Correlation Analysis Study on Stress and Sleep Deprivation Among NDUM Students

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Abstract. In the wake of the COVID-19 pandemic, students' well-being and academic performance have faced significant challenges, resulting in elevated stress levels and sleep disruptions. Sleep-related issues persistently affect students, spanning their learning sessions. Notably, the educational experiences of students, particularly cadets engaged in rigorous training regimens, have been profoundly impacted during and after the pandemic. This study aims to delve into the intricate relationship between stress and sleep disturbances, examining their combined effects on student well-being and academic achievements at the National Defence University of Malaysia (NDUM). The research objective is twofold: first, to explore the interconnected factors influencing stress and sleep deprivation, and second, to conduct correlation analyses using WEKA and SPSS software. To achieve the research aims, a comprehensive questionnaire has been administered to respondents, incorporating the Depression, Anxiety, and Stress Scale (DASS-21) and sleep deprivation assessments. The data analysis revealed significant correlations between stress levels and sleep deprivation, bolstered by rigorous statistical analyses using both SPSS and WEKA. Several variables exhibited robust interrelationships, highlighting the mutual influence between sleep deprivation and stress factors. Notably, the Bivariate Correlation analysis in SPSS underscored the substantial impact of sleep-related variables on stress-related factors, with many of these associations achieving statistical significance. Ultimately, this study sheds light on the critical link between inadequate sleep and heightened stress levels among students, emphasizing the need for targeted interventions to promote well-being and academic success.

1. Introduction

Stress is used word that has become progressively more complicated to describe. It has familiar meanings in both the psychological sciences and biological. Stress is a state in which an individual suffers physical or mental instability because of their way of life. Stress is described as any emotional, cognitive, or physical tension that, when formed, directly or indirectly impacts an individual's multiple biological system (D O Connor, 2021). Stress has a large impact on a person's performance. When under stress, the body releases a stimulating hormone known as 'adrenaline' into the bloodstream (Chu, 2021). This hormone, along with others, will cause several changes in the body in preparation for defence. As a result, the body responds to stress with a 'fight or flight' reaction.

Countless people suffer from sleep deprivation or do not get enough sleep, whether knowingly or unknowingly, tends to result in insomnia. Insomnia is a sleep disorder that has always been defined by everyone as difficulty sleeping (T.Roth, 2007). One will always toss and turn in bed all night, only to wake up feeling tired, resulting in tiredness and lack of energy the next day. Recent study reported that approximately 10% of adults experience insomnia disorder, while an additional 20% encounter intermittent symptoms. Vulnerability to insomnia is heightened among women, older adults, and individuals facing socioeconomic challenges. It frequently manifests as a chronic ailment, with a 40% likelihood of persisting over five years. (Morin C, 2022).

Insomnia has an impact on people's moods and ability to function throughout the day, making them feel lazy and weak. (Berkeley, 2020). The inability to sleep or stay asleep for an adequate length of time is another definition of insomnia, as is the inability to get the recommended amount of sleep.

Insomnia is known to exacerbate stress levels (Birch, 2022; Kalmbach, 2018), with insufficient sleep heightening stressors while stress, in turn, diminishes sleep duration and quality. Both sleep deprivation and stress can lead to enduring mental and physical health challenges. Cortisol, the stress hormone, plays a significant role in the insomnia cycle, as evidenced by studies showing elevated cortisol levels in individuals with insomnia, correlating with increased nighttime awakenings. Moreover, insomnia can elevate cortisol production (Basta, 2007), influencing the body's fight-or-flight response and potentially leading to weight gain and cardiovascular issues over time (Mohd Azmi, 2021). Therefore, it is imperative to examine stress levels among students statistically and analyse the resulting data comprehensively.

This research is conducted in the NDUM, with 54 undergraduate students varying from the age 18 to 24 which there are cadets and civilians from different type of educations levels. The variety of age is stated in the questionnaire such that every student from various educations level shown distinct level of stress, sleep deprivation and other issues may differ. The primary method to accomplish this research is through questionnaire is created to collect data from the respondents. Furthermore, the use of the software tools such as Waikato Environment for Knowledge Analysis (WEKA) and Statistical Package for the Social Sciences (SPSS) is primarily used for the data analysis of stress, sleep deprivation and other issues related. The data samples targeted more than forty students' respondents. As the data focusing only on the students in NDUM of various education level and age, thus the results are not universal and unfeasible to be used as a source for an extensive population.

