Hailullah (Sleeping after Fajr Prayer) and Negative Emotional States among University Students

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Abstract: Sleep plays a vital role in physical and psychological well-being throughout life. Many studies have revealed the effect of sleep however, not many have revealed the effect of sleeping in the morning after Fajr prayer (*Hailullah*) on a person's mental health condition. This study aims to see the relationship between *Hailullah* and negative emotional states among University students. As much as 483 respondents have filled out the scale, but 18 respondents reported not or rarely do the Fajr prayer and the remaining 235 respondents prayed at the end of time. Thus, the data is processed further for a number of 230 respondents who meet the criteria. The instrument used to measure psychological conditions is DASS 21 which reveals a person's level of depression, anxiety, and stress. The results showed that there is significant relationship between sleep behavior after Fajr prayer (*Hailullah*) with depression, anxiety, and stress. The significant value (2-tailed) between *Hailullah* and depression is 0.000, between *Hailullah* and Stress is 0.003 meanwhile, the relationship between *Hailullah* and anxiety has a sig value. (2-tailed) of 0.000. These results show that the higher the *Hailullah* behavior the higher the level of depression, anxiety, and stress a person has. Findings in this study are sufficient to support the prohibition of sleep after dawn prayer for Muslims. However, this research was conducted in Indonesia, where the time of night and day is quite balanced.

1 INTRODUCTION

Negative emotional states are important factors in individual development. Adolescent with healthy mental condition are physically healthier, performing more positive social behaviours, and conducting less risky behaviours (Knopf, Park, & Mulye, 2010). Several most common mental health problems found in adolescent are conduct disorders, depressions, anxiety disorders, and substance use (David et al., 2010; Murphy & Fonagy, 2012). Among Indonesian adolescence, National Health Research reported that the prevalence of mental emotional disorders among adolescent increased 3.8% from 6% in 2013 to 9,8% in 2018 (Balitbangkes, 2018). Previous research in Malang showed that 53.2% adolescent were at high- level of psychological distress (Widyasari & Yuniardi, 2019).

Depression, stress, and anxiety are significant negative emotional states that influence mental health among adolescents. Mental health is a state of well- being when individual can cope with normal stresses of life and work productively (Rahman, Dey, & Islam, 2013). One in every five adolescents experience significant symptoms of emotional distress (David et al., 2010). Stress is a condition that arises due to an imbalance between the pressure faced by an individual and the ability to face it (Lazarus and Folkman in Evanjeli, 2012). A study by Hoque (2015) revealed that most of the University students experienced anxiety, 24% of 150 students experienced both anxiety and depressive episodes, while 60% experienced anxiety, depression, and panic episodes (Hoque, 2015).

Sleep plays a vital role in physical and psychological well-being throughout life. Sleep is a biological process that has an important role related to physiological, neurological and psychological well- being (Aldabal & Bahammam, 2011; Bernert et al., 2015) Human body is working to support healthy brain function during sleep. Cognitively, sleep quality was associated with a decline in cognitive function, i.e. a person with poor sleep quality was six times more likely to experience cognitive decline (Zulfitri et al., 2021). A person's sleep quality is related to the ability to regulate emotions, which then poor emotional regulation can

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lead to depression (O'Leary et al. 2016). Good quality sleep will make a person have a better sense of empathy (Guadagni et al., 2017). Insufficient sleep or perceived lack of sleep is called sleep deprivation. Sleep deprivation is a condition of not having enough sleep (Rahman, Dey, & Islam, 2013). The necessary hours of sleep are different among people, so sleep deprivation means not getting the right amount of sleeping time that one requires for optimal functioning. Sleep is considered very important to manage human mental health. Sleep deprivation has a strong link with human mood. People suffer with sleep deprived will have greater levels of anxiety and depression compare to those who sleep normally (Rahman, Dey, & Islam, 2013). A study, conducted in USA found that people with sleep deprived likely to have 10 times clinical depression and 17 time likely to have clinical anxiety than those who sleep normally (Rahman, Dey, & Islam, 2013). While a study conducted in Japan, suggested that sleep duration has a strong association with sleep quality (Ichikawa et al., 2008).

