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# An Evaluation of Mental Health based on the Big Five Personality Traits and Machiavellianism in Domestic and International Students in Malaysia

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## Abstract

The purpose of this study was to investigate the relationship between the Big Five personality traits and Machiavellianism on Malaysian and international university students. The sample population consisted of 755 students (352 international and 403 local students) that were selected through multi-phase clustering at a Malaysian university. The instruments used were the NEO Five-Factor Inventory (NEO FFI), Mack IV, and General Health Questionnaire (GHQ). Data was analysed by means of two-way ANOVA, correlation analysis, and regression analysis. The outcome of the two-way ANOVA showed that neuroticism, agreeableness, and overall mental health and its subscale were significantly different between male and female students. A strong correlation was found between mental health, neuroticism, and Machiavellianism in both groups. According to the regression analysis, neuroticism held the highest effect on students' mental health in both groups.

**Keywords:** Big Five personality; Machiavellian personality; Mental health; Students; NEO-FFI; GHQ28; Mach IV.

## INTRODUCTION

Mental health consists of our emotional, psychological, and social well-being. It affects how individuals think, feel and behave while engaging in our daily life. Therefore, global interest in mental health as a topic of public health has been increasing. In particular, mental health amongst university students is still an area of concern for many psychologists due to the high level of psychological distress reported by students [1]. Moreover, some students have been found to be effected by mental health issues during the period of their study [2]. According to a report made by the National Survey of College Counselling Centers, there has been an increase of 82% in the number of students who report experiencing serious psychological issues [3]. This then drives one to consider effective and accurate methodologies for mental health evaluation to ensure that students have access to an efficient study environment that will not negatively impact their mental health.

In light of this growing concern, research has been undertaken to examine effective ways in assisting students to overcome mental problems. For instance, Kulygina and Loginov [37] developed a multi stage program to offer actual psychosocial adjustment to students as well as to help promote their personality growth. This program could be helpful in providing integrated psychosocial support to avoid mental health issues among students and to enhance their educational process. Charkhabi and colleagues [38] presented an experimental study investigating the effects of Spiritual Intelligence Training (SIT) on the mental health of high school students in Iran. The authors claimed that their method was able to decrease psychological disasters while having a positive impact on the mental health of the participating high school students. Still, more research is necessary in how effective programs might be developed to help students. However, in order for effective intervention programs to be in put in place it is first necessary to understand the relationship between personality and mental health.

### The Big Five Personality Traits and Mental Health

The Big Five Personality Traits are derived from a theory that classifies individual's personality based on five factors: openness, agreeableness, extraversion, conscientiousness and neuroticism (Goldberg, 1990). Over the last decade, the Big Five Model has grown to become an influential structure in

organizing and understanding individuals' behaviour and personality traits.

Personality, itself, consists of the main psychological dimensions that facilitates each individuals' lifestyle formation and has been used in many psychological aspects; such as personality disorders [4, 5], academic achievement [6], learning style [7], career success [8, 9], and job satisfaction [10, 11].

Mental health evaluations based on the conventional personality theory (the Big Five) are considered more efficient because personality is one of the most important psychological factors that correlate with mental health [12, 13]. Noting this, researchers have worked on examining the relationship between the Big Five personalities and mental health.

In examining the Big Five personality factors with mental health, previous research has shown with consistency that the trait of neuroticism is the main factor associated with poorer mental health. However, results have been mixed regarding the relationship between the factors of extroversion, openness, conscientiousness and agreeableness and one's overall mental health. For the most part these traits have been associated with better mental health, but to different extents depending on the study [39-43]. Along with the consistent link to poorer mental health, neuroticism has also been linked to mental health problems such as depression and suicidal ideation [44, 45].

**Machiavellianism and Mental Health**

Aside from examining the link between the Big Five personality traits and mental health, this research also examines the link between the Machiavellian personality trait and mental health. Christie and Geis [23] introduced the term 'Machiavellianism' as a way to describe the tendency to manipulate and abuse others. Following the meaning of this term, there has been an exponential growth of interest in examining socially aversive traits referred to as Machiavellianism and their psychopathology determinants and correlates. Machiavellianism has been hypothesized as a normal personality type by the authors. Individuals who are Machiavellian in their personality are likely to behave in a cold and manipulative manner. Machiavellianism has also been linked to juvenile delinquency [14].

