A Comparison Study of Methods to Solve the Mental Health Problem Between the Engineering and Non-Engineering Students

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Abstract - **Mental health is always affect the performance of an individual but has never aroused general concern among educator. Therefore, the main objective of this study was to identify the level of mental health between the engineering and non-engineering students, as well as the dominant methods being applied by the students in dealing with mental health problem. A survey has been used as the research design for this study. A total numbers of 450 engineering and non-engineering students were selected as respondents from three technical universities in Malaysia. The DASS-21 inventory and a set of self-developed questionnaire were used as the instrument for this study. The collected data were analyzed by using frequency, percentage, mean score and Mann Whitney U test. The findings showed that there was no significant differences in mental health problem and the selection of methods to overcome mental health problems between engineering and non-engineering students. In conclusion, the parties who play an important role in students' mental health problems should take the proactive action in order to monitor and help those who are facing the mental health problem.**

Keywords - **Dominant Methods, Mental Health Problem, DASS-21 inventory, Engineering, Non-engineering**

I. INTRODUCTION

Stress, anxiety and depression are the disorder that highly associated with mental health and often become the utmost important issue that the societal struggle with nowadays. The lifestyle in this digital era is full with challenges and complicated. As a result of this complexity, there is a "new syndrome" emergence and threaten the mankind with mental health problems. According to [1] and [2], stress, anxiety and depression are part of human life whether consciously or unconsciously and it changed the form with the passage of time. Mental health problems is not something unfamiliar to the people in Malaysia. It is something oppressed an individual and it is beyond the human capability to avoid from, regardless of the physical and emotional aspects [3]. Obviously, mental health problems can happen to anyone which can affect the thoughts, feeling and daily activities of an individual. The worse situation is this phenomena always occur among the university students [3]. If these problems are not resolved by the proper methods, then it will spread and become a virus among students. This statement can be proved by the research conducted by [4] and [5], which showed that a student at the university experienced a mental health problem in every semester. The main factors of this problem is due to the commitment that needed in the academic, financial and time management issues. The students who fail to manage mental health problem will facing a serious mental condition issue [6]. Besides, mental health problem also affects the personality and behavior of individuals in terms of depression, anxiety, and depressed in their daily life [7].

Not much studies in Malaysia being conducted about methods to overcome the mental health problems among the university students. Most of the studies focus on students' time management and the relationship with learning styles [5]; [8]. Some research findings have reported that management of mental health problems do have a significant relationship with academic achievement [5] , [8]. This means that if a student can well manage his/her mental health problems, his/her academic achievement will be improved and furthermore led them to satisfaction in life [5]; [9]; [10]. However, the challenges of today's students is not only to perform excellence in academic, but also need to equip themselves towards career excellence [11]. This issue is often discussed and claimed that the students who excel in academic are tend to have a low level of mental health problems compared to students who have low academic performance [12]. Thus, to identify the tools and methods that are effective and comprehensive as a solution to help students to deal with mental health problems is utmost important.

A systematic study has been conducted by [13] on the strategies and methods used by psychotic to solve the mental problem showed that most of the individuals who suffering from psychosis tend to apply more than one strategy/method to solve the mental health problems. Among the methods often used to solve the mental problem is to manage the time properly, share problem with others, emotional control, positive thinking and others. In conclusion, there are no one universally effective strategy or methods to solve mental health problem. If this problem is not resolved, it will lead to severe social problems and feeling suicidal [14].

As a result, to improve the quality of education of university students in Malaysia, these mental health problems need to be addressed more effectively. Various methods of mental health problem solution should be identified and meet the needs of each individual because every individual is different and unique in dealing with the same problem. Therefore, this study is completely necessary in order to understanding the real phenomena

and find out the appropriate preventive methods that may overcome the mental health problem and to improve the students' academic achievement. This study also investigated the level and methods dominant in solving the mental health problems, especially for the engineering and non-engineering students.