The sleep durations of Muslims were influenced by the prayer times. Every Muslim must perform the obligatory prayers five times per day. Fajr prayer is the first pray, performed at dawn about one to one and a half hour before sunrise. In Indonesia, the Fajr prayer is usually performed at four to five in the morning and has a time lag before the time to go to work or school. During this time, some Muslims who prayed on time generally go back to sleep. However, morning sleep in the Islamic perspective has a law of *makrooh* because it is a precious time wich has a great benefit for Muslims who are devoted to Allah SWT (Musharraf, 2018). *Makrooh* is an act that is felt if leaving it is better than doing it. Linguistically, the meaning of *makrooh* is "something that is hated". In terms of Usul Fiqh, the word *makrooh* means something that is recommended by the Shari'a to leave it, where if it is left it will get praise and if it is violated it is not sinful (Al-Ghazali, 1995).

There have been many studies that reveal the benefits of sleep, especially sleeping at night. One of the most important functions of sleep is to allow the nervous system to recover after one day of use (Purwanto, 2008). However, not many studies have revealed the effect of morning sleep after Fajr Prayer on a person's mental health condition. A study at King Khalid University Hospital sought to find out whether there was an impact of sleep behavior on Muslims who had to wake up to pray Fajr and go back to sleep before work when compared to people who sleep continuously until work time and pray Fajr upon awakening. At the location of this study, the Fajr prayer is performed at 03.30. The results of the study showed that there were no differences in sleep efficiency, the sleep stages distribution, or daytime sleepiness between the two groups (Bahammam et al., 2012). However, the study did not investigate further the psychological impact of sleep behavior after Fajr prayer. On this occasion, the researcher was interested in exploring *hailullan* and negative emotional states among adolescents

2 METHOD

2.1 Research Design

This research is a non-experimental study with a correlational research design to see the correlation between sleeping in the morning after Fajr Prayer (*Hailullah*) on Depression, anxiety, and stress levels.

2.2 Measures

Negative emotional states were measured with the Depression Anxiety Stress Scale (DASS). This instrument was originally developed by Lovibond and Lovibond in 1995. This scale has a short-form version which has been tested in a large non-clinical sample which is known as DASS-21 (Henry & Crawford, 2005). The DASS-21 subscales measure the three dimensions specified in the tripartite model (Brown, Chorpita, Korotitsch, & Barlow, 1997); low positive affectivity (DASS-Depression), physiological hyperarousal (DASS-Anxiety), and negative affectivity (DASS-Stress). This scale was translated into Bahasa Indonesia by Damanik in 2011.

Cronbach α examination results for the DASS- 21 scale was .871; while the Cronbach α for the depression, anxiety, and stress subscales were respectively .799, .662, and .726. Participants were asked to choose one response within the range of 0 (means never) to 3 (means very often) on each item to describe their experiences during the past week. Total score of each dimension was obtained from the sum of total responses in every item of the dimensions. Participants' total score then were grouped into five level categories. The categories are normal, mild, moderate, severe, and profound. Normal category is obtained based on the score $x<10$ for depression, score $x<8$ for anxiety, and score $x<15$ for stress. Mild category is obtained based on the score $10\leq x<14$ for depression, score $8\leq x<10$ for anxiety, and score $15\leq x<19$ for stress. Moderate category is obtained based on the score $14\leq x<21$ for depression, score $10\leq x<15$ for anxiety, and score $19\leq x<26$ for stress. Severe category is

obtained based on the score 21≤x<28 for depression, score 15≤x<20 for anxiety, and score 26≤x<34 for stress. Profound category is obtained based on the score x≥28 for depression, score x≥20 for anxiety, and score x≥34 for the stress.

2.3 Participants

There were 483 respondents who filled out the scale, but only 230 respondents reported doing dawn prayers at the beginning of the time, 18 respondents reported not or rarely prayed at dawn, and the remaining 235 respondents prayed at the end of time. Thus, the data is processed further for a number of 230 respondents who meet the criteria for dawn prayers at the beginning of time.

3 RESULTS

Respondents were asked to identify their *Hailullah* behavior during the past week. The range of *Hailullah*scores moves from 0 to 7. While the results of the DASS 21 scale have also been categorized so that thedepression, anxiety, and stress scores of each respondent are known. Table 1 shows the descriptive statistics (mean and standard deviation) of *Hailullah*, depression, stress, and anxiety from respondents.

Table 1: Descriptive Statistics.

