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Which Personality Traits Have Favourable Impact on Psychological Health During Stressful Condition?

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ABSTRACT

Personality researchers have proposed five dimensions of personality that are extroversion, conscientiousness, agreeableness, neuroticism, and openness. The five-factor model offers a theoretical basis for medical educators to understand the impact of personality traits on medical students' psychological health during stressful medical training. This study attempted to investigate on which personality traits have favour impact on psychological health of medical students during a stressful period – the final examination of first year. A cross-sectional study was conducted on medical students in a public medical school. Personality traits were measured by USM Personality Inventory and psychological health parameters were measured by 21-item Depression Anxiety Stress Scale. Pearson correlation test was performed by SPSS to determine correlation between personality trait and psychological health parameters. A total of 174 medical students participated in this study. Extroversion ($r_{\text{stress}} = -0.44$, $r_{\text{anxiety}} = -0.41$, $r_{\text{depression}} = -0.56$), conscientiousness ($r_{\text{stress}} = -0.38$, $r_{\text{anxiety}} = -0.36$, $r_{\text{depression}} = -0.51$), agreeableness ($r_{\text{stress}} = -0.28$, $r_{\text{anxiety}} = -0.25$, $r_{\text{depression}} = -0.47$) and openness ($r_{\text{stress}} = -0.34$, $r_{\text{anxiety}} = -0.31$, $r_{\text{depression}} = -0.47$) negatively correlated with stress, anxiety and depression. Neuroticism ($r_{\text{stress}} = 0.53$, $r_{\text{anxiety}} = 0.47$, $r_{\text{depression}} = 0.60$) positively correlated with stress, anxiety and depression. Extroversion, conscientiousness, agreeableness and openness demonstrated favourable impact and neuroticism demonstrated unfavourable impact on stress, anxiety and depression of the medical students during a stressful period.

Keywords: *Personality traits, Psychological health, Medical students*

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INTRODUCTION

Personality refers to constant patterns of emotional, mental, social and behaviour characteristics that differentiate one person to other person and the core characteristics that remain constant for life are called as traits (1). Five dimensions of personality are proposed by personality researchers that

include extroversion, conscientiousness, agreeableness, neuroticism, and openness (2–4). The five-factor structure has been considered as a scientifically useful structure in the field (5). Extroversion is characterised by enjoying being with people, energetic, talkativeness, excitability, enthusiasm, high amount of emotional

expressiveness, and assertiveness (6–8). Conscientiousness is featured by high levels of thoughtfulness, good impulse control and goal-directed behaviour, mindful of details, and being organised (6–8). Agreeableness refers to characteristics such as trustworthiness, generosity, helpfulness, kindness, cooperativeness, and sympathy (6–8). Neuroticism is commonly featured by distress, emotional instability, depression, irritability, anxiety, poor coping ability, moodiness, and sadness (6–8). Openness is attributed by broad range of interest, creativity, imaginative, insightful, artistic, and down-to-earth (6–8). Personality researchers believe that personality traits are long-term predispositions for behaviour, in which they tend to be strongly influenced by our genetic makeup, perhaps as high as 80% (1). They are thus valid predictors of individual behaviour patterns and styles therefore can be good markers for determining types of job that suit individual differently. Even more, the personality traits appear to be applicable across cultures (3). It is worth mentioning that the five-factor model offers a theoretical basis for medical educators to understand the effects of personality traits on important outcomes during medical training (9), especially during the most stressful conditions such as examinations (10–13).

Previous studies have shown that the personality traits predict performance of individual in various non-medical occupation settings in terms of mental health, cognitive ability, job performance, wellbeing, personal qualities and career success (14–25). Likewise, in the medical setting, the personality traits have been associated with several important areas that include approach to work, mental health, career success, learning approach and academic performance (16, 26–35). In fact, there were some evidence supporting association of personality traits with career choices in medicine (36). It is worthy to mention that the personality traits particularly conscientiousness are found to be the best predictors of job

performance and trainability (37, 38). This study attempted to investigate on which personality traits have favour impact on psychological health of medical students during the most stressful period, which was during the final examination of first year (10, 11).

