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The Impact of Working at Night on Employee's Health: A Case Study for It Company in Cyberjaya

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Abstract

Working at night has been an associate IT worker in Malaysia. The work at night negatively impacts the people who might ignore it from the long-term perspective. This study investigates the association between working at night with medical leave (health condition) among workers. The study also to gain the relationship between the Al-Quran on working at day and get rest at night.

Keywords: Work at night, health conditions, increase of medical leave, health quality

Introduction

The study is based on one (1) year of observation (Jan 2021 – Dec 2021) on an IT Company in Cyberjaya. The observation on a natural setting where all the staff can keep their task or function as standard practice without any interference. For IT companies, the worker's tendency is related to system development to work at night. The favourite reason to work at night is to reduce the distractions and need for concentration (Rebecca Poster, W, 2007). The staff are allowed to work at night at their convenience. The study will concentrate on the team developing a system for one of the Government Agencies. The project started from January 2021 to December 2022.

There are surveys that Malaysian employees are overworked and less sleep (New Straits Times, 2019) and revealed by Malaysia's Healthiest Workplace by AIA Vitality 2019 show that long hours using computers contribute to long working hours and sleep deprivation. Work at night or shift, defined as a working hour, differs from the traditional work period (Costa, 2003). Published by Trade Union Congress, the number of people working at night has increased by 51,000 (5%) since 2013 to reach more than 3 million (3,138,000) (Trades Union Congress, 2018).

By the end of the study, the association between work at night with Medical Leave (MC) leads to health issues that were recited in the Al Quran and proved by the medical findings.

Literature Review

The literature is divided into three (3) categories: Islamic and traditional or classical literature and System Development Lifecycle. The Islamic literature is from Verse in Al-Quran. There are many verses in Al-Quran. All the Islamic literature is towards work at day and getting rest at night. Below is part of the references:

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And it is He who takes your souls by night and knows what you have committed by day. Then He revives you therein that a specified term may be fulfilled. Then to Him will be your return; then He will inform you about what you used to do. (Al-Quran - Al-An'aam 6:60).

[He is] the cleaver of daybreak and has made the night for rest and the sun and moon for calculation. That is the determination of the Exalted in Might, the Knowing. (Al-Quran - Al-An'aam 6:96)

He it is That hath made you the night that ye may rest therein, and the day to make things visible (to you). Verily in this are signs for those who listen (to His Message). (Al-Quran - Yunus 10:67)

We have made the Night and the Day as two (of Our) Signs: the Sign of the Night have We obscured, while the Sign of the Day We have made to enlighten you; that ye may seek bounty from your Lord, and that ye may know the number and count of the years: all things have We explained in detail. (Al-Quran - Al-Israa' 17:12)

And it is He who has made the night for you as clothing and sleep [a means for] rest and has made the day a resurrection. (Al-Quran - Al-Furqaan 25:47)

See they not that We have made the Night for them to rest in and the Day to give them light? Verily in this are Signs for any people that believe! (Al-Quran - An-Naml 27:86)

And out of His mercy He made for you the night and the day that you may rest therein and [by day] seek from His bounty and [that] perhaps you will be grateful. (Al-Quran - Al-Qasas 28:73)

And made your sleep [a means for] rest. And made the night as clothing. And made the day for livelihood (Al-Quran - An-Naba' 78:9 - 11)

According to Queensland Health (Queensland Health - Queensland Government, 2018) news seven (7) things will happen while a human is sleeping :

i. Brain sorts and processes the day's information and consolidates it as long-term memories.
ii. Hormones released – the number of hormones such as melatonin to control sleeping pattern while the pituitary gland releases growth hormone, which helps the body grow and repair itself.
iii. The sympathetic nervous system relax – and helps in reducing blood pressure and coronary disease.
iv. Cortisol levels lower - helps feel perky when waking up and switches on appetite.
v. Muscles paralyse/relax - While asleep, cycle through periods of non-rapid eye movement sleep (NREM) and rapid eye movement sleep (REM)
vi. Anti-Diuretic Hormone (ADH) - circadian rhythm which switched off the need to urinate so often overnight
vii. The immune system releases inflammation-fighting cytokines - to help the body fight inflammation, infection and trauma