	N	Mean		Std. Deviation	Variance
	Statistic	Statistic	Std. Error	Statistic	Statistic
Hailullah	230	2.79	.149	2.265	5.129
Depression	230	1.70	.075	1.137	1.294
Stress	230	2.63	.096	1.450	2.103
Anxiety	230	1.83	.078	1.184	1.402
Valid N	230				

Table 1 shows that the mean statistic of *Hailullah* is 2.79 from a score range of 0 to 7. Based on frequency data, 51 participants (22,2%) reported that they never sleep after Fajr Pray and 11,7% (27 participants) reported sleep 7 times after Fajr pray during the past week. While the mean statistic for depression is 1.70 (in the normal to mild category). Based on the frequency data, 150 respondents (65,2%) had normal category of depression and 11 participants (4,8%) had a profound category of depression. Meanwhile, the mean statistical stress score was 2.63 (in the mild to moderate category). The frequency data shows that, 135 respondents (58,7%) had normal category of stress and 10 participants (4,3%) had profound level of stress. The statistical mean for anxiety scores was 1.83 (in the normal to mild category), frequency data shows that, 70 respondents (30,4%) had normal level of anxiety and 41 participants (17,8%) had profound level of anxiety.

Correlations, means, and standard deviations werecomputed for each scale and are listed in Table 2. The calculation of Spearman's rho Correlation showed that there was a positive and significant correlation between *Hailullah* and negative emotional states, which were depression, anxiety, and stress.

Table 2: Correlations.

			Hailullah	Depression	Anxiety	Stress
Spearman's rho	*Hailullah*	Correlation Coefficient	1.000	.249**	.192**	.241**
		Sig.(2-tailed)	.	.000	.003	.000
		N	230	230	230	230
	Depression	Correlation Coefficient	.249**	1.000	.553**	.496**
		Sig.(2-tailed)	.000	.	.000	.000
		N	230	230	230	230
	Anxiety	Correlation Coefficient	.192**	.553**	1.000	.632**
		Sig.(2-tailed)	.003	.000	.	.000
		N	230	230	230	230
	Stress	Correlation Coefficient	.241**	.496**	.632**	1.000
		Sig.(2-tailed)	.000	.000	.000	.
		N	230	230	230	230

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

Based on the significance value (2 tailed) it is knownthat the sig value (2-tailed) between *Hailullah* and depression is 0.000 <0.05, which means that there is a significant correlation between *Hailullah* and depression. Furthermore, the relationship between *Hailullah* and Stress has a sig value. (2-tailed) of 0.003 <0.05, which means that there is also a significant correlation between the *Hailullah* variable and the respondent's stress level.

Meanwhile, the relationship between *Hailullah* and anxiety has a sig value. (2-tailed) of 0.000 <0.05, which means that there is also a significant correlation between the *Hailullah* variable and the respondent's anxiety level. Based on the pearson correlations, it is known that thecalculated r value for the relationship between *Hailullah* and Depression is 0.249> r table of 0.129, it can be concluded that there is correlation between the *Hailullah* variable and Depression. Furthermore, based on the calculated r value (pearson correlations), it is known that the calculated r value for the relationship between *Hailullah* and Stress is 0.192> r table of 0.129, it can be concluded that there is a correlation between the *Hailullah* variable and Stress. Meanwhile, based on the calculated r value (pearson correlations), it is known that the calculated r value for the relationship between *Hailullah* and Anxiety is 0.241> r table of 0.129, so it can be concluded that there is also a correlation between the *Hailullah* variable and Anxiety

4 DISCUSSION

The result of this study indicates that there is a relationship between *Hailullah* or sleeping after Fajr prayer on person's negative emotional states. Depression, stress, and anxiety are significant negative emotional states that influence mental health among adolescents which are used in this study. This is interesting, considering that previous studies have mostly revealed the effect of sleep deprivation or lack of sleep on mental health and mood condition (Rahman, Dey, & Islam, 2013). Sleep deprivation is also believed to be involved in the processing and modulation of emotional stimuli (During & Kawai, 2017). People who are sleep deprived usually experience a decline in cognitive performance and changes in mood. Sleep problems may directly contribute to the development of worse mental health (Rahman, Dey, & Islam, 2013). Sleep deprivation causes broad behavioral deficits in working memory performance (Frenda & Feen, 2016). While most of the studies have demonstrated the adverse consequences of insufficient sleep, the finding of this study concluded that sleeping after Fajr prayer has negative consequences on participants' emotional states.