Considering all factors, this study aims to identify stressors, sleep deprivation, and related issues among NDUM students, with the primary objective of analyzing these issues using SPSS and WEKA software.

2. Material and Method

To investigate the relationship between stress, sleep deprivation, and related issues, a comprehensive literature review was conducted, focusing on studies that utilized SPSS and WEKA for data analysis.

Cheong and Tan (2021) examined the connection between sleep quality and stress among Cognitive Science undergraduates at University Malaysia Sarawak. Using the Perceived Stress Scale and Pittsburgh Sleep Quality Index, their findings indicated a weak relationship between sleep quality and stress, with no significant interaction effects between gender and study year. Yitayih et al. (2021) explored the mental health of healthcare professionals in Ethiopia during the COVID-19 pandemic. Employing a classification tree model with a genetic search method, their study revealed significant correlations between psychological distress and demographic factors.

Building on these methodologies, this research employs SPSS and WEKA software for data analysis. To address the research questions, a comprehensive questionnaire was developed based on the DASS21 and sleep deprivation assessments.

The primary research questions are:

1. What is the relationship between stress levels and sleep quality among NDUM students?
2. How do demographic factors influence stress levels and sleep quality among these students?

The questionnaire has been distributed to NDUM students, focuses on key aspects influencing stress and sleep quality. Responses are anticipated from 54 undergraduate students varying from the age 18 to 24 which there are officer cadets and civilians, with different genders from the different type of educations levels from foundation, diploma, and bachelor's degree. The questions were designed based on insights from previous studies, addressing stress levels, sleep patterns, and relevant demographic factors.

To fulfil the study's objective, a comprehensive questionnaire comprising the Depression, Anxiety and Stress Scale (DASS21) which are well published from World Health Organization and sleep deprivation assessments was distributed to the respondents, focusing on key aspects influencing these problems. Data collection was conducted through questionnaire distribution to NDUM students, with subsequent analysis and interpretation using SPSS and WEKA. As per journal research, a quantitative approach was deemed suitable for this study, with a statistical method employed to evaluate relationships between the factors.