The traditional/classical literature is to support or prove the Islamic literature as stated above. The International Agency for Research on Cancer July 2019 released that working at night is related to cancer risk. On April 27, 2021, The National Toxicology Program (NTP) also released the same findings. Circadian rhythm is 24 hours cycles body clock to carry out the essential process and function automatically (Sleep Foundation, 2022). When the normal timing of sleeping changes, exposure to the light during the nighttime, will result from the Circadian disruption. Circadian disruption will lead to a decrease in health and increase the possibility of making mistakes and work disorders. The disturbance of normal biological sleep also leads to type 2 diabetes, heart disease, stroke, metabolic disorders, and increased risk for reproductive issues, such as irregular menstrual cycles, miscarriage, and preterm birth. (Christina C. Lawson, Elizabeth A. Whelan, Tania Carreón-Valencia, & and Claire C. Caruso PhD, 2021). Circadian rhythm sleep disorder is the body, and circadian rhythms that regulate the sleep-wake cycle are misaligned. During the day, the retinas in the

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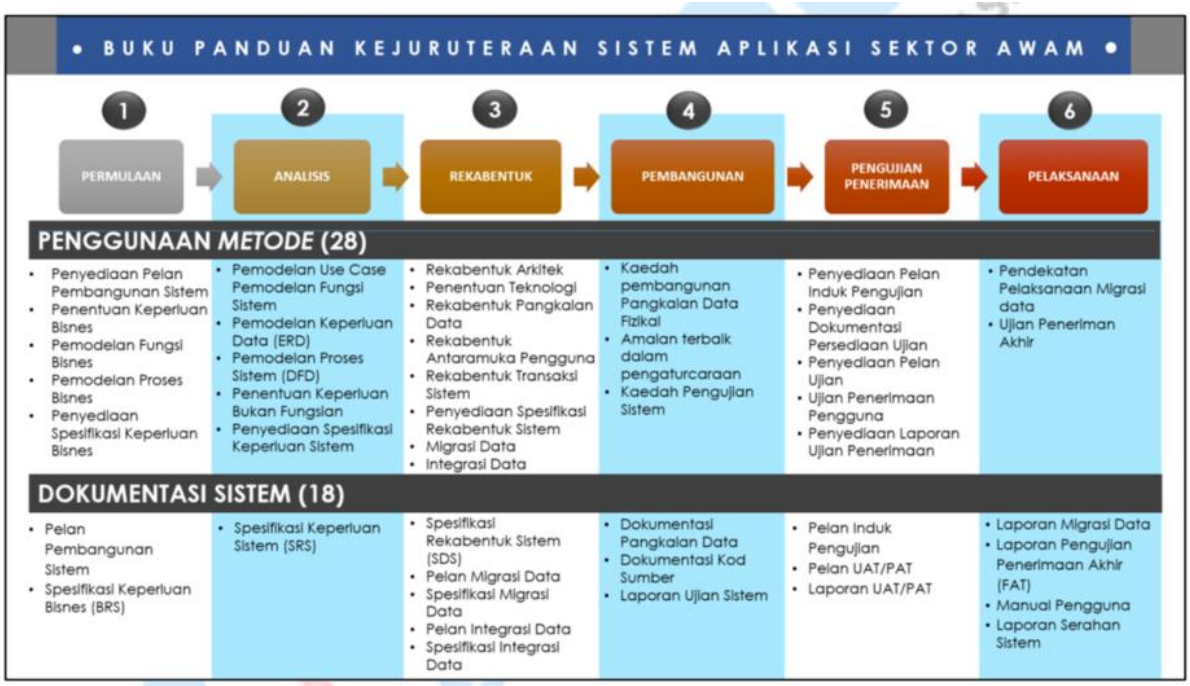
eyes detect sunlight and send a signal to the brain, which causes the brain to release chemicals like cortisol, which keeps us alert and energised. As the sun sets and the light diminishes, the brain generates melatonin, a hormone that causes tiredness and relaxation. It will also result in mood problems, poor work performance, higher accident risk, health problems, low testosterone, and substance abuse (Rehman, 2022).