Not many studies have been conducted to examine the effect of sleep after Fajr prayer or split sleep on mental health conditions. Previous research conducted by Bahammam et al., (2012) was trying to revealed sleep architecture of consolidated and split sleep due to the dawn (Fajr) prayer among Muslims and its impact on daytime sleepiness. The researcher asked participants to spend three nights in the Sleep Disorders Center (SDC) at King Khalid UniversityHospital. Participants then joined a research which included (1) a medical checkup and an adaptation night, (2) a consolidated sleep night, and (3) a split□sleep night intervention. Polysomnography (PSG) was conducted following their standard protocol. Participants were asked to go to bed at 11:30 PM and woke up at 7:00 AM in the consolidated sleep protocol. Meanwhile in the split□sleep protocol, participants went to bed at 11:30 PM, woke up at 3:30 AM then go back to bed at 4:15 AM, and woke up again at 7:45 AM. The study concluded that there were no differences in sleep efficiency, the distribution of sleep stages, or daytime sleepiness between the two groups. It means that participants who did the split-sleep protocol due to Fajr prayer actually has no effect on their sleep efficiency, the distribution of sleep stages, or daytime sleepiness when the total sleep duration was maintained. But thisstudy did not reveal the effect of split-sleep schedules on participants' emotional states. This study only focused on measuring the sleep architecture or daytime sleepiness because in summer nights, wakeup to do Fajr prayer may lead Muslims to have less nighttime sleep during the summer. The researcher on this study has also mentioned that the limitation of this study was that they did not investigate the conditions of some Muslims who did not go back to sleep after the Fajr Prayer (Bahammam et al., 2012).

Due to the difficulty of finding research literature on the impact of *Hailullah* on a person's psychological condition, this research was conducted. This research is actually motivated by various hadiths and information obtained regarding sleep after dawn prayers (*Hailullah*) in the teachings of Islam. Muslim have been told by the Prophet Muhammad SAW, that mornings are time to acquire the blessings of Allah SWT, therefore Muslims prefer not to spend them by sleeping, as mention by Zaid Ibn. Ali who reported from Saeed Ibn Musayyub who said: The Prophet Muhammad SAW of Allah said: "O Allah, bless my people in their early mornings."(Musharraf, 2018). Therefore, sleeping after Fajr is not appropriate for Muslims, since they actually were ordered to stay awake after Fajr and spend time by praying or remembering Allah until the sun has risen. As has been also narrated by Anas bin Malik as follow: The Messenger of Allah Muhammad SAW said:"Whoever prays Fajr in the congregation, then sits remembering Allah until the sun has risen, then

he prays two Rak'ah, then for him is the reward like that of a Hajj and Umrah." (Musharraf, 2018). However, it was not conveyed further about the negative impact that would occur, especially on person's psychological condition if returned to sleep after dawn prayers. As mentioned above, based on the pearson correlations, it can be concluded that there is a correlation between the *Hailullah* and Depression. Furthermore, based on the calculated r value it is also known that there is a correlation between the *Hailullah* and Stress and also between the *Hailullah* and Anxiety. Based on the significance value (2 tailed) it can be concluded that there are significant correlations between *Hailullah* and depression, *Hailullah* and stress, and also *Hailullah* variable and the respondent's anxiety level. Thus, findings in this study are sufficient to support the prohibition for muslims of sleep after dawn prayers as stated above. However, this research was conducted in Indonesia, where the time of night and day is quite balanced, meaning that the subjects involved in this study may not need sleep time after Fajr compared to research conducted by Bahammam et al., (2012).