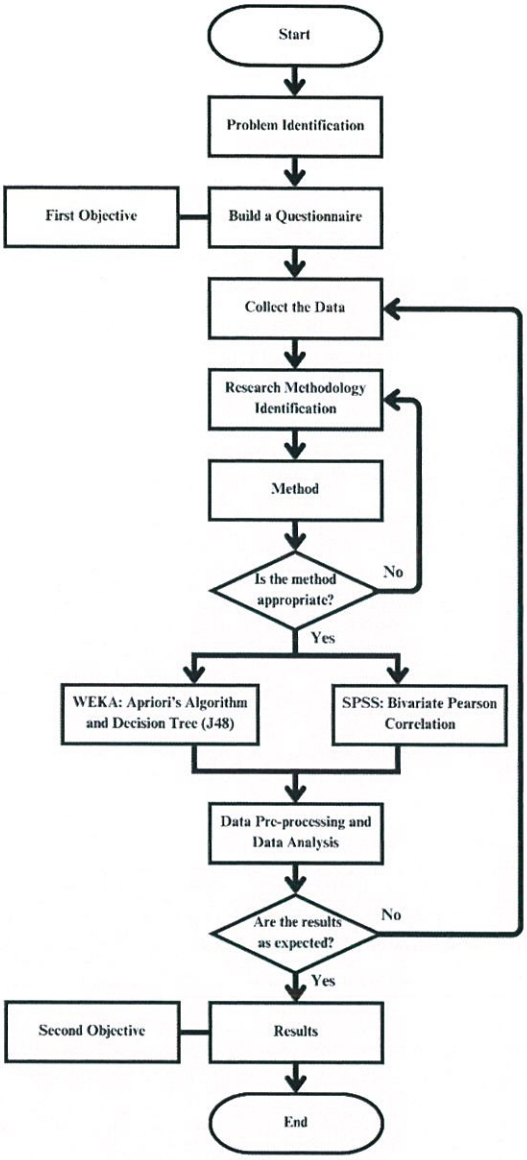


Fig. 2 Research Flowchart

Based on Figure 2, a problem must be defined to start this research paper which are most NDUM's students has experienced stress with sleep issues during and after the pandemic due to different type of learning lesson and this factor has seriously affected the well-being and the academic performance of the NDUM's students. Furthermore, data is needed to fluffily achieve this research objectives and to get the students data is through creating a questionnaire and distributed it throughout the students in NDUM. Thus, the first objective is achieved when the questionnaire is created, and the data is collected. Moreover, suitable software must be defined to be processed and analyzed the collected data based on related research papers that have been done by previous researchers. Therefore, WEKA and SPSS were chosen as the software to process and analyze the data. Lastly, the results of that undergone through the tools inside WEKA and SPSS is needed to analyze to know the outcome of this research whether any correlation between stress and sleep issues is there. In addition, stress with sleep issues has severely affected the

student's well-being and academic performance. Accordingly, the second objective is accomplished.

For the research, a questionnaire was conducted to gather sufficient data from the students in the NDUM. The material is assembled mostly through circulating a structured questionnaire, both closed-ended and open-ended queries to glean information on the respondents' opinions, experiences, and presence of understanding. The questions were outsourced from the journals that were researched as previous studies.

The target population comprised students at NDUM, including cadets and civilians aged 18 to 24, representing various educational levels within the institution. The questionnaire was developed using Google Forms and disseminated through online platforms such as WhatsApp and the students' official email addresses.

Upon submission by respondents, questionnaire data was automatically transferred to an Excel sheet, with all attributes converted into numeric format (0, 1, 2, 3, etc.) to facilitate efficient analytical processes. Subsequently, calculations for DASS21 and sleep deprivation levels were computed.

Pre-processing of the dataset occurred upon import into the software, with appropriate configurations set in the variable view section. This pre-processing encompassed social demographics, DASS scores, lifestyle factors, and sleep deprivation indicators.

The dataset underwent further refinement as it transitioned from the Google Form spreadsheet to an Excel sheet, containing only pertinent attributes for analysis. Through the utilization of DASS and sleep deprivation questions, stress and insomnia levels were discerned. Upon uploading to WEKA, the dataset underwent additional pre-processing, sorting instances from numerical to nominal formats. To evaluate and analyse the study data, a descriptive and correlation analysis was performed using SPSS, with numbers for categorical variables and standard deviation for continuous measurements. For variables that are continuous. The relationship between factors and continuous scales was investigated using Pearson bivariate correlation analysis. The Pearson product-moment correlation coefficient, denoted as, is used to evaluate the strength of a linear relationship between two variables. A value of 0 indicates that no relationship exists between variables, whereas a number greater than or less than 0 indicates that there is a positive or negative relationship between variables. Positive association indicates that the values of both variables are increasing at the same time, whereas negative association indicates that one variable's value is increasing while the other is decreasing.

The One-way ANOVA test was used to evaluate the correlation between the dependent and the covariates, which social demographics, DASS, lifestyle and sleep deprivation problem, as well as the dependents' age and education level. The test measures up the means of two or more independent characteristics to assess the statistical correlation between dependent and independent variables. The F statistic defines whether the group means are significantly distinct by determining the corresponding samples. When the p-value is less than 0.001, the variables are strongly correlated.

3. Results and Analysis

Data mining is a vital technique of analysis in this research. The result is displayed regarding the data collection and data analysis. The research was conducted to analyses the correlation on stress and sleep deprivation among NDUM students by using suitable methods. To accomplish the aspiration of the study, a questionnaire was given out to investigate the key factors affecting stress

and sleep deprivation among the respondents. The limitations along with the compatibility of the software will be explained.

The survey was conducted for the students in NDUM from the age 18 to 23 and above from both gender, male and female. In addition, the level of education is also taken in the survey to know if it has affected the students' level of stress and sleep deprivation. There are about 54 respondents which 50.9% were female and 49.1% were male respondents. Figure 3.1 shows the graph of the relationship between gender and age.

