Understanding the Personality Traits of Medical Students Using the Five Factor Model

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Abstract

Performance of both medical students and doctors is influenced by certain personality characteristics. It is therefore important to choose students with the right personality besides excellent performance academically for medical schools. The main objective of this study was therefore to ascertain the personality of students studying medicine based on gender and year of study. Participants for this study were 1029 medical students in seven universities in Peninsular Malaysia. They were selected by stratified random sampling. NEO personality inventory-Revised was used to measure personality. Results showed that the medical students differ significantly in openness, agreeableness and conscientiousness based on gender. Female students scored higher on conscientiousness than male students. Apart from that the fifth year students scored highest on conscientiousness and lowest on neuroticism compared to those in the lower year of study. The implication of this study indicated that places in medical study program should be given to students with the right personality besides having excellent academic results.

Keywords: personality traits, neuroticism, extraversion, openness, agreeableness, conscientiousness, medical students

1. Introduction

Issues pertaining to performance among medical doctors such as professional misconduct should not be taken lightly because they affect the well being of their patients. Studies had shown that those issues are related to both unprofessional behavior and poor academic achievement while in medical schools (Doherty and Nugent, 2011). Performance of both medical students and doctors is influenced by certain personality characteristics and studies also showed significant associations between certain personality profiles and poor performance and stress (Doherty and Nugent, 2011; Leivens et al., 2002; Hoschl and Kozeny, 1997). Gough (2004) suggests that five personality traits and intellectual qualities that are required being professional physicians such as competence, character, common sense, creativity and courage. As such personality besides academic performance is an important factor in the selection of students into medical training.

The ability to solve problem, critical thinking, communication skill, integrity, empathy and language skill are also important (Marley and Carman, 1999). Research by Chibnall et al. (2009) showed that extraversion and openness influence self development, leadership and problem solving among medical students. Results of a study by Mirsaleh et al. (2010) showed that there was positive correlation between openness and conscientiousness and negative correlation between neuroticism and satisfaction with clinical training.

A positive relationship between personality characteristics and mental health, coping and academic success of medical students was also found (Borges and Savickas, 2002). In terms of adjustment to college life among

medical students, Klasner and Pistole (2003) discovered the influence of personality and social support. It is also important for students to have a stable personality during medical studies (Hughes, 2002).

Generally, the five-factor personality model is applicable in the assessment of personality for jobs (Ferguson et al., 1994). High scores in conscientiousness and low scores in neuroticism are associated with success in training (Barrick and Mount, 1991; Salgado, 1997). In terms of success in medical school, Ferguson et al. (2000) and Lievens et al. (2002) found that conscientiousness is a significant predictor. Busato et al. (2000) pointed out that conscientiousness had been consistently associated with academic performance. Apart from conscientiousness, agreeableness also had been associated with students' grades (Chowdhry and Amin, 2006).

Conscientiousness and openness to experience are also related (Lievens et al., 2002). High scores in conscientiousness and low scores in neuroticism are related to success in training and high scores in extraversion are related to interpersonal skill (Salgado, 1997; Salgado and Rumbo, 1997). Neuroticism has been found to be related with university students. For example, Premuzic and Furnham (2003) have found a negative correlation between neuroticism and academic achievement

Openness to experience is also related to university student. Openness to experience has been found to be significantly correlated with academic achievement (Farsides and Woodfield, 2003; Philips et al., 2003). Further, poor personality traits and negative coping styles appear to play a role in the physical and psychological health of medical students (Wang and Miao, 2009).

It is therefore quite obvious that certain personality characteristics are important for performance, success, adjustment and physical as well as psychological health of medical students. As such choosing students with the right personality is important in ensuring their suitability for medical schools since they are future doctors. The objective of this study is to ascertain the personality traits of medical students studying in seven universities in Malaysia.

2. Methods

This is a cross sectional study using a set of questionnaire. Participants for this research were 1,029 medical students from seven universities in peninsular Malaysia who were selected by stratified random sampling procedure. They were 271 first year, 219 second year, 228 third year, 177 fourth year and 134 fifth year students.

NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992) containing 240 items was the instrument used to measure neuroticism, extraversion, openness, agreeableness and conscientiousness. Each factor contains a total of 48 items (both negative and positive items combined). Each item is rated on a five-point Likert scale from 1=disagree strongly to 5=agree strongly. The reliability of NEO-PI-R for the Malay version was: neuroticism = 0.885; extraversion = 0.888; openness = 0.797; agreeableness = 0.864; and conscientiousness = 0.911. The inventory was back translated into the Malay language using Brislin et al.'s (2004) back translation technique.

The research instrument was distributed only after written consents were obtained from all seven universities. The data were analyzed using t-test and one-way ANOVA.

3. Results and Discussion

T-test was used to find out the difference in personality based on gender. The results showed a significant difference in openness between male and female students, t(1027) = -2.03, p < 0.05. The mean value for female students 151.69 was significantly higher than the male students 150.29. Female students also scored significantly higher on agreeableness with the mean value of 163.73 compared to 159.99 of that of the male students, t(1027) = -4.34, p < 0.001. Female students also obtained significantly higher scores on conscientiousness with the mean of 163.80 compared to male students 160.76, t(1027) = -2.80, p < 0.05 which showed that female students were more diligent and had a better ability in controlling their impulse.

The results of the t test showed no significant difference in neuroticism (1027) = -1.70, p > 0.05, and extraversion t(1027) = -0.28, p > 0.05 between the two groups of students. Table 1 below shows the results of the t-test analysis for the five traits of personality. (refer to Table 1).

Domain	Gender	Ν	Mean	SD	df	t
Neuroticism	Male	403	145.71	17.28	1027	-1.70
	Female	626	147.51	16.20		
Extraversion	Male	403	154.49	14.54	1027	28
	Female	626	154.76	15.18		
Openness	Male	403	150.29	10.44	1027	-2.03*
	Female	626	151.69	11.03		
Agreeableness	Male	403	159.99		1027	-4.34***
	Female	626	163.73	14.16		
Conscientiousness	Male	403	160.76	17.42	1027	-2.80**
	Female	626	163.80	16.69		

Table 1. T-test analysis for neuroticism, extraversion, openness, agreeableness and conscientiousness based on gender

* p < 0.5, ** p < 0.01, *** p < 0.001

The difference in personality based on year of study was analyzed using one-way ANOVA. Results of one-way ANOVA analysis showed that there were significant differences in neuroticism [F(4,1024) = 4.57, p<0.001] and conscientiousness [F(4,1024) = 2.68, p < 0.05] based on year of study. However, there was no significant difference in extraversion [F(4,1024) = 1.20, p > 0.05], openness [F(4,1024) = 1.23, p > 0.05] and agreeableness [F(4,1024) = 1.02, p > 0.01] based on year of study. The results are shown in Table 2. (see Table 2). In addition, Tukey Post Hoc analysis was performed and the results are shown in Table 3. (see Table 3).

Table 2. Results of one-way ANOVA on differences of personality based on year of study

Personality	Source	SS	df	MS	F
Neuroticism	Between Groups	4993.75	4	1248.44	4.57**
	Within Groups	279954.60	1024	273.393	
Extraversion	Between Groups	1066.00	4	266.50	1.20
	Within Groups	22799	1024	222.64	
Openness	Between Groups	574.81	4	143.70	1.23
	Within Groups	119713.59	1024	116.91	
Agreeableness	Between Groups	708.70	4	177.18	1.02
-	Within Groups	178248.46	1024	174.07	
Conscientiousness	Between Groups	3093.18	4	773.296	2.68*
	Within Groups	295197.98	1024	288.279	

* p<0.05, **p<0.01

Table 3. Tukey Post Hoc analysis for neuroticism and conscientiousness based on year of study

Personality	Year of Study (Mean)	Year of Study (Mean)	Difference in Mean
Neuroticism	Year One	Year Five	
	147.78	141.96	5.82*
	Year Two	Year Five	
	149.27	141.96	7.31*
	Year Three	Year Five	
	146.94	141.96	4.98*
Conscientiousness	Year Four	Year Two	
	164.27	159.57	4.71*

* p < 0.05

Table 3 shows results of Tukey Post Hoc analysis which shows a significant difference in neuroticism of year two students with the mean of 149.27 compared to students in year five whose mean was 141.96. This means that the second year students had a higher inclination to experience feeling scared, angry, sad, shy, and guilty, hate towards others compared to students in the fifth year. The results also shows that the means for neuroticism of the first year students (147.78) and the third year students' (146.94) was also significantly higher than the fifth year students'.