From the above explanation, it is better not to sleep after Fajr Prayer but to maximize the time therein with activities that are beneficial and not time wasting. However, Islamic teachings also teach about the importance of sleeping when we need it. especially if we live in a country with four seasons, where in certain seasons, the night time is shorter than the daytime, so that people in that area need hours of sleep after Fajr prayer before starting activities in the morning. In particular, a nap as short as 10 minutes can improve alertness and performance for 2.5-4 hours. A recent study assessed the health effects of napping in 23,681 healthy Greek adolescents for an average of about six years. After controlling for potential confounders, the researchers concluded thatthose who napped at least three times weekly for about half an hour had 37% lower coronary mortality than those who did not nap (Naska et al., 2007). According to Goldschmied et al (2015) reported that Nappers were able to tolerate frustration significantly longer than non-nappers. The results of the study of Hussein et al. (2019) in epilepsy patients showed that the number of attack decrease with the midday nap and early night prayers. Actually, Islam not only asks man to sleep, but also stresses that it is a need that must be met. Each Muslim must allow the body its rights to rest, after a long day's work and carrying out various exhausting activities. From the hadith of the Prophet Muhammad SAW on the story of Abu Darda, who, amongst others, had not wanted to sleep at night because he had wanted to do night worship, Salman, his friend had rebuked him, saying: "Your Lord has rights over you, your self has rights over you and your wife has the right over you. Give those rights their due." When the Prophet Muhammad SAW heard the words of Salman, the Prophet said: "Salman spoke the truth." The above hadith requires each Muslim to emphasis the body's health condition, by allowing it to get enough rest, and sleep is a need which cannot be neglected. In-fact it is the natural urge of every living thing, which is why every person will sleep at a specific time at night, and wake at a specific time in the day, without needing to be woken up by anyone. Hence, sleep is one of life's main needs, for all living things. This goes along with modern sleep scientists who believe that sleep deprivation has deleterious effects on mental concentration, memory, mood, and quality of life. In addition, recent data indicate that sleep deprivation impairs endocrine and metabolic functions (Goel et al., 2009) and sleep is an important biological mechanism in the formation of the immune system (Akıncı & Başar, 2021).

5 CONCLUSIONS

The present study finds that there is a relationship between *Hailullah* (sleeping after Fajr prayer) on a person's negative emotional states (depression, anxiety, and stress). Not many studies have been conducted to examine the effect of *Hailullah* on mental health conditions, So the findings in this study are expected to add literature and reference sources related to the influence of *Hailullah* on a person's mental health condition. However, this research is far from perfect and needs to be further developed. The significant correlation between *Hailullah* behavior and levels of depression, anxiety and stress in a person in this study needs to be studied further with a qualitative approach to obtain more comprehensive results. This research was also conducted in Indonesia, where the time lag between Isha prayer and Fajr prayer is quite possible for a person to get an adequate number of hours of sleep, in contrast to countries where the time lag between Isha and Fajr prayers is very close

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REFERENCES

Akıncı, T., & Başar, H. M. (2021). Relationship between sleep quality and the psychological status of patients hospitalised with COVID-19. *Sleep Medicine*, *80*, 167–170.https://doi.org/10.1016/j.sleep.2021.01.034

Aldabal, L., & Bahammam, A. S. (2011). Metabolic, endocrine, and immune consequences of sleep deprivation. *The Open Respiratory Medicine Journal*, *5*, 31–43. https://doi.org/10.2174/1874306401105010031

Al-Gazali, Al-Imam. (1995). *Ihya' Ulum al-Din*, Juz Cairo: Dar Al-kutub LiAt-Turast. Bahammam, A. S., Sharif, M. M., Spence, D. W., & Pandi-Perumal, S. R. (2012). Sleep architecture of consolidated and split sleep due to the dawn (Fajr)prayer among Muslims and its impact on daytime sleepiness. *Annals of Thoracic Medicine*, *7*(1), 36–41. https://doi.org/10.4103/1817-1737.91560

Balitbangkes. (2018). *Riset kesehatan dasar (Basic health research)*. Jakarta: Kementrian Kesehatan Republik Indonesia. https://www.litbang.kemkes.go.id/laporan-riset-kesehatan-dasar-riskesdas/

Bernert, R. A., Kim, J. S., Iwata, N. G., & Perlis, M. L. (2015). Sleep disturbances as an evidence- based suicide risk factor. *Current Psychiatry Reports*, *17*(3), 554. https://doi.org/10.1007/s11920-015-0554-4

Boals, A., VanDellen, M. R., & Banks, J. B. (2011). The relationship between self-control and health: The mediating effect of avoidant coping. *Psychology and Health, 26*(8), 1049–1062. doi:10.1080/08870446.2010.529139.

Brown, T. A., Chorpita, B. F., Korotitsch, W., & Barlow, D. H. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in Clinical Samples. *Behaviour Research and Therapy*, 35, 79-89. doi: 10.1016/s0005-7967(96)00068-x. https://pubmed.ncbi.nlm.nih.gov/9009048/

David, K., Park, M. J., & Mulye, T. P. (2010). The mental health of adolescents: A national profile, 2008. National Adolescent Health Information Center.