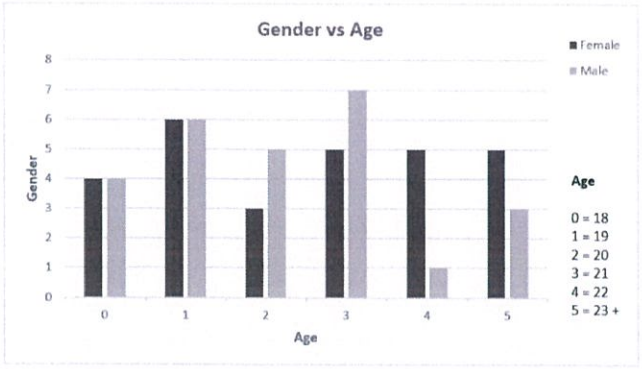


Fig. 3.1 The bar graph of the gender against age in NDUM

The Pearson test was implemented to examine the correlation among the factors. Pearson's correlation coefficient is a test statistic used to determine the statistical relationship, or correlation, between two continuous variables. Since it relies on the technique of covariance, it is known as the ideal technique of evaluating the correlation between distinct factors of significance. Thus, SPSS is used to investigate the stress and sleep deprivation correlation.

From example Figure 3.2, the r value that can be observed is 0.167. The $r = +0.167$ means that there is weak positive correlation between 'Jantina' and 'Sering Terbangun' attributes. This indicates that the higher the number of 'Jantina', the higher the value of 'Sering Terbangun'. The chosen level of significance for this test is 0.05. The value of significance for these two attributes is 0.229 which are greater than 0.05 which correlation is not statistically significant. Thus, as observed, this relationship is a weak positive correlation but there is not enough evidence to prove that this correlation exists in the research.

Meanwhile, for r value with negative numbers and lower than 0.05 are mostly has negative correlation between these attributes. For instances, the $r = -0.230$ means that there is weak negative correlation between 'Jantina' and 'Melakukan Senaman' attributes. The value of significance for these two attributes is 0.094 which are greater than 0.05 which correlation is not statistically significant. Thus, the correlation that gives out the same interpretation can be ignored. Figure 3.2 displays the complete output of the Pearson test.

Furthermore, different r values with significance value could give us another interpretation. For instances, $r = +0.680$ for 'Sukar Lelap' with 'Sering Terbangun' attributes means moderate positive correlation between these attributes. The chosen level of significance for this test is still 0.05. The value of significance for these two attributes is 0.000 which are lesser than 0.05 which correlation is statistically significant. Thus, as observed, this relationship is a moderate positive correlation so there is enough evidence to prove that this correlation exists in the research.

Correlations

		Umur	Jantina	StatusMerokok	MelakukanSenaman	SukarLelap	SeringTerbangun
Umur	Pearson Correlation	1	-.128	.048	.148	.114	.162
	Sig. (2-tailed)		.358	.731	.284	.410	.241
	N	54	54	54	54	54	54
Jantina	Pearson Correlation	-.128	1	-.100	-.230	.103	.167
	Sig. (2-tailed)	.358		.470	.094	.457	.229
	N	54	54	54	54	54	54
StatusMerokok	Pearson Correlation	.048	-.100	1	-.038	-.007	-.228
	Sig. (2-tailed)	.731	.470		.783	.961	.097
	N	54	54	54	54	54	54
MelakukanSenaman	Pearson Correlation	.148	-.230	-.038	1	.241	.216
	Sig. (2-tailed)	.284	.094	.783		.079	.117
	N	54	54	54	54	54	54
SukarLelap	Pearson Correlation	.114	.103	-.007	.241	1	.680**
	Sig. (2-tailed)	.410	.457	.961	.079		.000
	N	54	54	54	54	54	54
SeringTerbangun	Pearson Correlation	.162	.167	-.228	.216	.680**	1
	Sig. (2-tailed)	.241	.229	.097	.117	.000	
	N	54	54	54	54	54	54