Machiavellianism is negatively correlated with conscientiousness, agreeableness, and empathy [15, 16]. Those described with a high level of Machiavellianism show a willingness to use other people for the purpose of achieving personal goals [17]. They employ a variety of tactics to manipulate others [18]; such as making others feel embarrassed, ashamed, or guilty [18]. Individuals with a high degree of Machiavellianism

tend to face difficulties in interacting positively with others and maintaining quality friendships [19].

Understanding the term Machiavellianism as it is used to describe a type of character leads to the consideration of how this personality relates to one's well-being. Based on the given description of Machiavellianism we would hypothesise a negative relationship between Machiavellianism and one's overall mental health. This hypothesis matches the findings of McHoskey [46] who reported a negative association between Machiavellianism and well-being. Research examining the Machiavellian trait on mental health found there to be a positive association between Machiavellianism and anxiety [20-22]. However, it has been questioned whether this association results from the tendency of Machiavellianism to raise negative feelings [23]. It has also been argued that a high level of anxiety is in conflict with Machiavellian concepts; specifically in terms of interpersonal conflicts [24]. In earlier research examining the trait of Machiavellianism on mental health, Nigro and Galli [25] stated that there appears to be a positive correlation between Machiavellianism and anxiety. They also noted that high Machiavellianism could be associated with moderate anxiety. However, Fehr, Samsom, and Paulhus [47], in their literature review on Machiavellian personality, reported that Machiavellianism is consistently correlated with anxiety.

Gurtman [48] reported the associations of Machiavellianism with crucial problems such as intimacy, sociability, and poor interpersonal relationships. A negative link between Machiavellianism and self-confidence has also been reported [15, 26].

It is believed that an individual with a high level of Machiavellian personality may experience significant harmful effects on their mental health that result from amoral orientation and actual execution of unethical acts. Individuals with a high level of Machiavellianism might also suffer more than they profit from their orientation towards others due to low satisfaction, high anxiety, and risking psychological well-being [27]. These findings have led Aghababaei and Blachnio [49] to suggest that individuals with Machiavellianism may not live a long and happy life.

Aside from reviewing how Machiavellianism may impact one's wellbeing, research has also been conducted linking this personality trait with the Big Five personality traits. With regards to Machiavellianism and agreeableness and conscientiousness a moderate negative to negative correlation has been reported [50, 15, 51]. However, for the relationship between the personality trait of neuroticism and Machiavellianism results have been mixed between those who found a moderate association [52] and those who found a positive correlation [53,

51]. A positive correlation has also been found between extraversion and Machiavellianism [54, 55, 51].

**Present Study**

Though much research has been conducted examining the relationship between the Big Five personalities and student's mental health, no effort has been made to investigate mental health based on the General Health Questionnaire (GHQ) method. Therefore, this study utilizes the GHQ and correlation statistical analysis to investigate mental health based on the Big Five Personality factors amongst international and domestic university students in Malaysia. This study also examined the relationship between the Big Five personality traits and their relationship to Machiavellianism and mental health.

The investigation hypothesis for this research assumed that mental health is significantly affected by the Big Five personality factors and Machiavellian personality. In other words, it is possible to classify student's mental health by using the Big Five personality factors and Machiavellian personality; which was the aim of this study.

# MATERIALS AND METHOD
## Participants

This study consisted of 755 participants, who were students at the University of Malaysia, of which 352 were international students (147 females and 205 males) and 403 were domestic students (170 females and 233 males). Approval was obtained from the university's Research Ethics Committee. The age of respondents ranged from 19 to 54 (mean age=25.88, SD=6.27). Participants consisted of students enrolled at both the undergraduate and postgraduate level. Recruitment, through the convenience sampling method, occurred during the first week of the semester with a self-administrated questionnaire that was distributed to the participants during the working hours of nine AM to five PM. A written announcement was provided to all potential participants outlining the purpose of the study and that participation was voluntary and anonymous. Those students who agreed to participate were provided with a consent form.