During, E. H., & Kawai, M. (2017). The functions of sleep and the effects of sleep deprivation. *Sleep and Neurologic Disease.* https://doi.org/10.1016/B978-0-12-804074-4.00003-0

Evanjeli, L. A. (2012). Hubungan antara stres, somatisasi dan kebahagiaan. Yogyakarta: Fakultas Psikologi Universitas Gadjah Mada. http://etd.ugm.ac.id/index.php?mod=penelitian_detail&sub=PenelitianDetail&act=view&typ=html&buku_id=57293

Frenda, S. J., & Fenn, K. M. (2016). Sleep Less, Think Worse: The Effect of Sleep Deprivation on Working Memory. *Journal of Applied Research in Memory and Cognition*, *5*(4), 463–469. https://doi.org/10.1016/j.jarmac.2 016.10.001

Goel, N., Rao, H., Durmer, J. S., & Dinges, D., F. (2009). Neurocognitive consequences of sleep deprivation. *Semin Neurol*, *29(4),* 320-339. doi: 10.1055/s-0029-1237117

Goldschmied, J. R., Cheng, P., Kemp, K., Caccamo, L., Roberts, J., & Deldin, P. J. (2015). Napping to modulate frustration and impulsivity: A pilot study. *Personality and Individual Differences*, *86*, 164–167. https://doi.org/10.1016/j.paid.201 5.06.013

Guadagni, V., Cook, E., Hart, C., Burles, F., & Iaria, G. (2018). Poor sleep quality affects empathic responses in experienced paramedics. *Sleep and Biological Rhythms*, *16*(3), 365–368. https://doi.org/10.1007/s41105-018-0156-8

Henry, J., & Crawford, J. R. (2015). The short form of the depression, anxiety, stress scales (DASS- 21): Construct Validity and Normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*(2), 27-39. doi: 10.1348/014466505X29657.

Hoque, R. (2015). Major mental health problems of undergraduate students in a private University of Dhaka, Bangladesh. *European Psychiatry*, *30*, 28–31. https://doi.org/10.1016/S0924-9338(15)31442-5

Hussein, A., Ahmed, N. A. Y., Abbas, A. A., Alhassan, M. A. A., Dabary, Z. I. H., Altayeb, E.A., Abbasher, K. M. A., Halawani, O. I., Awad, Y. E., Dafallah, K. A., Suliman, A. A., Abdalla, M. O., Eladil, O., Osman, D. N. O., Al-Tayeb, Y. F., Rawaa, R. A. M., alHusseini, R. T., Alamin, A. Y. A., Fadallah, S. A., … Hajnoor, K. (2019). The effect of Ramadan related activities (Mid_day nap), early night prayers, and late night prayers on seizure frequency during Ramadan among fasting epileptic patients. *Journal of the Neurological Sciences*, *405*, 90. https://doi.org/10.1016/j.jns.2019. 10.940

Ichikawa, K., Matsui, T., Tsunoda, T., Teruya, K., Uemura, T., Takeda, N., Okamoto, H., & Fukazawa, S. (2008). The relationships of sleep duration and mental health with electrocardiographic findings: a retrospective- cohort study in Okinawa, Japan. *Environmental Health Preventive Medicine*, *13*(4), 227–233. doi: 10.1007/s12199-008-0035-z

Knopf, D., Park, M. J., & Mulye, T. P. (2008). *The Mental Health of Adolescents : A National Profile. https://www.scirp.org/(S(i43dyn45teexjx455qlt3d 2q))/reference/ReferencesPapers.aspx?Reference ID=1186278*

Masrukhin. (2014). Tidur dalam perspektif hadits. *Skripsi.* Jakarta: Fakultas Ushuluddin UIN SyarifHidayatullah. https: repository.uin-suska.ac.id

McNicol, M. L., & Thorsteinsson, E. B. (2017). Internet addiction, psychological distress, and coping responses among adolescents and adolescents. *Cyberpsychology, Behavior, and Social Networking, 20*(5), 296–304. doi:10.1089/cyber.2016.0669

Mullington J. M., Haack M., Toth M., Serrador J. M., & Meier-Ewert H. K. (2009). Cardiovascular, inflammatory, and metabolic consequences of sleep deprivation. *Progress in Cardiovascular Diseases*. *51*(4), 294-302. doi:10.1016/j.pcad.2008.10.003.

