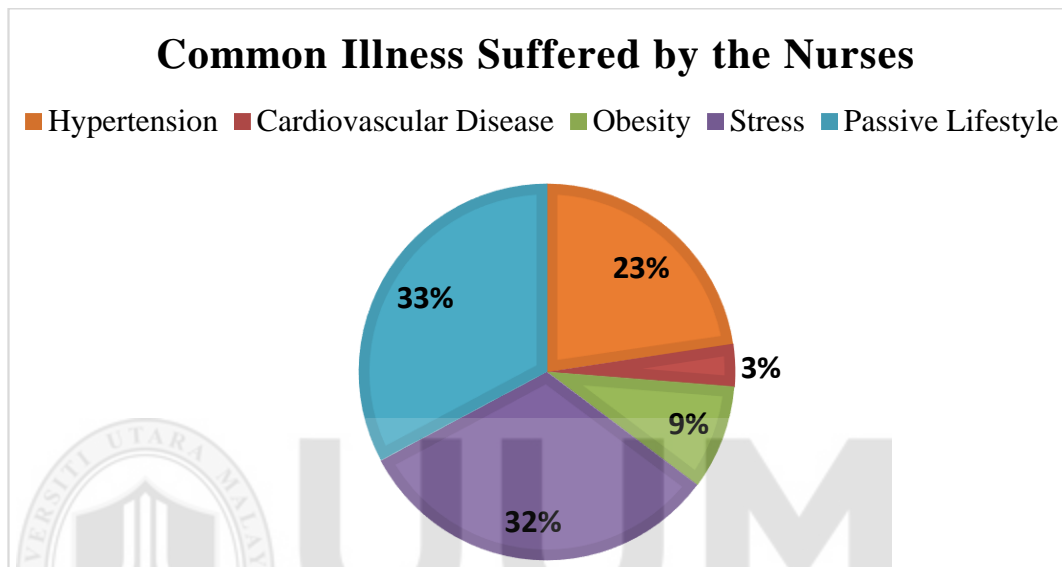


Figure 4.1: Pie Chart of Common Illness Suffered by the Nurses

By referring to the chart above, it shows that passive lifestyle has the highest percentage at 33%. Most of the respondents have passive lifestyle since their working schedule involves day and night. Hence, the biological clock might be affected and active lifestyle cannot be practiced. This working pattern could also lead them to feeling stressed and hypertension as represented by 32% and 23% respectively in the chart. However, shift work does not directly affect people to become obese since it only contributes about 9% and it also does not cause cardiovascular disease since there are only 3% of the respondents who are facing this problem. Therefore, it can be concluded that the most common illness or disease that is faced by the nurses is passive lifestyle.

CHAPTER 5

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Introduction

This chapter discusses the results from the evaluation of the influence of three variables; job satisfaction, physical health condition and illness on shift work that has been experienced by the nurses at Hospital Tengku Ampuan Rahimah (HTAR), Klang. Besides that, it also explains the implication and the limitations of the study. At the end of this chapter, the conclusion and recommendation are made and highlighted so that it could be taken as future measures and reference.

5.2 Discussions

This study mainly focused on investigating the impact of shift work on physical health, job satisfaction and illness. Next, the discussion on the results of the hypothesis of this study will explain more based on theories and previous empirical evidence.

5.2.1 Shift Work with Physical Health

In this study, it has been hypothesized that there are positive relationships between physical health and shift work. Physical, mental and social health is listed among the sources that can contribute to a person's ability to work (Golubic et al., 2009). Based on this study, this physical health is more focused on the effects of poor physical health will lead to an increased risk of one's depression. According to the Center for Disease Control (CDC), 25% of American employees

view their job as the number one stressor in their life (National Institute for Occupational Safety and Health, 2017). As a result of working these unusual hours, shift workers experience significantly higher working pressure and depression that relate to their physical health than their coworkers on day shifts (Srivastava, 2010).