As for conscientiousness, the results of the Tukey Post Hoc analysis shows that the fourth year students' mean of 164.27 was significantly higher than the second year students with the mean 159.57. This shows that the fourth

year students have a better ability to control their impulses, efficient in planning and in managing their tasks compared to the second year students. No significant difference was found in the means for extraversion, openness and agreeableness among the medical students based on year of study.

Results of the study showed significant difference in openness, agreeableness and conscientiousness based on gender. Female students had higher mean score on openness which means they were more open than the male students which indicated that female students were more imaginative, sensitive towards the esthetics, pay more attention to feelings, like varieties, intellectual, and were not dependent on other people's assessment compared to the male students (Costa and McCrae, 1992). The social and cultural factors also had an influence on female students in their personality development. The society and culture expect women to be feminine; therefore it is no wonder that female medical students in this study had high scores on agreeableness and conscientiousness.

Agreeableness trait has an interpersonal dimension which means that the female students were more sympathetic towards others, like to help others and believed that one day others would also help them in return (Costa and McCrae, 1992). Female students compared to male students had a higher tendency to think of other people's needs and welfare more than their own, being good, careful, ever willing to help, flexible, compromising, not prejudice and sympathetic (Costa and McCrae, 1992).

Female students had higher scores on conscientiousness compared to male students which indicate that female students were more hardworking than the male students. They were also comparatively better at making plans, manage and carry out tasks. Individuals who are high on conscientiousness are determined, firm and courageous in decision making. High score in conscientiousness is also related to high academic and career achievement. A study by Lievens et al. (2002) revealed that conscientiousness is a reliable predictor of academic success.

Being students in medical training can be very stressful (Saipanish, 2003; Radcliffe and Lester, 2003). The characteristics in conscientiousness which emphasize on quality and achievement are necessary in the medical field because it is a very stressful and demanding field. Diligence, determination and efficient are important characteristics in order to perform well as medical students and as medical doctors. Also research had found that medical students with high conscientiousness would have a low depression (Nasir et al., 2011) which means that those with high scores on conscientiousness are healthier mentally.

It is very interesting to note that results of this study showed that there were significant differences in neuroticism and conscientiousness among the medical students based on their year of study. The fifth year students scored lowest on neuroticism compared to the first, second, third and fourth year students. Neuroticism is linked to less effective coping styles (Parker, 1986) and had direct positive effect on immature coping style (Wang and Miao, 2009). In this regard, low score in neuroticism implies that the fifth year students were more stable emotionally and they were also less impulsive compared to the other four groups of students apart from having mature coping style. This is a very good development since medical doctors need to not only deal with patients but also their families and the general public. It is very important for the doctors to always be very careful, patient, able to control their emotions especially when faced with critical and crisis situations. They also need to be calm and have strong coping abilities.

Students in the fifth year of study also scored higher on conscientiousness compared to those in the fourth, third, second and first years. This shows that the training that they have been through was successful in making them more discipline, besides being efficient in making plans, management and in doing their tasks. Medical training had also made them more prepared to deal with the challenges and the demands of being in the medical profession.

4. Conclusion

This study had shown very interesting results indicating that based on gender the medical students differ significantly in openness, agreeableness and conscientiousness. Female students scored higher on conscientiousness than male students. Apart from that the fifth year students scored highest on conscientiousness and lowest on neuroticism compared to those in the lower year of study. This also shows that medical training had enabled the students to be better prepared to be doctors. This study has an implication on the selection of medical students. It is pertinent that scholarships and places in medical schools be given to students who not only excel academically but also who have the right personality for medical schools and as future doctors.

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