## Measures

A total of three surveys were used for this research: the NEO-FFI), the Mental Health Questionnaire, and the Mach IV.

**NEO-FFI:** The NEO-FFI [28] is a shortened form of the NEO-PI-R which includes 60 items. The NEO-FFI consists of five dimensions: Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness. Each of the dimensions possesses 12 items. Reliability and validity of the 60 items were examined by internal consistency and exploratory factor analysis [29, 30]. The Likert scale method ranging from strongly disagree to strongly agree is used to indicate the respondents' agreement to each item. The Cronbach alpha is reported as: Neuroticism 0.88; Extraversion 0.81; Openness 0.74; Agreeableness 0.77; and Conscientiousness 0.87.

**Mental Health Questionnaire (28 GHQ):** The GHQ-28 [31] was developed as a screening instrument to detect the possibility of developing mental illnesses and emotional distresses. This scale has 28 items that has been divided into four sub-scales: somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression [31]. A four point Likert scale is utilized to record responses, which consist of not at all, no more than usual, rather more than usual and much more than usual. It takes around five minutes to complete the questionnaire. Many studies have investigated the validity and reliability of this test in different settings. The Cronbach's alpha has been reported to be between 0.9-0.95 [32] with test-retest reliability reported between 0.78- 0.90 [33].

**Mach IV:** the Mach IV consists of 20 items that are designed to understand individuals interpersonal option and way of thinking towards people and things. The Likert scale method utilized for this survey ranges from strongly disagree to strongly agree. The Cronbach alpha was reported to be between 0.70 - 0.76 [34-36].

# RESULTS
## Descriptive statistics and Reliabilities

Examination of reliabilities, with the Cronbach's Alpha method, and factor structure suggests that the NEO-FFI, Mach IV, and GHQ28 have good internal psychometric properties. Therefore, based on the reliability alpha values of all the variables, which were found to be greater than the standard of 0.70, the variables were deemed to be reliable. As shown in Table 1, the alpha Cronbach for the scales were between 0.88 - 0.94. The alpha Cronbach was done prior to testing the research hypothesizes for evaluation on the internal consistency on all instruments.

**Table-1: Descriptive Statistics and Reliabilities**

| | | α | Mean | SD | N | Min | Max |
|---|---|---|---|---|---|---|---|
| International | Neuroticism | 0.94 | 1.91 | 0.59 | 352 | 0.17 | 4.00 |
| | Extroversion | 0.93 | 2.35 | 0.57 | 352 | 0.42 | 3.75 |
| | Openness | 0.93 | 2.31 | 0.33 | 352 | 1.17 | 3.25 |
| | Agreeableness | 0.88 | 2.14 | 0.68 | 352 | 0.00 | 3.67 |
| | Conscientiousness | 0.93 | 2.49 | 0.64 | 352 | 0.08 | 4.00 |
| | GHQ | 0.91 | 1.42 | 0.55 | 352 | 0.04 | 2.75 |
| | Mach | 0.86 | 2.88 | 0.60 | 352 | 1.14 | 4.75 |
| Malaysia | Neuroticism | 0.90 | 1.95 | 0.48 | 403 | 0.33 | 3.58 |
| | Extroversion | 0.88 | 2.37 | 0.41 | 403 | 0.17 | 3.58 |
| | Openness | 0.90 | 2.33 | 0.36 | 403 | 1.00 | 3.33 |
| | Agreeableness | 0.88 | 2.11 | 0.53 | 403 | 0.00 | 3.83 |
| | Conscientiousness | 0.90 | 2.48 | 0.51 | 403 | 0.08 | 4.00 |
| | GHQ | 0.91 | 1.42 | 0.51 | 403 | 0.00 | 2.36 |
| | Mach | 0.89 | 2.99 | 0.49 | 403 | 1.37 | 4.75 |

**Comparison of the Big Five subscales and Mental Health amongst International and domestic students by Gender**

To assess whether there was a significant difference between gender (Male and Female), groups (Malaysian and International) and their interaction (Groups*Gender) a two-way ANOVA was applied. Prior to data analysis all dependent variables including neuroticism, extroversion, openness, agreeableness and conscientiousness were subjected to a normality test where the results revealed that all these variables were distributed normally. The outcomes of the two-way ANOVA showed that neuroticism and agreeableness were significantly different between males and females. There was no significant difference between Malaysian and international students for all Big Five personality dimensions. According to these results there was a significant interaction between gender and groups for extroversion.