Based on the analysis done, it shows that the hypotheses are supported since it shows the positive and stronger correlation. The nurses' working environment that need them to deal with patients consisting of different kind of people and the mode of the working time is abnormal from others causes disruption on their physical health. They are more likely to experience mental and physical fatigue. This factor also can cause their work performance to decrease and lost concentration while working. In the shift system mode the sleep pattern of an individual will also affected. Monk (1990) stated that less sleep period is linked to an increase in errors accident in shift workers. Findings from Li et al., (2016) shows that shift work have a positive effect to a physical health in term of depression and commits suicide. It has been reported that 70% of shift workers agreed that this shift working system can lead to depression. Management need to play a big role to ensure that their employee is fit to work and have high level of physical and mental health. They need to relook at the working rotation system and see if the system is effective or not. For example, when the shift work system takes place, the nurses are allowed to have an appropriate rest period. The rotation system should also be fair and run transparently. Furthermore, in order to avoid

this critical situation, nurses should know how to manage their timetable properly so they can avoid the occurrence of stress and hypertension. This can be done by involving outdoor and indoor activities in order to avoid a passive way of life. Those who fail to manage their schedule well will feel stressed of their work.

5.2.2 Shift Work with Job Satisfaction

This study revealed that shift work has the positive relationships job satisfaction on. In the previous empirical study shows that nurses who have chosen to be work in the rotating shift work demonstrate much higher job satisfaction than those who are forced to work on shifts (Moradi et al., 2014). According to Jaradat et al. (2017) shift nurses reveal more mental misery and lower job satisfaction, despite the fact that this combination is weaker when balanced for potential covariates. He also concluded that there is no authentication of gender differences in the relationship between shift work and mental problems and job satisfaction. Morgan and Lynn (2009) stated that nurses potentially have high rewards in intrinsic and relationship dimensions. Intrinsic work, values and identity could play an important role in determining work satisfaction and subsequent commitment.

Management plays an important role in ensuring employee satisfaction to ensure that it has a positive impact on the company. The failure of a company is when it fails to ensure the satisfaction of their employees in terms of work environment, salary, benefit, level of work load and others. There are a lot of factors that lead to

the nurse job satisfaction. Nurse's experience and educational background are identified as an important role in job satisfaction of registered nurses (Zurmehly, 2008). When we are happy with our work, it is a measure of the level of satisfaction with our work. Positive engagement is the extent to which individuals feel happy across time and situations, while the negative impact refers to the extent to which individuals are exposed to suffer discomfort from time to time (Seo et al. 2004).

5.2.3 Shift Work with Illness

Based on the Hypothesis Testing, it shows that hypothesis three (H3), shift work has the positive relationships on illness. Result from the analysis shows that there is a positive relationship between shift work and illness among nurses in HTAR, Klang. The shift system is a work arrangement that provides an opportunity to benefit the available time for the work operations. In other context, shift work also means as the transition of duties from one to another worker after certain period of time in order to ensure the operation activities is still on going. The shift schedule must be reviewed carefully by considering the needs of worker and workload in order to maintain the quality of work. Besides that, the schedule also must be planned systemically so that there is no occurrence of overlapping. The shifting schedule is taken seriously because shift work could affect any individual to face any risk and danger that relate to health issues.

The studies by Gold et al. (1992) found that the nurse sleep disruption is due to their rotating shift work. They also found that rotating shift work was disturbing nurse working pattern and will lead to common accidents. In similar Schernhammer et al. (2003) found that night shift work that done by nurses will lead to the risk of colorectal cancer among the nurses. They concluded that it will occur if rotating night shift at least three nights per month for 15 or more years may increase the risk of colorectal cancer in women. Moreover, research by Ohida et al. (2001) identifies the night-shift work related to the health problems in young female nurses in Japan. The finding of their study reveals that inappropriate sleep quality and daytime drowsiness makes the nurse lead to experience sleep disorders among Japanese nurses which harm their health. In similar, Knutsson (2003) also support that shift work can be associated with specific pathological disorders through disruption of circadian rhythms which cause peptic ulcer disease, coronary heart disease and compromised pregnancy outcome.