METHODS

A cross-sectional study was conducted on the first year medical students in a public medical school in Malaysia.

Data collection was done through guided self-administered questionnaires. Verbal and signed consents were obtained from the study subjects. Instructions and information about the study were given to them. They were clearly informed that the results of this study will not have any influence on their medical study. USM Personality Inventory (USMaP-i) and 21-item Depression Anxiety Stress Scale (DASS-21) were distributed to them immediately after the final examination of first year over. It took less than 10 minutes to completely fill in the questionnaires. The questionnaires were returned immediately after they completely filled in.

Demographic profile pertaining to sex, race, entry qualification (Foundation, High School Certificate or Other), and age were obtained from the study subjects via a form.

The USMaP-i measures personality traits of the study subjects. It has five dimensions based on the Big-Five personality model which were Extroversion, Conscientiousness, Agreeableness, Neuroticism, and Openness (7). Its validity and reliability among students was established (8, 39, 40). The Cronbach's alpha value for each dimension ranged from 0.634 to 0.831 (8, 39, 40).

The DASS-21 measures depression, anxiety and stress levels of the study subjects (41–44). Its validity and reliability among student samples was well established (44). The reliability coefficient of depression, anxiety and stress scales range from 0.81

to 0.97, and the three subscales showed discriminative ability to differentiate between psychiatric patient and non-psychiatric patients (44). Based on the DASS manual for student samples (41–43); (a) Stress level is measured by the stress subscale of the DASS-21; (b) Anxiety level is measured by the anxiety subscale of the DASS-21; and (c) Depression level is measured by the depression subscale of the DASS-21. The DASS-21 was used in this study because it requires less time to administer, it is a well-validated and reliable instrument. Furthermore, studies showed it is superior and more consistent compared to the full-scale version (44).

Data were analysed by the Statistical Package for Social Sciences (SPSS) Version 23. The Pearson correlation test was applied to measure correlation between personality trait scores with stress, anxiety, and depression levels. In general, the correlation coefficient lesser than or equal to 0.20 was considered as weak correlation, more than 0.2 but lesser than 0.8 was considered as moderate correlation, and equal to or more than 0.8 was considered as strong correlation (45).

RESULTS

Table 1 summarised the participant profiles, majority of them were female, non-Malay, and came from foundation stream.

Extroversion, conscientiousness, agreeableness, and openness negatively correlated with stress, anxiety and depression (Table 2). High level of the personality will result in reduction of stress, anxiety and depression level. The results indicated that the personality traits demonstrated favourable impacts on stress, anxiety, and depression.

Table 1: Participant profiles (N = 174)

Variable	n (%)
Sex	
Male	57 (32.8)
Female	117 (67.2)
Race	
Malay	81 (46.6)
Non-Malay	93 (53.4)
Entry qualification	
Foundation	127 (73.0)
High School Certificate	31 (17.8)
Others	16 (9.2)
Age, mean (SD)	19.27 (0.89)

Table 2: Correlation between personality traits and psychological parameters (N = 174)

Variable	Correlation coefficient*		
	Stress	Anxiety	Depression
Extroversion	-0.437**	-0.408**	-0.555**
Conscientiousness	-0.384**	-0.357**	-0.514**
Agreeableness	-0.279**	-0.251**	-0.472**
Neuroticism	0.527**	0.446**	0.599**
Openness	-0.337**	-0.308**	-0.470**

*Pearson correlation test was performed-lesser than or equal to 0.20 was considered as weak correlation, more than 0.2 but lesser than 0.8 was considered as moderate correlation, and equal to or more than 0.8 was considered as strong correlation (45)

**p-value less than 0.001

Conversely, neuroticism positively correlated with stress, anxiety and depression (Table 2). High level of the personality will result in increment of stress, anxiety and depression level. The results indicated that the personality trait demonstrated unfavourable impacts on stress, anxiety and depression.