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

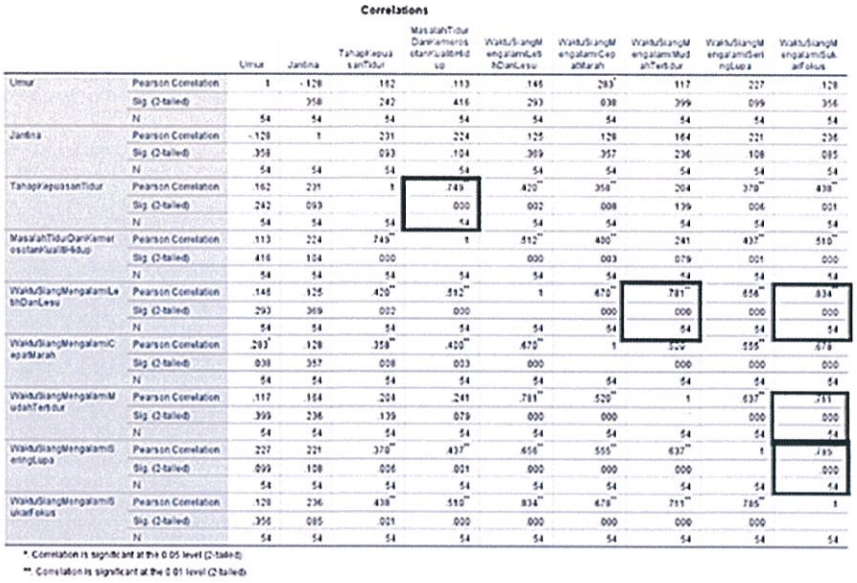
Fig. 3.2 Output of Pearson Test.

There is a lot of interpretation that can be done for Figure 3.3. For this figure let's consider r value from 0.7 to 1 as it shown the relationship is strong positive correlation and significance value less than the chosen significance level which is 0.05 so the strong correlations can be prioritized. The attributes to examined is 'Tahap Kepuasan Tidur', first r value to observed for this attribute is $r = +0.749$ which means it is strong positive correlation between 'Tahap Kepuasan Tidur' with 'Masalah Tidur Dan Kemerosotan Kualiti Hidup' attributes. This indicates that the higher the number of 'Tahap Kepuasan Tidur', the higher the value of 'Masalah Tidur Dan Kemerosotan Kualiti Hidup' and vice versa. The value of significance for these two attributes is 0.000 which are lesser than 0.05 which correlation is statistically significant. Thus, as observed, this relationship is a strong positive correlation and there is enough evidence to prove that this correlation exists in the research.

Furthermore, r value can be observed is $r = +0.781$ and $r = +0.834$ between 'Waktu Siang Mengalami Letih Dan Lesu' with 'Waktu Siang Mengalami Mudah Tertidur' attributes and 'Waktu Siang Mengalami Letih Dan Lesu' with 'Waktu Siang Mengalami Sukar Fokus' attributes respectively which means these attributes' relationship has a strong positive correlation. This indicates that if during daytime feeling tired and lethargic is higher, then to experiences falling asleep during daytime is higher. Same goes to having difficulty to stay focus during the daytime is also higher. Both relationship attributes have the same significance which are 0.000 and it is less than 0.05 that means the correlation is statistically significant. Thus, as observed, these relationships are a strong positive correlation and there is enough evidence to prove that this correlation exists in the research.

Moreover, r value between attribute 'Waktu Siang Mengalami Mudah Tertidur' with 'Waktu Siang Mengalami Sukar Fokus' is $r = +0.711$ which means these attributes' relationship has a strong positive correlation. This indicates that if to experiences falling asleep during daytime is higher, the having difficulty to stay focus during the daytime is higher. Lastly, the r value between attribute 'Waktu Siang Mengalami Sering Lupa' with 'Waktu Siang Mengalami Sukar Fokus' is $r = +0.784$ which means these attributes' relationship has a strong positive correlation. If often suffers forgetting during daytime higher, the having struggle to stay focus during the daytime is higher. Both relationship attributes have the same significance which are 0.000 and it is less than 0.05 that means the correlation is significant. Thus, as examined, these relationships are a strong

positive correlation and there is a sufficient proof to prove that this correlation occurs in the research. Figure 3.3 displays the complete output of the Pearson test.



