

UNIVERSITI TEKNOLOGI MARA

***ANKK1, BDNF, COMT*
POLYMORPHISMS AND
PERSONALITY TRAITS RELATED
TO ACADEMIC PERFORMANCE
AMONG HEALTH SCIENCES
STUDENTS**

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

An academic performance demonstrated to be affected by personality traits and genetic polymorphisms based on behavioural genetic research. This project was conducted to determine the correlation between personality traits, genetic polymorphisms, and academic performance among students from the Faculty of Health Sciences at UiTM Puncak Alam. A total of 221 subjects were recruited and divided into groups of low, moderate, and high GPA and CGPA. There were 34 (15.4%), 151 (68.3%) and 36 (16.3%) subjects categorized as low, moderate, and high GPA, respectively. Meanwhile, there were 35 (15.8%), 153 (69.2%) and 33 (14.9%) subjects categorized as low, moderate, and high CGPA, respectively. One-way ANOVA showed no significant differences ($p > 0.05$) in personality traits among low, moderate, and high GPA and CGPA groups. The genotypes of *ANKK1* (rs1800497), *BDNF* (rs6365), and *COMT* (rs4680) polymorphisms were obtained using the AS-PCR technique. The genotype frequencies of the rs1800497, rs6265, and rs4680 were within the Hardy-Weinberg equilibrium. Furthermore, the correlation analysis was determined between genetic polymorphisms of rs1800497, rs6265, rs4680, personality traits, and academic performance. Results from Pearson's correlation revealed that only conscientiousness was positively ($r = 0.141$) and significantly ($p < 0.05$) correlated with CGPA, whereas conscientiousness was not significantly correlated with GPA ($p > 0.05$). Besides, extraversion, agreeableness, neuroticism, openness to experience, novelty seeking, harm avoidance, and reward dependence were not significantly correlated with GPA and CGPA ($p > 0.05$). Moreover, there was a significant difference between rs4680 and academic performance ($p < 0.05$), whereby homozygous Met carriers showed a significantly higher GPA and CGPA than other *COMT* genotype groups. However, there were no significant differences ($p > 0.05$) in academic performance between *ANKK1* and *BDNF* genotype groups. Finally, the one-way ANOVA result demonstrated no significant differences ($p > 0.05$) in all personality traits among *ANKK1*, *BDNF* and *COMT* genotype groups. Essentially, subjects who harboured the homozygous Met allele for rs4680 and obtained a higher conscientiousness score performed better academically.

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