5.3 Implications

This study was done to determine the effect of shift work on job satisfaction, physical health and illness in the health sector which is among the nurses at HTAR. Previously, there were many similar studies that had been carried out in order to prove that these variables are affected by the shift working system. Therefore, this study was extended to the general hospital in Malaysia in order to measure the impact of shift work towards physical health, job satisfaction and illness. Theoretically, by conducting this study on 278 respondents, significant

findings could be obtained so that it would be beneficial academically. Therefore, it would help the researcher to improve the study on shift work in the health sector. This study contributes to the current understanding of the relationship between the shift work with physical health conditions, job satisfaction and illness. This will help the employer manage the work schedule and execute it effectively. There are numerous similar studies conducted in various industries such as factories, military, security, customer service call centers as well as government sectors. Therefore, this study has been extended to the healthcare sector to measure the impact of shift work towards physical health, job satisfaction and illness. In addition, this study is conducted among local nurses at the Malaysian Government Hospital where it creates a new determination for local or Asian researchers to obtain the baseline data for this type of study. This study also provides the basis for further research for all public hospitals and private hospitals in Malaysia. Theoretically, the findings of this study shows that hospital management need to emphasize on how to ensure the level of satisfaction of work is at an optimal level and ensure that this shift working schedule will not affect their health.

Practically, shift work show significant relationships with job satisfaction, physical health and illness. Although the nurses are working based on shift working system, they are fine with the schedule rotation since their team gives good commitment and tolerates each other. Therefore, having this kind of team encourage them to work passionately and give their best service.

However, without a good time management, it affects their physical health condition and leads them to illness. Shift work could affect their physical and emotional state since it could lead them to be unhappy, depressed, strained and to lose focus on their work. If these conditions are not managed well, it possibly leads them to getting illnesses or diseases such as hypertension, cardiovascular disease, obesity, stress and passive lifestyle. Therefore, they should have a proper routine and get involved in indoor and outdoor activities. so they can have a happy and healthy lifestyle.

Shift work could impact the nurses' biological work and affect their quality time with family as well as themselves. This could happen if they have no flexibility to modify the schedule. This restriction could cause them to be unhappy with their working environment. Therefore, a good team could direct them to a decent career development and indirectly head them to practice a good lifestyle.

5.4 Limitations and Suggestion for Future Research

There were few limitations that were faced by the researcher during the data collection process. The first limitation of this study is use of cross sectional research design. The main constraints of the cross-sectional design is due to exposure and the results are assessed simultaneously (Carlson et al., 2009). Moreover, cross sectional examinations are exploratory instruments used to capture data based on information posted for a given point in time. The disadvantage also is that the cross-section study does not help to identify the causes and effects. Therefore, to overcome this limitation, researcher could

consider using the longitudinal research to build up a genuine circumstance and end results relationship. In the future also, the researcher should consider to provide the bilingual questions to expedite the process of answering the questionnaires in order to reduce time consumption.

Besides that, the questionnaires prepared are limited for only 278 respondents from various departments. For future undertakings, the researcher could consider to increase the number of respondents so that the findings are more significant to the study. The researcher could also consider focusing only on certain departments especially the critical departments. Hence, the findings are more specified on certain areas and more distinctive from previous studies which are mostly done on an entire hospital without any specifications of department.

Therefore, it can be said that this study is applicable to be used in other study that involves shift working hour so that every individual could attain good physiological and physical health. In order to make this study more meaningful, it can also be extended by measuring more variables and determining more potential illnesses that could be suffered by these workers. A healthy lifestyle does not only mean a healthy body but it also involves physiological health. Due to this, the study a reference to remind them to take care of their health and take the preventive measures in order to gain job satisfaction as well as maintain their physical health to avoid critical illnesses that could harm themselves. So, this study should be considered for future measures since it proves the relationship

between shift work with physical health, job satisfaction and illnesses. By having this study as reference, people take steps by learning to manage their working schedule properly in order to lead a healthy lifestyle which can benefit them now and in the future.

5.5 Conclusions

The result of this study explained the validity and reliability of the four variables which are; shift work, physical health, job satisfaction and illness among the nurses at HTAR. These variables have been tested and they are significant to each other, so they are used in this study. The independent variables that were studied on is shift work while the dependent variables are physical health, job satisfaction and illness. Based on the study, independent variable is significant to the dependent variables. Besides that, the validity of the model has also been verified. Therefore, it can be concluded that shift work could affect the individual in terms of their job satisfaction, physical health and the possibility to lead to illness. Nevertheless, with effective management involvement in handling issues that may have an impact on physical health, job satisfaction and illness is indispensable. Nurses in particular also need to be more systematic and organized in plan their work schedule to make sure they are not affected by this shift work system. By having this kind of findings, it is believed that this study could provide beneficial information to any significant parties. In addition, it could also be a reference for those who are involved in shift work to learn on managing their working schedule properly so that they are able to achieve their career goal as well as their life goal.