Correlations

		Umur	Jantina	TahapKepuasanTidur	MasalahTidurDanKemerosotanKualitiHidup	WaktuSiangMengalamiLebihDanLesu	WaktuSiangMengalamiCepatMarah	WaktuSiangMengalamiMudahTerlelap	WaktuSiangMengalamiSeringLupa	WaktuSiangMengalamiSukarFokus
Umur	Pearson Correlation	1	-.128	.162	.113	.146	.283*	.117	.227	.128
	Sig. (2-tailed)		.358	.242	.416	.293	.038	.399	.099	.356
	N	54	54	54	54	54	54	54	54	54
Jantina	Pearson Correlation	-.128	1	.231	.224	.125	.128	.164	.221	.236
	Sig. (2-tailed)	.358		.093	.104	.369	.357	.236	.108	.085
	N	54	54	54	54	54	54	54	54	54
TahapKepuasanTidur	Pearson Correlation	.162	.231	1	.749**	.420**	.358**	.204	.378**	.439**
	Sig. (2-tailed)	.242	.093		.000	.002	.008	.139	.006	.001
	N	54	54	54	54	54	54	54	54	54
MasalahTidurDanKemerosotanKualitiHidup	Pearson Correlation	.113	.224	.749**	1	.512**	.490**	.241	.437**	.510**
	Sig. (2-tailed)	.416	.104	.000		.000	.003	.079	.001	.000
	N	54	54	54	54	54	54	54	54	54
WaktuSiangMengalamiLebihDanLesu	Pearson Correlation	.146	.125	.420**	.512**	1	.670**	.781**	.656**	.834**
	Sig. (2-tailed)	.293	.369	.002	.000		.000	.000	.000	.000
	N	54	54	54	54	54	54	54	54	54
WaktuSiangMengalamiCepatMarah	Pearson Correlation	.283*	.128	.358**	.490**	.670**	1	.709**	.555**	.678**
	Sig. (2-tailed)	.038	.357	.008	.003	.000		.000	.000	.000
	N	54	54	54	54	54	54	54	54	54
WaktuSiangMengalamiMudahTerlelap	Pearson Correlation	.117	.164	.204	.241	.781**	.520**	1	.637**	.785**
	Sig. (2-tailed)	.399	.236	.139	.079	.000	.000		.000	.000
	N	54	54	54	54	54	54	54	54	54
WaktuSiangMengalamiSeringLupa	Pearson Correlation	.227	.221	.378**	.437**	.656**	.555**	.637**	1	.785**
	Sig. (2-tailed)	.099	.108	.006	.001	.000	.000	.000		.000
	N	54	54	54	54	54	54	54	54	54
WaktuSiangMengalamiSukarFokus	Pearson Correlation	.128	.236	.439**	.510**	.834**	.678**	.785**	.785**	1
	Sig. (2-tailed)	.356	.085	.001	.000	.000	.000	.000	.000	
	N	54	54	54	54	54	54	54	54	54

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

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

Fig. 3.3 Output of Pearson Test.

For Figure 3.4, there are only two r values from 0.7 to 1 as it shown the relationship is strong positive correlation and significance value less than the chosen significance level which is 0.05. The first r value can be observed from this figure is $r = +0.773$ which means a strong positive correlation between the attributes 'Menggunakan Tenaga Dalam Cemas' with 'Panik Dan Melakukan Perkara Bodoh'. This indicates that if using more energy in panic is higher, panic and resulting doing foolish things is higher. The value of significance for these two attributes is 0.000 which is lesser than 0.05 which correlation is statistically significant. Thus, as observed, this relationship is a strong positive correlation so there is enough evidence to prove that this correlation exists in the research.

The second r value that can be observed in this figure is $r = +0.709$ between 'Panik Dan Melakukan Perkara Bodoh' with 'Tiada Harapan' which means these attributes' relationship has a strong positive correlation. If panic and resulting doing foolish things is higher, the value of no hope is higher. The value of significance for these two attributes is 0.000 which is lesser than 0.05 which correlation is statistically significant. As observed, this relationship is a strong positive correlation so there is enough evidence to prove that this correlation exists in the research. Figure 3.4 displays the complete output of the Pearson test.

Correlations

		Umur	Jantina	BertindakKeteraluan	Menggeletar	Menggunakan2TenagaDalamCemas	PanikDanMelakukanPerkaraBodoh	TiadaHarapan
Umur	Pearson Correlation	1	-.128	.113	.072	.076	.026	.047
	Sig. (2-tailed)		.358	.415	.605	.584	.850	.734
	N	54	54	54	54	54	54	54
Jantina	Pearson Correlation	-.128	1	.058	.354**	.182	.142	.092
	Sig. (2-tailed)	.358		.678	.009	.189	.305	.506
	N	54	54	54	54	54	54	54
BertindakKeteraluan	Pearson Correlation	.113	.058	1	.442**	.606**	.678**	.540**
	Sig. (2-tailed)	.415	.678		.001	.000	.000	.000
	N	54	54	54	54	54	54	54
Menggeletar	Pearson Correlation	.072	.354**	.442**	1	.559**	.446**	.354**
	Sig. (2-tailed)	.605	.009	.001		.000	.001	.009
	N	54	54	54	54	54	54	54
Menggunakan2TenagaDalamCemas	Pearson Correlation	.076	.182	.606**	.559**	1	.773**	.543**
	Sig. (2-tailed)	.584	.189	.000	.000		.000	.000
	N	54	54	54	54	54	54	54
PanikDanMelakukanPerkaraBodoh	Pearson Correlation	.026	.142	.678**	.446**	.773**	1	.709**
	Sig. (2-tailed)	.850	.305	.000	.001	.000		.000
	N	54	54	54	54	54	54	54
TiadaHarapan	Pearson Correlation	.047	.092	.540**	.354**	.543**	.709**	1
	Sig. (2-tailed)	.734	.506	.000	.009	.000	.000	
	N	54	54	54	54	54	54	54