II. METHODOLOGY

The study was conducted by using a survey to assess the level of mental and methods of addressing mental health issues among the engineering and non-engineering students. A total of 450 students from three technical universities in Malaysia, namely Universiti Tun Hussein Onn Malaysia (UTHM), University of Technical Malaysia Melaka (UTeM), and Universiti Malaysia Perlis (UniMAP) were involved in this study. The samples were selected by using a stratified random sampling technique [15]. The instrument used for this study was DASS-21 inventory and a set of self-developed questionnaire.

The DASS-21 [16] consists of 21 items, which examined the mental health level from three aspects, namely stress, depression, and anxiety. Meanwhile, the self-developed questionnaire consists of 81 items that assess methods to overcome mental problems from the aspects of physical, emotional, behavioral, cognitive, social, and spiritual, based on the review of previous studies [17],[18],[19],[20],[21],[22]. The Cronbach Alpha value of the self-developed questionnaire obtained from a pilot test was 0.95. The gathered data were analyzed by using frequencies, percentage, and mean score and Mann-Whithney U test.

III. RESULTS

A. Mental Health Level

In order to determine the students' mental health level, the collected data were analyzed into three main aspects, which are depression, anxiety and stress. The level of mental health was measured into five levels, which are normal, mild, moderate, severe and extremely severe. Those students who have the normal, mild and moderate level will only need the general intervention, meanwhile those students who have the severe and extremely severe level will need a specific intervention to overcome the mental health problem. The findings on the mental health level among the Engineering and Non-engineering students is shown in Table I. The findings indicated that the majority of the students tended to have a normal mental health level in the three different aspects of mental health, about 57.3% for stress, 36.9% for anxiety, and 62.7% for depression. However, about 7.2% of student tended to need specific intervention for stress, about 25.1% for anxiety and about 12.9% for depress. Mann Whitney U test was used to analyze the differences in mental health level between engineering and non-engineering students as shown in Table II. Findings showed that there were no significant difference between engineering and non-engineering student in the three aspects of mental health, which were stress (Z = -.342, p = .732), anxiety (Z = -.648, p = .517) and depression (Z = -.245, p = .806).

TABLE I
Level of Mental Health between Engineering and Non-engineering Students

Level	Aspects of Mental Health					
	Stress		Anxiety		Depress	
	f	%	*f*	%	*f*	%
Normal	258	57.3	166	36.9	282	62.7
Mild	70	15.6	99	22.0	61	13.6
Moderate	96	21.3	72	16.0	49	10.9
Severe	25	5.6	49	10.9	46	10.2
Extremely Severe	1	2	64	14.2	12	2.7
Total	450	100	450	100	450	100

TABLE II
The Comparison in Mental Health Score between Engineering and Non-engineering Students using Mann Whitney U test

	Stress	Anxiety	Depress
Mann-Whitney U	21179.5	20791	21303
Wilcoxon W	69695.5	69307	69819
Z	-.342	-.648	-.245
Asymp. Sig. (2-tailed)	.732	.517	.806

a. Grouping Variable: Discipline (Engineering & Non-engineering)

Even though the Mann Whitney U Test showed that there were no significant difference between engineering and non-engineering student in the three aspects of mental health, the further analyses on the comparison between engineering and non-engineering student were conducted by using frequency and percentage across the level for three aspect of mental health problem. The results were shown in Table III to Table Table V.