**Table-2: Summary of results of Two Way Anova for the Big Five subscales**

| | Source | df | MS | F | P value |
|---|---|---|---|---|---|
| Neuroticism | Group | 1 | 0.032 | 0.113 | 0.736 |
| | Gender | 1 | 8.06 | 28.61 | 0 |
| | Group * Gender | 1 | 0.01 | 0.037 | 0.848 |
| Extroversion | Group | 1 | 0.209 | 0.844 | 0.359 |
| | Gender | 1 | 0.514 | 2.074 | 0.15 |
| | Group * Gender | 1 | 0.943 | 3.807 | 0.051 |
| Openness | Group | 1 | 0.032 | 0.257 | 0.613 |
| | Gender | 1 | 0.027 | 0.222 | 0.638 |
| | Group * Gender | 1 | 0 | 0.003 | 0.96 |
| Agreeableness | Group | 1 | 0.365 | 0.99 | 0.32 |
| | Gender | 1 | 3.203 | 8.699 | 0.003 |
| | Group * Gender | 1 | 0.003 | 0.009 | 0.926 |
| Conscientiousness | Group | 1 | 0.002 | 0.007 | 0.935 |
| | Gender | 1 | 0.33 | 0.982 | 0.322 |
| | Group * Gender | 1 | 0.039 | 0.117 | 0.733 |

To assess whether there was a significant difference between genders (Male and Female) and groups (Malaysian and International) and also their interaction (Groups* Gender), a two-way ANOVA was applied. Prior to the data analysis all dependent variables including Somatization, Depression, Anxiety, Social Dysfunction, and total GHQ were subjected to a normality test that indicated these variables were distributed normally. The outcomes of the two-way ANOVA showed that the overall mental health and subscales (somatization, depression, anxiety, and social dysfunction) were significantly different between males and females. There was no significant difference between Malaysian and international students for overall mental health and the subscales (somatization, depression, anxiety, and social dysfunction). According to these results there was no significant interaction between gender and groups for overall mental health and subscales (somatization, depression, anxiety, and social dysfunction).

**Table-3: Summary of results of Two Way Anova for mental health subscales**

|  | Source | df | MS | F | P value |
|---|---|---|---|---|---|
| Somatization | Group | 1 | 1.064 | 2.654 | 0.104 |
|  | Gender | 1 | 6.694 | 16.698 | 0 |
|  | Group * Gender | 1 | 0.005 | 0.012 | 0.913 |
| Depression | Group | 1 | 1.543 | 2.871 | 0.091 |
|  | Gender | 1 | 4.756 | 8.849 | 0.003 |
|  | Group*Gender | 1 | 0.013 | 0.025 | 0.875 |
| Anxiety | Group | 1 | 0 | 0 | 0.995 |
|  | Gender | 1 | 8.109 | 17.196 | 0 |
|  | Group*Gender | 1 | 0.029 | 0.061 | 0.805 |
| Social Dysfunction | Group | 1 | 0.332 | 1.191 | 0.275 |
|  | Gender | 1 | 1.181 | 4.243 | 0.04 |
|  | Group*Gender | 1 | 0.058 | 0.209 | 0.647 |
| Total GHQ | Group | 1 | 0.064 | 0.231 | 0.631 |
|  | Gender | 1 | 4.966 | 17.841 | 0 |
|  | Group*Gender | 1 | 0.023 | 0.084 | 0.772 |

To assess whether there was a significant difference between gender (Male and Female), groups (Malaysian and international) and also their interaction (Groups*Gender) a two-way ANOVA was applied. Prior to the data analysis all dependent variables, including a positive view of human nature, cynical view of human nature, positive interpersonal tactics, negative interpersonal tactics and total Machiavellianism, were subjected to a normality test that revealed these variables to be distributed normally. The outcome of the two-way ANOVA on the Positive View of Human Nature showed that there was no significant difference between males and females (F= 0.02, p= 0.887) while there was a significant difference between Malaysian and international students for a positive view of human nature (F=8.232, p=0.004). According to these results there was no significant interaction between gender and groups for positive view of human nature. The cynical view of human nature was not significantly different between males and females (F= 1.425, p= 0.233), but was found to be significantly different between the Malaysian and international students (F=4.42, p=0.036). According to these results, there was no significant interaction between gender and groups for cynical view of human nature.