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

Fig. 3.4 Output of Pearson Test.

These data sets are subjected to evaluate various factors affecting stress and sleep deprivation using the open-source WEKA data mining tool. J48 was implemented in this research as it is one of the Decision Tree's statistical classifiers. Based on Figure 3.5, the main attribute for this output is 'Tahap Pengajian Di NDUM'. If the 'Tahap Pengajian Di NDUM' is Diploma, then the tree further analyzes the 'Sukar Untuk Bangun Tidur'. If 'Sukar Untuk Bangun Tidur' is 'Teruk' then the class label age=19 and the number of instances which obey the classification is two. There are two students with the age 19 years old that studies diploma, who have the difficulty to wake up and it is bad. Repeat the analysis, if 'Sukar Untuk Bangun Tidur' is 'Sedikit' then the class label age=19 and the number of instances which obey the classification is one. Only one student who studies for a diploma at age 19 has difficulty waking up. Meanwhile, there are only two students of the age 18 years old that study for a diploma, who have difficulty waking up and it is moderate.

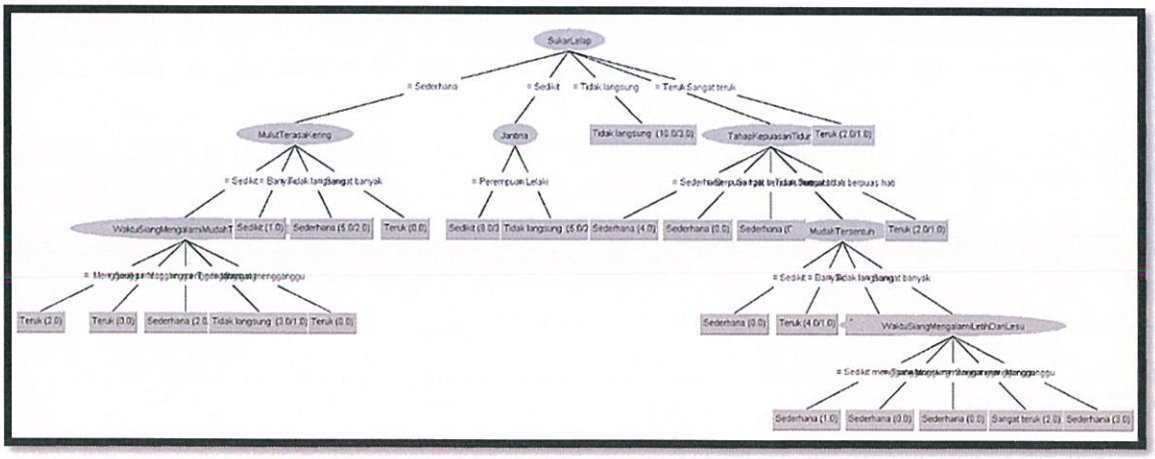


Fig. 3.5 Output of Decision Tree (J48).

According to Figure 3.5, the primary attribute for this output is 'Sukar Lelap'. If the 'Sukar Lelap' is 'Teruk', the tree then examines the 'Tahap Kepuasan Tidur'. If 'Tahap Kepuasan Tidur' is 'Tidak Berpuas Hati', the tree proceeds to examine the 'Mudah Tersentuh'. If 'Mudah Tersentuh' is 'Sangat Banyak', the tree then examines 'Waktu Siang Mengalami Letih Dan Lesu'. If 'Waktu Siang Mengalami Letih Dan Lesu' is 'Sedikit', then the class label 'Sering Terbangun' equals 'Sederhana', and the number of instances that follow the classification is one. A student is having trouble napping, which is bad. Then share their discomfort with sleep. Furthermore, if one is frequently touched, they will easily become exhausted during the day.