TABLE III
The Comparison of Stress Level between Engineering and Non-engineering Students

Level	Discipline			
	Engineering		Non-Engineering	
	f	%	*f*	%
Normal	182	58.5	76	54.7
Mild	43	13.8	27	19.4
Moderate	70	22.5	26	18.7
Severe	16	5.1	9	6.5
Extremely Severe	0	0	1	1
	Mean= 7.05	SD= 3.88	Mean= 7.19	SD= 3.83

TABLE IV
The Comparison of Anxiety Level between Engineering and Non-engineering Students

Level	Discipline			
	Engineering		Non-Engineering	
	f	%	*f*	%
Normal	120	38.6	46	33.1
Mild	63	20.3	36	25.9
Moderate	51	16.4	21	15.1
Severe	32	10.3	17	12.2
Extremely Severe	45	14.5	19	13.7
	Mean = 6.02	SD= 3.77	Mean = 6.30	SD = 3.89

TABLE V
The Comparison of Depress Level between Engineering and Non-engineering Students

Level	Discipline			
	Engineering		Non-Engineering	
	f	%	*f*	%
Normal	195	62.7	87	62.6
Mild	40	12.9	21	15.1
Moderate	35	11.3	14	10.1
Severe	34	10.9	12	8.6
Extremely Severe	7	2.3	5	3.6
	Mean = 4.94	SD = 4.17	Mean =5.02	SD = 4.21

The results in Table III showed that non-engineering students possess higher percentage in stress level compared with engineering students. However, engineering students stated a higher percentage in moderate level about 3.8% (Engineering 22.5%, Non-engineering 18.7%). Despite the non-engineering stated a higher mean score in anxiety, but overall, the engineering students (14.5%) are possess a higher percentage in extremely severe level compared to non-engineering student (13.7%), as shown in Table IV. The condition remain the same for the aspect of depress level. Although the mean score showed that non-engineering students possess to higher score compared to engineering students, but there is about 13.2% of engineering students tend to have severe and extremely severe level in depress compared to non-engineering students that only about 12.2% (refer to Table VI).

B. Methods Selection to Solving Mental Health Problem

To examine the dominant methods used among the students in dealing with mental health problem, the sum, mean and standard deviation were applied as shown in Table VI. There are six methods being identified as the common solution during the students deal with mental health problem based on [17],[18],[19],[20],[21],[22]. The findings indicated that the ranking of the dominant methods chosen by the students in descending order were cognitive> social>physical>emotion> behavioral> spiritual. The highest score is cognitive method with M=1.94, SD= 0.57 and ∑= 872.40. On the other hand, the lowest score is spiritual method with M=1.63, SD= 0.63 and ∑= 733.64. Mann Whitney U test was used to analyze the differences in methods selection to solve mental health problem between engineering and non-engineering students as shown in Table VII. Findings showed that there were no significant difference between engineering and non-engineering student in the four types of methods, which were physical (Z = -.236, p = .8814), Emotion (Z = -.701, p = .483), Behavioral (Z = -.280, p =.780) and Social (Z = -1.919, p = .055). Meanwhile, there were a significant difference between engineering and non-engineering student in the cognitive (Z = -2.002, p = .045) and Spiritual (Z = -2.538, p = .011). The mean rank for both cognitive and spiritual of Non-engineering students (Cognitive = 243.83, Spiritual = 248.75) is slightly higher than the Engineering students (Cognitive = 217.31, Spiritual = 215.11).

TABLE VI
The Comparison in Mental Health Score between Engineering and Non-engineering Students using Mann Whitney U test

Methods	Sum	Mean	Std. Deviation
Cognitif	872.40	1.9387	.56762
Social	871.08	1.9357	.57625
Physical	847.25	1.8828	.50723
Emotion	762.98	1.6955	.56532
Behavioural	762.11	1.6936	.58034
Spritual	733.64	1.6303	.62537

TABLE VII
The Comparison in Methods Selection between Engineering and Non-engineering Students using Mann Whitney U test

Methods	Physical	Emotion	Behavioral	Cognitive	Social	Spiritual
Mann-Whitney U	21314.5	20723	21258	19066	19171.5	18382.5
Wilcoxon W	31044.5	69239	69774	67582	67687.5	66898.5
Z	-.236	-.701	-.280	-2.002	-1.919	-2.538
Asymp. Sig. (2-tailed)	.814	.483	.780	.045	.055	.011

a. Grouping Variable: Discipline (Engineering & Non-engineering)

IV. DISCUSSION

The level of mental health of students is measured through three aspects of mental health, namely stress, anxiety, and depression. The scale used to assess the level is divided into five stages, namely, normal, mild, moderate, severe, and very severe. For the normal, mild and moderate level, those students only need for the common interventions, which do not require special attention. Whereas, for the severe and very severe level, those students were included in the category of special intervention needed, they requires special attention and

treatment in order to overcome the mental health problem.

