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Sleep from neuroscience and Islamic perspectives: comprehension and practices of Muslims with science background in Malaysian education system

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Abstract

Incongruence of sleep activities from the neuroscience perspectives and the Islamic view have resulted in confusion and conflicts in the concept of sleep and related issues among Muslims. This research analyzed sleep from both perspectives, determined the level of comprehension of sleep related concept by Muslims with science background in the Malaysian education system and consequently correlated their understanding to sleep related practices. The need for sleep is a well documented fact from both perspectives. The level of comprehension of sleep from both neuroscience and Islamic perspectives among science teachers and students is low. The findings suggest the importance of sleep and its related activities from both perspectives be made well understood so as to establish good daily sleep practices amongst Muslims in the education system.

Keywords: Sleep; neuroscience; Islamic perspective; education

1. Introduction

The field of neuroscience, one of the last frontiers in human biological science researches, focuses on the nervous system which is important for health, well being and/or quality of life of an individual. The nervous system is directly involved in the processing of sensory stimuli, performance of responses and complex activities like sleep (Oswald, 1974). This means that activities said to be the responsibilities of neural cells (neurons) cut across different issues of which from the Islamic perspective are discussed under a variety of topics (Hasan Adli et al., 2003). The views on sleep activities from the neuroscience perspectives are based on findings from multi-approaches scientific researches, whereas the Islamic view is from hermeneutic of Quran, Hadith and writings of Muslim scholars. Incongruence of these perspectives has resulted in confusion and conflicts on the comprehension of concept of sleep and related issues among Muslims. Such confusion and conflicts could affect policy involving good daily sleep

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practices amongst Muslims; particularly for students staying in residential schools in Malaysia. Thus, this study aimed to identify the perspectives of neuroscience and Islam about sleep. The research also determined the level of comprehension of sleep related concept by Muslims with science background in the Malaysian education system and consequently correlated their understanding to their daily sleep related practices.

2. Methodology

Both content analysis and survey methods were used. The former compared and integrated sleep concept from both perspectives. The latter determined the level of comprehension of sleep related concepts by selected Muslims individuals and consequently correlated the understanding to their sleep related practices.

2.1. Content Analysis

Information from both perspectives was obtained from established scientific journals and writings. As for the Islamic perspective, information was from Quran, Hadith and writings of Islamic scholars. This uncovered the similarities, differences and integrated ideas from both perspectives.

2.2 Survey Method

The survey method determined the level of comprehension among Muslim science teachers (n=66) and secondary school students (n=327) on sleep related knowledge and their sleep related daily practices. The data was analyzed by using descriptive statistics and Pearson (r) correlation. The participants in this research were sampled from Muslim residential secondary school students and teachers with science background. The survey used questionnaires built from the content analysis data collections and vetted by experts. The questionnaires were then piloted with 28 teachers and 40 students who were not involved in the real study. Changes were made based on the pilot study and basically the changes involved language and terminologies used in the questionnaires. The participants were asked to complete the questionnaires in ±25 minutes. All the data was processed and analyzed using SPSS V.16.

3. Results

3.1. Significant considerations given to related issues

Content analysis and integration of information focused on the compatibility and integration of ideas from the two different perspectives considered. The importance of sleep and human needs for it have been specifically mentioned in the Quran (Al-Quran 25: 47 and 30: 23) and the Hadith. As sleep is a natural tendency ordained by Allah, it would explain the event of a negative impact and harm to humans if it is ignored. Similarly, neuroscience relates the status of mental health and performance to quality sleep (Evers, 2010; Braam et al., 2010). The existence of a biological clock or the circadian rhythm controlling the daily routines of sleep through regulation by endogenous chemicals has been established (Kandel, Schwartz & Jessel, 2000). Thus, the sleep cycle is consistent with the urging of nocturnal sleep from the Islamic perspective.

Dream is a phenomenon related to sleep. In Islamic literatures like Al-Ruh [The Soul] (Al-Qayyim, 2003), dream is categorized into three types: (a) True dream is from good interaction of the soul with Allah, (b) Nightmare / a bad dream is from the interaction of the soul with bad spirits (al-jin), and (c) A dream which has no meaning is a result of activities of the soul with other souls. Neuroscience also agrees that a dream is not a consequent of the sensory input. However, it has been proposed that dream is due to the experience of awake being sampled in the memory system (MacDuffie & Mashour, 2010) and that our eyes can actually scan a dream vision that occurs in a dream (Leclair-Visonneau et al., 2010). Therefore, neuroscience suggests dreams as the expression of neurons alone, while Islam although not denying the involvement of neurons, has an additional dimension, i.e. involvement of ruh [soul].
Qailulah, a short sleep activity occurring about an hour before zuhr (the afternoon prayer) period or within the duration of zuhr period, is recommended as a daily activity in the Islamic tradition (Al-Ghazali, 2001; Ahmad Muhammad Kan’an, 2000). As daytime napping which takes place within what is referred to by neuroscientists as the secondary sleep gate (secondary mid-afternoon sleepiness peak), it appears to have significant benefits for REM sleep (Daries & Hovne, 1975). Even a short sleep during the day could become a prophylactic treatment and possibly through slow wave sleep (Davies et al., 2010) functions as rehabilitation for the mental well being (Ficca et al., 2010) and also improve relational memory performance (Lau, Tucker & Fishbein, 2010).