Figure 1: System Development Lifecycle



Source: Panduan Kerujuteraan Sistem Apliasi Sektor Awam (KRISA) by MAMPU, 2019

Figure 1: System Development Lifecycle shows the system development process for the System Lifecycle. The critical stage of the system is development stages 1 - 3. The SA will involve the entire process directly, while the programmer will be involved in stages 4 – 6.

Stage 1 – User requirement gathering and analysis. The main focus is to determine who will use the system, what process flow is involved, and why the type of data collected will be presented as a report. All the requirements are translated to a document called User Requirement Study (URS) and are to be approved by the user.

Stage 2 – From the URS documentation, SA needs to develop process flow, Use Case model, Entity Relationship Diagram (ERD), and Data Flow Diagram (DFD). They also need to plan for Testing Strategy for the system. The main document produced is System Requirement Specification (SRS) and is to be approved by the user.

Stage 3 - Design, System Development Specification (SDS), SA must specify hardware and system requirements by defining the overall system architecture. SA to develop the system design or user interface to be followed by the programmer to develop the systems.

Stage 4 – System Development or Coding. The programmer's involvement in developing the system based on URS, SDS, ERD, and DFD documentation. SA to ensure the programmer follows all documents approved by the user. Typically document to prepare dan to submit is the Progress Report.

Stage 5 - Testing. SA or Tester to test and ensure all the development as approved documents and within the agreed timeline. Documents to prepare and approve are the Test Plan and User Acceptance Test (UAT)

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Stage 6 – Final stage is to migrate all data required for the system, and the user will accept the final testing. The document used for this stage is the Final Acceptance Test (FAT).

Methodology

The study based on the observation on qualitative methodology. The observation for all staff in the company for one (1) year started from January 2021 to December 2022. The data was collected based on their medical leave (MC) number from Admin Department. From the data to see the trend on working at night with the numbers of MC. The observation of the whole organisation in the company:

Table 1: Number of Staff

Department	No of Staff	Nature of Task
Admin	1	General administration task and no requirement to work at night
Application	19	System Analyst (SA) and Programmer – the requirement to work at night
Operations	1	Project Management – No requirement of working at night
Technical	5	Technical support. requirement of working at night
Total	26	

The study is to directly to the Application Department. Their nature task is required to work at night to complete their assigned task. SA will usually involve getting requirements from the user and translating them to the document to be referred by the programmer to develop the system. SA is also involved in testing develop the system by the programmer.

The newly awarded project to the company started from Jan 2021 to December 2022. One (1) year for the development of the system and an additional one (1) year for the warranty. The team involved in the project are 11 staff, four (4) programmers and seven (7) SA. From the observation, all the SA must work at night to complete the documentation and testing. The programmer will task when users' system requirements are translated to documentation. Therefore, SA needs to complete their assigned task within the project timeline and is required to work at night.

Result

From the observation and report, all the SA (8 staff) are working at night to ensure they can concentrate and produce documentation as required in stages 1 – 3, as explained in Figure 1. From Table 2, there are various MCs, one and another. During one (1) year of observation, all of them (100%) had health issues and received MC from Company's panel clinic, while none of the programmers was on MC.

Table 2: Medical Leave

	Number of MC Programmer	SA
Staff 1		1
Staff 2		8
Staff 3	0	
Staff 4	0	
Staff 5		7
Staff 6		6
Staff 7		4
Staff 8	0	
Staff 9		3

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Staff 10		3
Staff 11	0	
Total	**0**	**32**

The other observation was that working at night is not adequately managed, such as proper scheduling and controlling the number of working hours. It depends on each individual to manage their number of work at night or the number of working hours with a minimum of eight (8) hours.

Conclusion

The result shows the relationship between work at night with health. Verses in A-Quran are proved by the medical findings as stated in the literature and findings by scientific studies.

The management or staff need to consider working at night. The study helps the management look deeper into the policy and help reduce risk among its staff. If there is a requirement to work at night, it needs to have a proper plan to work at night and ensure the staff gets enough sleep (Mozhdeh Tahghighi PhD, 2019). Each person has a different adaption to their circadian rhythm (Chang AM, 2011). The staff that spend more night shifts is more likely to adopt the circadian rhythm (Ferguson SA, 2012).

The study is limited to one of the ICT companies at Cyberjaya. There is a requirement to have further studies on the age, gender, the frequency of number working at night, number of hours worked at night, rest hours and others.

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