A review of positive interpersonal tactics showed that there was no significant difference between males and females (F=0.058, p= 0.809) or between the Malaysian and international students (F=0.865, p=0.353). According to these results there was no significant interaction between gender and groups for positive interpersonal tactics. Results also showed no significant difference between males and females for negative interpersonal tactics (F= 0.201, p= 0. 654) or between Malaysian and international students (F=1.881, p=0.177). According to these results there was no significant interaction between gender and groups for negative interpersonal tactics.

The examination of total Machiavellianism showed that there was no significant difference between males and females (F= 0.566, p= 0.452) as well as between Malaysian and international students for total Machiavellianism (F=0.299, p=0.584). According to these results there was no significant interaction between gender and groups for total Machiavellianism.

**Table-4: Summary of results of Two Way Anova for Machiavellian subscales**

|  | Source | df | MS | F | P value |
|---|---|---|---|---|---|
| Positive View Human Nature | Group | 1 | 1.112 | 8.232 | 0.004 |
|  | Gender | 1 | 0.003 | 0.02 | 0.887 |
|  | Group * Gender | 1 | 0.232 | 1.716 | 0.191 |
| Cynical View Human Nature | Group | 1 | 1.016 | 4.42 | 0.036 |
|  | Gender | 1 | 0.328 | 1.425 | 0.233 |
|  | Group * Gender | 1 | 0.088 | 0.383 | 0.536 |
| Positive interpersonal Tactics | Group | 1 | 0.242 | 0.865 | 0.353 |
|  | Gender | 1 | 0.016 | 0.058 | 0.809 |
|  | Group * Gender | 1 | 0.219 | 0.78 | 0.377 |
| Negative interpersonal tactics | Group | 1 | 0.569 | 1.822 | 0.177 |
|  | Gender | 1 | 0.063 | 0.201 | 0.654 |
|  | Group * Gender | 1 | 0.011 | 0.036 | 0.85 |
| Total Machiavellian | Group | 1 | 0.06 | 0.299 | 0.584 |
|  | Gender | 1 | 0.113 | 0.566 | 0.452 |
|  | Group * Gender | 1 | 0.048 | 0.242 | 0.623 |

**Correlation between mental health, Big Five, and Machiavellianism**

Table five presents the Pearson product-moment correlation coefficient analyses. Within international students results showed a significant strong correlation between mental health with neuroticism, agreeableness, and Machiavellianism (P<0.001); and neuroticism with Machiavellianism. Amongst the domestic students, results indicated a significant strong correlation between mental health with neuroticism, extroversion, and Machiavellianism (P<0.001); and neuroticism with Machiavellian.

**Table-5: correlations of mental health, Big Five, Machiavellian among international and Malaysian students**

| Group | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| International | 1-Neuroticism | - | | | | | | |
| | 2-Extroversion | -0.045 | - | | | | | |
| | 3-Openness | .138** | .267** | - | | | | |
| | 4-Agreeableness | -0.015 | -0.017 | 0.084 | - | | | |
| | 5-Conscientiousness | 0.066 | .272** | .221** | .182** | - | | |
| | 6-Mach | .239** | 0.074 | 0.081 | -0.069 | 0.076 | - | |
| | 7-GHQ | .428** | -0.059 | -0.036 | -.166** | -0.001 | .220** | - |
| Malaysian | 1-Neuroticism | - | | | | | | |
| | 2-Extroversion | .181** | - | | | | | |
| | 3-Openness | 0.07 | .243** | - | | | | |
| | 4-Agreeableness | .134** | .149** | .121* | - | | | |
| | 5-Conscientiousness | -0.014 | .475** | .324** | 0.097 | - | | |
| | 6-Mach | .236** | .195** | 0.039 | 0.043 | 0.037 | - | |
| | 7-GHQ | .386** | -.135** | -0.066 | 0.014 | -.099* | .103* | - |
| \*\*Correlation is significant at the 0.01 level (2-tailed). <br> \* Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | |

**Regressions of the Big Five Personality Items and Machiavellian contribution to Mental Health**

In the multiple regression models extroversion, agreeableness, openness, neuroticism, conscientiousness, total Machiavellianism were set as the independent variables and mental health was placed as the dependent variable. The adjusted $R^2$ is higher than 50%; therefore, the regression equation appears to be a useful method for predicting variation in students' metal health.

**Table-6: Multiple Regression Model Summary**

| Group | Model | R | R Square | Adjusted RSquare | SE | RSquare Change | F Change | P Value |
|---|---|---|---|---|---|---|---|---|
| International | 1 | .144a | 0.021 | 0.012 | 0.55196 | 0.021 | 2.392 | 0.068 |
| | 2 | .478b | 0.228 | 0.208 | 0.49434 | 0.208 | 15.022 | 0 |
| Malaysian | 1 | .158a | 0.025 | 0.018 | 0.50535 | 0.025 | 3.381 | 0.018 |
| | 2 | .468c | 0.219 | 0.201 | 0.45573 | 0.194 | 16.153 | 0 |

Results from the ANOVA table of multiple regressions analysis (Table-7) showed that the *P* value is less than 0.05 which mean there is enough evidence to conclude that at least one of the independent variables can be used for predicting mental health.

**Table-7: ANOVA for Multiple Regressions Model**

| Group | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| International | Regression | 24.212 | 9 | 2.69 | 11.009 | 0 |
| | Residual | 81.865 | 335 | 0.244 | | |
| | Total | 106.076 | 344 | | | |
| Malaysian | Regression | 22.719 | 9 | 2.524 | 12.154 | 0 |
| | Residual | 81 | 390 | 0.208 | | |
| | Total | 103.72 | 399 | | | |
| a. Predictors: (Constant), Machiavellian , Conscientiousness, Agreeableness, Openness, Extroversion, Neuroticism <br> b. Dependent Variable: GHQ | | | | | | |

Results of regression coefficients are presented in the following table (Table-8). Based on these results, the personality traits of neuroticism, openness, agreeableness and Machiavellianism were found to significantly influence mental health. The highest regression coefficient was observed for neuroticism (β= 0.371, P value <0.001), which showed that this variable positively effects mental health within international

students. Within the Malaysian group neuroticism and extroversion had a significant influence on mental health with the highest regression coefficient for

neuroticism. These results confirm that neuroticism has the most effect on the mental health of students in both groups.

**Table-8: Regression Coefficients of independent variables on Mental Health**

| Group | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | P Value |
| International | (Constant) | 0.731 | 0.336 | | 2.173 | 0.03 |
| | Age | 0.003 | 0.005 | 0.033 | 0.586 | 0.559 |
| | Gender | 0.079 | 0.056 | 0.07 | 1.412 | 0.159 |
| | Level of Education | -0.011 | 0.077 | -0.008 | -0.145 | 0.885 |
| | Neuroticism | 0.371 | 0.049 | 0.399 | 7.603 | 0 |
| | Extroversion | -0.034 | 0.05 | -0.036 | -0.69 | 0.49 |
| | Openness | -0.157 | 0.087 | -0.093 | -1.819 | 0.07 |
| | Agreeableness | -0.119 | 0.04 | -0.147 | -2.984 | 0.003 |
| | Conscientiousness | 0.016 | 0.044 | 0.019 | 0.371 | 0.711 |
| | Mach | 0.142 | 0.063 | 0.113 | 2.253 | 0.025 |
| Malaysian | (Constant) | 1.32 | 0.295 | | 4.476 | 0 |
| | Age | -0.011 | 0.005 | -0.109 | -2.292 | 0.022 |
| | Gender | 0.029 | 0.047 | 0.028 | 0.614 | 0.54 |
| | Level of Education | 0.033 | 0.06 | 0.027 | 0.563 | 0.574 |
| | Neuroticism | 0.441 | 0.05 | 0.419 | 8.779 | 0 |
| | Extroversion | -0.282 | 0.065 | -0.23 | -4.328 | 0 |
| | Openness | -0.074 | 0.067 | -0.053 | -1.11 | 0.268 |
| | Agreeableness | 0.023 | 0.044 | 0.024 | 0.518 | 0.605 |
| | Conscientiousness | 0.035 | 0.052 | 0.035 | 0.666 | 0.506 |
| | Mach | 0.034 | 0.053 | 0.03 | 0.64 | 0.522 |