Prophet Muhammad (peace be upon him/pbuh) demonstrated the best normal sleeping position. He slept on his right side (Al-Bukhari, 2004) which would be good for digestion and blood circulation since both heart and stomach which are internal organs located on left side of our body will not be physically stressed. However, there is no sleep etiquette emphasis by neuroscience, like Muslims are encouraged to sleep facing Kaabah.

An interesting issue is qiamullail, a positively perceived sleep deprivation in the Islamic tradition which contradicts the general notion that sleep deprivation is bad. However, the exact practice by Prophet Muhammad (pbuh) could actually address the deprivation issues. A few hadiths (Al-Bukhari, 2004; Ibn Majah, 1984) mentioned that the Prophet (pbuh) went back to sleep after doing qiamullail (late night prayers) within the last one third of the night. In such a practice the sleep deprivation activity would not have detrimental effects since neuroscience shows that stages 3-4 NREM and REM sleeps have been largely completed by the third end of the night (Kandel, Schwartz & Jessel, 2000). REM sleep lost due to qiamullail could be replaced during post-qiamullail sleep within the one sixth end of the night. There is also qailulah which has also been shown to be beneficial to REM sleep.

An issue which could not be explained from the neuroscience perspective is the involvement of al-ruh (soul) with sleep, since the existence of soul has not been established. The Quran describes that Allah would each time take and hold the human soul (al-ruh) when (s)he was asleep and return it except when the time of his/her death (Qur’an 39:42). This is in contrast with the positivism that a biological clock exists and acts spontaneously within a human body (Bhaskar, 2009). All matters related to soul is sacred in Islam and is only known to Allah (Al-Qur’an 17: 85).

3.2. Level of comprehension of sleep related concept

There were two items in the scale which aimed to find out the participants’ level of understanding on sleep related knowledge from both perspectives. The students and teachers were found to have low level of understanding (<50%) of the knowledge from both perspectives (see Table 1). Thus, with such a low level of understanding, confusion and/conflict with regards to sleep related issues could actually arise.

<table>
<thead>
<tr>
<th>Perspective of sleep related knowledge</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Students</td>
</tr>
<tr>
<td></td>
<td>Comprehend</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>38.9</td>
</tr>
<tr>
<td>Islamic</td>
<td>24.5</td>
</tr>
</tbody>
</table>

3.3. Correlations of understanding with sleep related daily practices

There were four items in the scale which aimed to discover the correlation of the students’ level of understanding on these items with three sleep related daily practices. There were either very weak correlations or negative correlation between their knowledge on memory system, NREM sleep, sleep after Isya’ prayer and sleep as physiological restoration for the body with their sleep related daily practices (see Table 2). The negatively correlated items mean that the occurrence of the practice decreased contrary to the knowledge on the matter and vice versa. Items that were positively correlated had only weak correlations and they were not statistically significant.
Table 2: Correlation of sleep related knowledge with sleep related daily practices among students.

<table>
<thead>
<tr>
<th>Sleep related knowledge</th>
<th>Sleep related daily practices</th>
<th>Day napping</th>
<th>Lights off before sleep</th>
<th>Going to bed after 12 a.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory system</td>
<td>Pearson</td>
<td>-0.113*</td>
<td>0.028</td>
<td>0.053</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.041</td>
<td>0.611</td>
<td>0.339</td>
</tr>
<tr>
<td>NREM sleep</td>
<td>Pearson</td>
<td>-0.020</td>
<td>-0.160**</td>
<td>0.093</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.716</td>
<td>0.004</td>
<td>0.095</td>
</tr>
<tr>
<td>Sleep after Isya’ prayer</td>
<td>Pearson</td>
<td>0.004</td>
<td>0.033</td>
<td>-0.137*</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.948</td>
<td>0.557</td>
<td>0.013</td>
</tr>
<tr>
<td>Physiology restoration</td>
<td>Pearson</td>
<td>-0.033</td>
<td>-0.009</td>
<td>-0.023</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.555</td>
<td>.871</td>
<td>.675</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

4. Discussion

Based on the information integrated from both perspectives, generally, the result showed that both perspectives put importance to sleep, but the different path of thoughts and ideology-based perspectives has caused it to be seen as if there is no connection between them. The need for the integration of this information is potentially seen in inculcating an understanding on sleep related knowledge among both teachers and students in residential schools since their comprehension on the matter was very low. Thus, the concern that any policy taken to address sleep related issues would be far from the ideal, e.g. strict ruling against being in the dorm from dusk (after subuh prayer) to late evening for fear of students having day naps and students are scheduled to sleep only after 11.00 pm. To worsen the situation, students also stayed up for academic related purposes. Such routine would be among others expected to affect intellectual performance and memory consolidation.

Therefore, the findings suggest that the importance of sleep and its related activities from both perspectives be made well understood so as to establish good daily sleep practices amongst Muslims; particularly for students staying in residential schools in Malaysia.

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References