DISCUSSION

This study found extroversion, conscientiousness, agreeableness, and openness had favourable impact and neuroticism had unfavourable impact on stress, anxiety and depression of the medical students during a stressful period. Each of personality traits was discussed in the subsequent paragraphs.

Extraversion is characterised by positive experiences and feelings, and is therefore seen as a positive affect (37). In a study conducted on Malaysian undergraduates, extraversion negatively predicted their mental health status (14). Likewise, another study reported extraversion of medical students measured prior to medical training negatively correlated with their stress and depression level at the end of first year medical training (9). In addition, recent meta-analyses showed extraversion was strongly associated with most components of wellbeing including happiness, positive affect, negative affect, overall affect, life satisfaction, and quality of life (15, 17). These facts aligned with the results of this study.

This study found conscientiousness had a moderate negative correlation with stress, anxiety and depression. A previous study showed that a greater level in conscientiousness would significantly reduce the odds of developing mental disorders (18). In addition, recent meta-analyses found conscientiousness was moderately associated with components of wellbeing including happiness, life satisfaction, positive affects, negative affect, overall affects, and quality of life (15, 17). Conversely, a previous study reported conscientiousness

of medical students measured prior to medical training did not correlate with their stress, anxiety, and depression level at the end of first year medical training (9). This suggested that different measurement occasions of personality traits might give different correlation findings.

There were limited numbers of studies reported favourable relationships between agreeableness and psychological health. Other than this study, two previous studies reported agreeableness was significantly associated with components of wellbeing which are happiness, life satisfaction, positive affects, negative affect, and quality of life (15, 17). In contrast with this study result, a previous study reported agreeableness of medical students measured prior to medical training did not correlate with their stress, anxiety and depression level at the end of first year medical training (9).

This study found high level of openness will result in reduction of stress, anxiety and depression level. This finding is aligned with previous studies that reported openness was significantly related to some components of wellbeing which include happiness, positive affect and quality of life (15, 17). Conversely, openness of medical students measured prior to medical training was not correlated with stress, anxiety, and depression (9).

Neuroticism was reported to have the strongest relationship with mental disorders and psychological distress (9, 14, 18, 46) and indeed there is some evidence showing that it may predict a wide range of physical health disorders even when depression is controlled (46). This is might be due to the predisposition to experience negative feelings towards and having poor coping ability for handling stressful transactions (15, 37), and thus making them less fit for high level jobs that are more complicated and stressful (9, 21, 47). In fact, Lahey reported neuroticism was a negative predictor of quality and longevity of life (46). In addition, recent meta-analyses showed neuroticism were strongly and

negatively correlated with components of wellbeing including happiness, life satisfaction, positive affects and quality of life (15, 17). Even more, a previous study reported neuroticism level of medical students measured prior to medical training was the strongest predictor for stress, anxiety and depression level at the end of first year medical training (9). These facts support the finding of this study.

Several implications of this study could be highlighted. First, this study suggests that prospective medical students with favourable personality traits (high level of extraversion, conscientiousness, agreeableness and openness, and low level of neuroticism) should be given more merits to enter medical training. Second, medical students with favourable personality are more resilience to psychological pressure, and thus might prevent them to develop burnout (48). Lastly, inclusion of personality traits as criteria of student admission can be justified as evident by this study.

Despite the favourable results, this study had several limitations. First, study sample was merely from one medical school and only a cohort of medical student. Future study should sample study subjects from multi-centre and different cohorts of medical student. Second, this is a cross-sectional study that only assess look at the snapshot pattern of the relationships between personality traits and psychological health. Future study should conduct a longitudinal study to verify the results. Lastly, this study used non-probability sampling method that might compromise the generalisability of the results. Future study should consider probability sampling method such as simple random sampling to improve the generalisability of results. Considering all these limitations, results of this study should be interpreted within its context and any attempts to generalise the results should be done cautiously.

CONCLUSION

Extroversion, conscientiousness, agreeableness, and openness demonstrated favourable impact and neuroticism demonstrated unfavourable impact on stress, anxiety and depression of the medical students during a stressful period.

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