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Appendix A: Questionnaire

Dear participants,

As part of my research project paper at the Universiti Utara Malaysia, I am conducting a questionnaire that investigates “The Impact of Shiftwork on the Job Satisfaction and Physical Health of Nurses in HTAR, Klang”. I would be grateful if you could spend some time to fill up this short and simple questionnaire. The findings of this questionnaire will only be used for academic purposes and will be kept strictly confidential. This questionnaire will be collected once you have completed it.

Thank you for your time and cooperation.

Section 1: Demographic Questions

Please tick (✓) the appropriate responses for all questions.

1) What is your gender?

Male Female

2) What is your age?

18 - 27 28 - 37 38- 47 47 and above

3) Race:

Malay Chinese Indian Others: _____
(Please specify)

4) What position do you hold?

Staff nurse/ Clinician Nurse Practitioner/ Anesthetist
 Nurse Administrator/ Manager Clinical Nurse Specialist
 Student/ Researcher Others: _____
(Please specify)

5) Working Experience:

Less than 1 year 1-5 years More Than 6 years

6) Education Level:

SPM STPM Degree Master Others: _____
(Please specify)

7) Do you have any of the following health disorders?

Hypertension Stroke Obesity Infertility Anxiety
 Depression Chronic Headaches Others: _____
(Please specify)

8) How long is the shift you usually work?

8 hours 10 hours 12 hours

9) Which shift do you usually work?

Day Evening Night Rotating

Section 2: Shift Work

These statements are to find out your feelings about shift work.
Please tick (✓) only the appropriate responses.

Key:

1. Strongly Disagree 2. Disagree 3. Slightly Disagree 4. Slightly Agree 5. Agree 6. Strongly Agree

CODE	QUESTIONS	1	2	3	4	5	6
SW 1	I can modify my work schedule/shift at any time I prefer						
SW 2	I have difficulties to fall asleep after working on a night shift						
SW 3	The shift system had interfere with my leisure time with family						
SW 4	While working the night shifts, I feel as energetic as working the day shifts						
SW 5	I am happy with the existing shift work system						

Section 3: Nurse Job Satisfaction

These statements are to discover your job satisfaction during your shift work.
Please tick (✓) only the appropriate responses.

Key:

1. Strongly Disagree 2. Disagree 3. Slightly Disagree 4. Slightly Agree 5. Agree 6. Strongly Agree

CODE	QUESTIONS	1	2	3	4	5	6
JS 1	I am satisfied with how nurses in my unit/department work well as a team						
JS 2	I am satisfied with my current level of workload						
JS 3	I am satisfied with the types of activities I do at work						
JS 4	I am satisfied with the shift rotation I am assigned to						
JS 5	I am satisfied with the job I did at the end of the day						

Section 4: Physical Health

These statements are to find out your physical health condition due to shift work. Please tick (✓) only the appropriate responses.

Key:

1. Strongly Disagree 2. Disagree 3. Slightly Disagree 4. Slightly Agree 5. Agree 6. Strongly Agree

CODE	QUESTIONS	1	2	3	4	5	6
PH 1	I feel emotionally drained by my work						
PH 2	Working with people all day is really a strain for me						
PH 3	I am losing my concentration because of work						
PH 4	I am worried that this job is exhausting me physical and emotionally						
PH 5	I feel unhappy and depressed about my work						

Section 5: Illness

These statements are to identify if you are facing any illnesses due to shift work. Please tick (✓) only the appropriate responses.

Key:

1. Strongly Disagree 2. Disagree 3. Slightly Disagree 4. Slightly Agree 5. Agree 6. Strongly Agree

CODE	QUESTIONS	1	2	3	4	5	6
I 1	I suffer from hypertension due to shift work						
I 2	I suffer from cardiovascular illness after working rotating shift						
I 3	I suffer from obesity from frequently working the night shift						
I 4	I suffer from stress when working day and night shift						
I 5	I am having a passive lifestyle due to shift work						

<THANK YOU>