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How Depression, Anxiety and Stress (Mental Health) are Related to Sleep Quality During Ramadan Fasting Among UiTM Seremban 3 Faculty of Sports Science and Recreation Students

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Abstract | One of the five pillars of Islam are to be fasting during the holy month of Ramadan according to the Qur'an. During Ramadan, Muslims avoid all food and drink, smoking and immoral behaviour from dawn until sunset. Numerous studies have documented the different impacts of fasting during Ramadan on sleep quality and mental health. For instance, Muslims rise early to attend the pre-dawn meal known as Suhur and the morning prayer (Fajr). The study examines how sleep quality, depression, anxiety, and stress are related among students while fasting during Ramadan. The participants for this study were 349 students from the Faculty of Sport Science & Recreation UiTM Seremban 3. Its goal is to recognize any alterations in sleep quality throughout this time and how these mental factors come together, possibly impacting overall mental wellness and quality of life. The study employs surveys to collect information from students at UiTM Seremban 3 Faculty of Sport Science and Recreation, with a specific focus on how fasting impacts mental well-being. Pearson correlation coefficient was used to analyse the data obtained. It shows that there is a significant relationship ($p < 0.05$) between all the variables. However, the result shows that the association of sleep quality between depression ($r = 0.173$) and anxiety ($r = 0.176$) had low strength of relationship. While the association of sleep quality between stress ($r = 0.342$) had moderate strength of relationship.

Keywords: *Sleep quality, depression, anxiety, stress, mental health.*

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I. INTRODUCTION

Ramadan is a time of strong significance for Muslims worldwide. Since it is thought to have been the month that the Prophet Muhammad received his first revelation of the Quran, the holy book of Islam, it is revered as the holiest month in Islam. Muslims observe fasting from sunrise to sunset throughout Ramadan, fasting from all food and beverages, smoking, and immoral activity. Examining the various ways that Ramadan fasting affects mental health and sleep quality can provide important new perspectives on the complex connection that exists between religious observance, psychological changes, and mental health.

During Ramadan, sleep latency increases, and sleep architecture modifications occur, leading to decreased sleep period time, total sleep time, and increased non-rapid eye movement sleep. Ramadan is frequently linked to more get-togethers and social events. Although this can be a helpful way to connect and get support, it can also result in more social commitments and changes to sleep patterns. Ramadan disrupts sleep patterns due to changes in meal timings and increased nighttime activity, leading to delayed bedtimes, reduced sleep duration, and fragmented sleep [1] [2] [3]. The increasing body temperature and metabolic activity of late-night meals after breaking fast (Suhoor) can further disturb the structure of sleep. It's crucial to attempt to concentrate on thinking positively because withdrawing from food and drink might alter your mental state. Good thoughts elevate your state of mind and can lead to greater optimism and joy. Ramadan has a consistently lower number of psychiatric hospitalizations compared to other months, with a trend towards increased enforced hospitalizations [4].

II. METHODS

Survey was the best way to fully understand the relationships among university students' depression, anxiety and stress level and sleep quality. This study was quantitative research. Two questionnaires will be distributed to the participants. The major objective of this research was to identify the interconnection of sleep quality between mental health. The results of this research will be correlated with sleep quality, depression, anxiety and stress during Ramadan fasting.

Using the Krejcie and Morgan approach, we could decide the sample size required to draw valid conclusions about the population. Referring to the Krejcie and Morgan Table, 291 was obtained because the population for students in UiTM Seremban 3 Faculty of Sport Science and Recreation were 1238. To avoid unwanted error in the results 20% will be added to the sample size. 349 participants will be the final sample size after adding 20% of the dropout rate. Depression Anxiety and Stress Scale (DASS 42) questionnaires had been utilized to measure mental health level while quality of sleep was measured using the Sleep Quality Scale (SQS) questionnaire.

III. RESULTS AND DISCUSSION

The descriptive statistics of depression, anxiety and stress levels among students at the UiTM Seremban 3 Faculty of Sports Science & Recreation during Ramadan fasting shown in table 1. A total of 191 male and 158 female students partakes in this research, making the total number of samples 349. The analysis indicates that the standard deviation for depression among students was 2.82. Mean depression outcome was 5.92. The minimum depression result was 0, and the highest was 14. Additionally, the table

shows that the standard deviation for anxiety among students in Faculty Sports Science & Recreation Seremban 3 was 2.36. The mean anxiety mark was 5.69. The lowest anxiety rate was 0, while the highest anxiety score was 14. Lastly, the results revealed that the standard deviation for stress was 4.04. The Mean stress mark was 7.01. The lowest stress count was 0, while the maximum score was 18.

TABLE 1
DESCRIPTIVE TABLE FOR DEPRESSION, ANXIETY & STRESS

	<i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
Depression	349	5.92	2.82	0	14
Anxiety	349	5.69	2.36	0	14
Stress	349	7.01	4.04	0	18

Table 2 shows the sleep quality during Ramadan fasting among students at the UiTM Seremban 3 Faculty of Sport Science & Recreation. The statistical analysis indicates that the mean sleep quality score was 28.0. The standard deviation for sleep quality scores was 12.5. The minimum sleep quality score was 0. The maximum sleep quality score was 69.

TABLE 2
DESCRIPTIVE TABLE FOR SLEEP QUALITY

	<i>N</i>	Mean	<i>SD</i>	Minimum	Maximum
Sleep Quality	349	28.0	12.5	0	69

A. *Interconnection Of Sleep Quality Between Depression, Anxiety & Stress During Ramadan Fasting*

Pearson correlation coefficient has been done to indicate if there was any significant correlation of sleep quality between depression, anxiety, and stress during Ramadan fasting. The p value given was less than 0.05 to determine the significant interconnection. A significant relationship between sleep quality and depression ($p = 0.001$) during Ramadan fasting was shown. Depression correlates with sleep quality ($r = 0.173$) during Ramadan fasting. The null hypothesis was rejected. A significant association between anxiety and quality of sleep during Ramadan fasting ($p < 0.001$). The interconnection between anxiety and quality of sleep ($r = 0.176$). There was a significant link between stress and sleep quality ($p < 0.001$). The connection between stress and sleep quality were moderate in strength ($r = 0.342$). All null hypotheses were rejected.

TABLE 3
RELATIONSHIP OF SLEEP QUALITY BETWEEN DEPRESSION, ANXIETY & STRESS DURING RAMADAN FASTING

Variable	Pearson's r	<i>df</i>	<i>p</i> -value
Depression	0.173	347	0.001
Anxiety	0.176	347	< 0.001
Stress	0.342	347	< 0.001

IV. CONCLUSIONS

Insufficient amount of sleep will enlarge the risk of getting mental health (depression, anxiety and stress) problems. We can see that during Ramadan fasting sleep quality was not at the optimal level however the depression, anxiety and stress level are at the best state. This is because various factors play a major role in the association of sleep quality and mental health. To conclude this study, we might see significant relationships between all the variables among UiTM Seremban 3 Faculty of Sports Science and Recreation students. By improving the quality of sleep the risk of mental health (depression, anxiety and stress) disorder will be reduced.

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