# DISCUSSION

The purpose of this study was to investigate the relationships between Machiavellianism and the Big Five personality traits with the mental health amongst domestic and international university students in Malaysia. Analysis of the data revealed that there was no significant difference between Malaysian and international students with regards to overall mental health and its subscales (somatization, depression, anxiety and social dysfunction), as well as no significant difference between these two groups for total Machiavellianism and interpersonal tactics.

With regards to the gender analysis, the outcome of the two-way ANOVA showed that neuroticism, agreeableness, and overall mental health and its subscale were significantly different between males and females. With this finding, females indicated having higher levels of neuroticism and agreeableness compared to males. They also indicated having lower feelings of overall mental health. A strong correlation was found between mental health, neuroticism, and Machiavellianism in both groups. According to regression analysis, neuroticism possessed the highest effect on student mental health in both groups.

While the analysis examining the relationship between personality and overall mental health did not reveal any significant difference between the Malaysian and international students, results did indicate a strong correlation between overall mental health and

neuroticism. For the domestic students, neuroticism was linked with extroversion and for the international students this neuroticism was linked with agreeableness.

The analysis for relating mental health with the Machiavellian personality only examined differences between the domestic and international students, and did not explore gender differences. Amongst both the domestic and international students, results showed that there is a significant strong correlation between one's mental health's with Machiavellianism in the sense that those who indicated a lower level of mental health were more prone to Machiavellian tendencies that those respondents who indicated a higher level of mental health.

In linking Machiavellianism with the Big Five personality traits, the results of this study indicated a strong correlation between neuroticism and Machiavellianism. This result was consistent for both domestic and international students.

# CONCLUSION

The results presented in this paper show that a high score of neuroticism as well as Machiavellian personality trait provide a strong prediction for the development of mental health problems. Neuroticism held the highest effect on students' mental health in both groups. There was a positive correlation between Machiavellianism and anxiety in both genders.

Therefore, high Machiavellianism could be associated with moderate anxiety. The traits of neuroticism, agreeableness, as well as mental health, were considerably different between males and females with females showing higher levels of neuroticism and agreeableness and lower levels of mental health compared to men.

There are some limitations with this research that need to be taken into account. First and fore most this research was a qualitative design that merely examined the links between the overall mental health, the Big Five personality traits and Machiavellianism in male and female domestic and international students at one university in Malaysia. Therefore, conclusions cannot be drawn about the relationship between mental health symptoms and personality dimensions. It is, therefore, recommended that longitudinal and prospective studies be carried out to investigate more causes regarding relationship links between personality and mental health. Future research should also consider employing a multi-method assessment in order to fully assess the variables. It should also be noted that the convenience sampling method was employed rather than the random sampling method.

Another matter that must be taken into consideration here is the language of which the questionnaire was provided in. The questionnaire was provided in English; however, the participants who partook in this study were both domestic and international students at a university in Malaysia. Therefore, English may not be their primary language. As well, the fact that data was collected through a self-report questionnaire means that respondents may have chosen to select answers based on what they feel makes them more socially desirable. The fact that the questionnaires were anonymous, and no personal identifying information was collected, hopefully means that respondents were relaxed enough to answer the items in a more truthful manner.

Despite the limitations, the findings of this study are useful in helping to draw an understanding on the relationship between personality and student's mental health. As students undertaking university programs are at an increased risk of stress, which can adversely affect their mental health, it is important for mental health researchers and practitioners to understand in what ways one's personality can impact their overall mental health and how this might differ between genders and domestic students vs. international students.

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