Murphy, M., & Fonagy, P. (2012). Mental health problems in children and young people. Annual Report of the

Chief Medical Officer 2012, Our Children Deserve Better: Prevention Pays, Chapter 10, 1–13

Musharraf, M. N. (2018). *Managing Sleep The Sunnah Way*. Maddington, Perth: Australian Islamic Library. https://nla.gov.au/nla.obj- 981460476/view

Naska A., Oikonomou E., Trichopoulou A., Psaltopoulou T., & Trichopoulos D. (2007). Siesta in healthy adolescents and coronary mortality in the general population. *Arch Intern Med, 167,* 296-301.

O'Leary, K., Bylsma, L. M., & Rottenberg, J. (2016). Why might poor sleep quality lead to depression? A role for emotion regulation. *Cognition and Emotion*, *31*(8), 1698–1706. https://doi.org/10.1080/02699931.2016.1247035

Purwanto, S. (2008). Mengatasi insomnia dengan terapi relaksasi. *Jurnal Kesehatan, 1*(2), 141-148. https: publikasiilmiah.ums.ac.id

Rahman, A., Dey, B. K., & Islam, M. N. (2013). Sleep deprivation, mental health, and anxiety of Chittagong University Students. *The Chittagong University J. of Biological Science, 8*(1-2), 135-146. https://www.academia.edu/39966042

Roberts, A. R. (2000). *Crisis intervention handbook: Assessment, treatment, and research (2nd ed.)*. New York, NY: Oxford University Press. https://books.google.co.id/books?id

Rousseau, S., Grietens, H., Vanderfaeillie, J., Hoppenbrouwers, K., Wiersema, J. R., Baetens, I., & Van Leeuwen, K. (2014). The association between parenting behavior and somatization in adolescents explained by physiological responses in adolescents. *International Journal ofPsychophysiology, 93*(2), 261–266. doi:10.1016/j.ijpsycho.2014.05.008

Safitri, A. (2018). Hubungan antara kesabaran dengan stres menghadapi ujian pada mahasiswa. J*urnal Islamika*, *1*(1), 34-40. https://ejurnal.umri.ac.id/index.php/JSI/article/vi ew/675

Sarfriyanda, J., Karim, D., & Dewi, A. P. (2015). Hubungan antara kualitas dan kuantitas tidur dengan prestasi belajar mahasiswa. *Jurnal Online Mahasiswa*, *2*(2), 1178-1185. https://jom.unri.ac.id/index.php/JOMPSIK/article/view/8282

Silk, J. S., Siegle, G. J., Whalen, D. J., Ostapenko, L. J., Ladouceur, C. D., & Dahl, R. E. (2009). Pubertal changes in emotional information processing: Pupillary, behavioral, and subjective evidence during emotional word identification. *Development and Psychopathology, 21*(01), 7-26. doi:10.1017/s0954579409000029.

Sulistiyani, C. (2012). Beberapa faktor yang berhubungan dengan kualitas tidur pada mahasiswa Fakultas Kesehatan Masyarakat Universitas Diponegoro Semarang. *Jurnal Kesehatan Masyarakat*, *1*(2), 280-292. *http://ejournals1.undip.ac.id/index.php/jkm*

Sutjiato, M., Kandou, G. D., & Tucunan, A. A. T. (2015). Hubungan faktor internal dan eksternal dengan tingkat stres pada Mahasiswa Fakultas Kedokteran Universitas Sam Ratulangi Manado. *Jurnal Ilmu Kesehatan Mahasiswa UNSRAT*, *5*(1), 30-42. http://ejournal.unsrat.ac.id

Widyasari, D.C., & Yuniardi, M. S. (2019). The prevalence of psychological distress among adolescents: An initial study of adolescents' mental health in Malang, Indonesia. Advances in Social Science, Education and Humanities Research, 386-389. doi:https://doi.org/10.2991/acpch-18.2019.92.

Zulfitri, Muis, A., Kaelan, C., Aulina, S., & Bahar, A. (2021). Effect of sleep quality and cognitive function in acute ischemic stroke patient. *Medicina Clínica Práctica*, *4*, 100220. https://doi.org/10.1016/j.mcpsp.2021.100220