4. Discussion and Insights

According to analysis that had done using SPSS and considering only correlations that r value from 0.7 to 1 and significance value is lower than significance level, 0.05. There are few students who have a hard time falling asleep and at the same time often wake up during the night. This indicates that if the students having hard time to fall asleep during the night is higher, then the number of often wake up during the night is higher. This relationship is supported when using the 'Correlate Bivariate' in SPSS. Based on the analysis using SPSS, this relationship has enough evidence to prove that this relationship exists in the research. Furthermore, some students expressed that sleep satisfaction level is worsening and its affection their sleeping problem with deterioration of quality of life as a student. This suggested that if the students that sleep satisfaction is worsen, the sleeping problem with deterioration of quality of life also worsen. This relationship is proven by using SPSS. Thus, there is sufficient data to confirm that this relationship occurs in the research.

If during daytime feeling tired and lethargic is higher, then to experiences falling asleep during daytime is higher. The students that during daytime feeling tired and lethargic will eventually will also experiences falling asleep during daytime. In addition, same goes to having difficulty to stay focus during the daytime if the students feeling tired and lethargic during the day. The students could not focus on class and the event that the student will fall asleep during the class is higher. Moreover, if the students if to experiences falling asleep during daytime is frequent, the having difficulty to stay focus during the daytime is also frequent.

The student's mind is tired and only thinking of sleeping because the mind tells the body to take a rest which could lead to sleeping during the day because the student could not get a good night's sleep during the night. Thus, the student can lose focus during the day, especially during the class. Furthermore, if the students often suffer forgetting during daytime higher, the having struggle to stay focus during the daytime is higher. Since the students could not stay focused during the day, it could cause the students to often forget things. Focus helps to stay alert to the surroundings and to be able to be active during the day and to be able to study during the class.

4. Conclusion

The current study seeks to investigate the impact of sleep deprivation and stress on the lives of students at various educational levels and socioeconomic status, as well as gender differences among NDUM students. Sleep deprivation and stress were found to be significantly correlated with the students. Furthermore, there was a significant link between stress and sleep deprivation. Moreover, there was a significant relationship between sleep deprivation and stress with educational level. As a result, the current study contributed findings that can be used as a reference for students to understand the various factors that can affect their life, sleep quality,

behaviours, and so on. For future implementations, students can employ effective interventions to create a healthier environment of emotional intelligence during study period.

This research could have some drawbacks. One of the limitations is the distinction between an open and closed book test. The Malaysian government issued the Movement Control Order (MCO) in response to the Covid-19 pandemic to increase social distance and delay the spread of the Coronavirus. Because all educational institutions were closed during the Covid-19 pandemic, the Education Ministry executed online classes. All academic institutions use final exams and interactive online book exams as a replacement for physical closed book exams. As a result, closed book tests resulted in significantly higher stress levels than open book tests. Students perceive lower stress levels in open book tests and higher stress levels in closed book tests, so this can be concluded. As a result, it may have an impact on the accuracy of the current research's findings when compared to previous research.

On the contrary side, one potential limitation of this research is that there were more females in the data set than males. Because the latest research has addressed the gender difference in quality of sleep and stress, the large gender ratio may sway the findings of the study. Another limitation of this study is the small sample size of public and cadet students. Most of the respondents in this study are civilian students. The disparity between these two could also have influenced the results of the analysis, as it was impossible to determine whether stress and sleep deprivation impacted the cadet's students.

There are some proposals for future research. First, by asking respondents to estimate their efficiency in a specific phase, the researchers could improve the accuracy of self-reports through questionnaire design. When filling out the questionnaire, the researchers could, for example, ask the respondents to estimate their stress level and sleep quality during the exam preparation period.

Furthermore, to obtain more precise data, the researchers can begin data collection during the exam preparation week of students from various levels of education. When conducting research on its differences, researchers could pay attention to the ratio of public and cadet students among respondents. The unbalanced ratio of these two could influence the accuracy of the result. In the future, researchers could collect a more balanced public and cadet student ratio when investigating these two differences to acquire more precise results.

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