Findings indicate that the level of students' mental health is at a normal level for the stress, anxiety and depression. This finding is similar with the findings of [23] and [24] who found that the mental health of university students are at a normal level. Based on the finding, only a small number of students require special treatment but cannot be ignored. This statement is in line with the findings [16], which found that stress, anxiety and depression were significantly correlated. These findings were also supported by [2] which reported that the level of mental health among engineering students and engineering students at the university were tended to have a normal level of mental health. However, the findings of the study by [13] and [14] showed the level of mental health among students is at a moderate level. Even though the findings indicated the level of mental health among students tended to have a normal level, specific monitoring and intervention should be taken for those who have severe and extremely severe level. Healthy mental conditions may increase the student academic achievement to ensure their ability in tackling the challenges in the future.

Based on the analysis that have been carried out, it can be concluded that cognitive methods as the most dominant method, followed by the social, physical, emotional, behavioral and spiritual used by the engineering and non-engineering students at three universities in dealing with mental health problems. The findings showed that students prefer to use cognitive methods that comprise of the elements of openness mindset and think positively. This findings is in line with the obtained by [25]. While spiritual methods comprise of elements of counseling, motivation, and sharing problems. The factors that may cause this method is the least popular are to encounter with counseling only for those who really problematic and require specific monitoring. In addition, they have to spend quite a long time for the process of meetings and discussions with counsellor. Efforts should be taken to help the students in selecting the suitable methods in dealing with mental health problem because students are the main driver of the country's progress in the future.

The results of this study showed that there is not much difference in the use of methods to deal with mental health problems among students in engineering and non-engineering discipline. This finding is similar with the findings of study conducted by [26] that found that the field of study of an individual is not influenced in the choice of methods to deal with mental health problems.

The differences that exist in the cognitive and spiritual methods may be due to differences in focus and learning in the discipline of Engineering and Non-engineering students. The nature of Engineering focus more on logical and fact in finding the solution and the answer for the solution normally is constant. Meanwhile Non-engineering focus more on methods to find solutions and the answer is dynamic. This statement is in line with the argument of [27]. For engineering students, to find the answer for a given problem has the fix and unchangeable solution and this makes them difficult to accept other possibilities that can solve their problems. In contrast, for Non-engineering students, each of the problems can have variety of solution as long as the method used can find the solution. This nature of non-engineering students affect the choice of methods selection in dealing with mental problems. However, these differences do not reflect the overall engineering and non-engineering students thinking and the method selection in dealing the mental health problem, because the difference is quite small.

V. CONCLUSION

As a conclusion, the mental health problems experienced by students at these three universities involved in the study were at the normal levels. The findings in this study showed that the dominant methods used to solve mental problems in descending order were cognitive method, followed by the social, physical, emotional, behavioral and spiritual. This study also showed that there was a significant difference between engineering and non-engineering students in the selection of methods in addressing mental health problems. Therefore, the issue of mental health problems should be given serious awareness by all parties. This issue needs to be addressed before it spreads and becomes more severe phenomenon. As the saying goes "prevention is better than cure". Mental health problems should be avoided in order to provide the best quality of learning proses for the university students. Further study may be conducted by involving more university students to obtain a better result for this study. In addition, qualitative methods such as interviews can be used in the data collection process in order to gather more detailed information on mental health and methods of addressing the mental health problem.

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